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ABSTRACT

These proceedings consist of 26 papers delivered at a conference devoted to research on the health and development of women. The focus of the conference was on women's health concerns, female development from infancy to womanhood, women and work, reproduction and giving birth, women and the family, sexuality, and the middle and later years. Included among the papers presented are the following: "The Natural Capacity for Health in Women," by Estelle R. Ramey; "Women's Social Roles and Health," by Lois M. Verbrugge; "Psychological Development of Female Children and Adolescents," by Jeanne H. Block; "Socialization of Black Female Children," by Pamela T. Reid; "On the Distinction between Sex-Role Attitudes and Sex-Linked Traits and Their Stability," by Robert L. Helmreich; "Women in the Labor Force," by Carmen R. Maymi; "Working Women and Child Care," by Harriet B. Presser; "Pregnancy Outcome, Neonatal Mortality," by Joan E. Hodgman; "The Women's Movement as Catalyst for Change in Obstetrical Care Service," by Carolyn Ferris; "Social Change and Its Effect on Parents and Children: Limitations to Knowledge," by Lois W. Hoffman; "Research on Adult Female Sexuality: The Next Decade," by Pepper Schwartz; and "Implications for the Middle and Later Years," by Matilda White Riley. (MN)

WOMEN: A DEVELOPMENTAL PERSPECTIVE

Proceedings of a research conference
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Institute on Aging
November 20-21, 1980
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Foreword

We live in a world of rapid social change and much of this change affects women to a considerable degree. High rates of divorce and remarriage, advances in contraceptive technology, and increased numbers of women entering the workforce present implications for the woman, the family, and for the whole of society.

This volume, the proceedings of a conference, Women: A Developmental Perspective, focuses on women's issues and research concerns. The conference was held at the National Institutes of Health in the fall of 1980, and was sponsored by the National Institute of Child Health and Human Development (NICHD), the National Institute on Aging (NIA), and the National Institute of Mental Health (NIMH).

Research on the health and development of women has been important to the NICHD since its inception in 1963. The NIMH and the NIA also have had long-standing interest in research issues concerning women.

In sponsoring this conference, these Institutes joined forces to explore, along a developmental continuum, a broad spectrum of research questions relating to women--from events occurring prior to birth, through earliest growth and development, into adolescence and maturity.

The purpose of the conference was to examine the research that has been done in various areas relevant to women, and to identify areas in which research is needed. It is the first such conference focusing on research concerns of women to be held under the auspices of the NIH.

The conferees where drawn from a broad range of disciplines within the biomedical, behavioral, and social sciences. Their presentations reflect multiple approaches and relate to women diverse in age, race, and socioeconomic status.

The conference provided a forum for the meaningful discussion of women's issues and research concerns. And now, with the publication of these proceedings, that discussion can be shared to stimulate thinking, provoke debate, ard challenge the researcher.

Norman Kretchmer

Norman Kretchmer, M.D., Ph.D.
Director
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and Human Development

Preface

It is a pleasure to present this publication to the research community and to all interested readers.

There are many difficulties inherent in a conference like this one, which attempts to cover such an ambitious interdisciplinary range. I think we have achieved several of our aims: to produce an overview of current knowledge, to uncover areas for future research, and to raise our awareness of some extremely important policy issues.

My thanks for this exciting achievement go to all the contributors and to the staff members of the National Institute of Child Health and Human Development who helped in various ways to make it possible.

Dr. Jeanne Block, who contributed a paper on "The Psychological Development of Female Children and Adolescents," died on December 4, 1981. We salute her memory and her courage in participating in the conference despite her illness.

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SEXUALITY

MIDDLE AND LATER YEARS

Women's Health Concerns

The Natural Capacity for Health in Women

Estelle R. Ramey, Ph.D.

When William Shakespeare wrote: "Frailty, thy name is woman," he didn't know about actuarial tables or the genetic advantages of the XX configuration. Like the Apostle Paul before him, Shakespeare was merely affirming accepted wisdom that women were the "weaker sex." It needed only Freud's proclamation that "anatomy is destiny" to give scientific blessing to the dogma that women were puny, hysterical propagators of the species. The essential counterpart to this is that men are the stronger sex--muscular, unemotional, and uncomplaining.

This mutually destructive pastiche of religious, social, and medical nonsense still acts to keep men, as well as women, from realizing their full potential for physical and mental health. Even in the 18th century it was observed that women tended to outlive men, yet very few efforts have been made by scientists since then to identify the biological advantages of females or the specific disadvantages that accrue to maleness. The obvious utility of such knowledge in extending male life expectancy has been virtually ignored by the male community of life scientists.

When the average American is asked to explain the noticeable imbalance between old men and old women in our society, the usual answer is that men work harder than women. About 8 years ago when my colleague Peter Ramwell and I began to investigate the sex differences underlying the development of certain cardiovascular lesions, we found a striking paucity of research data in the literature.

This volume will deal with the health problems of women, but it is impossible to understand the etiology, history, and prognosis of these problems without understanding the attitudes of physicians to what constitutes a healthy woman or a healthy man. It is well established that women visit health care practitioners more frequently than men (1). They do this not only for their own health problems, but also traditionally as the responsible parent in matters of child health. There are probably two major consequences of these frequent contacts between women and doctors:

a. Familiarity does indeed breed contempt, and some doctors evidently have viewed complaints as less serious than male com-

plaints. The spin-off from this may be that psychotropic drugs are used far more frequently in the treatment of women.

Of all the prescriptions for psychotropic drugs in 1970, over 85 percent of the amphetamines, 68 percent of the tranquilizers and 60 percent of the barbiturates were prescribed for women (2). The efficacy of such medications in treating the social origins of the complaints that bring these women to physicians is questionable, and the safety of such medications should be of concern.

b. It may be, however, that women because of their habit of seeking help from the medical community, also benefit from earlier diagnosis of potentially life-threatening diseases. Men are taught that weakness of any kind is emasculating and are more reluctant to report disturbing symptoms. Men get less diazepam (Valium) but they also get later evaluation of serious ailments. It is clear that this distorted perception of female weakness and male strength damages the health of both sexes.

BIOLOGIC VIABILITY

As a first step in establishing the current status of women's health and health care in this country, we ought to look at the fundamental biologic viability with which women are endowed and then at the effect that the underestimation of that viability has had on women's physical and mental health.

In the human species the only fundamental advantage that males have is at conception. The estimates are that about 130-150 males are conceived for every 100 females (3), but the male fetal wastage is so much higher than the female that at birth the ratio is down to about 104-107 males to 100 females (4). Deaths in the first month of postnatal life are about 15/1000 for boys and about 11/1000 for girls (5). Furthermore of about 190 neonatal abnormalities observed, close to three fourths occurred mainly in males, while 25 percent were found chiefly in females (6). The explanation for these striking sex differences in early morbidity and mortality probably relates to the lack of gene redundancy on the Y chromosome which results in a greater number of expressed recessive traits on the X chromosome. Further, there may be greater immunological sensitization of the mother by male fetuses than by females (7). The net effect is not only to restrict the numbers of boys born, but also to increase the chances of health problems in the male at every stage of life. For example, the female has greater immunological responsiveness throughout the life span. This seems to be related in part to the number of X chromosomes present in each cell because the levels of immunoglobulin are even higher in those females with the XXX configuration (8). In addition, estrogens after puberty increase immunoresponsiveness (9).

In the years between birth and puberty the disability and death rates for boys continue to be higher than for girls because social conditioning adds to biology to encourage more risky behavior in boys and more protected behavior in girls. The accident rate for boys and men remains higher throughout the lifespan. At puberty, the secretion of gonadal hormones introduces a second major biologic advantage in the female. In our laboratory we have been investigating the effects of testosterone, estrogens, and progestins on cardiovascular responses in animal species (10,11,12,13,14). The background to our research is as follows:

It is known that women in every age group have a significantly lower incidence than men of fatal arteriosclerotic heart disease,

myocardial infarcts, transient coronary ischemia, and bronchopulmonary disease.

b. The prostaglandin system has been indicated as a major factor in many processes which regulate blood clotting, smooth muscle contraction, and myocardial contractility. Thromboxane acts to increase both platelet aggregability and myocardial contractility, while prostacyclin decreases these responses.

c. Since many physiological sex differences are mediated in large part by the gonadal steroids, the question we are trying to answer is "What is the relationship of the sex hormones to prostaglandin metabolism in the genesis of cardiovascular disease?"

We studied the effect of the prostaglandin metabolite, arachidonic acid, in vivo and in vitro on platelet aggregation and vascular reactivity in males and females, castrates and intact. In addition, we administered exogenous gonadal steroids to all these animal models and determined the effect on these cardiovascular parameters. In brief, we found that testosterone markedly increases arachidonate-induced platelet aggregability and thrombus formation with a concomitant increase in mortality rates. Testosterone also sensitizes blood vessel strips to the constrictor effects of the endoperoxides released during stress. The estrogens and progestins reduce these damaging responses in males but have little effect in females. Testosterone, however, increases mortality rates after arachidonate infusion in both males and females. These data together with reports that testosterone increases the LDL/HDL ratio (15) by acting to increase hepatic production of LDL by the liver, provide further insight into the high vulnerability of men to ischemic heart disease and its relationship to the gonadal hormones.

Even in circumstances of similar elevations in blood pressure, blood cholesterol and body lipids, females have a lower mortality rate than males. The importance of such data is that they present a possible avenue for the pharmacological intervention at different steps in the prostaglandin cascade so as to produce a more beneficial ratio of prostacyclin to thromboxane and thus reduce the risk of ischemic heart disease and stroke. An initial step has been taken with the use of aspirin in stroke victims (16). Aspirin, however, at the doses used appears to be effective only in men. More work is needed to find better prophylactic agents for both men and women. But first it must be recognized that the male hormone, for all its admirable effects on muscle mass and reproductive vigor, may also exact a toll from the cardiovascular system. It points up the possible dangers in giving female athletes androgenic steroids to increase muscle mass and speed. Giving exogenous androgens to males may place them at even greater risk.

The specific biochemical differences between normal women and men have not been adequately characterized. In the rather rare instances where such differences have been reported, a curious value judgment is often made. For example, depression is a mental disorder which appears to be more common in women than in men. It has been suggested that monoamine oxidase activity (MAO) is in some way related to this tension and depression (17). It has also been found that MAO activity changes during the menstrual cycle and is highest premenstrually. One conclusion from these coincident events has been that women have a higher incidence of depression because they develop high levels of MAO in a cyclic fashion. Further analysis of other data reveals that for most of the rual cycle, MAO activity is lower than that found in normal males,

and that at the peak of MAO activity premenstrually the MAO activity is equal to the level found chronically in males (18). One can only conclude from such data that women should have less depression than men because most of the time their levels of MAO are below the ambient male levels. Obviously, depression has its etiology in a much more complex matrix of biological and social factors.

This is reminiscent of the frequent reports that women in the premenstrual or menstrual phase of the cycle have an increased incidence of suicides, violent crimes, and accidents (19). What is not mentioned in such reports is that men consistently have much higher rates of suicides, violent crimes, and accidents than women ever have. The study of women's biology can thus be used as a weapon against women. In fact, the health of the American woman is better than it has ever been. The life expectancy of a woman born in 1977 is 77.1 years, an average of 7.8 years longer than men (20). Nevertheless, given the biologic strengths of women, we are a long way from achieving optimum conditions for the expression of those strengths. More research is needed in every aspect of the changing health needs of the young, middle-aged, and old women.

The greatest self-imposed health hazard for women in the coming decade is sharply defined. Smoking stands alone as the major controllable threat to health (21). It potentiates other risk factors such as air pollution, occupational insults, and hormonal therapy. It is a hazard not only to the woman, but to the unborn child she may be carrying. Between the ages of 17-19 more women are new smokers than men. From 1965 the percentage of men smoking has dropped sharply from 51 percent to 36.9 percent in 1978, while the decrease for women has only been from 33 percent to 29.9 percent. Furthermore, these smokers are adversely affecting lung function in nonsmokers in their vicinity (22). Any discussion of women's health must place the highest priorty on eliminating smoking as a risk factor. Otherwise, gains in other areas will be vitiated by the concomitant losses due to smoking. When the Surgeon General of the United States reports that the incidence of lung cancer in women will exceed the incidence of breast cancer by 1982, it is past time to attack this problem more vigorously. We know how to control lung cancer. The etiology of breast cancer remains obscure.

OTHER FACTORS

Women's health, like men's health, has a strong component of nonindigenous factors such as occupation, economic status, and the ability to control life situations. Given the natural biologic strengths of women, it is a tragic irony that the structure of our health care and research systems may be vitiating those strengths. Women represent more than half of the adult population and have the special needs of childbearing, yet it is estimated that only about 1.5 percent of the total NIH budget supports research on the reproductive biology of women (23). Even less goes into the special health care needs of older women despite the increasing numbers of such women in our hospitals, clinics, and nursing homes. Research in osteoporosis has not been heavily funded, even though in addition to the tragic disabling of otherwise healthy older women, it exacts a heavy economic cost from the whole society. (Some of this probably reflects the male domination of science. Increasing numbers of women are becoming physicians and research scientists, but the overwhelming preeminence of men in the decision-making cadres has not changed significantly.)

In 1979 women represented only 20 percent of those who had achieved a rating of 13 or above in the NIH structure, and only 7 percent at

the level of GS 16 or above (24). In 1969, 13.0 percent of medical school faculties were women. In 1978 this had risen to only 15.1 percent (25). Only about 2 percent of department heads in the basic sciences or the clinical sciences are women (26). This paucity of women as directors and initiators of research projects must have an effect on the selection of areas to be investigated. Priorities and choices in the selection of research projects are no more exempt from bias or emotion than any other choices in life. The disfiguring radical mastectomy, for example, was retained as almost the only treatment for breast cancer long after data from many sources indicated that it was no better than less traumatic surgery. Male surgeons didn't want to mutilate patients. They wanted to save their lives, but inevitably they were less sensitive than women to the consequences of this assault on the woman's self-image. It is just one example of the great need to have both women and men involved in every phase of medical care and medical research.

Other examples may be found in birthing procedures which are convenient for the doctor and potentially damaging to the mother and child, the increased use of cesarean sections and hysterectomies. In 1975 there were an estimated 781,000 hysterectomies in the United States, making it one of the most common major surgical procedures. Moreover, the increase in hysterectomies was approximately 30 percent between 1970 and 1975 (27). It is fortunate that women are so well endowed genetically; otherwise they would be hard put at times to survive.

All of these problems and many others unique to women are exacerbated by the poverty and discrimination experienced by women from minority groups. black, Hispanic, Asian-Pacific, and American Indian. Infant mortality rates are a reflection of a complex pattern of cultural deprivation. In 1977 the infant mortality rate of blacks in the United States, for example, was more than one and a half times that of whites (28) even though medical care is available to black women. On the other hand, the equally high infant mortality rate of American Indian women is associated with an absolute deficiency of medical care facilities for nonreservation rural Indians as well as for Indians on reservations in remote areas of the country. Life expectancy for minority women is lower than for white women by more than 7 years. There are obvious reasons for this. Cervical cancer, diabetes, and hypertension have a higher incidence of morbidity and mortality in black women. Alcoholism is increasing in all women, but it is especially high in American Indian women.

Migrant workers have even greater problems in the delivery of health care. Most of these workers are Hispanic, and the women in these groups suffer from the lack of adequate prenatal and maternal care as well as the absence of all other health maintenance facilities. Contraceptive information is not geared to barriers in the Hispanic culture and religion, and women receive little education or counseling to overcome such societal taboos. The absence of Hispanic women health professionals contributes to these difficulties. Hispanic women are even more poorly represented on PHS Health Advisory Committees and health care training institutions than other minority women.

The disabling social conditions of minority women are associated with a high incidence of mental illness but resources for treatment are grossly inadequate. Bilingual health care specialists are virtually nonexistent

in many areas. This is especially damaging to the health care of Hispanic, Asian-Pacific, and Indian women whose cultural constraints, together with difficulties verbalizing symptomatology, exacerbate their distress and interfere with treatment. This lack also results in an ignorance of optimal nutritional and hygienic needs of the whole family and, most critically, of growing children and adolescents. In 1979, of women at risk of unintended pregnancy, only 63 percent of low- and marginal-income women, and only 56 percent of 15-19 year olds received medically supervised family planning services (29). Minority women represent a large fraction of this underserved group, and their teenage pregnancy rate is producing at least another generation of women who will be unable to climb out of an economic hole. The lack of public funding for procedures to terminate unwanted pregnancies has its greatest impact on this group.
Thus we have the conundrum of women: highly endowed with natural resistance to environmental insults and degenerative diseases, who are made ill by neglect and misuse by virtue of their relatively powerless social status. It is ironic that these same women are now being warned that if they move into roles of power and achievement they will kill themselves. The very opposite effect actually occurs.

Now that more women are coming into the labor market there have been many reports (30) that the working woman will probably experience more heart attacks and other diseases common to men. Two recent studies suggest that this is not the case. Haynes' work shows that women in executive jobs do not show a higher incidence of heart disease (31). Only those women in clerical or low status jobs with poor support systems at home were found to be more vulnerable to cardiovascular disease.

Johnson did a more generalized study on age-adjusted life-expectancy data, and found that women are actually living longer despite their participation in the work force (32). A report from the Metropolitan Life Insurance Company confirms these data in another way (33). They did a prospective study of the women listed in Who's Who in America starting with the listings in the mid-60's. The results in 1980 may be startling to those who think that the achievers in this society are destroyed by their own ambition and hard competitiveness. In fact, it is a lot better for your health to be successful and rich than to be poor and a failure. The women achievers had a 29 percent better life expectancy than their peer group in society. The Insurance Company had found exactly the same results earlier when they studied the men listed in Who's Who. The awesome burdens of responsibility which, incidentally, are also rewarded awesomely seem to be better tolerated than the stress of vulnerability and uncertainty.

Even underprivileged and economically deprived women outlive their male counterparts, however, and this contributes to a major social dislocation. The old women in this country represent the largest single group living below the poverty line set by the government. Their lack of economic independence during their earlier years leads to total dependency on social agencies in their later years. The health of older women is far below what it might be if they had the means to find adequate housing, food and health care. Thus, the early death of men and the underutilization of women in well-paying jobs during their youthful years place an enormous financial burden on a society which insisted on counterproductive role playing for both men and women.

In our pursuit of women's health, success will depend on the recognition of the relationship of women's health to increasing research, new modes of health care delivery, and a recognition of the health-defeating aspects of social stereotyping. We must also recognize, however, that healthy women can only be produced in a world that accepts the enormous physical and mental viability of women, and uses those attributes in every aspect of social planning. There is no doubt that this will at the same time contribute to the increased survival of the "stronger sex."

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The Medical Status of Women*

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There is a common medical saying that women live longer than men but are sicker. While the validity of this statement may be questionable, women pay more visits to physicians than men--343,000 compared to 224,000 annually. And surveys have shown that, in general, males express a feeling of well-being more often than females. Women, however, live longer than men.

In most mammals, including the human, the male is heavier boned, more heavily muscled, and generally presumed to be stronger than the female. This is not always the case, however, for recently, a female physically advantaged by a broader pelvis defeated a male champion leg wrestler. Muscle power, however, is no indication of health.

Although some would disagree, a woman's ability to withstand physical stress is about the same as a male's. However, there are conditions where differences exist, particularly in the ability to withstand heat. Women appear to sweat less but more efficiently than men. The recent climbs of Everest and Annapurna by women and the current attempt to climb Dhaulagiri (26,826 ft.) by a women's team without the aid of oxygen will reinforce the currently prevailing idea that the stamina of a physically conditioned woman is equivalent to that of a similarly conditioned man.

In this essay I propose to examine only a few aspects of women's health, particularly as it pertains to reproductive function.

Let us begin at the beginning. The male Y-carrying sperm is slightly smaller because the Y chromosome contains less genetic material than the X chromosome. It has not been proven that the male Y-bearing sperm can swim faster. However, the Y-bearing sperm may be separated to some extent from the X-bearing sperm by a number of experimental methods. Because the male Y-bearing sperm is smaller, it has been presumed that it might reach the egg more easily and thus account for the slightly greater number of male infants born, 106/100.

*The author wishes to express appreciation to Jay Grodin for his contribution to the section on the development of the female reproductive organs.

Genetic sex is determined at the time of fertilization. Under its influence the gonad develops and creates the hormonal environment that will determine the structural nature of the internal genitalia and subsequently the external genitalia. The embryonic brain also undergoes a form of sexual differentiation which may have an effect on the future pattern of hormone secretions and sexual behavior.

The bipotential primordial gonad begins to develop in the fourth and fifth week of pregnancy and is thoroughly dependent upon the arrival of the germ cells by migration from the yolk sac. Without these cells which have the ability to become either eggs or sperm, the complete differentiation of the gonad cannot take place. Once present, the primitive gonad consists of cortical and medullary areas. If cortical development and degeneration of the medulla occurs, an ovary is formed, whereas the medulla is the potential testis.

In an individual who has a Y chromosome, an antigen appears on the surface of all cells (known as the Y-induced histocompatibility antigen). It is this H-Y antigen which mediates the regression of the cortex and development of the medulla of the primitive gonad in the sixth to seventh week of pregnancy. If the individual has no Y chromosome, and has two X chromosomes, the bipotential gonad develops into an ovary.

There are two sets of potential ducts present in all embryos, the Wolffian and the Mullerian ducts. In the presence of a Y chromosome, the androgens, primarily testosterone, produced by the primitive testes, will stimulate the development of the Wolffian ducts to become the epididymis, vas deferens and seminal vesicles. Another substance produced by the testes, a nonsteroidal macromolecule, will inhibit the development of the Mullerian ducts and is called Mullerian Inhibiting Factor (MIF).

In the absence of a Y chromosome, MIF will not be present and therefore the Mullerian ducts will develop into fallopian tubes, uterus, cervix, and upper vagina. In addition, in the absence of testosterone, the Wolffian ducts will regress. Only the female Mullerian system will develop in the presence of an ovary or in the absence of any gonad.

The external genitalia form from common precursors. If testosterone is present (a Y chromosome exists) these precursors form the penis and scrotum. In the absence of a Y chromosome, these same structures will develop as the clitoris, labia, and lower portion of the vagina.

It therefore appears that the female pattern is dominant and that there is an inherent tendency for the primitive gonad to develop into an ovary, provided that germ cells are present and persist. In addition, female development of internal and external genitalia is not contingent on the presence of an ovary, since equally good female development will occur if no gonad is present. To achieve male development a positive force is needed to stimulate Wolffian structures while a simultaneous negative force (MIF) must inhibit the natural tendency for the Mullerian structures to develop (1).

MALE VULNERABILITY

The male fetus is probably more vulnerable than the female. Older studies by Tricomi and colleagues (2) found a sex ratio of spontaneous abortions of 160 males to 100 females. This finding would indicate a very high sex ratio at fertilization, a point disputed by the findings of a sex ratio of unity among therapeutic abortions (3). With the current state of knowledge, it is impossible to decide the sex ratio at fertilization. It is generally hypothesized, however, that the female is advantaged by the extra genetic material in her second X chromosome.

It is indisputable that the female lives longer than the male; presently in the United States she has an 8-year advantage. A simplistic explanation from the past would have it that the female is benefited by leading a more protected life. If this assumption was ever valid, recent changes in social custom should provide a natural experiment that will prove or disprove the point. There is, however, very little evidence, either in the animal world or in human beings, that lack of stress plays much of a role in the longevity of the female.

Women live longer than men in most countries of the world. Currently available data show that the major exceptions occur in middle south Asia, particularly in India, Pakistan, Bangladesh, Nepal, and Bhutan (4). The data from these countries, however, are questionable. Furthermore female longevity occurs in more than 100 animal species (5). In the United States the life expectancy has shown a dramatic increase in the 20th century, rising from 48.3 years for women and 46.3 for men in 1900, to 77.2 and 69.5 years for women and men respectively in 1978. As life expectancy has risen, the male/female differential has also increased. The current 8-year gap contrasts with a 2-year gap at the beginning of the century.

If the primary male/female sex ratio is somewhere around 120/100 and the sex ratio at live birth around 106/100, then the vulnerability of the male must extend through every age group and in all stages of embryonic life. Support is lent to this assertion by the greater incidence of male stillbirths and neonatal deaths (6).

Most improvement in life expectancy has occurred, as would be expected, where mortality is greatest, that is at the two extremes of life--infancy and old age. As mortality has decreased, especially from 1920 to 1950, the female advantage has risen sharply except for children under the age of 15 where the decreased mortality occurred so sharply that the differential remains narrow.

Lois Verbrugge (7) has studied the course of the sex differential mortality over the years. She shows that a reversal has been taking place in the magnitude of the differential during the 70s. She states (p.26) that "ratios of male to female mortality rates have decreased for infants and persons 55 to 64 ... ratios are essentially stable for children 1 through 9 and middle-aged adults 40 to 54. Ratios are still increasing at selected ages (10-39 and 65+) but the gains are occurring at a slower pace than before." The differences between male to female ratios at different years have not increased for any age except for the elderly, over 75.

Before we examine the causes of the change in differential mortality, let us speculate on the etiology of the female advantage which seems to be so pervasive in both human and animal life. The simplistic explanation that the cause of the differential was unequal stress between two different lifestyles was never a good one and does not seem to stand up under experimental scrutiny in animals (8). A once-held explanation was that the difference may in part be related to the deleterious effect of androgen. However, Hamilton's investigation in human eunuchs (9) and animal castrates (10) leads him to conclude that although the castrate has a somewhat greater longevity than the intact male, the testicular effects cannot account for all of the differential mortality.

The recessive X-linked genes and the apparent greater immunologic resistance of the female seem to be the major logical causes of this differential sex longevity. Although proof will require a good deal of meticulous and ingenious research, the logic of these conclusions appears to be inescapable.

The extra genetic material furnished by the second X chromosome is haphazardly active in all of the somatic cells. It definitely reduces the possibility of sex-linked abnormalities and could presumably play hitherto unknown beneficial functions.

Although the field of immunology is undergoing rapid change and expansion of knowledge, there seem to be increased data regarding pronounced sexual differences in the immune systems of males and females. There is an abundance of clinical and experimental evidence indicating that females are more resistant to certain bacterial infections than the male (11); immune globulin is persistently higher in the female (12) and is enhanced by exogenous estrogen in experimental animals.

In contrast to the increased humoral immunity in the female there is evidence that cellular reactivity is suppressed relative to the male. Thus many rheumatic and autoimmune diseases show female predominance. Systemic lupus erythematosus is a prototype occurring with a sex ratio of 9 females to 1 male (13). To what extent the differential sex resistance is increased by estrogen, decreased by androgen, and influenced by the extra X chromosome, is unclear at present. It is interesting to speculate that teleologically at least this differential immunity with augmented bacterial resistance and reduced cellular reactivity advantages the female during reproduction, especially in the tolerance of the fetus as an allograft.

From about 1920 until 1970 the female advantage in longevity increased steadily in every decade and for every major cause of death with the exception of diabetes where the female has long been disadvantaged. The current diminishing or static female dominance cited by Verbrugge could be a reflection of increased medical care and knowledge and a diminishing virulence of the major bacterial killers of former generations. The male being the most vulnerable is set to gain the most by any protective event or events. In situations where female dominance has severely lessened as in the increase of lung carcinoma in women, which is presumably caused by an increase in smoking, the male continues to be the more vulnerable although to a much less marked degree. A study of the trends in the differentials, however, reveals the interesting fact that there is

no single instance where the sex differential has widened at the rate exhibited between 1920 and 1970.

There are multiple causes for these trends. Certainly the complex social changes in our society with female lifestyles becoming more like the male contribute in no small degree. This issue will surely be discussed at length in this volume.

MATERNAL MORTALITY

It is now appropriate to examine the contribution of my own specialty, obstetrics and gynecology, to the changes in differential sex mortality.

One of the most striking public health achievements of the past 50 years has been the dramatic reduction in maternal mortality. Before 1930 the maternal mortality rate per 100,000 live births plateaued above 600 for white women. During the past 4 decades it fell in an almost straight line to 12.3 in 1976 and was 9.6 in 1978. In 1978, 321 women (171 whites; and 150 nonwhites) died from causes attributable to pregnancy. In contrast more than 12,000 died in 1935 (14). This reduction in deaths and death rates increased the female advantage in mortality especially during the childbearing years. Whereas the overall decline in maternal mortality has been spectacular there is a persistent differential between white and nonwhite maternal mortality rates. This differential has increased as the mortality rates have declined. In 1930 the mortality rate for nonwhite women was about twice that for white women. By 1977 it was about 3.5 times greater. Differences in mortality may result primarily from social and economic factors, such as lack of medical attendance at delivery, lack of antepartum care, dietary deficiencies, poor hygiene, lack of contraceptive services, and poor health education. As these unfavorable social and economic conditions are improved, the racial difference in maternal death rates should decrease.

The principal causes of maternal death probably continue to be hemorrhage, infection, and hypertensive diseases of pregnancy. As each of these problems has been met by advances in medical techniques such as readily available transfusions, antibiotics, and better prenatal care, there has been a corresponding drop in maternal mortality rates. As the number of maternal deaths declines, however, the data from birth certificates become less and less informative. Many deaths are now classified as "other" and "coincidental" causes and are difficult to discover. Further data from individual hospital statistics deal with samples so small as to be nonmeaningful. For example, the decrease in maternal mortality due to child spacing and timing and the significant reduction of hazardous high parity consonant with the widespread availability of family planning services is difficult to evaluate. Furthermore, although the legalization of abortion has eliminated many hospital admissions for infection, the precise effect on maternal mortality continues to be a matter of some disagreement.

While the remarkable decline in maternal mortality has advantaged the life expectancy of women, a similar if not as rapid a decline in infant mortality has favored the male to the extent that he had more to gain.

More males than females continue to die during the prenatal period, during the neonatal period, and during the first year of life. The perinatal mortality is the sum of the fetal deaths (stillbirths) plus the neonatal deaths up to 4 weeks of life. The fetal deaths usually account for little less than half the total perinatal deaths. These deaths tend to decline as the quality and availability of obstetrical care improves. Most of them are related to maternal disease, to accidents of pregnancy such as premature separation of the placenta, and to injudicious conduct of labor and traumatic delivery. Increase in prenatal care, greater knowledge of the normal physiology of pregnancy, and the avoidance of trouble during labor and delivery by increased cesarean section, have been responsible for most of the reduction in fetal deaths. Although data are insufficient, it appears that there is a female advantage in the fetal death rate just as there is in the remainder of life (6).

Most of the neonatal deaths occur during the first day of life. In fact, the number that die during this period exceeds the number of infant deaths from the second month onward. Nearly half these deaths are related to prematurity (based on weight). While the prematurity rate has not changed appreciably over the years, better conduct of labor and marked improvement in early pediatric care have contributed to a reduction in neonatal mortality.

There are ethnic differences in the rate of prematurity ranging from 7 to 7.5 percent for white women as compared to nearly double that rate for nonwhite women. Thus for nonwhite women a greater percentage of male infants are vulnerable and have more to gain by better medical care. An interesting possibility emerges from this discussion. In pregnancy the male/female differential and its trend to some extent reflect the quality of medical care. It is possible that the trend in differential rates and its magnitude will direct attention to areas where medical care is improving and where increased emphasis might be helpful.

I would like to close this discussion with a mention of two medical problems that are of special female concern.

The first of these is breast cancer which is a leading cause of death among women 30 to 55 in the United States. About 1 in 13 women will develop this disease at some time during their lives. The incidence of breast cancer showed a very slight rise during the early 1970s which appears to have been temporary. Whether this rise was real or merely occasioned by increased attention to breast cancer because of its occurrence in two prominent women is impossible to tell. However that may be, the death rate has remained constant for many years, a much more reliable indicator than incidence.

While prevention of breast cancer is not expected in the foreseeable future, risk of death can be substantially reduced by early diagnosis (15, p.65). Several screening procedures are available, the most important of which is self-examination. Next is routine physical examination. The value of X-ray mammography, and other diagnostic techniques is still open for discussion. Mammography probably should not be used for mass screening, although its adverse effects caused by radiation have perhaps been exaggerated (16). Estimates indicate that if a woman has had five mammograms during her life, her chances of ever developing breast cancer would be increased from .7 percent to 7.35 percent.

Controversy has recently increased concerning the proper extent of the operation for cure of early breast cancer. In 1889 William S. Halsted, Professor of Surgery at Johns Hopkins, developed a radical operation removing the breast, axillary nodes, and chest muscles (17). The advent of this operation radically improved the hitherto gloomy outlook for this disease. Recently less extensive operations have been advocated. At present, a slightly less than radical operation leaving the chest muscles intact might be a justifiable compromise in early disease.

Estrogen replacement therapy at menopause is another therapeutic measure of concern to women. In the 1950s an increasing number of gynecologists prescribed routine oral estrogen to their menopausal patients presumably for their lifetimes. Only recently, because of the discovery that there is an association between endometrial cancer and estrogen therapy has this practice diminished. In 1979 a consensus development conference conducted by the National Institute on Aging, National Institutes of Health, reached agreement on several issues:

Estrogen therapy relieves vasomotor symptoms of menopause; however, at present there is no evidence to justify the use of estrogen in the treatment of primary psychological symptoms.

Estrogen therapy overcomes atrophy of the vaginal wall and associated systems.

Estrogen can retard bone loss and possibly prevent the development of osteoporosis. More information is needed on the preventive aspects of thia therapy.

There are risks associated with estrogen use including increased incidence of endometrial cancer which is 4 to 8 times more common among postmenopausal users of estrogen. The risk apparently rises with dose and length of therapy.

The association of breast cancer and estrogen has been demonstrated repeatedly in experimental animals. While there is no concrete evidence that the same association is true in human beings the possibility remains (18). There are some claims for estrogen therapy which have not been validated. Estrogen does not reduce wrinkles or improve skin tone. Probably estrogen does not reduce the incidence of hypertension or atherosclerosis.

Patients often say that estrogen therapy during the menopause makes me "feel more like a woman." The meaning of this statement is obviously unclear to a male physician and certainly its validity has not been proved.

In sum, we have spoken of the female mortality advantage in all aspects of human life from the fertilization through the oldest age groups. We have discussed possible causes of this female advantage and indicated that there is a current slowing in the United States in the rate and in the magnitude of this advantage, particularly at certain ages. Perhaps the most important thing that we have said in this essay is that the study of the female advantage in mortality and its trend regardless of cause can be indicative of the quality of medical care and therefore merits continued attention.

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Death Rate Trends of Black Females, United States, 1964-1978

Jacquelyne J. Jackson, Ph.D.

A major gap in epidemiological literature is the paucity of mortality and morbidity data about black females. This paper seeks to reduce that gap by providing age-adjusted and crude death rates per 100,000, for deaths from all causes and age-adjusted death rates for 17 specific causes of death for black females in the United States, between the years 1964-1978. In addition, age-adjusted death rates of black and white females and males are contrasted, and problems related to inadequate mortality and morbidity data about black females are discussed.

METHOD

Causes of Death

The 17 specific causes of death discussed in this paper represent the leading causes of death, based on age-adjusted death rates, of black females in 1978. In descending order, these are: diseases of the heart; malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues; cerebrovascular diseases; accidents; diabetes mellitus; symptoms and ill-defined conditions; certain causes of infant mortality; influenza and pneumonia; cirrhosis of the liver; homicide; infective and parasitic diseases; nephritis and nephrosis; congenital anomalies; arteriosclerosis; mental disorders; bronchitis, emphysema, and asthma; and suicide.* The 1978 rates were identical for the last two categories.

* The number sets in parentheses for these diseases, given below, refer to the category numbers of conditions listed in the Seventh and Eighth Revisions, respectively, of the International Classification of Diseases, 1955 (1). They are diseases of the heart (400-402; 410-443; 370-398; 402, 404, 410-429); malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-205; 140-209); cerebrovascular diseases (330-334; 430-438); accidents (E800-E962, E800-E949); diabetes mellitus (260; 250) symptoms and ill-defined conditions (780-795; 780-796); certain causes of infant mortality (760-762; 765-776; 760-778); influenza and pneumonia (480-483; 490-493; 470-474; 480-486); cirrhosis of the liver (581; 571); homicide (E964; E980-E985; E960-E978); infective and parasitic diseases (001-138; 00-136); nephritis and nephrosis (590-594; 580-584); congenital anomalies (750-759, 740-759); arteriosclerosis (450; 440); mental disorders (304-326; 290-315); bronchitis, emphysema, and asthma (241; 500, 501-502, 527.1, 490-493); and suicide (E963; E970-E979; E950-E959).

These 17 causes are a deliberate mix of conditions which are listed as chapter titles (e.g., infective and parasitic diseases) and subchapter headings (e.g., cirrhosis of the liver) in the International Classification of Diseases (1). Tradition was generally followed in selecting categories which are identical to subchapter headings, but, on occasion, the title of an entire chapter was included because the category could be perceived as a single cause of death, or because deaths from conditions listed as subtitles within chapters were extremely infrequent.

Raw data were obtained from the Vital Statistics Series of the National Center for Health Statistics (2), for years 1964 – 1975, and for years 1976-1978 (3). Relevant population data were obtained from the United States Bureau of the Census.*

Death Rates

Crude death rates per 100,000 were computed for all ages and for 18 age groups. The age groups began with children under five, and continue in increments of 5 years through 84 years. The last age group is 85 years or more, because the estimated mid-year population of black females by age in the United States was not available beyond that for intercensual years. Crude death rates were calculated by dividing the total number of reported deaths by the estimated population in each year.

Using the 1940 total population of the United States as the standard population, the age-adjusted death rates were computed by multiplying the crude death rate of each age group by the total population in that age group in 1940, and dividing the sum of the products by the total population of all ages in 1940.** The crude and age-adjusted death rates are reported per 100,000 population to reflect the number of persons per 100,000 in a population who died during the time specified period.***

* The estimated mid-year populations for the years 1964 through 1969 and 1971 through 1978, and the April 1, 1970 census population for black and white females and males were used. Because the U.S. Bureau of the Census did not have estimated mid-year populations for black females in 1962 and 1963, it was decided to begin the investigation with the first year for which consecutive population data by year were available.

** The population numbers (in thousands) used for the 1940 total population of the United States were: all ages, 131,669; under 5 years, 8,521; 5-9 years, 10,685; 10-14 years, 11,746; 15-19 years, 12,334; 20-24 years, 11,588; 25-29 years, 11,097; 30-34 years, 10,242; 35-39 years, 9,545; 40-44 years, 8,788; 45-49 years, 8,255; 50-54 years, 7,257; 55-59 years, 5,844; 60-64 years, 4,728; 65-69 years, 3,807; 70-74 years, 2,570; 75-79 years, 1,504; 80-84 years, 774; and 85 or more years, 365.

*** Editor's Note: It is possible that these data may be somewhat biased by an undercount of segments of the black population in the Census.

The age-adjusted rate controls for differences between populations in age distributions. Thus, black and white women may be compared although age distribution for the two groups are different. The black female population is younger than the white female population. The crude death rate for black females is higher than the rate for white females at all but the oldest ages. However, the difference between the two groups in age distributions may cause black women's crude death rate to be lower than white women's crude death rate. This creates the false impression that the mortality rate is lower for black females than for whites. When age-adjusted rates are used it is obvious that the mortality rate is actually higher for black women.

The death rates presented in this paper were most often computed by annual averages, primarily because these data for black females have not been available, in published form. Space limitations preclude presentation of the crude death rates for the 17 specific causes of death for each year between 1964 and 1978; these data were necessarily computed in order to obtain the age-adjusted data shown herein. Five-year annual averages, when presented, were computed by dividing the sum of consecutive 5-year averages (i.e., 1964-1968, 1969-1973, and 1974-1978). Presenting death rates in 5-year annual averages promotes simplicity, but obscures peculiar or aberrant years.

Percentage changes shown in tables were computed by dividing the rates for the last year, or last set of years, by the first year, or first set of years. Ratios of death rates for black females to comparable rates for black males, white females, and white males were computed by dividing the age-adjusted death rate of black females by that of each remaining group. A ratio of 100.0 indicates no difference between groups; under 100.0 indicates a lower mortality rate for black females than for the comparison group, and over 100.0 indicates a higher mortality rate for black females.

FINDINGS

Age-Adjusted and Crude Death Rates, Black Females

Table 1 presents age-adjusted and crude death rates per 100,000 for black females 1964 to 1978, with all causes of death considered together. Crude and age-adjusted rates decreased considerably over time, with the exception of 75-79 year-olds, for whom there was approximately a 28 percent increase. The greatest decrease occurred among 35-39 year olds, followed by 25-29 year olds. With the exception of the two years 1965 and 1966, the overall trend was an almost consistent decrease in age-adjusted death rates over time. Fluctuations were more characteristic of the crude death rates because the age distributions changed over time.

The year of the peak or highest death rate is underscored in Table 1. The table shows that the crude death rate peaked in 1964 for all ages considered together and for most of the age groups.

The expected pattern of relatively high crude death rates for those under 5 years, and reduced crude death rates between 5 and 44 years, is quite apparent in Table 1. In two years, 1964 and 1965, the crude death rates of those 45 to 49 exceed those under 5 years. In the remaining years, the crude death rates of those under 5 years exceeded those between 5 and 49 years. Generally, the crude death rates of 45 to 49 year-olds were higher than those of any preceding age group. After 5 years, the crude death rates of successive age groups increased geometrically, following the Glomperitz curve. The highest death rates occurred characteristically among those over 85 years.

Table 2 compares the age-adjusted rates for deaths from the 17 leading causes. Age-adjusted rates and rank orders are listed for three 5-year periods. Percent change in death rates between periods is also shown. The age-adjusted rates of death from malignant neoplasms, mental disorders, and suicide increased consistently over time. Those for diabetes mellitus, cirrhosis of the liver, and homicide increased at first, but then decreased between the last two time periods. The rates for the remaining 11 causes of death decreased consistently over time.

Table 2 shows that the rank order of the four leading causes of death, diseases of the heart, malignant neoplasms, cerebrovascular diseases, and accidents, remained unchanged over time. The stability of the rank orders of all of the specific causes of death was generally consistent over time (W=0.9264).

A comparison of crude death rates for black females of different age groups shows that the majority of the groups experienced lowered mortality between 1964 and 1978. Exceptions are listed below:

SPECIFIC CAUSE OF DEATH	AGE-SPECIFIC GROUP(S)
Diseases of the heart	Under 5 years
Cerebrovascular disesses	Under 10, 75-79 years
Diabetes mellitus	Under 10, 70-84 years
Symptoms and ill-defined conditions	Under 5, 75-79 years
Homicide	Under 35, 50+ years
Infective and parasitic diseases	Under 5, 70+ years
Nephritis and nephrosis	Under 5, 75-79 years
Suicide	10-14, 20-29, 45-54, 70+
Mental disorders	15-29, 45+ years
Congenital anomalies	30-34, 65-69, 75-84 years
Malignant neoplasms	40-44, 55-59, 65-84 years
Cirrhosis of the liver	40-79 years
Bronchitis, emphysema, and asthma	60-84 years
Influenza and pneumonia	75-79 years

Fourteen of the 17 causes of death showed increases over time for at least one age group. The greatest decrements in mortality occurred for homicide. Fifteen of the 18 age groups showed lowered death rates over time. There was an increase for 12 age groups for deaths associated with mental disorders and for suicide. Diseases of the heart showed increases for the fewest age groups.

The most vulnerable age group seemed to be 75 to 79 year-olds. However, the increases in death rates for this age group from specific causes of death may actually reflect the fact that these women received better medical care when they were younger, thereby prolonging their lifespans.

The causes of death with decrements in mortality over time also seem to be connected in some way with specific environmentally induced disorders, as well as with personal behaviors. The age group under 5 years also remains particularly vulnerable, despite the fact that deaths listed as attributable to "certain causes of infant mortality" decreased considerably over time.

Age-Adjusted Death Rates, Black and White Females and Males

Table 3 shows age-adjusted death rates per 100,000, for black and white females and males for the 17 leading causes of death and all causes 1964-1978. Data are presented in ratio form in Table 4. The highest rate during the 15-year period for each race-sex group and for each cause of death is underscored.

Figure 1 provides a graphic presentation of age-adjusted death rates for all causes of death of black and white females and males over the 15-year period. It shows, as expected, that the highest death rates occurred among black males, followed by white males, black females, and white females. It is worth noting that in each of the years shown, the rate for black females was consistently lower than the rate for white males. Hence, unisex comparisons of black and white rates ignore the effects of sex on mortality. For this reason comparisons of black and white mortality rates should always be presented by race and sex, and not by race alone.

Over time, the difference between the death rates of black females and those of both black and white males widened, while the difference between black and white females narrowed somewhat. The gaps between black and white male mortality widened somewhat between the first two time periods, and narrowed slightly between the last two time periods. Nevertheless, in 1978, differences between black and white males were smaller than differences between black and white females. Further, differences between black females and black males remained smaller than differences between white females and white males.

Despite different patterns of mortality for the race-sex groups, a very small proportion of the population now dies each year. In 1978, only about 1 percent of the total population of the United States died, slightly more than 1 percent for males, and somewhat less than 1 percent for females. Fewer than 2 percent of black males and fewer than 1 percent of black females died in 1978.

Table 3 shows that the age-adjusted death rates for the 17 specific causes of death typically declined over time, although fluctuations occurred in various years. The causes of death failing to decline between 1964 and 1978 were malignant neoplasms (for all groups, with the smallest increase occurring among white females), symptoms and ill-defined conditions (for white males and females only), cirrhosis of the liver (for black females and males only), homicide (for all race-sex groups, but highest among black males in terms of overall rate, and highest among white males in terms of proportionate increase over time), deaths associated with mental

disorders (for all race-sex groups, and proportionately highest among black males), and suicide (for all race-sex groups, with the greatest proportional increase among black males). The age-adjusted death rates for black females were lower than those for black males except for diabetes mellitus.

A comparison of the race-sex data in Table 3 leads to the following conclusions:

1. Any generalization indicating that death rates for blacks are higher than those for whites ignores the race-sex differentials, and distorts the data. At least since 1964, the age-adjusted and crude death rates for black females of all ages, and for all causes of death, have been lower than those of comparable white males. White females remained the group with the lowest age-adjusted death rate for all causes of death, followed by black females, white males, and black males. This order remained constant throughout the 15-year period under study.

2. When considering the total death rate, the difference between black females and both black and white males widened over time. The gap between black and white females narrowed somewhat over time. In 1964, the rate for black females was about 69 percent of that for black males and 97 percent of that for white males, widening to 58 and 85 percent respectively in 1978. The rate for black females was 66 percent higher than that for white females in 1964, narrowing to 56 percent higher in 1978.

3. Between 1964 and 1978, the gaps between black females and the remaining three race-sex groups widened for deaths due to malignant neoplasms, influenza and pneumonia, and nephritis and nephrosia. The gaps also widened between black females and black and white males for deaths due to disease of the heart, accidents, arteriosclerosis, and bronchitia, emphysema, and asthma. Similarly the gap between black females and males widened for deaths due to cerebrovascular diseases, symptoms and ill-defined conditions, homicide, mental disorders, and suicide, but it narrowed for diabetes mellitus, infant mortality, infective and parasitic diseases, and congenital anomalies. The gaps between black females and both white males and females narrowed for deaths due to cerebrovascular diseases, symptoms and ill-defined conditions, homicide, and suicide, but widened for infant mortality. The gap between black females and white males narrowed for deaths due to diabetes mellitus, congenital anomalies, and deaths associated with mental disorders. The reverse pattern was true of black and white females. The gap between black females and white males also widened for deaths due to infective and parasitic diseases, reversing for black and white females. The gap between black and white females also narrowed between 1964 and 1978, for deaths due to diseases of the heart, accidents, arteriosclerosis, and bronchitis, emphyaema, and asthma.

4. In each year of the 15-year period, the rate for any of the specific causes of death for black females was always lower than that of the black male rate, with the important exception of diabetes mellitua. For deaths due to this disease the rate for black females exceeded not only that of black males, but also white males and females. Death rates of black females were also consistently higher than those of white males and females for cerebrovascular

diseases, symptoms and ill-defined conditions, infant mortality, homicide, infective and parasitic diseases, and nephritis and nephrosis. Rates for black females were also consistently higher than those for white females for diseases of the heart, malignant neoplasms, accidents, influenza and pneumonia, arteriosclerosis, and deaths associated with mental disorders in each of the 15 years. In the years 1964 and 1965, the rates of death due to congenital anomalies were lower for black females than for white females, with the pattern reversed in successive years. Between 1964 and 1971, the death rates for black females associated with bronchitis, emphysema, and asthma were also higher than those of white females, with the exception of the years 1972 and 1978. Between 1964 and 1976, the rates of death from influenza and pneumonia were lower for black females than for white males, but this was reversed in 1977 and 1978. Also, between 1964-1966, 1968-1974, and in 1976, the rates of deaths associated with mental disorders were greater for black females than white males. In each year, however, the black female suicide rate was consistently lower than that of black and white males and white females. The rates of death from diabetes mellitus were consistently higher for black females than for the remaining three race-sex groups all 15 years.

5. A comparison between 1964 and 1978 for death rates due to specific causes shows decreases over time for all four race-sex groups for diseases of the heart, cerebrovascular diseases, accidents, diabetes mellitus, infant mortality, influenza and pneumonia, infective and parasitic diseases, nephritis and nephrosis, congenital anomalies, and arteriosclerosis. However, the magnitude of these decreases differed for the four race-sex groups. The decreases most often were greatest for black females, as shown below:

SPECIFIC CAUSE OF DEATH	Percent Change, 1964-1978			
	Black Females	Black Males	White Males	White Females
Diseases of the heart	-28.5	-16.2	-21.8	-27.3
Cerebrovascular diseases	-45.4	-31.6	-37.7	-38.0
Accidents	-21.8	-19.9	-12.5	-15.8
Diabetes mellitus	-20.8	- 1.1	-17.8	-29.4
Certain causes of infant mortality	-48.5	-49.6	-58.4	-55.9
Influenza and pneumonia	-50.3	-36.0	-23.7	-28.8
Infective and parasitic diseases	-20.8	-38.7	-31.5	- 2.3
Nephritis and nephrosis	-41.2	-39.6	-50.9	-52.9
Congenital anomalies	-17.6	-21.7	-26.9	-26.1
Arteriosclerosis	-54.2	-51.7	-48.5	-51.8

Black females experienced the greatest decreases for five of the 10 causes of death listed above (deaths due to diseases of the heart, cerebrovascular diseases, accidents, influenza and pneumonia, and arteriosclerosis).

6. A comparison of the 1964 and 1978 rates for the remaining causes of death shows inconsistency across groups with the following relapositions:

SPECIFIC CAUSE OF DEATH	Percent Change, 1964-1978			
	Black Female	Black Male	White Male	White Female
Malignant neoplasms	+ 7.9	+29.6	+10.6	+ 1.7
Symptoms and ill-defined conditions	-31.0	-24.1	+ 9.4	+17.0
Cirrhosis of the liver	+33.0	+53.3	- 4.7	- 2.7
Homicide	+19.5	+22.8	+111.6	+64.7
Mental disorders	+65.5	+80.2	+71.4	+58.3
Bronchitis, emphysema and asthma	-40.0	-37.5	-35.0	0.0
Suicide	+25.0	+46.5	+10.3	+15.5

These percentage changes show that the increased mortality of black females due to malignant neoplasms, homicide, and mental disorders was lower than that of black and white males, and, in the case of homicide, also lower than that of white females. Black females and males showed reductions in deaths associated with symptoms and ill-defined conditions, but white males and females did not. On the other hand, deaths due to cirrhosis of the liver increased among blacks of both sexes, but decreased among whites of both sexes. Black females showed the greatest reduction for deaths due to bronchitis, emphysema, and asthma, while there was no change over time for white females. While the increase in the black female suicide rate was the second highest of the four race-sex groups, it should be remembered that suicides are still far less characteristic of black females than of any of the remaining groups. Parenthetically, the increasing suicide rate for black males should be noted.

7. Because a comparison of rates for only the years 1964 and 1978 ignores the trends across the years, it is very important to emphasize that there are similarities and differences between the four race-sex groups in the peak years of mortality, as shown below.

CAUSE OF DEATH	PEAK YEAR(S)			
	Black Female	Black Male	White Male	White Female
All causes of death	1964	1969	1966	1964
Diseases of the heart	1964	1968	1966	1964
Malignant neoplasms	1978	1978	1978	1978
Cerebrovascular diseases	1964	1965	1964	1964
Accidents	1966	1968	1969	1966
Diabetes mellitus	1968	1973	1969	1968
Symptoms and ill-defined conditions	1964	1964	1975	1974
Certain causes of infant mortality	1964	1964	1964	1964
Influenza and pneumonia	1968	1968	1968	1968
Cirrhosis of the liver	1972	1971	1973	1970/ 1971/ 1973

CAUSE OF DEATH (continued)

	PEAK YEAR(S)			
	Black Female	Black Male	White Male	White Female
Homicide	1973	1972	1975	1975,1977
Infective and parasitic diseases	1964	1964	1964	1964
Nephritis and nephrosis	1964	1964	1964	1965
Congenital anomalies	1969	1964	1964	1964
Arteriosclerosis	1964	1964,1965	1965	1964
Mental disorders	1974	1971	1974,1975	1972,1978
Bronchitis, emphysema, and asthma	1967,1968	1968	1968	1968
Suicide	1971	1978	1977	1971,1972

Deaths due to each of the 17 specific causes peaked for black females before the year 1975 (generally much earlier) with the significant exception of malignant neoplasms. Deaths due to malignant neoplasms peaked in 1978 for all four race-sex groups. Of all the causes of death which increased between 1964 and 1978, deaths due to malignant neoplasms continued to increase over time for black females. The rate for cirrhosis of the liver peaked in 1972 for black females; deaths from homicide, mental disorders, and suicide respectively peaked in 1973, 1974, and 1971, but generally declined thereafter.

The same pattern generally characterized the black males. With the exception of malignant neoplasms and suicide (both of which peaked in 1978), rates for black males all peaked before 1974. Although deaths due to homicide remained considerably higher for black males than for black and white females and white males, the rate of death due to homicide declined by 28 percent between 1972 and 1978, while rates increased for whites of both sexes.

The peak years for deaths from most causes were the same for black and white females, and peak years were similar for bronchitis, emphysema, and asthma, and suicide. When there were differences, death rates for black females typically peaked earlier than rates for white females, with the exception of rates of death from congenital anomalies. A similar pattern was found for black females and white males.

Data Gaps

The single, most important problem impeding the analysis of mortality data for blacks is that the National Center for Health Statistics, the agency responsible for publishing mortality data in the United States, did not publish any death rates for blacks in the series of Vital Statistics of the United States, Volume II --Mortality, Part A, for the years 1964 through 1975. Race-sex rates and race-sex-age rates were published, however, for whites and for an amorphous category labeled as "nonwhite" or "all other." By analogy, categorizing blacks as "nonwhite" is equivalent to categorizing females as "nonmales."

The absence of race-sex-age rates for blacks made it necessary to compute manually all of the age-adjusted and crude death rates in this report. Providing these rates routinely for blacks just as rates are provided for whites would make it possible to focus

attention on more substantive issues concerning death rate trends for black females and the contrast with trends for black males, white males, and white females.

Specification of sex and race or ethnicity is customary in epidemiologic studies, presumably because these variables substantially influence health, as measured by mortality and morbidity satistics. Yet, many studies of health of the populations within the United States subsume the black females within such amorphous categories as "all other," "nonwhite," "black," "all other female," "or nonwhite female," thereby undermining the significance of sex and race/ethnicity as they affect health and mortality.

Many researchers have compounded this problem by treating these categories as exclusively black groups. That is, because the majority of "all others" or "nonwhites" are black, researchers often erroneously equated "all others" or "nonwhites" with blacks. This is clearly a misuse of categorical data. If the data are not specific to blacks then the label should refer to the actual composition of the group.

Operationalizing the definition of "all other" or "nonwhite" to include not only blacks, but also diverse groups such as American Indians, and Asian Americans, has masked the real health statistics for each group. Further, American Indians, Asian Americans, and other nonblack groups included in this amorphous category are not homogeneous groupings. For example, rates for Japanese and Chinese, are in fact, substantially lower than those for whites.

A comparison between the crude death rates per 100,000, of blacks and nonwhites, by sex, in the United States between the years 1964 and 1975 was made. It is evident, in each year, that the black female and male rates were higher than those of nonwhite females or males. The discrepancies were generally much greater for males. Further, the discrepancies between blacks and nonwhites typically increased in each sex group over time. In 1964, the black female rate was 4.5 percent higher than that of nonwhite females, and 7.8 percent higher in 1975. Comparable statistics for males were 4.5 in 1964, and 6.5 percent in 1978.

A very important reason to provide data for blacks separately for males and females is the growing presence of nonwhite immigrants in the "all other" category. Another reason is the considerable diversity in specific mortality patterns of the various groups merely classified as "all other." Clearly, comprehensive mortality and morbidity data by sex should be provided for blacks as well as for the remaining groups included in the category of "nonwhite." Another issue concerning the paucity of health data about black females is the lack of age-specific data (see Jackson, 4).

Given the health differentials between blacks and whites, it is a reasonable assumption that blacks and whites should be treated as separate populations. Survey samples should be drawn from each population, resolving the issue of the extremely small black subsample size in many of the morbidity studies published by the National Center for Health Statistics.

This is particularly important because a primary problem in obtaining sufficient morbidity data about blacks from the National Center for Health Statistics' data systems is not that of identifying race, but having a sample sufficient to permit detailed analyses. The essence of this issue is the following:

All of the data systems of the National Center for Health Statistics collect information on the race/ethnicity of the persons whose health characteristics are being studied. Most of the sample surveys are limited in their ability to publish separate data for blacks, Hispanic Americans, and other minority groups by the small numbers of those groups falling into a study sampling the population in a proportionate fashion. At the present time, only the National Survey of Family Growth has a sample disproportionately weighted to permit detailed analysis for blacks as well as for whites. In many instances the categories by which analysis is performed are limited to "white" and "all other" (5).

SUMMARY AND CONCLUSIONS

The major purpose of this presentation was to provide age-adjusted and crude death rates per 100,000, for black females in the United States between the years 1964 and 1978, the last year for which these data were available. Rates were computed for the 17 leading causes of death of black females in 1978 and for all causes of death, using age-adjusted rates. Crude death rates were computed for all ages and for 18 age-specific groups for all causes of death (Table 1) and 17 specific causes of death. Two secondary purposes were to contrast age-adjusted death rates of black and white females and males, and to briefly discuss some problems related to the acquisition of mortality and morbidity rates specific to black females.

The overall pattern of improvement over time for black females was quite apparent. But, black females experienced increased mortality due to malignant neoplasms, suicide, and deaths associated with mental disorders. Nevertheless, the suicide rates of black females continue to remain consistently lower than those of black and white males and white females. Throughout the 15-year period under investigation, 75 to 79 year-olds appeared to be the most vulnerable group of black females, generally followed by those under 5 years of age.

A comparison of age-adjusted death rates from all causes of blacks and whites by sex showed a consistent, rank-order pattern over time. The rates remained highest among black males, followed by white males, black females, and white females. Generally, the mortality gap between black and white females remained wider over time than the gap between black and white males. Also, the gap between black females and males was narrower than that between white females and males.

Of all the causes of death under consideration, rates of death from diabetes mellitus remained consistently higher over time for black females than for black or white males or white females. Otherwise, black females usually fared better than white males with respect to deaths due to diseases of the heart, malignant neoplasms, cerebrovascular diseases, accidents, suicide, and the [illegible]. Black females almost always fared better than black males.

Generally, black females experienced greater decrement in mortality than white females.

Changes in mortality patterns for the four race-sex groups were similar over time. For example, a reduction in deaths due to diseases of the heart and a rise in deaths due to malignant neoplasms were characteristic of each of the four race-sex groups. Some variations occurred in the peak years of deaths due to specific causes, but even here remarkable similarity between the groups prevailed.

Given the problems experienced in obtaining adequate data about the mortality and morbidity patterns of black females, it may be useful to close by proffering some broad suggestions related to research needs.

1. Age-adjusted and crude death rates for all causes of death, and for specific causes of death for black females of all ages and of age-specific groups, should be published annually for the United States (preferably, in 5-year intervals) for the individual states, and for major metropolitan areas. Black female data should be specific to black females, and not subsumed within data for blacks of both sexes or data for nonwhite females.

2. Public agencies should be encouraged to treat the black population as a separate population for sampling purposes. Such a practice should continue as long as there is a need to publish data by race. This modification of sampling procedure would help ensure sample sizes of blacks adequate to perform multivariate analyses. These analyses are necessary to determine the nature and weight of independent variables which affect the health of black females and males. Such data would also be helpful in determining the effects of race and sex on mortality. A similar procedure should be followed for morbidity data.

3. When possible, mortality data should be tabulated at least by occupation, which might serve as a proxy for socioeconomic status. The standard death certificate of the United States does contain a line for that item. One problem with much of the available current mortality and morbidity data is that it is not possible to determine the effects of socioeconomic status on the health patterns of black and white females and males. The impact of socioeconomic status on health is probably much greater than that of race. Illustratively, if illegitimate birth data were reported by socioeconomic status and race, the presumed racial differences would probably disappear.

4. Considerably more research attention needs to be devoted to the causes of black females' deaths which are increasingly important over time. Undoubtedly, current and future research about diseases such as those of the heart and malignant neoplasms will benefit black females, but much more attention should also be concentrated on ways of reducing deaths due to diabetes mellitus.

5. Increasing research attention should be devoted to the effects of being a female single parent or family head on morbidity and mortality risks during the middle-aged years. It is not enough to study patterns of smoking and alcohol consumption. Greater

attention must be given to factors which create stress for black females in the United States. Emphasis should be placed on identifying individuals who may be at highest risk.

6. In short, more attention must be devoted not only to traditional comparisons of morbidity and mortality patterns of various populations by race and sex, but also to the significant variations existing within single populations, such as black females. Research findings must move beyond oft-repeated notions that mortality and morbidity rates are higher among blacks than whites. We now want to know and must know, in the years ahead, specifically which blacks are vulnerable, or at high risk, for which diseases and why.

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3. Reavin, Dorothy, personal communication.

4. Jackson, Jacquelyne. "Urban Black Americans," pp. 37-129. In: Ethnicity and Health, Alan Harwood (Ed.), Harvard University Press, Cambridge, Massachusetts, 1981.

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Table 1. Age-adjusted and crude death rates by age per 100,000, from all causes of death, for black females, United States, 1964-1978, and percentage change, 1964-1978

AGE-ADJUSTED AND CRUDE DEATH RATE BY AGE	YEAR							
	1964	1965	1966	1967	1968	1969	1970	1971
AGE-ADJUSTED RATE	862.6	847.4	847.9	812.6	851.1	822.9	803.7	778.7
CRUDE RATE								
All ages	872.5	860.6	862.8	827.2	868.4	842.2	829.2	808.7
Under 5	949.7	909.2	868.1	804.3	782.8	783.8	777.6	716.1
5-9	52.3	56.2	51.5	49.9	51.2	48.7	47.6	45.4
10-14	42.4	40.2	41.6	40.5	41.6	41.7	40.0	40.3
15-19	83.4	81.9	81.2	79.9	81.9	95.0	86.2	92.4
20-24	125.5	125.5	134.2	133.7	141.2	140.3	144.1	143.2
25-29	211.2	195.9	189.0	188.0	199.4	193.7	198.2	191.1
30-34	300.0	304.6	304.6	306.0	299.8	291.8	267.7	272.0
35-39	466.6	457.9	457.2	450.3	461.3	446.8	428.5	421.1
40-44	656.6	668.3	663.8	625.2	675.7	647.8	637.8	606.9
45-49	909.2	908.4	953.9	899.3	947.0	912.9	886.6	859.8
50-54	1391.0	1288.6	1251.1	1246.7	1254.5	1223.1	1221.8	1186.0
55-59	1756.3	1739.7	1711.3	1721.5	1774.8	1742.6	1687.8	1622.0
60-64	3227.4	2992.2	2783.2	2568.3	2636.1	2438.0	2337.8	2216.2
65-69	3173.2	3324.4	3479.2	3371.4	3668.0	3544.7	3283.4	3080.3
70-74	4435.2	4351.8	4444.6	4316.0	4591.2	4465.2	4730.2	4788.1
75-79	5930.1	5869.3	6226.5	5815.3	6292.2	5986.1	6081.9	5927.0
80-84	7698.6	7926.0	8044.0	7414.1	8051.8	7967.5	7796.5	7185.3
85+	13232.6	13143.4	13340.8	12283.0	13333.9	12335.0	10706.6	11634.8

Table 1. (Concluded)

AGE-ADJUSTED AND CRUDE DEATH RATE BY AGE	YEAR							%Change 1964-1978
	1972	1973	1974	1975	1976	1977	1978	
AGE-ADJUSTED RATE	772.3	767.3	722.5	683.4	673.3	663.9	649.4	-24.7
CRUDE RATE								
All ages	803.5	806.0	767.0	735.5	735.7	730.6	723.1	-17.1
Under 5	664.2	611.9	580.9	591.5	588.5	572.6	565.1	-40.4
5-9	44.7	44.0	40.2	37.6	37.0	35.6	36.2	-30.8
10-14	38.6	35.8	33.6	31.7	29.0	28.3	29.3	-30.9
15-19	78.1	79.9	70.4	65.8	57.3	62.0	56.3	-32.5
20-24	138.3	136.6	128.1	115.1	110.6	102.7	101.2	-19.4
25-29	187.4	173.8	171.1	150.8	150.5	143.8	139.4	-34.0
30-34	262.5	246.0	230.1	196.8	196.3	178.2	175.4	-41.5
35-39	383.8	377.0	332.0	308.6	278.0	275.8	264.3	-43.4
40-44	600.6	569.7	536.9	469.1	456.9	440.6	415.0	-36.8
45-49	847.5	853.3	761.4	715.5	687.6	658.4	626.7	-31.1
50-54	1149.6	1142.5	1084.4	990.8	1009.0	998.5	960.1	-31.0
55-59	1655.0	1637.3	1485.2	1454.8	1396.0	1397.3	1362.3	-22.4
60-64	2210.6	2174.6	2122.5	2019.6	2005.7	1987.4	1977.5	-38.6
65-69	3016.2	2871.9	2618.0	2387.6	2281.3	2234.4	2199.2	-30.8
70-74	5121.7	5448.5	5323.2	5025.3	4803.8	4606.8	4227.3	- 4.7
75-79	5989.6	6313.7	6062.7	6390.4	6800.6	7271.0	7579.1	+27.8
80-84	7172.5	7105.5	6847.8	6472.9	6698.4	6618.5	6827.9	-11.3
85+	11383.8	1148.0	10748.9	9558.6	9554.1	9035.3	8793.1	-33.5

Table 2. Age-adjusted death rates and rank orders of 17 leading causes of death of black females during three 5-year periods, and percent change in rates between periods.

SPECIFIC CAUSE OF DEATH	1964-1968		1969-1973		1974-1978		%change, 1964-1968/1974-1978	%change, 1964-1968/1969-1973	%change, 1969-1973/1974-1978
	Rate	Rank	Rate	Rank	Rate	Rank			
Diseases of the heart	270.3	1.0	246.5	1.0	209.9	1.0	-22.3	- 8.8	-14.8
Malignant neoplasms	124.3	2.0	126.3	2.0	128.4	2.0	+ 3.3	+ 1.6	+ 1.7
Cerebrovascular diseases	121.3	3.0	104.0	3.0	78.9	3.0	-35.0	-14.3	-24.1
Accidents	34.9	4.0	33.7	4.0	26.4	4.0	-24.4	- 3.4	-21.7
Diabetes mellitus	29.7	7.0	31.2	5.0	25.4	5.0	-14.5	+ 5.0	-18.6
Symptoms and ill-defined conditions	29.0	8.0	26.6	6.5	23.4	6.0	-19.3	- 8.3	-12.0
Certain causes of infant mortality	33.8	5.0	26.6	6.5	21.7	7.0	-35.8	-21.3	-18.4
Influenza and pneumonia	31.7	6.0	25.3	8,0	16.2	8.0	-48.9	-20.2	-36.0
Cirrhosis of the liver	14.0	9.5	17.7	9.0	15.9	9.0	+13.6	+26.4	-10.2
Homicide	13.2	11.0	16.0	10.0	15.0	10.0	+13.6	+21.2	- 6.2
Infective and parasitic diseases	14.0	9.5	12.1	11.0	11.5	11.0	-20.0	-13.6	- 5.0
Nephritis and nephrosis	11.7	12.0	9.1	12.0	7.9	12.0	-32.5	-22.2	- 9.7
Congenital anomalies	6.5	14.0	6.2	14.0	5.6	14.0	-13.8	- 4.6	-10.7
Arteriosclerosis	10.9	13.0	7.9	13.0	6.0	13.0	-45.0	-27.5	-24.0
Mental disorders	3.4	16.0	4.1	16.0	4.9	15.0	+44.1	+20.6	+19.5
Bronchitis, emphysema, and asthma	5.5	15.0	4.7	15.0	3.2	16.0	-41.8	-14.5	-31.9
Suicide	2.5	17.0	3.0	17.0	3.1	17.0	+24.0	+20.0	+ 3.3

Table 3. Age-adjusted death rates per 100,000 of black and white females and males, for all causes and selected causes of death, United States, 1964-1978*

CAUSE OF DEATH AND RACE-SEX GROUP	YEAR														
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
All causes															
Black females	862.6	847.4	847.9	812.6	851.1	822.9	803.7	778.7	772.3	767.3	722.5	683.4	673.3	663.9	649.4
Black males	1252.4	1256.8	1284.9	1255.2	1346.5	1326.0	1308.2	1268.6	1290.7	1267.1	1213.2	1166.4	1145.5	1125.6	1110.5
White males	893.4	898.2	922.7	889.9	911.4	897.4	882.2	868.3	871.3	860.8	829.9	801.7	788.4	772.2	764.2
White females	519.2	515.3	513.6	500.5	510.1	499.1	490.5	480.2	479.0	470.9	453.8	434.5	429.1	418.1	416.0
Diseases of the heart															
Black females	279.9	271.2	270.9	258.0	271.4	256.3	251.0	244.7	240.9	239 5	224.3	210.8	207.7	206.8	200.0
Black males	386.6	384.6	392.4	375.7	397.0	385.5	375.3	362.2	356.9	366.3	347.1	329.6	327.7	324.3	324.3
White males	365.9	367.0	368.2	359.9	361.8	354.3	344.9	341.6	340.1	335.0	318.1	305.3	300.0	291.3	286.3
White females	183.2	181.0	180.0	173.8	175.0	169.5	164.5	162.2	160.8	156.4	149.3	140.9	132.8	133.6	133.2
Malignant neoplasms															
Black females	120.8	124.3	125.4	124.7	126.5	125.5	123.3	126.9	125.2	130.4	128.3	125.6	126.8	131.0	130.4
Black males	174.1	174.2	182.7	185.9	191.8	195.0	197.7	196.3	201.9	208.1	216.6	214.6	218.9	223.5	225.7
White males	144.7	147.0	147.8	149.4	151.5	151.5	153.4	153.9	144.7	155.1	163.9	156.1	157.9	158.8	160.0
White females	106.1	106.5	106.0	106.2	106.2	105.4	106.6	105.7	106.3	105.7	108.4	105.8	107.1	107.2	107.9
Cerebrovascular diseases															
Black females	127.3	126.4	120.8	114.0	118.0	111.3	107.7	100.5	101.2	99.5	90.4	82.2	78.3	74.2	69.5
Black males	136.6	138.3	125.7	127.2	135.1	128.0	137.2	116.4	115.3	113.9	105.8	89.9	92.5	87.9	93.4
White males	74.2	73.5	73.4	71.4	72.9	70.2	68.1	68.2	68.0	65.4	62.2	56.7	53.1	49.9	46.2
White females	61.6	60.3	60.1	58.0	59.0	56.5	55.0	53.8	53.6	53.1	50.1	45.6	43.3	40.3	38.2
Accidents															
Black females	33.5	34.0	37.4	34.1	35.3	35.6	34.5	35.6	30.9	32.1	28.3	27.0	25.1	25.3	26.2
Black males	104.4	107.9	115.3	113.7	122.0	117.8	119.2	111.4	110.3	106.7	93.8	92.0	85.5	86.0	83.6
White males	73.0	76.0	78.0	77.4	77.3	78.5	75.7	72.4	72.8	72.9	62.2	64.1	61.6	62.6	63.9
White females	26.6	27.0	27.8	27.5	27.4	27.4	26.6	25.9	26.6	25.8	22.4	21.9	21.7	22.3	22.4

Table 3. (Continued)

CAUSE OF DEATH AND RACE-SEX GROUP	YEAR														
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Diabetes mellitus															
Black females	28.8	28.0	30.0	29.0	32.9	32.4	30.8	31.2	31.3	30.2	28.5	26.4	25.4	23.8	22.8
Black males	17.7	17.7	17.9	18.1	20.8	21.1	21.2	20.9	22.1	21.9	19.7	18.7	18.6	17.4	17.5
White males	11.8	11.8	12.2	12.3	12.6	12.9	12.6	12.3	12.2	11.9	11.4	10.6	10.1	9.7	9.7
White females	12.6	12.7	12.7	12.6	13.2	13.0	12.6	12.1	11.9	11.4	10.8	10.0	9.5	8.8	8.9
Symptoms & ill-defined conditions															
Black females	31.6	29.4	28.8	27.6	27.5	28.7	27.2	25.2	25.3	26.5	25.6	24.6	21.3	23.8	21.8
Black males	48.9	44.4	44.7	47.8	44.8	48.4	43.0	43.3	43.2	48.2	44.6	44.3	39.7	39.9	37.1
White males	10.6	9.5	9.4	9.6	9.2	10.3	10.3	10.6	11.0	12.1	12.4	12.5	12.0	12.3	11.6
White females	5.3	4.6	4.7	4.8	4.5	5.1	5.2	5.0	5.4	6.1	6.6	6.5	6.3	6.3	6.2
Certain causes of infant mortality															
ALL AGES															
Black females	36.7	34.6	34.2	33.9	29.6	30.1	28.4	25.8	25.2	23.5	23.3	23.1	22.6	20.5	18.9
Black males	47.0	44.9	43.0	42.4	37.3	39.4	37.5	32.7	31.6	30.1	28.5	27.4	27.8	24.9	23.7
White males	23.8	22.9	22.7	21.9	20.9	19.8	19.4	16.9	15.8	15.2	14.7	12.9	11.8	10.7	9.9
White females	17.0	16.3	16.2	15.6	14.6	14.2	14.2	12.1	11.4	11.1	10.8	9.6	9.1	8.1	7.5
UNDER AGE ONE															
Black females	2395.3	2252.6	2228.6	2212.0	1931.5	1959.2	1854.7	1684.6	1637.3	1531.7	1520.5	1505.0	1470.7	1334.2	1230.3
Black males	3061.4	2928.4	2803.5	2762.1	2430.7	2565.1	2444.3	2132.7	2062.5	1963.2	1860.7	1783.2	1812.7	1624.2	1547.9
White males	1548.8	1495.9	1482.4	1427.8	1362.7	1293.9	1263.8	1099.0	1029.6	993.1	956.8	843.5	771.5	699.2	644.5
White females	1110.0	1063.3	1057.6	1015.6	952.8	928.7	923.4	790.1	744.6	726.0	701.0	623.7	592.2	528.4	488.5
Influenza and pneumonia															
Black females	30.8	31.6	31.9	28.8	35.5	30.8	28.0	22.6	22.7	22.4	17.7	16.2	17.4	14.6	15.3
Black males	51.9	52.7	55.3	55.2	61.3	56.1	52.4	45.8	46.1	42.9	36.3	35.0	35.4	31.3	33.2
White males	25.3	26.5	25.1	23.5	30.0	28.5	25.9	23.9	24.9	24.2	20.4	20.6	21.3	17.7	19.3
White females	14.9	15.2	15.5	15.0	17.4	16.8	14.5	12.9	13.9	13.3	11.5	11.2	12.1	9.4	10.6

Table 3. (Continued)

CAUSE OF DEATH AND RACE-SEX GROUP	YEAR														
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Cirrhosis of liver															
Black females	11.1	12.9	14.5	14.6	16.7	17.2	17.8	17.0	17.8	18.6	17.8	15.8	15.7	15.6	14.8
Black males	19.9	23.8	26.6	27.2	30.1	31.6	33.1	32.3	36.6	35.2	30.1	33.8	34.0	33.3	30.5
White males	15.0	15.7	16.7	17.1	17.7	17.9	18.8	18.8	19.0	19.1	19.0	17.9	17.4	14.5	14.3
White females	7.3	7.6	7.9	8.3	8.4	8.4	8.7	8.7	8.5	8.7	8.6	7.9	7.7	7.4	7.1
Homicide															
Black females	11.3	12.3	13.1	14.7	14.4	14.6	15.0	16.9	16.1	17.5	17.3	16.2	14.4	13.7	13.5
Black males	54.9	58.3	60.2	69.0	76.1	79.7	83.6	91.4	93.4	87.1	87.6	81.2	71.6	67.8	67.4
White males	4.3	4.8	4.9	5.8	6.6	6.6	7.4	7.9	8.2	8.7	8.4	9.4	8.5	8.8	9.1
White females	1.7	1.7	2.0	2.0	2.0	2.1	2.2	2.3	2.4	2.8	2.8	2.9	2.6	2.9	2.8
Infective & parasitic diseases															
Black females	14.9	14.2	13.5	12.9	14.3	13.7	12.7	11.7	11.3	11.3	11.3	11.2	12.0	11.2	11.8
Black males	29.7	28.0	25.2	25.8	26.1	24.0	20.8	21.8	20.6	19.5	18.4	17.9	18.3	18.5	18.2
White males	9.2	8.6	8.4	7.8	7.5	7.0	6.9	6.4	6.2	6.0	6.0	5.9	5.9	6.0	6.3
White females	4.3	4.1	4.0	3.8	4.4	4.1	4.2	4.1	3.8	3.9	3.6	3.8	4.0	3.9	4.2
Nephritis & nephrosis															
Black females	31.1	12.0	11.5	11.8	10.2	9.6	9.4	8.9	8.7	9.1	8.3	7.6	7.7	8.0	7.7
Black males	16.4	16.3	16.0	14.7	12.7	13.0	12.7	11.2	12.1	10.8	10.5	10.0	10.0	10.0	9.9
White males	5.7	5.5	5.2	4.8	3.9	3.8	3.5	3.1	3.1	3.0	2.8	2.8	2.8	2.8	2.8
White females	3.4	3.7	2.2	2.9	2.4	2.4	2.2	2.1	2.0	1.8	1.7	1.7	1.6	1.6	1.6
Congenital anomalies															
Black females	6.8	6.8	6.6	6.4	6.1	6.9	6.5	5.9	6.0	5.6	5.3	5.3	5.8	5.8	5.6
Black males	8.3	8.2	7.9	7.6	7.7	7.9	7.8	7.2	6.7	6.5	6.9	6.5	6.4	6.6	6.5
White males	7.8	7.5	7.2	7.1	7.1	7.2	7.1	6.8	6.2	6.1	5.9	5.9	5.8	5.9	5.7
White females	6.9	6.8	6.4	6.1	6.1	6.2	6.4	5.9	5.4	5.3	5.2	5.1	5.2	5.1	5.1

Table 3. (Concluded)

CAUSE OF DEATH AND RACE-SEX GROUP	YEAR														
	1964	1965	1966	1977	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Arteriosclerosis															
Black females	12.0	11.5	11.5	9.9	9.6	8.6	7.9	7.7	7.8	7.6	7.0	5.9	5.9	5.7	5.5
Black males	14.3	14.3	13.9	12.6	11.6	11.1	9.8	8.8	10.2	9.2	8.7	7.8	6.8	7.2	6.9
White males	13.2	13.6	13.3	12.4	10.6	10.3	9.5	9.2	9.2	8.8	8.5	7.4	7.3	7.1	6.8
White females	10.8	10.5	10.4	9.8	8.5	8.1	7.3	7.1	7.2	7.0	6.6	5.7	5.6	5.3	5.2
Mental disorders															
Black females	2.9	3.2	3.4	3.3	4.0	4.1	4.2	5.1	5.2	5.1	5.6	4.6	4.9	4.4	4.8
Black males	8.6	8.9	10.3	10.7	13.8	14.2	15.1	19.0	18.5	17.6	18.0	18.0	17.0	15.6	15.5
White males	2.8	3.0	3.2	3.3	3.8	3.8	4.0	4.5	4.3	4.5	4.8	4.8	4.5	4.5	4.8
White females	1.2	1.1	1.3	1.2	1.3	1.3	1.2	1.5	1.9	1.4	1.8	1.7	1.7	1.8	1.9
Bronchitis, emphysema, and asthma															
Black females	5.0	5.5	5.5	5.7	5.7	5.1	5.1	4.7	4.4	4.0	3.3	3.7	3.2	2.9	3.0
Black males	13.6	16.2	16.1	16.2	17.5	15.6	14.8	13.6	13.4	12.4	10.8	10.2	9.6	8.8	8.5
White males	17.4	20.8	22.1	22.1	23.0	21.3	20.8	19.8	19.7	18.6	16.3	15.0	13.7	12.2	11.3
White females	3.8	4.5	4.6	4.7	4.8	4.5	4.6	4.6	4.7	4.5	4.6	4.1	4.0	3.7	3.8
Suicide															
Black females	2.4	2.5	2.4	2.8	2.4	2.7	2.9	3.4	3.0	2.8	2.8	3.0	3.2	3.3	3.0
Black males	8.6	10.5	9.2	9.0	8.7	9.6	10.0	9.6	11.4	11.3	11.6	11.3	12.0	12.0	12.6
White males	17.4	17.9	17.4	17.1	17.2	17.4	18.2	18.0	18.5	17.6	19.0	19.8	19.2	20.6	19.2
White females	6.2	6.7	6.5	6.7	6.4	6.9	7.3	7.4	7.4	7.1	7.1	7.3	7.0	7.2	6.7

* The highest rate for each group and each cause is underscored.

Table 4. Ratio comparisons of black female age-adjusted death rates per 100,000 to those of black and white males and white females, for all causes of death and selected causes of death, United States, 1964-1978

CAUSE OF DEATH	YEAR														
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
All causes of death															
Black female/ black male	68.9	67.4	66.0	64.7	63.2	62.1	61.4	61.4	59.8	60.6	59.6	58.6	58.8	59.0	58.5
Black female/ white male	96.6	94.3	91.9	91.3	93.4	91.7	91.1	89.7	88.6	89.1	87.0	85.2	85.4	86.0	85.0
Black female/ white female	166.1	164.4	165.1	162.4	166.8	164.9	163.9	162.2	161.2	162.9	159.2	157.3	156.9	158.8	156.1
Diseases of the heart															
Black female/ black male	72.4	70.5	69.0	68.7	68.4	66.5	66.9	67.6	67.5	65.4	64.6	64.0	63.4	63.8	61.7
Black female/ white male	76.5	73.9	73.6	71.7	75.0	72.3	72.8	71.6	70.8	71.5	70.5	69.0	69.2	71.0	69.8
Black female/ white female	152.8	149.8	150.5	148.4	155.1	151.2	152.6	150.9	149.8	153.1	150.2	149.6	156.4	154.8	150.2
Malignant neoplasms															
Black female/ black male	69.4	71.4	68.6	67.1	66.0	64.4	62.4	64.4	62.0	62.7	59.2	58.5	57.9	58.6	57.8
Black female/ white male	83.5	84.6	84.8	83.5	83.5	82.8	80.4	82.4	86.5	84.1	78.3	80.5	80.3	82.5	81.5
Black female/ white female	113.8	116.7	118.3	117.4	119.1	119.1	115.7	120.1	117.8	123.4	118.4	118.7	118.4	122.2	120.8
Cerebrovascular diseases															
Black female/ black male	93.2	91.4	96.1	89.6	87.3	87.0	78.5	86.3	87.8	87.4	85.4	91.4	84.6	84.4	74.4
Black female/ white male	171.6	172.0	164.4	159.7	161.9	158.5	158.1	147.4	148.8	152.1	145.3	145.0	147.4	148.7	150.4
Black female/ white female	206.6	209.6	201.0	196.6	200.0	197.0	195.8	186.8	188.8	187.4	180.4	180.3	180.1	184.1	181.9
Accidents															
Black female/ black male	32.1	31.5	32.4	30.0	28.9	29.9	28.9	32.0	28.0	30.1	30.2	29.3	29.4	29.4	31.3
Black female/ white male	45.9	44.7	47.9	44.1	45.7	45.4	45.6	48.9	42.4	44.0	45.5	42.1	40.7	40.4	41.0
Black female/ white female	125.9	125.9	134.5	124.0	128.8	129.9	129.7	137.4	116.2	124.4	126.3	123.3	115.7	113.4	117.0

Table 4. (Continued)

CAUSE OF DEATH	YEAR														
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Diabetes mellitus															
Black female/ black male	162.7	158.2	167.6	160.2	158.2	153.6	145.3	149.3	141.6	137.9	144.7	141.2	136.6	136.8	130.3
Black female/ white male	244.1	237.3	245.9	235.8	261.1	251.2	244.4	149.3	256.6	253.8	250.0	249.1	251.5	245.4	235.0
Black female/ white female	228.6	220.5	236.2	230.2	249.2	249.2	244.4	257.8	263.0	264.9	263.9	264.0	267.4	270.4	256.2
Symptoms & ill-defined conditions															
Black female/ black male	64.6	66.2	64.4	57.7	61.4	59.3	63.2	58.2	58.3	55.0	57.4	55.5	53.6	59.6	58.8
Black female/ white male	298.1	309.5	306.4	287.5	298.9	278.6	264.1	237.7	230.0	219.0	206.4	196.8	177.5	193.5	187.9
Black female/ white female	596.2	639.1	612.8	575.0	611.1	562.7	523.1	504.0	468.5	434.4	387.9	378.5	338.1	377.8	351.6
Certain causes of infant mortality (all ages)															
Black female/ black male	78.1	77.1	79.5	80.0	79.4	76.4	75.7	78.9	79.7	78.1	81.8	84.3	81.3	82.3	79.7
Black female/ white male	154.2	151.1	150.7	154.8	141.6	152.0	146.4	152.7	159.5	154.6	158.5	179.1	191.5	191.6	190.9
Black female/ white female	215.9	212.3	211.1	217.3	202.7	212.0	200.0	213.2	221.0	211.7	215.7	240.6	248.4	253.1	252.0
Infuenza and pneumonia															
Black female/ black male	55.8	54.2	54.5	53.7	55.5	54.4	53.8	52.6	48.6	52.8	59.1	46.7	46.2	46.8	48.5
Black female/ white male	74.0	82.2	86.8	85.4	94.4	96.1	94.7	90.4	93.7	94.7	93.7	88.3	90.2	107.6	130.5
Black female/ white female	152.0	169.7	183.5	175.9	198.8	204.8	204.6	195.4	209.4	213.8	207.0	200.0	203.9	210.8	208.4

Table 4. (Continued)

CAUSE OF DEATH	YEAR														
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Homicide															
Black female/ black male	20.6	21.1	21.8	21.3	18.9	18.3	17.9	18.1	17.2	20.1	19.7	20.0	20.1	20.2	20.0
Black female/ white male	262.8	256.2	267.3	253.4	218.2	221.2	202.7	213.9	196.3	201.1	206.0	172.3	169.4	155.7	148.4
Black female/ white female	644.7	723.5	655.0	735.0	720.0	695.2	681.8	734.8	670.8	625.0	617.8	558.6	553.8	472.4	482.1
Infective & parasitic diseases															
Black female/ black male	50.2	50.7	53.6	50.0	54.8	57.1	61.1	53.7	54.8	57.9	61.4	62.6	65.6	60.5	64.8
Black female/ white male	162.0	165.1	160.7	165.4	190.7	195.7	184.0	182.8	182.2	188.3	188.3	189.8	203.4	186.7	187.3
Black female/ white female	346.5	346.3	337.5	339.5	325.0	334.1	302.4	285.4	297.4	289.7	313.9	294.7	300.0	287.2	281.0
Nephritis & nephrosis															
Black female/ black male	79.3	73.6	69.1	80.3	80.3	73.8	74.0	79.5	71.9	84.2	79.0	76.0	77.0	80.0	77.8
Black female/ white male	229.8	218.2	221.2	245.8	261.5	252.6	268.6	287.1	280.6	303.3	296.4	271.4	275.0	285.7	275.0
Black female/ white female	385.3	324.3	522.7	406.9	425.0	400.0	427.3	423.8	435.0	505.6	488.2	447.1	481.2	500.0	481.2
Congenital anomalies															
Black female/ black male	81.9	82.9	83.5	84.2	79.2	87.3	83.3	81.9	89.6	86.2	76.8	81.5	90.6	87.9	86.2
Black female/ white male	87.2	90.7	91.7	90.1	85.9	95.8	91.5	86.8	96.8	91.8	89.8	89.8	100.0	98.3	98.2
Black female/ white female	98.6	100.0	103.1	104.9	100.0	111.3	101.6	100.0	111.1	105.7	101.9	103.9	111.5	113.7	109.8

Table 4. (Concluded)

CAUSE OF DEATH	YEAR														
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Arteriosclerosis															
Black female/ black male	83.9	80.4	82.7	78.6	82.8	77.5	80.6	87.5	76.5	82.6	80.4	75.6	86.8	79.2	79.7
Black female/ white male	90.9	84.6	86.5	79.8	90.6	83.5	83.2	83.7	84.8	86.4	82.4	79.7	80.8	80.3	80.9
Black female/ white female	111.1	109.5	110.6	101.0	112.9	106.2	108.2	108.4	108.3	108.6	106.1	103.5	105.4	107.5	105.8
Mental disorders															
Black female/ black male	33.7	36.0	33.0	30.8	29.0	28.9	27.8	26.8	28.1	29.0	31.1	25.6	28.8	28.2	31.0
Black female/ white male	103.6	106.7	106.2	100.0	105.3	107.9	105.0	113.3	120.9	113.3	116.7	95.8	108.9	97.8	100.0
Black female/ white female	241.7	290.9	261.5	275.0	307.7	315.4	350.0	340.0	273.7	364.3	311.1	270.6	288.2	244.4	252.6
Bronchitis, esphysema, & asthma															
Black female/ black male	36.8	34.0	34.2	35.2	32.6	32.7	34.4	34.6	32.8	32.2	30.6	36.3	33.3	33.0	35.3
Black female/ white male	28.7	26.4	24.9	25.8	24.8	23.9	24.5	23.7	22.3	21.5	20.2	24.7	23.4	23.8	26.5
Black female/ white female	131.6	122.2	119.6	121.3	118.8	113.3	110.9	102.2	93.6	88.9	71.7	90.2	80.0	78.4	78.9
Suicide															
Black female/ black male	27.9	23.8	26.1	31.1	27.6	28.1	29.0	35.4	26.3	24.8	24.1	26.5	26.7	27.5	23.8
Black female/ white male	13.8	14.0	13.8	16.4	14.0	15.5	15.9	18.8	16.2	15.9	14.7	15.2	16.7	16.0	15.6
Black female/ white female	38.7	37.3	36.9	41.8	37.5	39.1	39.7	45.9	40.5	39.4	39.4	41.1	45.7	45.8	44.8

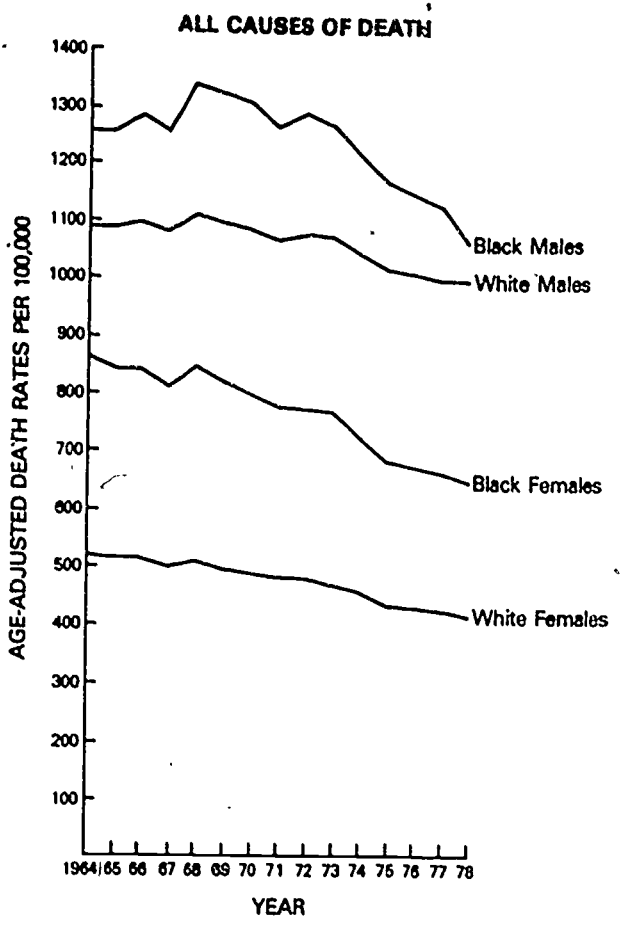

Figure 1. Age-adjusted death rates of black and white females and males, for all causes of death, 1964-1978.

Women's Social Roles and Health

Lois M. Verbrugge, M.P.H., Ph.D.

Women's health became a topic of feminist concern and activity in the 1970s. Attention was devoted mostly to health problems unique to women, such as pregnancy and childbirth. Feminist concern continues in the 1980s with special attention to reproductive health, physician treatment of women patients, rape and domestic violence, drug use and drug abuse, and women health professionals. An even broader perspective on women's health is now emerging among social scientists. Their task is to describe differences in health between women and men, or among different social groups of women, and then to find good explanations for those differences. This is a social demography perspective. It identifies social groups which have the best and the worst health and helps determine why differences exist.

Both feminists and social demographers have contributed to public discussions and political decisions about women's health. So far, many issues originally raised by feminists have taken the public limelight. But increasingly, some important questions are being widely discussed which require a social demography approach. For example: Why do women appear to be "sicker" but have lower mortality rates than men? Do women and men in the same occupations have similar health status? How do different roles and degrees of role satisfaction influence women's health? How stressed are homemakers and employed women; how do they cope with stress; and how does unrelieved stress influence their health? These are difficult questions, and there is much more speculation than scientific evidence to answer them. As these questions gain public interest, it becomes urgent to have adequate answers.*

*The gradual shift from mainly feminist interests to more social demographic ones is reflected in two conferences: the 1975 conference "Women and Their Health" aponsored by the National Center for Health Services Research (1), and the 1978 conference "Issues in Federal Statistical Needs Relating to Women" sponsored by the Census Bureau (2, pp. 93112). In the few years since the 1978 conference, social demographic perspectives and issues have gained increased government and academic attention.

This paper considers evidence on one major question: How do major life roles such as employment, marriage, and parenthood influence women's physical health?* The paper is organized as follows: First, there is a brief summary of sex differentials in health, and of trends in women's health. This sets the context for focusing on contemporary women's health. Second, it theorizes about the ways in which social roles can influence health, including the relationships between health and multiple roles and role satisfaction. Third, it reports on how women's health varies according to employment status, marital status, presence of children, multiple roles, and satisfaction with roles. Finally, it discusses the implications of these results for the health risks and benefits attached to social roles.

A few definitions are in order: (a) Morbidity means illness, injury, or symptoms. These may be acute or chronic, and they may be determined by medical examination or individual self reports. (b) General health status is an individual's general evaluation of his/her health based on questions such as: "Do you consider your health excellent, good, fair, or poor?" "Compared to other people your age, is your health better, worse, or about the same as theirs?" (c) Disability refers to any restriction in physical functions, mobility, or social activities such as job, housework, or sports, because of illness or injury. Restricted activity is short-term disability in response to acute conditions or symptomatic chronic ones; for example, bed days, work-loss days, school-loss days. Limitation is long-term disability due to chronic conditions. (d) Health services use refers to doctor visits, dentist visits, and hospital stays, in short-stay hospitals or long-term care facilities such as nursing homes. It includes preventive-care visits. (e) Drug use is use of pills, medicine, or treatments for curative or preventive reasons. (f) Other preventive health behaviors are personal habits which help prevent illness and injury.

Three terms subsume several others: Health status refers to all measures of illness, injury, and symptoms (items a and b above). Health behavior refers to all curative and preventive actions (items c, d, e, and f above). Health encompasses all of these (items a through f).** Note that "health," as used here, includes health behavior as well as health status.

SEX DIFFERENTIALS IN HEALTH, AND TRENDS IN WOMEN'S HEALTH

Let us place contemporary women's health in a broader context, by comparing women's health to men's and then by looking at trends in the past 20 years.

Sex Differentials in Health

In many ways, it appears that women are "sicker" than men. In health surveys, women report more acute illnesses and symptoms than men do. This is apparently "real"; epidemiological data also indicate that

* This paper focuses on physical health. Mental health is discussed only as it is related to physical health. For reviews of women's mental health, see (3,4,5,6).

** Some people distinguish between positive and negative aspects of health, reserving the term "health" for positive aspects and "morbidity" for negative ones. This paper does not make that distinction.

women have more acute respiratory and gastrointestinal problems. A higher percent of women than men have a chronic condition. Women have higher prevalence rates of moderate and severe arthritis, anemias, diabetes, hypertension, and some forms of heart disease after age 50, and numerous other chronic conditions that cause discomfort but seldom death. Women have poorer vision and nutrition status. Finally, women rate their health to be worse than men do.

On the other hand, men have higher injury rates at all ages. They have higher prevalence rates for many life-threatening chronic conditions, i.e., conditions that are leading causes of death. In particular, they have higher prevalence rates of heart disease in young adulthood. Men's chronic conditions appear to be more severe, i.e., in a more advanced state than women's, and men have poorer hearing and dental status.

Thus, it appears that women are more frequently ill but with relatively mild problems. In contraat, men probably are ill less often, but their illnesses and injuries tend to be serious ones.

What about health behavior? Women have higher rates of restricted activity, doctor and dentist visits, and drug use. Men have higher hospitalization rates at short-stay hospitals after age 50, and longer hospital stays at all ages. Up to about age 65, men's rates of institutionalization for health reasons are higher than women's. Limitations data sometimes show higher rates for men, but sometimes for women. Besides physical factors, psychosocial factors are very important in determining a person's limitations in jobs, chores, mobility, and other activities. Psychosocial factors probably boost women's limitation rates and depress men's.

Overall, health behavior data tend to reflect the qualitative difference in women's and men's health status: Women are more frequently ill; this prompts more frequent disability, health services use, and drug use. Men are more seriously ill, leading to longer hospitalizations and usually greater limitations.

From a short-term perspective, women are "sicker." But in the long run, men's disadvantage asserts itself. Their death rates are higher than women's at all ages and for all leading causes of death.

For a full review of sex differentials in health status, health behavior, and mortality, see Verbrugge (7). For a discussion of recent trends in sex mortality differentials, see Verbrugge (8).

Trends in Women's Health*

In the past 20 years there have been few changes in acute diseases for women but rather striking changes for injuries and chronic problems.

* Data for this section are age-standardized rates for all females, not just women. Children are about 26 percent of the female population; including them does not change the data reported here.

With respect to acute conditions: Incidence rates of respiratory, digestive, and infective/parasitic conditions are essentially stable for the period 1957-1978. Women's rates of "other acute conditions" (ear and skin problems, headaches, genitourinary conditions, pregnancy and related events, and musculoskeletal problems) appear to be increasing slightly. Rates of restricted activity and bed disability due to acute conditions mirror the incidence rates: They have been quite stable for respiratory, digestive, and infective/parasitic conditions, and increasing a bit for "other acute conditions."

Women's injury rates appear to be increasing. Paralleling this, short-term disability due to injuries, and the number of disability days per injury, have been increasing. Women's greater participation in the labor force and the community may partly explain the increasing injury rates. The injuries they suffer are apparently also more serious than before.

With respect to chronic conditions: The percent of women with a "limiting chronic condition" has been rising steadily since 1957, especially between ages 45 and 64. The limitations are mostly in primary, not secondary, activities; in other words, more and more women are reporting that they cannot work or keep house at all, or that they are limited in the kind or amount of job or housework they do. This is a sobering trend which is true for women and also men. It suggests that the population is becoming more debilitated by chronic conditions. But the increase is partly due to earlier diagnosis of chronic conditions and better rehabilitation. Thus, people learn about chronic problems earlier in life, get earlier medical care to control, but seldom are able to cure, the problems, and they die later.* Although the data do not tell us clearly about trends in prevalence of chronic conditions, they are clear about the social experience of illness. Women are increasingly feeling impeded in social activities because of chronic problems.

Table 1 shows health data for selected years between 1957 and 1978. More details for the period 1957-72 are reported in Verbrugge (9).

SOCIAL ROLES AND WOMEN'S HEALTH--THEORY

A Model

All human activities have potential health consequences. Social roles give people repeated exposure to certain risks. And, because of time constraints and emotional commitments to roles, they also influence attitudes about symptoms, attitudes about health care, and opportunities for health care. Figure 2 is a diagram showing how social roles may influence health.

The diagram shows that a role exposes an individual to health risks. These risks are of three types: hazards from the role environment and activities, life style behaviors related to the role, and role-related stress. Stress is an especially intriguing and difficult issue. We

* Mortality rates have dropped sharply in the past decade, after years of relative stability. Scientists believe the drop is partly due to better prevention and control of chronic conditions, especially heart disease.

know little about levels of stress that women in different roles experience, efforts to cope with stress, and the effect on particular diseases of unrelieved stress and of some coping behaviors, such as alcohol consumption.

Major roles take considerable time, and they pose time constraints on other activities. The constraints are partly objective, such as fixed work schedules, and partly subjective, such as commitment to a work group. Time constraints affect a person's attitudes about symptoms and health care and also opportunities for health care. For example, women deeply involved in child rearing may ignore symptoms of illness or defer a doctor visit, feeling they have no time to be ill or to get medical care for themselves. Or, working women may find that doctors' office hours conflict with their work shift so they can rarely get away for medical care.

In general, "health attitudes" refers to people's perception of symptoms, assessment of their severity, and readiness to take curative or preventive actions.* "Opportunities for health care" refers to people's ability to get adequate and appropriate health care, e.g., insurance coverage, regular source of care, knowledge of cancer signs. Attitudes and opportunities are influenced by other things besides roles, such as by ethnicity, religion, or age. Here the focus will be only on how roles affect them.

Satisfaction with roles may also influence risks and health attitudes. For example, women who detest housecleaning may tend to have more injuries at home because they are careless or unconsciously wish to be freed from the tasks. Women who enjoy their roles immensely may discount the severity of flu or colds, continuing with their usual activities.

Two aspects of morbidity must be distinguished: "real" morbidity and perceived morbidity. The first term refers to illness and injury experiences which can be clinically measured or diagnosed. The second refers to illness and injury as felt by an individual. Both views of morbidity are perfectly legitimate for scientific study. One view is medical; the other is sociomedical. The more risks a person encounters, the more "real" morbidity he/she experiences. In turn, perceived morbidity depends greatly on "real" morbidity. But it is also influenced by psychosocial factors. Curative health behaviors are influenced by perceived morbidity, by attitudes about medical care, drugs, and self-care, and by access to medical care. Preventive health behaviors depend on past experiences of illness and injury, health attitudes, and access to care.

The model in Figure 1 is simplistic. There are some important "feedback" relationships not shown. For example, poor health can force a person to change roles. Two other examples may be noted. Medical care may control a chronic condition and make it asymptomatic, and cessation of smoking may diminish risks of respiratory ailments. When feedback relationships exist, it is difficult to interpret the association between two variables (X_1 and X_2): Did X_1 cause X_2, did X_2 cause X_1, or did both effects occur? We will encounter this issue soon in more detail.

* These attitudes are commonly known as "illness behavior" (12,13). Here the term "health attitudes" is used to distinguish between predictors of health and health itself.

Roles of Employment, Marriage, and Parenthood

Women's principal adult roles are employment, marriage, parenthood, friendship, and community activities. Women choose one or more of these roles and devote substantial amounts of time to them. Three roles will be considered here: employment (a paid job), marriage, and parenthood (presence of own children under 18 in the household). How can combinations of these roles and role satisfaction influence health, either negatively or positively?

Employment Status

Employment exposes women to occupational hazards from job tasks, air pollution and noise at the worksite, and commuting. Stresses may be encountered at a job, and life habits may change to match that of coworkers or to relieve job stresses. But employment may also have some pronounced benefits, increasing feelings of self-worth and accomplishment, satisfying social contacts, and lending excitement to daily activities.

Employment may also affect health attitudes and opportunities for health care. It is generally believed that employed women are less willing to perceive symptoms and take curative actions because they have less time or less flexible time schedules than nonemployed women. Employed women may, however, have greater access to health care due to better insurance coverage; this would encourage symptom perception and curative care.

What about homemakers? They, too, encounter certain risks from housekeeping activities, stresses such as boredom and social isolation, and stress-related behaviors such as covert drinking. Yet there are some benefits too: homemakers probably have fewer time constraints than employed women.* This encourages sensitivity to illness symptoms and time to care for them.

Considering all the minuses and pluses, are health risks of employment greater or less than those of keeping house full time? It is not known for sure. Data are needed on specific tasks, environmental quality, stresses, and role-related life style behaviors of employed women and homemakers. Moreover, there is certainly great variation among employed women in the risks encountered, depending on the occupation.

In summary, we cannot state straightforward hypotheses about how employment influences health. Assuming that there are some health benefits and some disadvantages, is the net effect on health a positive or negative one? Are the effects mainly due to risks or to health attitudes and opportunities? Does an association between employment and health mean that employment actually influences health? For example, if employed women are healthier than nonemployed ones, does this mean that employment promotes health (social causation) or that healthy women become employed and remain employed more than unhealthy ones (social selection)? This issue of social causation vs. social selection has troubled social scientists for years, and research has not yet resolved it.

*The critical factor may be flexibility in schedules rather than the amount of free time, but this remains to be demonstrated.

Marital Status

Marriage is thought to promote good health since it offers companionship, affection, a regular domestic life, and care when illness or injury occurs. Thus, it may reduce risks because of less stress and better daily habits. In addition, marriage may encourage positive health attitudes, and a greater readiness to perceive symptoms, take curative actions, have good preventive health habits, and get preventive examinations. Social scientists have not suggested any negative aspects of marriage for health. There may be some factors, such as increased risks of infection or stresses from the need to coordinate one's life with another person, but presumably they are relatively minor.

Which of the nonmarried have the greatest risks and worst health attitudes? Social scientists generally believe that divorced and separated people experience the most stress, most disrupted daily lives, and most loss of companionship, not only from the loss of a spouse but also from loss of mutual friends. Widowed people may rank next. Single (never-married) people may be most similar to married ones. They have not experienced loss of a spouse, they have good opportunities for social contact outside home, and they do not have demands upon them from a mate for time and attention.*

Once again, the issue is social causation vs. social selection. As stated above, marital status may influence health. Or the other hand, health can influence marital status: People with longterm health problems may tend to remain single. And healthy people who marry, but then incur a serious chronic condition, may tend to become divorced or separated, if the illness reduces marital happiness and causes discord. The issue of social causation vs. social selection for marriage and health has been discussed often, but scientific evidence is scant.

Parenthood (Presence of Children)

In most families women have principal responsibility for child care. Child rearing may have some very positive effects on women's health, providing feelings of worth and constant intimate contact. On the other hand, responsibilities for children may be so persistent and great that women become fatigued and vulnerable to illness. Apart from fatigue, constant contact with children may increase risks of infectious diseases. Overall, it is not known whether risks increase or decrease from child care activities and responsibilities. The distinction between activities and responsibilities is important, since employed women with children can reduce child care activities by hiring a sitter.

Having children may also affect health attitudes. Child care activities may inhibit women from perceiving symptoms, staying in bed, or seeing a doctor when ill. An alternative hypothesis is that the

* Although single people tend to be young, and widowed people tend to be elderly, the features of marital status are stated irrespective of age.

recognition that one's good health is necessary to fulfill home responsibilities may spur symptom awareness, curative care, and preventive care. In short, we simply do not know how parenthood affects health attitudes.*

Multiple Roles

Multiple roles refers to having two or more principal social roles. How is health affected? Does adding several roles simply give a person the sum total of health benefits or debits of each one? Or do certain configurations have special effects on health? For example, consider an employed, nonmarried mother. Her employment and parenthood roles may each reduce the time available for personal health, but the combination may have an "extra" negative effect. Readers may recognize the distinction between additive effects (each role simply adds its impact, and no more) and interaction effects (each role has an impact, but the combination of roles has an extra effect).

It is common to cite the negative aspects of multiple roles and how they can cause role overload and role conflict. Overload refers to too many demands on time. Conflict refers to incompatible expectations from one's various roles. Both cause role strain.

If this is true, the more roles a person has, the more role overload and negative consequences for health might be expected. And combinations which cause role conflict will increase stress and jeopardize health for example, in the case of a woman executive who must travel often and has a spouse and young children.

But multiple roles may also enhance health. People with multiple roles gain more privileges, security, resources, and feelings of self-esteem (16). They learn to use their time well (17). Their greater social involvement and achievement enhance feeling of satisfaction (18). All of these factors reduce stress, stress-related life styles, and possibly attention to symptoms, with a positive effect on health.

The other side of the coin is absence of roles: Having few roles gives people more time and avoids conflict. But it can cause boredom, social isolation, and stress. It may also increase a person's attention to body discomforts, encourage psychosomatic symptoms, and increase medical care visits partly because of need for empathic interaction.

* An interesting topic, somewhat related to the discussion, is how living arrangements influence health. Does living alone lead to poorer health, compared to living with relatives or nonrelatives? Kobrin and Hendershot (14) show that people living alone have higher death rates than those living with someone. There has been no comparable analysis for health. A few results may be found in Rivkin (15): women in nuclear families have fewer symptoms than those living alone or in extended families. Living arrangements are correlated with other family status variables such as marital status and presence of children, but the underlying question remains: Does companionship at home promote good health? There are ample published data from the Health Interview Survey with which to study this question (10).

In this paper, the term "multiple roles" refers to having two or more of the roles of employment, marriage, and parenthood. The term, "role combination" is more general, referring to any mix of employment, marriage, and parenthood. As examples: employed married women have multiple roles and also a particular role combination (employment + marriage + nonparent). Nonemployed divorced mothers have one role (parenthood) and a role combination (nonemployment + nonmarriage + parenthood).*

Role Satisfaction

A critical factor in a woman's health may be how satisfied she is with her roles, no matter what they are. It may be just as important to know how pleased a woman is with her activities as what those activities are. Feelings about roles may influence risks and attitudes to illness. If dissatisfied women feel more stressed and adopt unhealthful life styles, risks of illness and injury increase. Also, dissatisfied women may perceive body discomforts more readily and consider them to be more serious than role-satisfied women. Both the risks and attitudes could prompt more disability, drug use, and medical care.**

Whenever possible, role satisfaction should be taken into account when we study roles and women's health. In and of itself, role dissatisfaction may have an important effect on health. Moreover, dissatisfaction with some role combinations may have especially deleterious effects. For example, employed divorced mothers who dislike their job may be ill especially often, compared with similar women who like their jobs.***

* In popular usage, multiple or dual roles often mean marriage plus employment for women. Note that the definition used here is different. Here, two or more principal roles are referred to as multiple roles. This means a married woman with young children has multiple roles, just as a married working woman has multiple roles.

** On the other hand, dissatisfaction could decrease curative and preventive behaviors if women lose their motivation to stay well. I think this appears to be less likely than the first hypothesis.

*** Another approach to this issue is to measure sex-role attitudes of men and women, characterize them as traditional or nontraditional, and see how that is related to health. More psychologically inclined researchers would study gender identification, and characterize people as feminine, masculine, or androgynous. It is thought that people with traditional roles, but nontraditional attitudes, are very stressed and suffer poor mental and physical health. Role satisfaction is not measured; it would be an intervening variable between the predictors (roles and sex-role attitudes) and health. Both the sex-role attitudes and role-satisfaction approaches are legitimate and informative. It may be preferable to measure role satisfaction directly, recognizing that sex-role attitude is one of the causal factors underlying satisfaction. The ideal approach may be to measure both role satisfaction and sex-role attitudes if one really wants to know what causes satisfaction and dissatisfaction. Regardless of the approach, the point is to find out how subjective feelings about roles influence health, compared with the objective aspects of one's role.

Summary

No simple predictions can be made about the influence of social roles on health: employment and parenthood each have some positive and some negative effects. Marriage appears to have mostly positive effects. Multiple roles probably have some distinct benefits and disadvantages for health. In sum, we cannot say for sure whether the net effect of employment, marriage, parenthood, and multiple roles is positive or negative.

Let us turn to data on how women's social roles and health are related. This will give us clues about whether certain roles have overall positive or negative effects on health. Ultimately, the proof will come from detailed studies of specific risks, health attitudes, and health care opportunities for women in various roles.

SOCIAL ROLES AND WOMEN'S HEALTH--FACTS

In the following section published research and new results from several sources will be reviewed. Some new sources are: (a) Tabulations from the national Health Interview Survey (HIS) by employment status, marital status, presence of children, age, and sex, currently being analyzed by Madans and Verbrugge (19). Here, health status and disability for women will be discussed by employment and marital status, for HIS 1977-78.* (b) Recent HIS report on occupational differentials in health is used (20). (c) 1978 study of women's and men's health in Detroit is used to assess the impact of multiple roles, and role satisfaction on health. For details about the Health In Detroit study (HID), see Verbrugge (21,22). Whenever possible, comparisons will be made with men in similar roles.

Employment Status

Currently employed women have better health status and less disability than women who are unemployed or not in the labor force.** Women not in the labor force (homemakers) have the worst health status and most disability.

Table 2 shows that currently employed women rate their health best, within all age groups. They have the lowest rates of restricted activity days, bed days, and activity limitations from chronic condi-

* The project examines role effects on women and men's health and changes over time in these effects. Tabulations for three time periods are being used (1964-65, 1972-73, 1977-78). Descriptive and multivariate analyses are reported in Madans and Verbrugge (19).

** The term "labor force" includes "currently employed" plus "unemployed" people. Currently employed people have paid jobs. Unemployed people have no jobs or are laid off. All are looking for employment. People "not in the labor force" have no paid job and are not looking for one. These are typically homemakers, students, and retired or disabled people. Most women not in the labor force are homemakers. In this paper all women not in the labor force will be designated as "homemakers."

tions. In contrast, homemakers of all ages report worst health status and usually most short-term and long-term disability. Homemakers with limitations often say they cannot perform their main role (keeping house) at all.* These differentials appear for both white and black women (data not shown). HID data strongly concur wi h these HIS results.

Previous research has similar results: nonworking men tend to have higher rates of acute illness, chronic conditions, restricted activity, doctor visits, and psychotrophic drug use (15,23,24,25,26,27).

Only a few results contradict this association of employment with good health. Rice and Cugliani (25) studied women with no chronic limitation, i.e., women who were quite healthy. For most health indicators, employed women were healthier than homemakers but they did have higher acute illness rates. Table 2 also shows this pattern, for all women. It is difficult to think of a plausible explanation. Also, full-time employed women had higher risks of coronary heart disease than part-time workers or housewives (28). Similarly, Framingham data showed slightly higher rates of coronary heart disease among employed women than housewives, although the differences were not statistically significant (29).** However, hypertension rates were lower for full-time employed women (28), possibly because ill women left the labor force.

What about men? The overall picture is similar: currently employed men are healthier than unemployed men. They, in turn, are notably healthier than men not in the labor force.

When employed women and employed men are compared, sex differences remain: employed women still have higher rates of restricted activity, bed days, and work loss days; they rate their health to be worse; and they have fewer chronic limitations (data not shown). Homemakers are even more sick compared with employed men; in fact, they have many more chronic limitations. The limitations data suggest that men remain employed in spite of chronic problems, whereas women tend to eschew employment or quit work.

Occupation

White-collar workers experience numerous acute ailments which are not especially disabling. Low-status occupation groups have the highest chronic disability, and they tend to have highest short-term disability and hospitalization of all employed groups. Unemployed women, however, have the poorest health status, especially for chronic conditions.

*Because of the way questions are asked, a few currently employed women report that they cannot perform their main activity. Readers should focus on responses for the other two categories: limitation in kind or amount of activity, and limitation in secondary activities. The author also has 1972-73 HIS tabulations of health indicators by "usual activity." This is the individual's usual role in the past year (see Footnote b, Table 2). Differentials in health of women whose usual activity was "working" or "keeping house" are similar to those for "currently employed" and "not in labor force" groups. This is because most people's usual role is the same as their current role at the time of the interview.

** See the paper by Haynes and Feinleib in this volume.

Occupation data tell us how health varies among working women. Table 3 shows health indicators for four groups of employed women, plus unemployed ones.

Consider first currently employed women. White-collar women, especially professional/technical ones, have frequent acute ailments but few chronic ones. They have medium levels of restricted activity and hospitalization, but they visit doctors often, possibly for preventive reasons. Blue-collar women have high rates of disability and health services use, but they do not have especially high morbidity rates. Are their acute health problems relatively serious ones? Services workers are relatively sick with both acute and chronic conditions. Chronic problems are especially prevalent for private household workers. Women may find it feasible to remain employed in private household work despite health problems. Farm workers have high rates of limitation, but they do not take many health curative actions. There is little variation in women's injury rates by occupation. This is in sharp contrast to men; blue-collar men have much higher rates than other groups. Do women blue-collar workers have relatively safe jobs, so that their risks are comparable to other employed women?

Consider unemployed women. They are troubled by recent chronic problems, and they have the highest rates of restricted activity and medical care shown in Table 3. By definition, unemployed women are looking for work, but they may have had trouble finding a job because of health problems.

Employed and unemployed men show similar profiles to women, with the exception of injuries, noted above. Comparing men and women in the same occupation group, women usually continue to have higher morbidity, more short-term disability and health services use, and less chronic limitation. Thus, in the same general occupation group, men and women do not have identical health status and health behavior; the overall sex difference persists, although it is attenuated.*

It would be convenient if occupation differentials reflected job hazards (and maybe risks from job-related stress and life styles). But occupation groups vary in their attitudes and life styles for reasons unconnected with their jobs, and these, too, cause health differentials. The summaries here are interesting, but they do not really tell us why occupation groups differ.**

* An interesting anomaly in the sex comparisons: white-collar women report higher injury rates than white-collar men. This difference appears for all specific groups (professional/technical, administrator/manager, sales, clerical). Data on where the injuries occurred suggest the female's excess is due mainly to injuries sustained at home, not at work.

** Readers are encouraged to look at detailed data for the 12 specific occupations, which show more variation in the size and direction of sex differentials. Occupational differentials are also available for an earlier period, (1961-63) (30). For 1961-63, all people in the labor force are categorized by occupation. But for 1975-76 (20), only currently employed people are categorized by occupation.

Marital Status

Married women have better health status than nonmarried women, and have particularly low rates of chronic limitations. Divorced and separated women appear to have the worst health status and relatively high disability rates.

Research on marital differentials for health consistently shows that married women are healthiest (15,31,32,33,34,35,36,37). Quoting from a recent review:

"[Married people] have rather low acute condition rates and the lowest rates of limiting chronic conditions and work disabling conditions.

...[They] have intermediate chronic prevalence rates, but the conditions seldom restrict their social involvement. Disability days per condition and health services use are intermediate. The average length of stay for a hospital episode is shortest, and rates of institutionalization are lowest" (36, p.282).

Divorced/separated women are least healthy:

"They have the highest rates of acute and limiting chronic conditions. Health examination data show them second only to widowed people in prevalence of chronic conditions. They suffer the most partial work disability, and rank second for complete work disability. When ill or injured, divorced and separated people take the most disability days per condition, particularly for injuries. They have the most average physician visits per year, high hospitalization rates, and the longest hospital stays" (36, p.280).

Never-married and widowed women are intermediate. The profile for never-marrieds is intriguing. They have high institutionalization rates, especially at early ages. This partly reflects serious physical problems (possibly congenital or permanent ones), partly the absence of home care opportunities and of family responsibilities during their adult years. The data suggest that social selection operates to keep unhealthy people single (never-married). There is not much evidence for social causation, that being single impairs health.

HID and HIS data generally confirm these differentials. Table 4 shows how health varies by marital status for women in the labor force and for those not in the labor force (HIS). Notice how sharply health varies for homemakers; divorced and separated homemakers are really very ill. The results look similar for white and black women (data not shown).*

Men show similar differentials in health by marital status. Controlling for marital status, women still tend to have worse general health status, more acute conditions, fewer chronic limitations, and to engage in more health actions than men.

* There is an anomaly for women in the labor force. Young single women are generally healthier than married ones. When young (17-44), married women have more reproductive health events than single women; this partly accounts for more short-term disability for them.

Mortality rates tell the same story as health data: married people have the lowest age-standardized death rates, followed by never-married, then widowed people. Divorced people have the highest mortality rates.*

Parenthood

The research evidence is inconsistent about how parenthood affects women's health. It usually shows that women with few or no children have higher rates of symptoms (15,38). They also have more restricted activity days and are more inclined to adopt the sick role (38,39). However, one study finds no relationship between number of children and blood pressure (40), and another finds a positive relationship between number of children and health problems (27). There is also some research which shows no relationship between number of children and disability days, doctor visits, nonprescription drug use, or lay conversations about health (15,27). What is the effect of children's age? Women with young children apparently experience an increase of symptoms and use of health care. Mothers with preschool and school-age children have higher morbidity than mothers with teenage children (15). Woods and Hulka (27) report similar results, but the difference is not significant. Women with preschool children are more likely to adopt the sick role or take some curative actions than those with school-age children (15,27,39,41).

In summary, having several children (rather than one or none) is sometimes related to good health status and little restricted activity. By contrast, having very young children seems to boost symptoms and curative care. Inconsistent results may be partly due to very different kinds of samples in the studies cited above. In reviewing the evidence, it would appear that the number and ages of children do influence symptom perception and curative behavior, but more research is needed on the topic. In particular, it cannot be said whether number and ages are equally important, or if certain combinations such as large families with several preschoolers have especially strong effects on women's health.

Analysis of HID data shows that mothers with one or more children at home generally have better health than nonmothers (data not shown). Results by number and ages of children are forthcoming.

There is no literature on how parenthood affects men's health. Traditionally men have had fewer responsibilities for child care than women but more for family income. Research on how children influence men's health in both a traditional setting and a modern one (with more sharing of child care and income responsibilities) is pertinent. Analyses of HID and HIS data will provide some answers (19,42).

Multiple Roles

Having several key roles is associated with good health status. It also shifts women's preferences toward medical care for symptoms instead of self-care. But there may be limits to the number of roles a woman can accommodate. Women with very many roles sometimes have worse health than women with a modest number of roles. What does previous research say about multiple roles and health status?

* For a full list of references about marital differentials in mortality, see Verbrugge (35, p. 267).

Women with a modest number of roles appear to have the best health. Married women who have been employed full time for over a year but do not have preschool children, and women who work part time and do have preschoolers, have fewer chronic problems than more involved women (full-time workers with preschoolers) and less involved ones (26). Having few or "no" roles is associated with poor health. Housewives with school-age children who have never been employed have more chronic problems than women with more responsibilities (26). Spouseless women who are raising children have poorer health than married mothers (32). A large number of roles may tax health. Women with high role density (a function of number of ages of children, employment status, and recent family illness) have the most health problems (27). In the Framingham study, the more children working women raised, the higher their coronary heart disease rates (29). Working mothers and those with high role density tend to have less restricted activity than other women but more doctor visits (15,24,27).

The Health In Detroit (HID) study and the 1977-78 Health Interview Survey (HIS) provide insight into how multiple roles affect women's health.* In the Detroit study women who had three roles (employed, married, children) had the best general health status, lowest morbidity, least long-term disability, and least drug use. The HIS data also showed that multiple roles and good health were linked: employed married women had the best health status, least restricted activity, and least chronic limitation. (Parenthood was not included in these analyses.) This was true at all ages (17-44, 45-64, 65+) and for white and black women, with few exceptions. In contrast, women with none of these roles (nonmarried, nonemployed, without children) had the worst health status, most disability, most doctor visits, and relatively high drug use. The HIS study concurred: nonmarried women who were not in the labor force clearly had worst health.

As in prior research, it appears that employed women are more likely to use health services than they are to restrict activities. Both the HID and the HIS study showed that employment is more strongly associated with good health than marriage or parenthood. This was true for both white and black women. Accumulating roles had additive effects. There was no special interactive effect (positive or negative) from multiple roles.

All of the results above were age controlled. Thus, the fact that women in certain role combinations are older, or younger, does not affect the findings. Table 5 shows selected results from the HID and HIS studies.

In summary, evidence is growing that employment, marriage, and parenthood all are related to good health for women. Employment is the most

* The HID results include crosstabulations, analysis of variance, and regressions. Predictor variables are employment status (20 or more hours per week vs. 0-20 hours), marital status (married vs. not married) and presence of own children at home (1 or more vs. none). For further results, see Verbrugge (42). The HIS results pertain to employment status (currently employed vs. unemployed vs. not in labor force) and marital status (married vs. not married). Presence of children is being incorporated into the analysis. Detailed results are coming (19).

critical of the three roles. The roles appear to have additive effects--two of them are better than one, and three are best of all, but there is no special effect for having several roles.

Do multiple roles affect men's health in a similar way? There is no prior research on the question. Analyses of HID and HIS data will provide answers (19,42).

Role Satisfaction

There is virtually no evidence about how role satisfaction is related to women's health, but we can offer a few suggestions: happily married women are healthier than unhappily married ones (35). Homemakers who prefer to be employed are less healthy than other homemakers (44). Women who find family and kin very important in their lives are less inclined to adopt the sick role than women with low family orientation (39).

Housewives who feel tense about their housework have higher blood pressure than housewives who are not tense. For working women, low job achievement, dissatisfaction with job, and high commitment to job are all related to high blood pressure (40). How role satisfaction relates to women's health is certainly an important area for future research.

Discussion

The following is a summary of what is known about social roles and women's health, what is not known, and what can be hypothesized about the unknowns.

Employment is positively related to health. Employed women have better health status and take fewer curative actions than nonemployed women. Marriage is positively related to health. Married women have the best health, followed by never-married, then widowed women. Divorced and separated women have poorest health. Parenthood (having one or more children at home) has a small positive effect, too, but how the number and ages of children influence health is unclear.

There are three major unknowns:

First, and most important, how much does social selection affect these relationships? Our guess is that selection is a strong factor for women, that healthy women tend to become employed, married, and parents, whereas unhealthy ones cannot or choose not to try. When we note the very poor health of nonmarried, nonemployed women, it is difficult to avoid thinking about selection. It is hard to believe that nonemployment and nonmarriage are so stressful that they alone cause exceedingly poor health. I suspect that both social selection and social causation are involved in women's health differentials, but selection may be a very prominent factor.

Second, considering just social causation: What accounts for the net positive effect of employment and marriage (and maybe parenthood) on health? Are risks of illness and injury really less for employed women and married women because of fewer environmental hazards, less stress, or safer life styles? (It should be noted that the risks may be higher but if they are offset by lower ones, the net effect is positive.) Are these women less likely to perc e

symptoms or less likely to take curative actions because they are busy in their roles? We do not know how much the better health and health attitudes and opportunities for health care of these women is due to lower physical risks or to greater commitments. One possible profile is this: employment may increase some stresses but also increase life satisfaction, so that net stress is less for employed women than nonemployed ones. In addition, time constraints make employed women less sensitive to health problems and less willing to take time off because of them. This is just one profile among many possible ones.

Third, what aspects of parenthood influence health? Do the number and ages of children have an impact? If so, what risks and attitudes due specifically to parenthood underlie the effects?

Employment is more strongly related to health than marriage is.* How much this reflects selection rather than causation is a critical issue. It may be that unhealthy women more easily find a mate than a job. If so, this can explain why employed women are much healthier than nonemployed ones, whereas married and nonmarried women differ less. Social causation may also be involved. If employment tends to be time-demanding or satisfying, health problems may be less frequent and often ignored.

Blue-collar workers appear to have more serious health problems than other workers. But unemployed women (who are looking for a job) are even more troubled by chronic problems. How much unemployment has harmed health vs. how much poor health inhibits finding a job, is unknown.

Occupation differentials are not always large, nor do they give us clear profiles of health for particular occupation groups. The differentials cannot be readily used to see which occupations are most hazardous. This task requires more direct and detailed research.

The more roles women have, the better their health. Women with few roles have poorest health. Women with three major roles (employment, marriage, parenthood) tend to have the best health status and to engage in fewest curative actions. Both selection and causation are factors: only the healthiest women can manage several roles. On the other hand, multiple roles give women several sources of satisfaction and achievement, at least within the limits we have explored.

It appears that multiple roles have an additive effect. Each role contributes to good health, but there is no special effect when the three occur together. There is no evidence that having several roles, especially employment and marriage, harms health. The issue of additive vs. interaction effects is a very important one and it must be studied further.

It is very possible that a modest number of key roles is best for health but that many roles lead to worse health. The rationale is that although the potential personal rewards of numerous roles are high, the demands on time are very great. Probably only women with

* Other researchers have hypothesized that employment is less important than family pressures (12), but the evidence appears to be the re.

good organizational abilities ever adopt numerous roles. Thus, there is a selection factor. However, sometimes these abilities will fail, and serious health consequences can ensue. This question merits research. Coping skills and the number of key roles are probably critical factors.*

Regardless of the number of roles a woman has, role satisfaction may be a powerful determinant of her health. Women who are dissatisfied with their main activities are probably prone to depression, and psychogenic illnesses, sensitive to body discomforts, and inclined to worry about health. Increased risks and attitudes about illness will boost women's morbidity. Moreover, they may adopt the sick role and make doctor visits partly to secure empathy and attention. Dissatisfied men may respond similarly. Research is needed that focuses on the relationship between role satisfaction and women's (and men's) health.

One hypothesis is that social roles are related to men's health in similar but not identical ways as they are to women's. Analysis of the HIS data shows that employment and marriage are positively related to men's health, but there are some differences. Employment is more important for men's good health than for women's. This means that nonemployed men are very ill compared to employed ones, and there is a greater difference between nonemployed and employed men than between nonemployed and employed women. Selection is probably important here. Men are expected to be employed. Men who are quite ill do find jobs, and only the most ill remain unemployed. For women, employment is more discretionary. Thus, the health differential for men is larger than for women.

On the other hand, marriage seems more important for women (20). This means that nonmarried women are very ill compared to married ones. There is a greater difference between nonmarried and married men than their female counterparts. There is no ready explanation for this. Traditionally, men have fewer child care activities or responsibilities than women, so children pose fewer direct time constraints. But they do pose income-earning responsibilities. All told, it is probable that the number and ages of children have less impact on men's health than on women's, but this remains to be tested.

The effect of employment, marriage, parenthood, and multiple roles upon health could be different for men and women. Employment has different meaning and implications for women and men. For many women, a job is a secondary source of household income and it is psychologically not embedded in a career framework. For most men, it is a mandatory adult role which cannot be easily interrupted or dropped. Job hazards, job stresses and strategies to cope with them, job-related life styles, and feelings about time may differ for the sexes. As noted above, initial selection into the labor force may be quite different. Similarly, we do not know exactly what aspects of marriage or parenthood promote health of men and women,

* In situations with numerous roles, the combination may be important. Unusual combinations may be specially difficult. Recall Woods and Hulka's findings (27) for high role density. one of the roles was caring for a sick family member. It is probably the type of role ther than just an added one which caused people with high role sity to report worse personal health.

or how strong social selection is for each sex. Finally, if the three social roles are related to good health for women and men, it can be for some rather different reasons. Many of the social processes are probably vary similar for men and women, but we have yet to measure those similarities and any differences.

As noted earlier, there are large sex differentials in health. When men and women in the same social roles are compared, the sex differences narrow but they seldom disappear. This means there are some important reasons for male-female differences in health that are not due to their social roles. Some of these reasons are pregnancy and other reproductive events which are important for women, health attitudes that influence symptom perception and willingness to take curstive actions based on other than one's current roles, and stresses and life style behaviors not related to one's roles (7). Some researchers are now studying the relative importance of roles vs. these other factors in accounting for male-female differences in health.

Conclusion

Having multiple roles such as employment, marriage and parenthood has been traditional for men. It is becoming more common for women. Why are scientists and policymakers so concerned about women having multiple roles? No one worried much about men having them.

One answer is: marriage and parenthood have been women's primary roles, with employment a secondary one. Increasingly, women view employment as a key role, too. To many observers, this means that women make greater time commitments and have greater emotional responsibilities than men in comparable roles do. Traditionally, marriage and parent roles have been less demanding for men than women, so the trio of roles has "added up" to fewer demands upon them. High commitment to several primary roles could generate role overload and role conflict. Some women adapt, organizing their activities and making accommodations so they feel little strain. Others fail to cope, and they suffer negative health consequences.

The evidence to date is that multiple roles, in particular the trio of employment, marriage, and parenthood, are associated with women's health. That is a sweeping statement, and it certainly does not apply to all women or to all occupations. Role strain may be very severe for women in particular jobs or household situations. The strain can be due to structural factors, such as income and promotion discrimination, or to personal ones, such as inefficient scheduling of one's activities.

The long-term consequences of multiple roles on women's health are not known, but the evidence looks very positive. In several decades, multiple roles for women will be as common and expected as they are for men. Men will accept more domestic responsibilities, so home management will be more equal for the sexes. Public and private agencies will offer more domestic services. In addition, women will probably have better skills for coping with demands of multiple roles. Socialization will ease the way: girls will anticipate multiple roles and psychologically prepare for them. Boys will anticipate more marital and child care responsibilities.

This may seem to be a sanguine view to people who are legitimately concerned about the contemporary women who have trouble coping with multiple roles. Scientific work should be aimed at identifying which specific role configurations and psychological characteristics are most troublesome and deleterious for health. Public actions should be aimed at making multiple roles easier for women by reducing structural impediments and increasing women's coping skills. But overall, having active multiple roles seems to benefit women who are able to engage in them. We can only expect the benefit to increase, and more women to enjoy it, as sex roles become more similar for men and women.

One further point: if women and men begin to have more similar roles, we can expect their health and mortality profiles to become more similar. That does not mean that risks for women necessarily increase. The declining death rate in the 1970's may well continue, with both sexes enjoying greater longevity. But the difference between them will diminish. There is nothing fearsome about this. If both sexes adopt more healthful life styles over time, and if occupational risks decline for both sexes, they both will derive benefits.

Thus, active roles appear to be good for women and men. And if risks from the environment and from personal life styles decrease, they will become more alike in health and life span. Public actions should encourage this, and we should welcome the outcome.

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Table 1. Trends in women's health, 1957-78, incidence, short-term disability, and limitations (data shown for selected years)

Acute Conditions: (Rates per 100 persons per year)[a]

	Incidence[b]			Restricted Activity Days			Bed Days		
	1961-2	1971-2	1977-8	1961-2	1971-2	1977-8	1961-2	1971-2	1977-8
All Acute Conditions	233	236	239	978	1032	1095	433	464	518[c]
Infective and parasitic diseases	28	26	27	117	106	104	57	52	56
Respiratory conditions	134	128	129	462	498	505	219	246	266
Digestive system conditions	14	13	11	47	52	50	22	23	23
Injuries	24	26	30	119	170	199	38	54	61
Other acute conditions	34	43	42	222	205	237	97	89	112

Chronic Conditions: Limitations (Percent)[d]

	1957-8	1959-61	1965-7	1972	1978
Ages 45-64					
No limiting chronic condition	82.8	82.1	82.2	80.1	77.0
Limited but not in major activity	NA	5.9	5.7	4.5	5.5
Limited in major activity	NA	11.9	12.1	15.4	17.5
Ages 65+					
No limiting chronic condition	57.2	58.9	59.4	59.5	57.3
Limited but not in major activity	NA	8.6	8.0	6.4	7.8
Limited in major activity	NA	32.5	32.6	34.1	34.9

Source: For acute condition data (10), Series 10, Nos. 1, 88, 132. For chronic limitation data (11), Series B, Nos. 11, 36; and (10), Series 10, Nos. 61, 96, 130.

a-Rates are age-standardized to the age distribution of the 1940 U.S. population.

b-In the Health Interview Survey, acute conditions include only those necessitating restricted activity or medical care

c-Abnormally high because of an epidemic of respiratory conditions.

d-See Footnote b of Table 2 for definitions.

Table 2. Health status and disability of women by employment status and age, Health Interview Survey, 1977-78

	Currently Employed	Unemployed	Not in Labor Force (Homemakers)
Percent who say their health status is "excellent" or "good"[a]			
Age: 17-44	91.9	88.0	86.7
45-64	85.6	80.2	73.5
65+	85.2	83.3	68.1
Incidence of acute conditions (per person per year)			
Age: 17-44	2.6	2.3	2.3
45-64	1.6	1.5	1.4
65+	1.2	1.9	1.2
Restricted activity days (per person per year)			
Age: 17-44	13.5	23.8	19.6
45-64	15.4	42.2	29.7
65+	17.9	37.7	43.7
Bed days (per person per year)			
Age: 17-44	5.4	10.6	8.5
45-64	5.2	13.0	13.6
65+	6.4	0.4	16.2
Percent with any limitation of activity from chronic condition[b]			
Age: 17-44	5.7	9.1	10.5
45-64	12.1	22.8	32.1
65+	19.8	23.1	43.3

Source: Unpublished tabulations, Health Interview Survey, 1977-78.
a-Response categories are excellent, good, fair, and poor.
b-People are classified by their usual major activity in the past year. Those who report working, being retired, or something else, are asked if they have any current work limitations due to chronic conditions. Those who report keeping house are asked about current limitations in housekeeping. And those who going to school are asked about current limitations in school type or school attendance.

Table 3. Health status and disability of women in the labor force, by occupation group, Health Interview Survey 1975-76[a]

	White Collar	Blue Collar	Service	Farm	Unemployed
Incidence of acute conditions (per 100 persons per year)	221	188	217	181	220
Incidence of injuries	28	30	31	(36)	29
Incidence of acute respiratory conditions	123	94	111	(74)	111
Restricted activity days (per person per year)	13	17	14	10	28
Percent with any limitation of activity from chronic condition	7.9	9.2	11.1	11.7	13 1
Physician visits (per person per year)	5.7	5.4	5.3	4.5	7.0
Discharges from short-stay hospitals (per 100 persons per year)	13.4	15.8	12.9	(6.6)	22.7

Source: C.S. Wilder (20).

( ) denotes rate with high sampling variability (relative standard error > 30%). See Wilder (20) for details.

a-This table refers to people in the labor force at time of interview. Currently employed people are classified by their occupation. Unemployed people are not classified by their previous occupation and are grouped together. Wilder (20) shows rates for 4 general occupation groups (white collar, blue collar, service, farm) and also for 12 more detailed groups (professional/technical, manager/administrator, etc.) (Note: white collar = professional/technical, manager/administrator, sales, and clerical; blue collar = craftsmen, operatives, and laborers.)

Table 4. Health status and disability of women by marital status and age, Health Interview Survey, 1977-78

	In the Labor Force				Not in the Labor Force			
	Married	Never married	Widowed	Divorced/ separated	Married	Never married	Widowed	Divorced/ separated
Percent who say their health is "excellent" or "good"								
Age: 17-44	91.7	93.1	89.6	86.9	88.9	85.9	65.6	66.5
45-64	85.6	86.6	84.8	83.0	73.5	58.5	55.1	38.9
65+	82.1	81.2	88.6	82.1	66.8	72.6	68.8	66.9
Incidence of acute conditions (per person per year)								
Age: 17-44	2.4	2.6	2.3	3.1	2.3	2.1	2.9	3.3
45-64	1.5	1.5	1.7	2.1	1.4	1.5	1.5	2.3
65+	1.4	0.4	1.2	1.2	1.1	1.2	1.2	1.6
Restricted activity days (per person per year)								
Age: 17-44	14.5	11.4	8.8	22.8	17.8	16.8	35.9	47.4
45-64	14.9	15.5	18.5	24.2	29.7	49.8	65.4	89.2
65+	17.1	13.7	19.2	31.6	41.4	32.3	45.8	56.8
Bed days (per person per year)								
Age: 17-44	5.7	5.0	5.4	9.3	7.4	8.5	15.5	19.5
45-64	5.1	5.5	6.4	7.2	10.6	17.9	22.1	35.3
65+	7.0	5.4	5.5	6.1	15.9	14.3	16.6	18.2
Percent with any limitation of activity from chronic condition								
Age: 17-44	5.9	4.9	8.6	9.3	8.4	12.0	24.6	27.3
45-64	11.1	14.7	15.7	15.7	26.7	49.6	47.8	64.4
65+	18.8	21.0	18.9	30.4	39.0	38.7	46.9	47.8

Source: Unpublished tabulations, Health Interview Survey, 1977-78.

Table 5. Multiple roles and women's health (selected health indicators)

Health in Detroit (White Women)[a]	Employed (E), Married (M), Parents (P)							
(Age-Adjusted Averages)[b]	E,M,P	E,M	E,P	E	M,P	M	P	None
	53	45	27	59	75	72	12	56
Self-rated health status (1=excellent, 5=poor)	1.9	1.9	1.7	2.0	2.0	2.1	2.3	2.7
Total no. of chronic conditions or symptoms in past year	3.6	3.7	4.1	4.7	4.5	4.5	4.9	5.6
Total no. of restricted activity days in past year	10.3	9.7	13.7	10.0	15.7	22.7	15.8	54.0
Job limitations (1=no limitation, 2=limit in kind or amount, 3=cannot work)	1.2	1.1	1.1	1.2	1.3	1.4	1.5	1.6
No. of visits to medical doctor for curative care	1.4	3.3	1.9	2.2	1.9	2.9	3.2	4.7
No. of visits to medical doctor for preventive care	1.6	1.8	0.5	2.0	2.9	3.1	1.8	3.3
No. of drugs currently used for chronic problems	1.2	1.3	1.0	1.7	1.8	2.0	1.7	2.4
No. of other drugs used regularly	0.8	1.1	1.0	0.9	0.7	1.1	0.9	0.8

Health Interview Survey 1977-78 (All Races)[c]	Currently Employed		Not in Labor Force	
	Married	Not Married	Married	Not Married
Percent who say their health is "excellent" or "good"				
Age: 17-44	92.0	91.9	88.9	81.2
45-64	85.9	84.9	73.5	50.9
65+	81.8	87.0	66.8	69.0
Incidence of acute conditions (per 100 persons per year)				
Age: 17-44	242	274	230	240
45-64	147	182	157	175
65+	130	108	108	126

Table 5. (Concluded)

	Currently Employed		Not in Labor Force	
	Married	Not Married	Married	Not Married
Restricted activity days (per person per year)				
Age: 17-44	13.5	13.6	17.8	23.7
45-64	13.7	19.0	29.7	70.0
65+	17.6	18.0	41.4	45.2
Bed days (per person per year)				
Age: 17-44	5.2	5.8	7.4	11.0
45-64	4.8	6.2	10.6	25.3
65+	7.2	5.9	15.9	16.5
Percent with any limitation of activity from chronic condition				
Age: 17-44	5.7	5.7	8.4	15.5
45-64	10.7	14.8	26.7	52.9
65+	18.5	20.6	39.0	46.1

Source: (43) and unpublished tabulations from the Health Interview Survey 1977-78.

a-Employed 20 or more hours per week; married and living with spouse; parent of one or more own children at home. Absence of a letter means person does not have role.

b-Statements in the text are based on numerous indicators of health status and health behavior. Rankings for the selected indicators here may not match the text statements perfectly.

c-Data here exclude unemployed women.

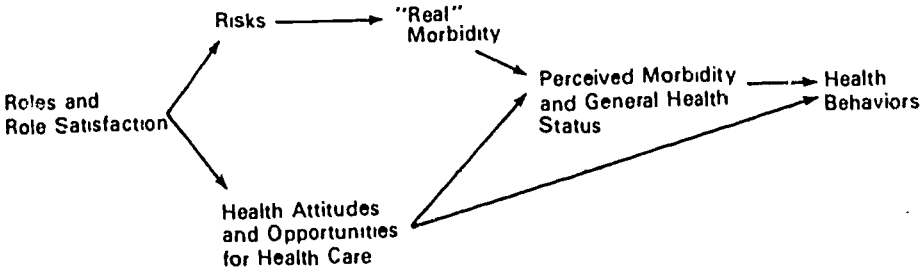

Figure 1. A model of how roles influence health.

Women, Work and Coronary Heart Disease: Results from the Framingham 10-Year Follow-up Study

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The growing participation of women in the work place has brought fears that women will lose their survival advantage over men, and will have increasingly higher mortality rates from chronic diseases such as coronary heart disease (CHD). Contributing to these fears is an unsubstantiated assumption that men live fewer years than women because they work outside the home.

During the past 30 years, the number of women participating in the United States labor force has risen sharply. In this period, the proportion of women in the labor force has increased from 28 percent in 1950 to 42 percent in 1978 (1,2). Most of this growth has resulted from an influx of married women into the labor force (3).

At the present time, there is no evidence from mortality statistics to suggest that women are losing their survival advantage over men because of their increased participation in the labor force. On the contrary, mortality rates from coronary heart disease have been declining in both men and women at all ages since 1968 (Figure 1) (4). As seen in Figure 2, the actual percentage declines in mortality rates have been slightly greater among females than among males across all age groups. Thus, the increase of women into the work force since 1950 has not, as yet, resulted in an increase in death rates from coronary heart disease.

Since mortality rates may not reflect trends in illness or disability, morbidity rates among men and women should also be examined. Unfortunately, morbidity statistics are usually collected in cross-sectional surveys. Since these surveys do not follow populations over time, they are not useful in determining whether working women have incurred higher rates of CHD over time than working men or housewives.

In order to examine the effect of employment on the cardiovascular health of women, the present study followed working women, housewives, and men participating in the Framingham Heart Study over a 10-year period, for the development of coronary heart disease. Results from an 8-year follow-up have been described previously (5), and will be referenced throughout the text. In addition, the behaviors and family responsibilities affecting the cardiovascular status of women employed outside the home will be examined.

METHODS

Between 1965 and 1967, an extensive psychosocial questionnaire was administered to a sample of men and women in the Framingham cohort undertaking their 8th or 9th biennial medical examinations. The present analysis includes the 350 housewives, 387 working women, and 580 men, aged 45 to 64 years, who were free of coronary heart disease at the time of the examinations. Although persons 65 years of age and over were also included in the original study, the present analysis was restricted to individuals in their employment years. A comprehensive description of the characteristics of this sample of the Framingham cohort has been reported previously (6). In most respects, the sample under study appears representative of the entire study population. The questionnaire assessed employment and occupational status as well as personality types, situational stress, reactions to anger, somatic strains, sociocultural mobility, and family responsibilities (6).

Women who indicated they had been employed outside the home for more than half of their adult years (age 18+) were designated "working women"; otherwise they were classified as "housewives." Thus, a working woman 50 years of age would have worked the full-time equivalent of at least 15 years outside the home. Although complete work histories were not available for the Framingham population for the period prior to the first examination in 1950, calculation of the number of years worked between 1950 and 1967 was possible. Using a 10 percent random sample of women, single working women were found to have worked outside the home at least two-thirds of their adult years. In contrast, working women who had ever married were employed about one-half and housewives were employed less than 10 percent of their adult years.

Occupations, as defined by one's usual lifetime work, were grouped into the following six categories according to the Warner index (7) of status characteristics: professionals, proprietors and managers, businessmen, clerks and kindred workers, manual workers, and protective and service workers. The first three groups were designated white-collar occupations, the last two groups were blue-collar occupations; and clerical jobs were considered separately.

Twenty psychosocial scales were examined in this study. A complete description of their content, including reliability coefficients and interscale correlations, may be found in a previous publication (6). The scales were grouped in five categories: behavior types, situational stress, anger reactions, somatic strains, and sociocultural mobility. Two scales assessed educational and occupational mobility as compared to one's father, and another scale measured social class incongruity as compared to one's acquaintances. The mobility scales were scored as upwardly mobile = 3, stable = 2, or downwardly mobile = 1. A family responsibility scale was developed to account for marital status and the number of children in the family. Respondents were scored as single = 1, ever-married, no children = 2; ever-married, 1-2 children = 3; or ever-married, 3+ children = 4.

The entire study group was followed for the development of coronary heart disease over a 10-year period. Coronary heart disease was diagnosed if, upon review of all clinical and examination data, a panel of investigators agreed that a myocardial infarction, coronary insufficiency syndrome, angina pectoris, or CHD death had occurred. Definitions of these clinical manifestations of CHD have been presented elsewhere (8).

The systolic and diastolic pressures used in this study were the second of three casual measaures taken, and reflect the pressures taken by the first examining physicia... Serum cholesterol (mg/100 ml) concentrations were determined by the Abell-Kendall method (9). Cigarette smoking was defined by the number of cigarettes smoked per day at the time of the examination. The relative weight was computed for each subject by forming the ratio of his or her body weight at examination to the desired weight for his or her particular sex-height group, according to the standards set by the Metropolitan Life Insurance Company.

Statistical differences in coronary incidence rates were determined by a two-sided Chi-square test or the Z statistic for testing differences between two proportions (10). To test whether the psychosocial scales and coronary risk factors varied across employment groups, mean scores among working women, housewives, and men were compared using Student's t-test. The direct method of age adjustment, using all Framingham men and women (ages 45-54 and 55-64 years) in this study as the standard population, was used to test whether observed differences in mean scale scores, CHD risk factors, and CHD ratea were due to differences in the age distributions between groups. With one exception (marital status), the associations were unaffected by the adjustment for age. Thus, unless otherwise stated, unadjusted incidence rates and mean levels of psychosocial and coronary risk factors for the entire age group 45-64 years will be presented throughout the analysis.

RESULTS

Demographic Differences

As reported previously (5) there were no significant age or education differences between working women and housewives. Significant differences in marital status and number of children were observed since almost 20 percent of working women were single (i.e., never married) and almost 25 percent of ever-married working women had no children. Working women were also less likely to have husbands employed in white-collar jobs (13 percent) than were housewives (26 percent).

More than one-third of all working women had been employed in clerical and kindred occupations during their working years. Secretaries, stenographers, bookkeepers, bank clerks and cashiers, and sales personnel made up the majority of these positions. Although equal proportions of working women and men were employed in white-collar jobs (20 percent), more women (37 percent) were employed in clerical occupations than men (18 percent), and fewer women (43 percent) were employed in blue-collar jobs than men (62 percent) ($p = .000$, comparing occupations of men and women). The majority of men in white-collar occupations were graduate degree professionals (lawyers, doctors, dentists, etc.) or business managers, while most women professionals were teachers, nurses, or librarians.

Behavioral Differences Among Sex and Employment Groups

Mean scores among working women, housewives, and men on the 20 psychosocial scales used in this study were previously compared (5). Table 1 summarizes the results of theae comparisons, listing only those acales which varied according to sex and employment status.

Sex differences are reported for scales on which scores among working women and housewives were similar, but significantly different from scores among men, a pattern suggesting that women, regardless of employment stauts, differed from men on these characteristics. Sex differences were found for scales dealing with symptoms reflecting emotional distress, such as tension, anxiety, anger, and emotional lability. For example, women regardless of employment status scored higher on the tension scale than men. Women were also more likely to exhibit anger turned inward (anger-in) and to have experienced less educational mobility than men.

Behaviors related to employment are also summarized in Table 1. Here scale scores among working women and men were similar, but significantly different from those of housewives, suggesting that the differences were related to employment per se. That is, these behaviors were either the result of working outside the home or the result of self-selection of those entering the work force. Employed persons, regardless of sex, were more likely than housewives to score higher on the Framingham Type A behavior, ambitiousness, and marital disagreement scales. For example, mean scores on the Type A scale were similar for working women and men, although both were significantly higher than the mean scores for housewives.

Several scales appeared to reflect the specific role of being an employed woman. On these scales, working women scored significantly higher or lower than both men and housewives. Working women experienced more daily stress, marital dissatisfaction, and worries about aging, and were less likely to show overt anger (as measured by a low score on the anger-out scale) than either housewives or men. In addition, working women had considerably more occupational mobility and more job and line-of-work changes than men, but received fewer promotions than men in the 10 years before the survey.

Rates of Coronary Heart Disease

Figure 3 presents incidence rates of coronary heart disease over the 10-year period among housewives, working women, and men aged 45-64 years. Data were also analyzed separately for working women, as previously defined, who were currently employed at the time of the study. All working women were included in the ever-employed group.

Employment status did not significantly affect the risk of developing CHD in women. Incidence rates were only slightly higher among the ever-employed working women than among housewives (8.5 vs 7.1 percent, respectively). The incidence rate of CHD among these working women was lower than the rate for men, which was about 15 percent ($p = .003$).

Figure 4 shows incidence rates of CHD among working women and men according to the usual occupation held during the working years. Among women, clerical workers were almost twice as likely to develop coronary disease as either white- or blue-collar workers. The incidence rate of CHD among women clerical workers (12.0 percent) was higher than the rate among housewives (7.1 percent, $p = .075$).

Among men, an entirely different pattern was observed, with higher rates occurring among white-collar workers (21.6 percent) and lower rates occurring among clerical (11.5 percent) and blue-collar (14.4 percent) employees ($p = .097$). Only among clerical workers were the rates of coronary disease greater in women than in men, although this difference did not achieve statistical significance.

In Figure 5, age-adjusted coronary rates were examined among working women and housewives according to marital status. No significant differences were observed among housewives who were married and housewives who were widowed, divorced, or separated (WDS) (6.2 vs 10.3 percent, respectively). Married and WDS working women had similar age-adjusted rates of CHD (8.9 and 9.4 percent, respectively), while single working women exhibited the lowest rate of coronary disease (5.7 percent).

Since women who had ever married were at greater risk of developing CHD than single women, the effect of having children on CHD was also examined. Among working women, the incidence of CHD rose as the number of children increased (Figure 6). Working women with three or more children were more likely to develop CHD (11.0 percent) than working women with no children (7.8 percent) or than housewives with three or more children (5.7 percent), although these differences did not reach statistical significance ($p = .23$). CHD rates were similar among housewives with one or two or more than three children.

Although one would expect working women to be equally affected by family responsibilities, the relationship of these responsibilities to CHD incidence was examined among clerical and nonclerical working women (Figure 7). Surprisingly, single or married clerical workers without children were at no greater risk of developing CHD than other workers. However, clerical workers who had ever married and had children were over twice as likely to develop CHD as nonclerical workers in the same situation (15.4 and 6.9 percent, respectively, $p = .057$). Thus, the excess risk of CHD previously observed among women employed in clerical jobs occurred only among women with children.

Economic pressures due to an increased family size could have motivated women to seek employment outside the home. Pressures associated with a low socioeconomic status might then explain the higher incidence rate of coronary heart disease among working women with children. Although measures of family income were not available, the occupation of a woman's past or present husband was examined. For these comparisons, men employed in white-collar and clerical occupations were combined. Rates of CHD were not significantly different among working women married to men employed in white-collar or blue-collar occupations.

However, the risk of developing CHD did increase among clerical working women married to blue-collar workers (Figure 8). Among working women who had blue-collar husbands, clerical workers with children were more than three times more likely to develop CHD than nonclerical mothers (21.3 and 6.0 percent, respectively, $p = .004$). Among mothers married to white-collar workers, clerical work posed no excess risk of CHD. The incidence rates of CHD among nonclerical mothers, employed in either white- or blue-collar occupations, were not affected by the husband's occupation.

Differences in Standard Coronary Risk Factors

Table 2 presents mean levels of the standard coronary risk factors measured between 1965-1967 among the various employment groups. The risk factors included age, systolic and diastolic blood pressure serum cholesterol, cigarette smoking, glucose intolerance, and relative weight. The proportion of persons on antihypertensive medication was also compared.

Mean levels of the first six risk factors examined were similar among working women and housewives. Blue-collar working women were more obese than clerical workers ($p \leq .05$), who had the lowest mean relative weight of all the women examined. Prevalence rates of hypertension (systolic blood pressure $\geq$ 160 or diastolic blood pressure $\geq$ 95) among women did not vary by employment or occupational status.

Men, on the other hand, had significantly higher levels of cigarette consumption and lower levels of serum cholesterol than working women or housewives. Mean levels of diastolic blood pressure were also significantly higher among men than women. This finding may be partially explained by the lower proportion of men on antihypertensive medication. In addition, men were significantly more obese than housewives and clerical working women ($p \leq .05$), but were not different from other employment groups.

Psychosocial Predictors of CHD Among Clerical Workers

In a previous report from Framingham (8) several psychosocial scales were associated with the development of CHD in women, depending upon employment status. Since clerical workers were at greater risk of developing CHD than other workers or housewives, the psychosocial as well as standard coronary risk factors were examined in this group of women (Table 3).

In the univariate analysis, clerical workers who had developed CHD were more likely to suppress hostility (in terms of the anger-in, anger-out, anger-discuss scales), to have a nonsupportive boss, to report fewer personal worries, and to experience fewer job changes over a previous 10-year period than clerical workers remaining free of CHD. In addition, serum cholesterol, diastolic blood pressure, and family responsibilities were individually associated with CHD among the clerical working women.

In order to determine the independent effect of these variables, each was included in a multivariate logistic regression analysis (11). As seen in Table 3, the anger-discuss, nonsupport from boss and family responsibility scales remained independent predictors of CHD. Infrequent job changes were also associated with the incidence of CHD in the multivariate analysis, but the association was of borderline statistical significance ($p = .10$). Only one of the standard coronary risk factors included in the analysis, diastolic blood pressure, was associated with CHD in this group of 125 women. Thus, remaining in a job with a nonsupportive boss while not discussing one's anger increased the risk of coronary heart disease among clerical working women. This risk was further increased with the size of the family.

DISCUSSION

The present study has shown that employment of women, per se, is not related to an increased risk of coronary heart disease. In fact, women who were employed the longest period of time, i.e., single working women, had the lowest rate of CHD. The lack of association between employment status and CHD in women is not surprising. Although previous research has not examined the effect of employment on the incidence of CHD, three prevalence surveys found that working women were no more likely to have CHD than housewives (12,13,14). In the 1960-1962 U.S. Health Examination Survey, prevalence rates of definite coronary heart disease, myocardial infarction, and angina pectoris were greater

among women (aged 18-79 years) keeping house than among women who usually worked (12). In the 1972 Health Interview Survey, the prevalence of coronary heart disease was similar among women (aged 45-64 years) who usually worked or who usually kept house (13). In both national surveys, women who usually worked included those whose usual activity during the preceding 12-month period was paid employment. Women usually keeping house included women whose major activity over the same period was described as keeping house (12).

The tendency for housewives to have similar or higher prevalence rates of CHD as compared to working women may reflect the healthy worker effect (15), i.e., the selection of certain women into the labor force because of relatively good health, while women in poor health who are unable to seek, obtain, or hold jobs become or remain housewives. The National Health Survey (16) found higher rates of disability due to cardiovascular-renal and most other chronic diseases among housewives as compared to working women at all ages.

Although CHD incidence was similar in working women and housewives in this study, some groups of working women were more susceptible to the development of CHD than others. In particular, women clerical workers who had ever married and had children experienced coronary rates that were twice as great as those of other comparable nonclerical workers or housewives.

The higher incidence rate of CHD among working women who had ever married appears to contradict the general pattern of increased CHD death rates among single rather than married persons. However, close examination of published morbidity and mortality data in the U.S. shows that single white women have CHD rates that are lower than or equivalent to married or ever-married women (12,17,18,19).

That prior childbearing may produce increased risks of CHD past age 50 was borne out among working women, but not among housewives in Framingham. Women who had worked outside the home and had raised three or more children were twice as likely to develop CHD as housewives with the same family responsibilities. Bengtsson, et al., found that Swedish women aged 50-54 with four or more children were more likely to have had a myocardial infarction than women in the general population (20). Approximately two-thirds of the Swedish women had been employed outside the home.

These findings suggest that the dual roles of employment and raising a family may produce excessive demands on working women. Perceived time demands, at home and in general, and psychiatric symptoms have been shown to increase monotonically among employed women with an increase in the number of children (21). However, since this trend was also observed among housewives, it does not explain the differences in coronary rates between working women and housewives with three or more children noted in the present study. Long working hours may also explain the excess risk since at least one study has shown that men working more than 40 hours a week (48 hours) have mortality rates from CHD that are twice as high as men working 40 hours a week or less (22). In 1973, working women worked 80 hours a week on average at work and at home, whereas men averaged 50 hours a week (23). Thus, demands of the job, coupled with demands at home, may explain the high incidence of CHD among working women with several children.

Of the occupations examined in this study, clerical work was associated with the greatest risk of CHD among women. Since more than one-third of the female workers in the United States are employed in clerical jobs (23), reasons for this excess risk require further examination. Unfortunately, few epidemiologic data are available in the United States on cardiovascular morbidity or mortality rates among women according to occupation. A 1977 National Institute of Occupational Safety and Health study of 130 occupations found the incidence of stress-related diseases to be high among secretaries, with clerical rates ranking second highest among all the occupations examined (24). This clerical excess appears to result from morbidity rather than mortality rates, since few of the clerical workers in Framingham died of cardiovascular disease. Furthermore, mortality statistics from Scandinavia and England indicate that clerical workers, as a whole, die from CHD at expected rates, based on national averages (25). More extensive reporting of morbidity and mortality rates by occupation is surely needed in the United States to further document the health of female workers as they enter the work force and are placed in higher status occupations.

The association between clerical work and CHD incidence in women could be explained, in part, by the distribution of standard coronary risk factors by employment and occupational status. However, mean levels of blood pressure, serum cholesterol, cigarette smoking, and glucose intolerance in Framingham were similar among housewives and working women, regardless of occupation. These findings are consistent with other national and population-based surveys (25,26,27,28,29,30). Using Framingham data, Johnson has also shown that sex differences in the standard risk factors do not explain the sex differential in CHD incidence past age 54 (31).

In previous reports from Framingham, two of the strongest psychosocial predictors of CHD among all working women and white-collar men were Type A behavior and suppressed hostility (8). In Framingham, suppression of hostility coupled with a nonsupportive boss and a lack of job mobility were associated with the incidence of coronary heart disease among clerical working women. Many of these behaviors appear to be related to employment, i.e., are the result of working outside the home or the self-selection of certain persons into the work force. Studies by Harburg, et al., among employed persons in Detroit, showed that white women were more likely than white men to suppress hostility (more anger-in and less anger-out) when confronted with an arbitrary boss (32). These findings are consistent with observations that women clerical workers may experience several forms of occupational stress, including a lack of autonomy and control over the work environment, underutilization of skills, and lack of recognition of accomplishments (23).

The excess risk of CHD observed among women employed in clerical jobs occurred only among women with children and among women married to blue-collar workers, suggesting that economic pressures may also have affected the decision or necessity to work. Since the risks of CHD did not increase among white- or blue-collar working mothers with blue-collar husbands, the exact meaning of these results is unclear. The occupational status of one's spouse reflects not only an economic status, but also certain life style behaviors and attitudes, not measured in this study.

In conclusion, although employment, per se, was not associated with the incidence of coronary heart disease in women, behaviors and situations related to employment were associated with CHD among some working women. Working women who had ever married, had raised children, and had been employed in clerical work were at increased risk of developing CHD. Job-related characteristics associated with CHD among clerical women included suppressed hostility, a nonsupportive boss, few job changes over a 10-year period, and family responsibilities. These situations may be the product of one or more of the following factors: the particular working environment for clerical occupations, self-selection of certain personalities into the labor force, or economic stress. Whatever the origins of these situations, the findings suggest that the occupations of some employed women, coupled with family responsibilities, may be involved in the development of coronary heart disease.

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Table 1. Summary of behavioral differences according to:

Sex	Employment	Sex and Employment
WW > Men	WW > HW	HW WW > Men
HW	Men	
Emotional lability	Type A behavior	Daily stress
Tension	Ambitiousness	Aging worries
Anxiety symptoms	Marital disagreements	Occupational mobility
Anger symptoms		Less anger-out
Anger-in		Job changes in past 10 years
Less educational mobility		Line of work changes in past 10 years
		Fewer promotions in past 10 years

Table 2. Mean levels of coronary risk factors among housewives, working women, and men aged 45-64 years

Risk Factors	Housewives (350)	Working Women				Men (580)
		Total (387)	White-Collar (77)	Clerical (142)	Blue-Collar (168)	
Age (years)	54.1	54.1	54.9	53.5	54.2	53.6
Systolic blood pressure (mm Hg)	135.8	135.4	134.5	135.2	135.9	136.0
Diastolic blood pressure (mm Hg)	82.1	82.0	81.9	81.7	82.2	83.6*
Serum cholesterol (mg/100 ml)	238.9	242.2	243.9	241.2	242.4	229.0*
Cigarettes smoked per day	7.6	7.5	8.6	7.9	6.7	12.3*
Glucose intolerance (percent)	5.1	5.5	2.6	5.0	7.2	5.5
Anti-hypertensive medication (percent)	15.0	15.5	9.3	17.7	15.8	8.5*
Relative weight	102.8	103.8	104.0	101.7	105.4	104.9*

*$p \leq .05$ when comparing men with working women and housewives. Comparisons of working women with housewives were not statistically significant except relative weights among clerical and blue-collar working women. For the relative weight analysis, men scored higher than clerical working women and housewives only.

Table 3. Predictors of coronary heart disease among clerical working women

Variables in Univariate Analysis	Variables in Multivariate Analysis
Cholesterol (+)	
Diastolic blood pressure (+)	Diastolic blood pressure (+)
Glucose intolerance (+)	
Anger-out (-)	
Anger-discuss (-)	Anger-discuss (-)
Nonsupport from boss (+)	Nonsupport from boss (+)
Personal worries (-)	
Job changes in past 10 years (-)	Job changes in past 10 years (-)
Family responsibilities (+)	Family responsibilities (+)

+ = positive association ($p \leq 0.05$)
- = negative association ($p \leq 0.05$)

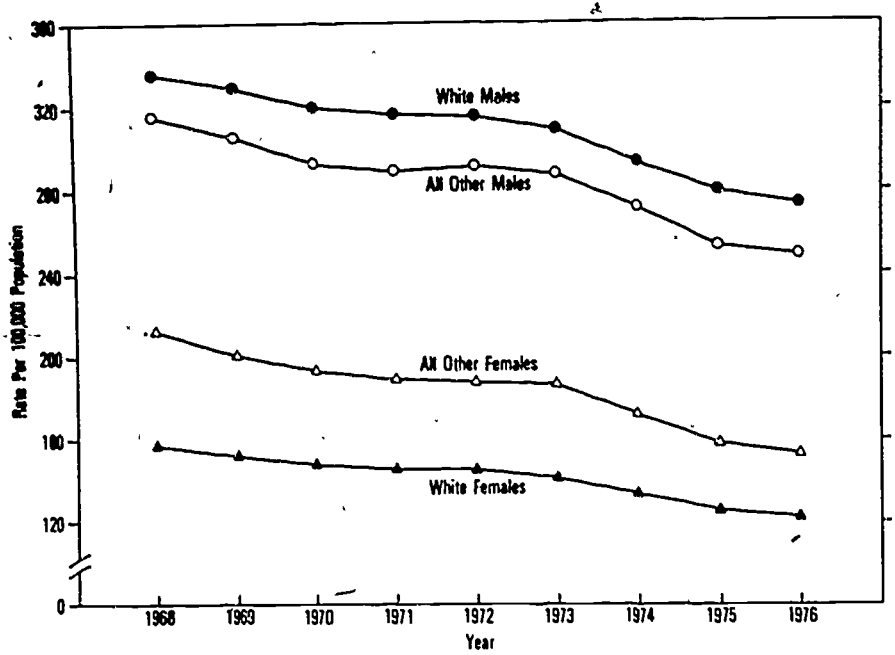

Figure 1. Age-adjusted death rates for ischemic heart disease in the U.S. from 1968 to 1976. (Derived from Table 2, Appendix p. 12, Reference 4).

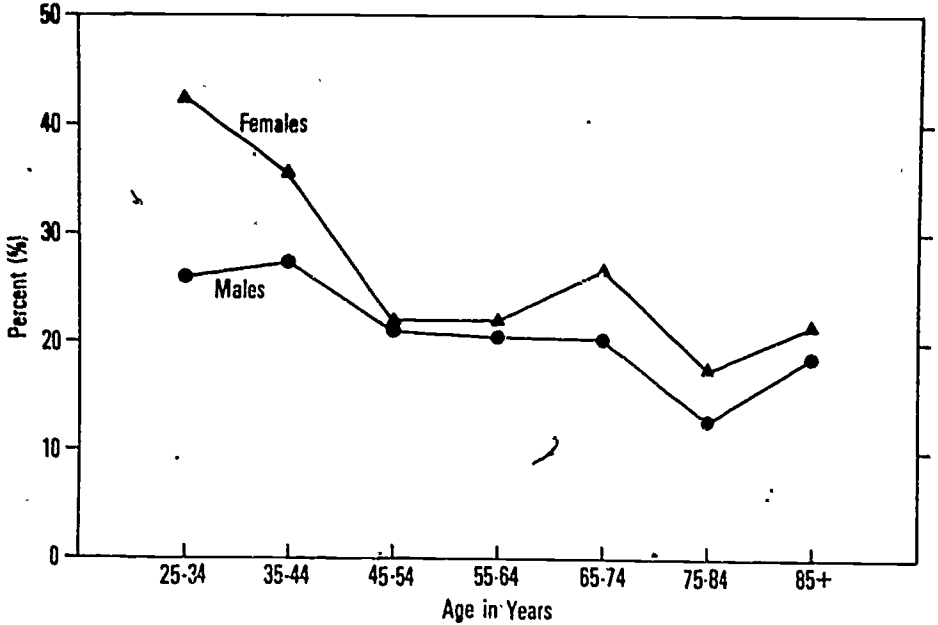

Figure 2. Percent decline in U.S. death rates for ischemic heart disease between 1968 and 1976. (Derived from Table 4, Appendix p. 17, Reference 4).

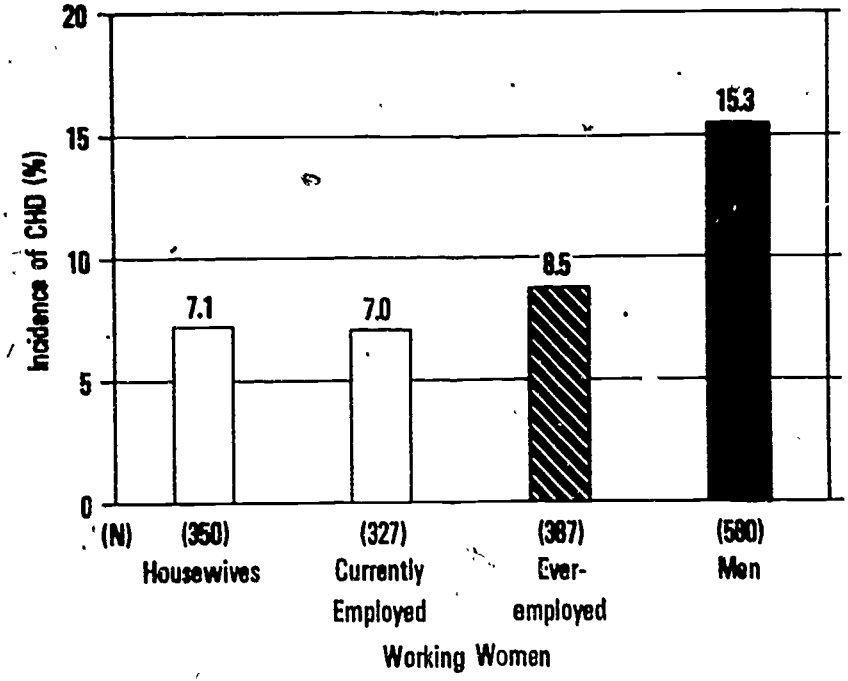

Figure 3. Ten-year incidence of coronary heart disease by employment status among men and women aged 45-64 years.

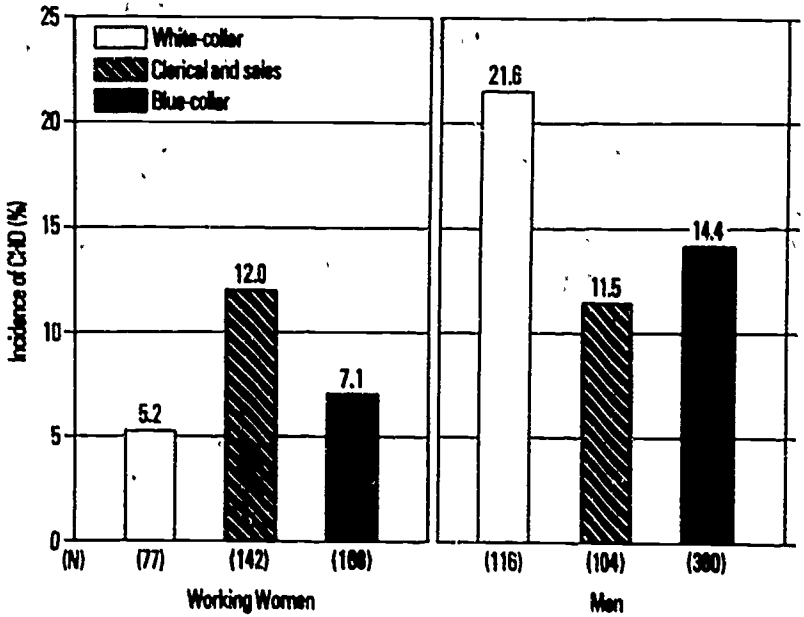

Figure 4. Ten-year incidence of coronary heart disease by occupational status among working women and men aged 45-64 years.

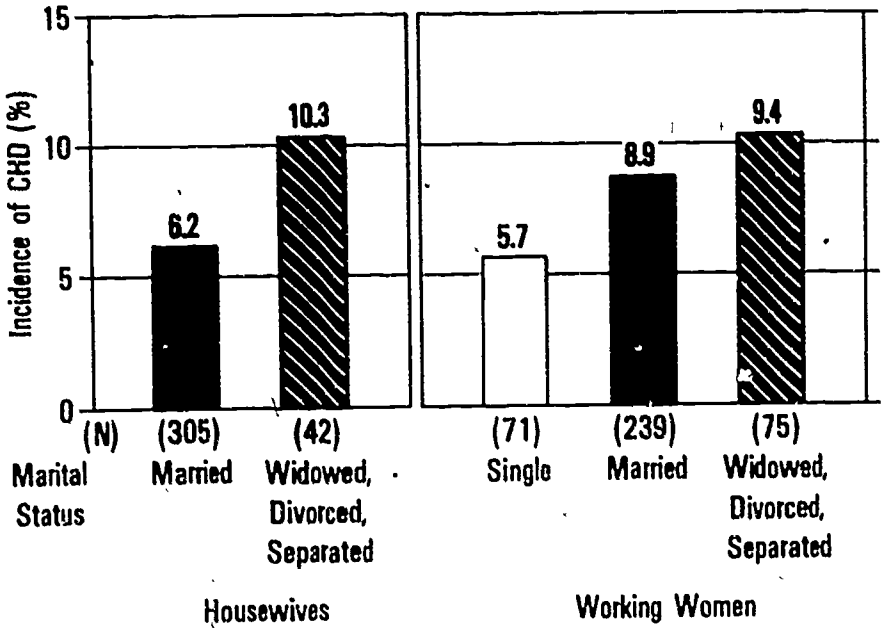

Figure 5. Ten-year incidence of coronary heart disease by marital status among housewives and working women aged 45-64 years.

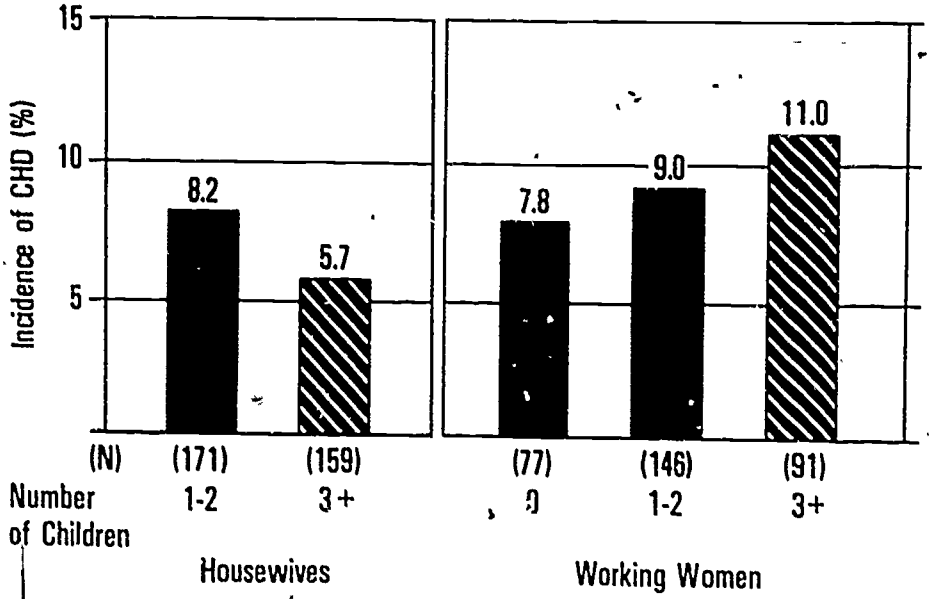

Figure 6. Ten-year incidence of coronary heart disease by number of children among housewives and working women aged 45-64 years.

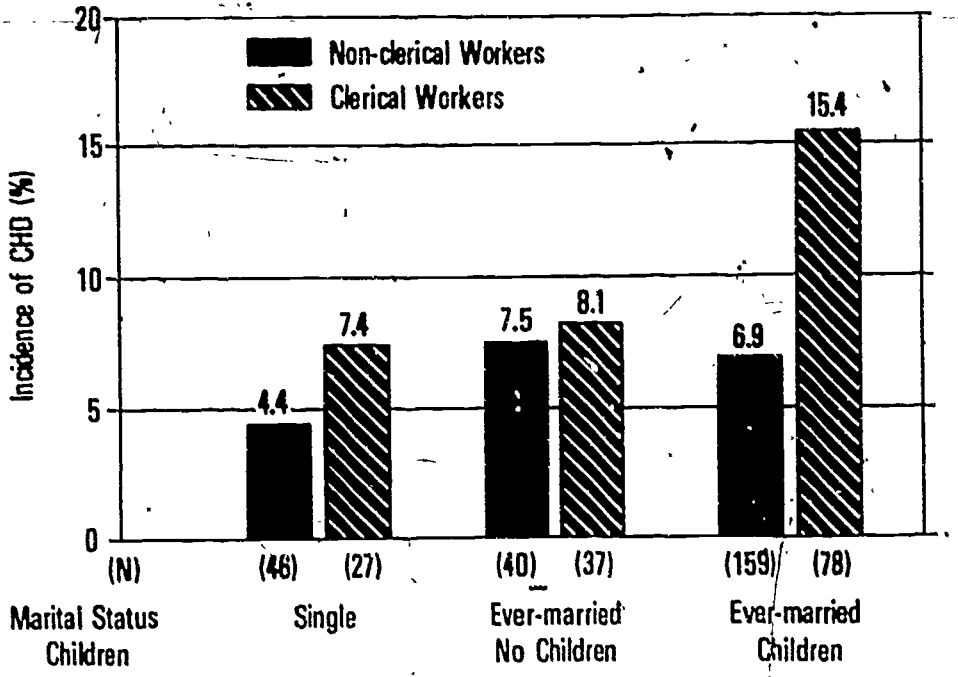

Figure 7. Ten-year incidence of coronary heart disease by occupation, marital status, and children among working women aged 45-64 years.

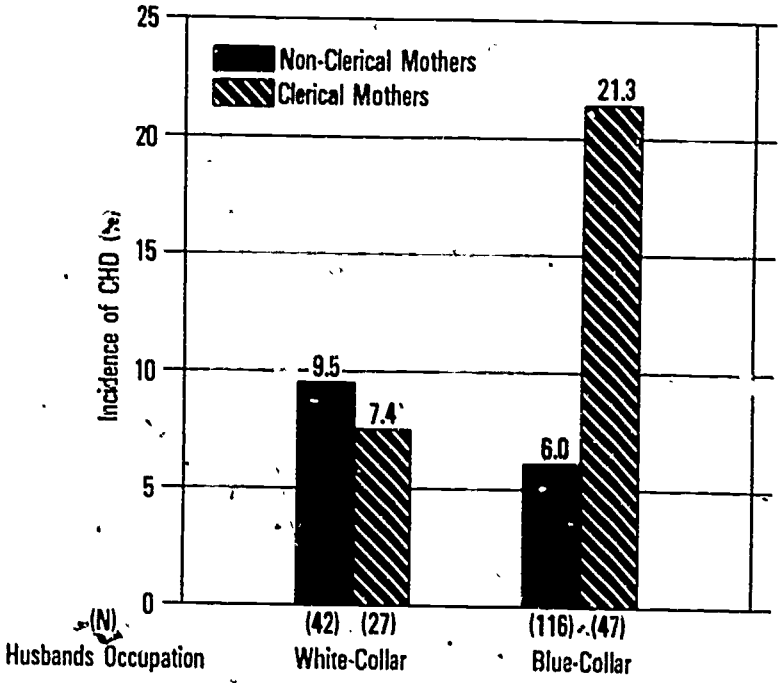

Figure 8. Ten-year incidence of coronary heart disease by husband's occupation among clerical and non-clerical mothers aged 45-64 years.

Infancy to Womanhood

Introduction

Phyllis W. Berman, Ph.D.

The previous papers have amply demonstrated that a woman's health and well-being are dependent, not only on physical care, but also on habits, life roles, and social position. All of these begin in early infancy and have roots which can be traced to previous generations. The female child's nutrition, physical growth, early socialization, and emerging self-image shape her own adult life and the lives of her children. Nevertheless, the study of women's development has been seriously neglected.

Historically, to be female simply meant not to be male. At times, the female was regarded as an aberrant or deficient variant of the male. For example, in the 19th Century when the frontal region of the brain was thought to be the seat of intellectual ability, the female's frontal lobes were believed to be smaller than the male's. Later, when the parietal region was believed to be more important, the female's parietal lobes were thought to be smaller (1). Early misconceptions about women's nature were not quickly replaced with scientific facts. Well into the second half of the 20th Century published studies of social behavior were likely to be based on the behavior of males alone.

Those facets of women's lives which do not dovetail with traditional views of femininity are particularly neglected. Theories of aggression and achievement motivation were based upon research conducted almost entirely with male subjects. The study of women's physical development has also been affected by bias toward the traditional feminine image. For example, little is known about the physical development and problems of female athletes.

The growth of the women's movement has infused research on female development with energy. The papers which follow indicate the breadth of this new work. Frank Falkner addresses questions concerning the physical growth and development of girls and female adolescents. Jeanne Block explores differences in the ways boys and girls are socialized, and the resulting developmental outcomes. Robert Helmreich deals with the measurement, meanings, and distinctions among several widely used concepts: femininity, masculinity,

sex-role attitudes, and sex-role preferences. The papers of Pamela Reid and Myrtle Brown are of special importance because they assemble data and pose questions about a population which has been particularly neglected in research, black girls and women. Pamela Reid's paper is concerned with the social development of black girls and adolescents and Myrtle Brown's paper, with the nutritional problems of black women.

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Psychological Development of Female Children and Adolescents*

Jeanne H. Block, Ph.D.

Two goals of the socialization process have been stated eloquently in the words of Hodding Carter, Jr., a journalist and philosopher: "There are two lasting bequests we should give our children....One is roots, the other is wings." It will be contended in this paper that conventional sex-differentiated socialization practices tend to encourage the development of roots in females and to minimize for them the importance of wings. For males, the pattern is reversed, with wings being accorded greater emphasis in socialization and roots being viewed as less salient. To support this conclusion, evidence from the empirical literature related to socialization emphases of parents and other representatives of societal institutions will be reviewed. Ways in which sex-differentiated socialization practices influence the psychological development of males and females then will be considered.

In focusing on the implications of socialization practices for psychological development, it should not be inferred that gender differences in behavior are being attributed solely to environmental conditions or to the individual's learning history. An extended discussion of the biological matrix from which we derive, and consideration of the role of biological factors in behavior, are beyond the scope of this paper. However, two brief observations are pertinent. First, the recognition of biological influences on behavior does not necessarily imply that behavior is predetermined and immutable. Recent research has shown that biological factors function with enormous complexity and are often dependent -- in amplifying and in dampening ways -- on the ecological context and experiences encountered by the individual organism. The complexity of biological influences is reflected in the differential effects of hormones, for example, which have been shown to vary as a function of the timing of their administration (1,2,3). That presumably biologically determined functions

* Recognition that the use of assimilative and accommodative modes for processing new experiences may be sex-differentiated derives from discussions with Jack Block who has discussed Piaget's use of the assimilation and accommodation constructs in the context of the dynamics of personality development.

are influenced by the ecological context has been demonstrated in studies showing the sexual behavior of primates to be responsive to characteristics of the rearing environment (4) or of the contemporary social grouping (5). These studies illustrate ways in which biological influences may be mediated by environmental conditions.

Second, in attempting to forge a conceptual scheme capable of encompassing the exquisite interplay of biological and ecological factors, we may be guided by certain recognitions that have proved useful in ethology. The concept of modal action patterns (6) provides an enlarged perspective for viewing behavior. The concept of a modal action pattern implies that an action or action sequence may, in a statistical sense, characterize a species or subspecies while allowing for variation -- perhaps great variation -- about the statistical mode as a function of genetic variation and the demand quality of the particular ecosystem confronting the individual members of the species. The concept recognizes the existence of biologically grounded behavioral propensities but does not insist on the existence of uniform, almost reflexive behaviors as evidence of genetic influence. Most important, it recognizes that biological propensities may be manifested in behavior in diverse and complex ways, as organisms are shaped by, or selected by, or choose the often changing environment in which they must function.

Applied to the question of gender differences, the idea of modal action patterns suggests that although biology lays down certain modal behavioral dispositions for males and for females, biology also allows for great variation about these behavioral modes. Moreover, and most important, the ways in which existing biological propensities issue into behavior is a complex and largely unexplored function of the structure of the environment impinging upon individual males and females seeking to construct for themselves a viable mode of life. The ecological niche or learning environment in which development occurs thus becomes a salient focus for the study of developmental patterns. The socialization experiences of the child may be considered important definers of the learning environment which influences the child's constructions of reality and of self.

With this perspective, we turn to consider the ways in which sex-differentiated socialization patterns serve to create different ecological niches for boys and for girls.

EVIDENCE OF SEX-DIFFERENTIATED SOCIALIZATION

Looking first at the self-described socialization practices and values of parents, as reported in parental reports of child rearing emphases, evidence suggests that four conclusions are warranted:

a. Self-reports of parental child rearing emphases provide evidence of sex-differentiated socialization.

b. Specific, consistent sex-of-parent and sex-of-child interaction effects are found.

c. Sex differentiation in socialization emphases appears to increase with the age of the child.

d. Many sex-related socialization values of mothers and of fathers appear to be relatively consistent across socio-economic levels, educational levels, and cultural backgrounds.

Summarizing briefly the specific areas in which the socialization of daughters and of sons appears to diverge, the self-described child rearing emphases of both mothers and fathers indicate greater encouragement of achievement and competition in sons than in daughters. In addition, both parents encourage their sons, more than their daughters, to control the expression of affect, to be independent, and to assume personal responsibility. Parents report punishing their sons more than their daughters. In addition, fathers appear more authoritarian in rearing their sons: they are more strict, firm, endorsing of physical punishment, less tolerant of aggression directed toward themselves by their sons, and less accepting of behaviors deviating from the traditional masculine stereotype (7). Examples of child rearing items endorsed more frequently by parents of boys are: "I think one has to let a child take chances as he/she grows up and tries new things," "I encourage my child to control his/her feelings at all times," "I feel it is good for a child to play competitive games," "I think a child should be encouraged to do things better than others."

The self-described child rearing emphases of parents of daughters indicate that the parent-daughter relationship, in contrast to the parent-son relationship, is characterized by greater warmth and physical closeness, greater confidence in the trustworthiness and truthfulness of their daughters, greater expectation by mothers and fathers alike of "ladylike" behavior, greater reluctance to punish daughters, and greater encouragement to reflect upon life. Additionally, mothers of daughters tend to be more restrictive of their daughters and to engage in closer supervision of their activities (7). Examples of child rearing items endorsed more frequently by parents of girls are: "I express affection by hugging and holding my child," "I find it difficult to punish my child," "I have never caught my child lying," "I don't go out if I have to leave my child with a sitter he/she does not know."

These results are consistent with Hoffman's findings (8) from a large-scale survey that parents expected their sons, more frequently than their daughters, to be independent, self-reliant, highly educated, ambitious, hardworking, career oriented, intelligent, and strong willed. In contrast, parents more often expected their daughters to be kind, unselfish, attractive, loving, well-mannered, and to have a good marriage and to be a good parent. The results also cohere with observations of socialization practices in other cultures (9,10,11) as well as with findings from systematic studies of parent-child interactions to which we now turn.

OBSERVATIONAL STUDIES OF PARENTAL BEHAVIORS

Studies of parent-child interactions provide additional evidence of sex-differentiated interaction patterns and also suggest that fathers appear to be more sex-differentiating in their behaviors with their children than mothers (12,13).

Even in the first year of life, sex-differentiated parental interactions with infants have been observed (14,15,16,17). Parents provide more physical stimulation for boys than for girls. Male infants are held and aroused more and they are also given more stimulation for gross motor activity (14,16,18,19,20) In Yarrow et al.'s (21) study of mother-infant interactions, mothers of males were observed to interact more frequently with their male infants, at higher intensity levels, and with richer, more varied behaviors. These differences in parental behaviors wherein infant boys are given more stimulation and more varied responses than girls, may be expected to predispose males to more active engagement of the world at a later age.

A second implicative area in which parents of boys and parents of girls have been observed to differ is in the frequency of their contingent responding to behaviors initiated by their child. In the feeding situation, mothers were observed to be more responsive and attentive to signals from their male infants than to their female infants, (22,23) modifying their behavior accordingly. Both mothers and fathers react more contingently to the vocalizations of boys than to the vocalizations of girls (17,20,24). These apparent differences in contingent responding noted in infancy appear to continue through the childhood years. It has been shown in numerous studies at different age levels that boys not only receive more negative feedback, including physical punishment, from parents but they appear to receive more positive feedback as well (25,26). Analyses of sequential interactions conducted by Margolin and Patterson revealed that both parents responded contingently to males more than females; fathers of boys responded contingently and positively to sons more than twice as often as fathers of girls.

Experience with contingency relationships has been shown to be related to general developmental level, goal direction, and exploratory behaviors of infants (21). These early experiences with contingency relationships, therefore, may be expected to benefit motivation and to encourage the development of awareness of the child's evocative role in eliciting effects from the environment. Experiences of efficacy (and of the sense of efficacy) help to build the personality and cognitive foundations on which later instrumental competence depends. It is posited that boys more than girls, as presently socialized in this culture, are helped by their contingency experiences to develop a premise system that presumes or anticipates mastery, efficacy, and instrumental competence.

Sex differences in contingent responding of parents to males and to females are augmented by differences in the contingent experiences afforded by the toys parents provide their sons and daughters. Boys are given a greater variety of toys than girls, and there are important differences as well in the kinds of toys parents provide for boys and girls (21,27). Boys' toys, more

than girls' toys, afford inventive possibilities (28) encourage manipulation, and provide more explicit feedback from the physical world. Girls' toys, on the other hand, tend to encourage imitation, provide less feedback, are more often used in proximity to the caretaker, and provide less opportunity for variation and innovation. While differences in the toy preferences of boys and girls have been documented in numerous studies (29,30,31) the developmental implication of these differences in toy preference and availability only recently have begun to be explored (8,32,33). Differential exposure to toys with dissimilar characteristics may predispose boys and girls toward different play and problem-solving experiences, experiences with considerable implication for later psychological development.

A third area in which sex-differentiated parental socialization behaviors are found relates to exploratory behaviors and supervision of activities. Boys are given more freedom to explore and are allowed to engage in more unsupervised activities than girls. Girls are observed to play more proximally to their mothers (34,35) to be allowed fewer independent excursions into the neighborhood (36,37) to be encouraged by their mothers to follow them about the house (29) to be more closely supervised in their play (38), and to be given more "chaperonage" (25). The differential assignment of household chores to boys and to girls also reflects the greater emphasis on proximity for girls. Boys more often are given chores taking them out of the house and/or farther away from home, while girls are assigned home-bound chores of cleaning, "helping," and babysitting. Not only do the chore assignments of girls limit their spheres of activity, but they also serve to increase the salience of the family milieu (10, 39).

Chodorow (40) argues that the different social contexts experienced by boys and by girls over the childhood years account for the development of many psychological sex differences, particularly those reflecting the greater embeddedness of women in social networks in contrast to the more individualistic, mastery-emphasizing activities of men. Sigel and Cocking (41) draw attention to the effects of insufficient parental "distancing" on the development of children's representational thought. They propose that adult distancing behaviors serve to promote the child's active engagement in problem solving and increase the likelihood that the child will encounter discrepancies between experience and expectation which cannot be assimilated readily. Such discrepancies place demands on the child to alter approach, reexamine earlier understandings, and modify premises. Data from several sources converge in suggesting that socialization practices fostering proximity, discouraging independent problem solving by premature or excessive intervention, restricting exploration, and discouraging active play may impede the child's achievement of the cognitive understandings and fluencies essential for problem solving, and may constrain the child's experiences with mastery which are an essential foundation for the development of self-esteem and confidence.

Turning to systematic studies of parent-child interactions in achievement-related situations, further evidence for sex-differentiated parental behaviors is found. When the separate

teaching behaviors of fathers and of mothers were videotaped, observed, and independently rated, greater emphasis was placed on the achievements of sons than of daughters (12). With their sons, fathers set higher standards, attended to the cognitive elements of the tasks, took advantage of opportunities to engage in "incidental teaching," and placed greater emphasis on performance in the teaching-learning situation. With their daughters, fathers focused more on the interpersonal aspects of the teaching situation -- encouraging, supporting, joking and playing, and protecting. A similar sex-differentiated pattern in adults' teaching behaviors was found by Day (42) in an experiment where the investigator manipulated the presumption of the sex of her 2-year-old subjects. Adults, particularly males, provided more goal-directed reinforcements to presumed boys and expected them to do significantly better on the tasks than presumed girls. Presumed girls were given more compliments and encouragement. The lesser paternal emphasis on achievement and mastery in girls is reflected, also, in maternal behaviors. Mothers of girls have been observed to provide help in problem-solving situations more than mothers of boys, even when their help is not required (47,48,49). Mothers respond with more positive affect to bids for help from girls than from boys (29) and provide girls more immediate physical comfort after a frustrating experience (15). Overall, these results indicate that adults, particularly fathers, act in more instrumental, task-oriented, mastery-emphasizing ways with their sons and in more expressive, less achievement-oriented, dependency-reinforcing ways with their daughters (43,44,45,46).

The differential emphasis on cognitive achievement and independent problem solving given by parents of boys serves to communicate early to the son parental expectations for later achievement. While this readiness to provide help and support to daughters may be well-intentioned, it also constrains their problem-solving experiences. Further, at a meta-communication level, such help may convey to the daughter a message that her parents feel insecure about her ability to deal effectively with situations. Such messages, in conjunction with attenuated opportunities to engage in independent problem solving, would be expected to influence the development of self-confidence in females.

As the preceding studies indicate, evidence has been accruing suggesting that parents do treat their sons differently than their daughters in a number of areas implicative for later development. Because fathers have been included more often in recent investigations, sex-differentiated socialization emphases, not identified in earlier studies, have been revealed. The divergencies in the socialization of males and females which have been discussed derive from studies based predominantly on white middle or upper-lower class families. There have been few systematic studies of parenting among other ethnic groups in our society and, until such investigations are completed, it cannot be known the extent to which conclusions about sex-differentiated parenting discussed in this section can be generalized. While the researches cited indicate differences in parent behaviors in a number of domains as a function of the sex of the child, more empirical efforts are required to evaluate the robustness of these effects, to define the limits of generalization, to identify factors influencing sex-differentiated parental behaviors, and to evaluate stringently the specific impact, over time, of these sex-differentiated

parenting emphases on the personality and cognitive development of sons and of daughters. Families, however, are not the only institutions in our society, and we turn now to consider socialization in the context of the schools.

STUDIES OF SEX-DIFFERENTIATED TEACHER BEHAVIORS

To the extent that sex-related differences in family socialization patterns are echoed in the behaviors of teachers, the sex-typed behaviors of males and females are given more extensive reinforcement. Considerable evidence for such reinforcement in the classroom exists. Observations of nursery school teachers' behaviors demonstrate in several studies that boys are given more attention, both positive and negative, than girls (50,51,52). Serbin et al. (52) also found differences in the responses given to boys and to girls in reaction to solicitation behaviors: teachers were not only more likely to respond to boys, but they responded in more encouraging ways. Other researches report similar findings (53,54). The results of a recent study of teaching behavior with fifth grade children solving concept evaluation problems are distressing in their implications for intellectually advantaged girls (55). Teaching behaviors of male and female tutors were recorded as they taught boys and girls assigned to one of two ability levels (high and moderate achievement). Of the four groups of pupils, girls in the high achievement condition received the lowest levels of supportive, ego-enhancing feedback; they also received significantly fewer laudatory attributional statements and significantly more disparaging attributional statements. The findings from this study cohere with those from other researches of sex-differentiated teacher behavior where teachers have been observed to interact more with boys, to give boys more positive feedback, and to direct more criticism toward girls, even high-achieving girls (52,53,56). At the university level, lesser reinforcement of the cognitive achievements of female students also is reported. Survey studies of student and faculty attitudes reveal that the intellectual aspirations of female students are taken less seriously by professors (57,58,59,60). The greater attrition of women in higher education may reflect, among other factors, the pernicious effects of this pattern of discouragement and negative reinforcement of females' intellectual activities, a pattern identified at all educational levels -- from nursery school through college. These results from the home, laboratory, and classroom settings suggest that girls, even high-achieving girls, are given less encouragement for their cognitive efforts than are their male peers. Gender differences in confidence, self-concept, and problem-solving behaviors noted by L. Hoffman (8) Tyler (61) and others may well derive from these home and classroom experiences which often discourage and denigrate the efforts of females.

In addition to specific teacher behaviors, the larger school context plays a role in socialization as well, reinforcing gender differences and emphasizing traditional sex-role behaviors. In the school system, males hold the more prestigious positions; at the elementary and secondary levels, female teachers are less professionally identified and committed; schoolyards tend to be sex-segregated as a function of the different activity preferences of boys and girls; and classroom chores tend to be allocated in a

sex-differentiated way (62). Further, the games in which boys and girls spontaneously participate on the playground are sex-differentiated and diverge in their formal characteristics. Lever (63) analyzed the formal characteristics of games played on the playground by boys and by girls and found that girls participated more in highly structured, turn-taking games which are regulated by invariable procedural rules, include fewer players, and less often require contingent strategies. In contrast, boys more often participate in games that, while rule-governed, reward initiative, improvisation, and extemporaneity. Boys' games involve teams made up of a number of peers, and encourage both within-team cooperation and between-team competition. These differences in preferences of males and females for structured vs. unstructured games and activities have important ramifications, as the research of Carpenter and Huston-Stein (33) has demonstrated. In preschool classrooms, girls were observed by these investigators to spend more time than boys in highly structured activities (e.g., playing house, cooking, looking at books, playing with puzzles), while boys spent more time than girls in low-structure activities (e.g., playing with blocks, tinkertoys, engaging in rough and tumble play). Carrying their analysis one step further, these investigators also examined the effects of structure on behavior and found that both boys and girls manifested more compliance and less novel behavior in high-structure than in low-structure activities. Because girls spend more time from preschool on in games and activities that are more highly structured than the activities and games of boys, girls -- even in their play -- are learning compliance to rules and roles and adherence to the familiar. Boys, on the other hand, are learning to develop their own structures, to generate rules, and to experiment with new approaches to problems.

Differences in teacher behaviors, institutional arrangements, and experiences with peers in play activities operate to accentuate differences between males and females from an early age. They also reinforce the sex-differentiating socialization behaviors of parents by extending the network of sex-role stereotyping socializing agents beyond the family into the larger world.

IMPLICATION OF SEX-DIFFERENTIATED SOCIALIZATION EFFECTS

This review has presented appreciable evidence of sex-differentiated socialization at home, at school, and on the playground. It is suggested that these sex-related differences in child rearing emphases, interaction styles, and socialization behaviors characterizing parents and teachers, serve to define different learning environments and experiential contexts for males and females. The average expectable environment of the male child is more extended, less structured, more tolerant of active play, more accepting of aggression with peers, more emphasizing of mastery. In addition, the context in which males more typically develop provides more frequent and more certain feedback and encourages exploration, experimentation, and independent problem solving. It is suggested that such socialization experiences, more often provided males, are conducive to the development of "wings" -- which permit leaving the nest, exploring far reaches, and flying alone.

In contrast, the average expectable environment created by the lization emphases and practices more often manifested by

parents of girls appears to be more circumscribed, more closely supervised, more emphasizing of proprieties. In addition, the milieu in which females typically develop is more socially interactive, more structured, provides less feedback, and stresses familial interdependencies and responsibilities. Such a learning environment would be expected to be more conducive to the development of "roots" -- roots which anchor, stabilize, and support growth.

In the wisdom of the journalist-philosopher quoted earlier, however, roots and wings are viewed as conjugate legacies. Wings without roots may eventuate in unfettered, adventurous souls -- free spirits who, however, may lack commitment, civility, and relatedness. Roots without wings, on the other hand, may issue prudent, dependable, nurturing, but tethered individuals -- responsible beings who may lack independence, self-direction, and a sense of adventure. In reviewing the literature on the socialization of female children and adolescents, it is difficult to escape the conclusion that, at least until very recently, females in our society are "oversocialized," having been bequeathed roots without wings.

Some results from a longitudinal study in its 12th year of ego and cognitive development from preschool to adolescence (64,65), pertain to the question of oversocialization. In evaluating the effects of different kinds of family experiences on males and female preadolescents, it was found that particular family circumstances appear to be associated in a sex-differentiated way with personality characteristics in preadolescents. While family disruption (i.e., separation, divorce, death of a parent) was significantly associated with a number of negative psychological characteristics in the sample of boys, family disruption was relatively independent of the quality of psychological functioning in the sample of girls. The personality characteristics of the children were assessed using the 100-item California Child Q-sort (C.C.Q.) (66) which was completed by the child's teacher(s), by four graduate students who separately saw each child in two 1-hour testing sessions, and by one graduate student who viewed a 20-minute color videotape of each child producing a dramatic production in a standardized free-play situation. All persons completed the Q-sort descriptions independently and the individual Q-sort item placements were averaged to form a composite personality description of each child. Among the items distinguishing boys from nonintact and intact families were items suggestive of undercontrol of impulse (e.g., inability to delay gratification, lack of planfulness, inattentiveness, restlessness, rapidly changing moods) and of ego-brittleness or nonresiliency (e.g., less responsivity to reason, lesser competence). In contrast, few of the CCQ items significantly distinguished preadolescent girls from intact and nonintact families, as the data in Table 1 indicate.

In a second analysis, the psychological characteristics at age 11 associated with less extreme changes in the family (e.g., moving to a new neighborhood, changes of school not part of the regular sequence, changes in the employment status of mother and/or father) were found once again to be sex-differentiated. In this analysis, changes not eventuating necessarily from object loss or disruption of affective relationships were found to be associated in the sample of preadolescent girls with a large number of CCQ items reflecting ego-resiliency (e.g., ability to cope with stress, tolerance of ambi-

guity, responsivity, creativity, self-reliance), and with moderate ego-undercontrol, curiosity, testing or stretching limits, lesser inhibition and constriction, self-assertion. In all, 32 percent of the CCQ items were significantly associated ($p < .05$) with the family change score in the sample of girls, while none of the CCQ items produced significant correlations in the sample of boys, as the data in Table 2 indicate.

In reflecting upon the meaning of these results, it is suggested that external events or circumstances that serve to discompose the family unit, in the case of preadolescent girls, act to compensate for the tendency to oversocialize females in our society. That is, moves, changes in school, mothers going to work may present more opportunities for girls to be independent, to explore, to be self-reliant than they typically experience in the average expectable environment. Even in the case of more serious family disruption, young girls may not be so profoundly impaired as boys because family disruption ipso facto results in a diminution of supervision, restriction, and help-giving since only one parent remains available on an everyday basis. While one would not wish to prescribe family change as an antidote to the tendency to oversocialize females, these results may encourage reflection on the qualities of "growth-encouraging" environments for males and for females. The characteristics of environments favoring the realization of potentials for males and for females may not be the same. Because of the tendency to oversocialize females in our society, girls learn early to overcontrol impulse, to be tractable, obedient, cautious and self-sacrificing. While these psychological characteristics may have been functional in yesterday's world of large families, a predominantly male work force, and shorter life spans, their functionalism in today's world is problematical.

As Hoffman (8) has pointed out, the socialization of females, which is similar across many Western cultures, is guided by the assumption that women will spend most of their adult lives engaged in mothering activities. The decrease in size of the average family, the increasing numbers of women employed outside the home, and increased longevity have changed dramatically the nature of women's activities. Because more time is currently being spent by women in working than in mothering, (8) the process by which females are socialized requires review. The development in women of ego-resiliency, spontaneity, and competencies that serve well both at home and in the workplace, may be facilitated by learning contexts which are somewhat less circumscribed, structured, supervised, and predictable -- environments which permit more opportunity for independent problem solving. To accomplish these goals, greater parental "distancing" as suggested by Sigel and Cocking (41) will be beneficial, affording girls greater freedom to explore the world, to engage in trial and error learning, to profit from their mistakes. As Piaget (67) cogently has noted, "Each time one prematurely teaches a child something he [she] could have discovered for him [her] self, the child is kept from inventing it and, consequently, from understanding it completely" (p. 715). In structured, sheltered environments, lessons are too often taught, a practice which deprives the child of the opportunity to "invent" solutions and to educe principles. With appropriate "distancing," encouragement, and affirmation of competence, parents can bequeath wings as well as roots to their daughters.

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Table 1. Significant California Child Q-sort correlates at age 11 of the stress index: disruption of object relations

Sample of Girls (N=48)			Sample of Boys (N=50)		
r	P	California Child Q-sort Item	r	P	Difference Between Z Scores
.17	n.s.	Seeks reassurance from others	.32	.05	-
.04	n.s.	Is restless and fidgety	.33	.05	-
.28	.10	Has rapid shifts in mood	.29	.05	-
.19	n.s.	Unable to delay gratification	.28	.05	-
-.14	n.s.	Is attentive, able to concentrate	-.39	.01	-
-.04	n.s.	Is planful, thinks ahead	-.39	.01	-
-.14	n.s.	Appears bright	-.38	.01	-
-.27	.10	Uses and responds to reason	-.42	.01	-
-.31	.05	Has high standards for self	-.25	.10	-
-.10	n.s.	Is verbally fluent	-.30	.05	-
-.10	n.s.	Is competent, skillful	-.32	.05	-
-.08	n.s.	Is reflective	-.34	.05	-
.09	n.s.	Composite Ego-Undercontrol Index	.24	.10	-
.00	n.s.	Composite Ego-Resiliency Index	-.13	n.s.	-

Table 2. Significant California Child Q-sort correlates at age 11 of the stress index: number of family changes

Sample of Girls (N=48)			Sample of Boys (N=50)		
r	P	California Child Q-sort Item	r	P	Difference Between Z Scores
.45	.01	Is an interesting, arresting child	.00	-	2.32
.43	.01	Is verbally fluent	-.10	-	2.69
.42	.01	Is curious, exploring	.02	-	2.05
.41	.01	Is self-assertive	-.14	-	2.76
.41	.01	Is talkative	-.07	-	2.42
.38	.01	Responds to humor	-.04	-	2.11
.38	.01	Tries to be center of attention	-.17	-	2.74
.36	.01	Is self-reliant, confident	-.14	-	2.48
.35	.05	Is vital, energetic	.07	-	-
.35	.05	Characteristically tries to stretch limits	-.02	-	-
.33	.05	Can recoup after stressful experiences	-.09	-	-
.32	.05	Becomes strongly involved in activities	-.05	-	-
.33	.05	Is aggressive	-.16	-	2.42
.30	.05	Is warm and responsive	.04	-	-
.29	.05	Is creative	.02	-	-
-.47	.001	Becomes anxious when environment is unstructured	.09	-	2.88
-.45	.01	Is shy and reserved	.02	-	2.42
-.45	.01	Tends to keep thoughts to self	.05	-	2.56
-.42	.01	Is inhibited and constricted	.05	-	2.39
-.42	.01	Tends to withdraw under stress	.03	-	2.29
-.41	.01	Tends to be indecisive, vacillating	.22	-	3.16
-.42	.01	Looks to adults for help and direction	.07	-	2.48
-.41	.01	Is fearful and anxious	.09	-	2.52
-.37	.01	Is physically cautious	.00	-	-
-.37	.01	Is neat and orderly	.04	-	2.05

Table 2. (Concluded)

Sample of Girls			Sample of Boys		
r	P	California Child Q-sort Item	r	P	Difference Between Z Scores
-.36	.05	Is immobilized or rigidly repetitive under stress	.13	-	2.43
-.33	.05	Tends to go to pieces under stress	.14	-	-
-.34	.05	Tends to be distrustful	.02	-	-
-.36	.05	Tends to be sulky, whiny	.02	-	-
-.31	.05	Reverts to immature behavior under stress	.03	-	-
-.29	.05	Seeks reassurance from others	-.06	-	-
-.29	.05	Is obedient and compliant	.03	-	-
.39	.01	Composite Ego-Undercontrol Index	-.01	-	2.03
.39	.01	Composite Ego-Resiliency Index	-.05	-	2.23

Physical Development of Female Children and Adolescents

Frank Falkner, M.D., F.R.C.P.

Human growth is a continuum. This basic concept of human physical growth is at the root of any discussion on the subject. Human growth starts not at birth--which is, comparatively speaking, a growth event of not too great importance--but at conception. This often overlooked event is being found to be more and more important to the ultimate maturation of individuals.

The growth continuum rarely moves at a constant speed. We are used to thinking in terms of size attained: the average head circumference of healthy infants at 3 months of age, for example. Yet to consider growth as movement leads us to think in terms of velocity; that is, how fast, or slowly, an individual child is growing.

The smooth curve of height-for-age in a growing, healthy child is shown in Figure 1. The lower curve shows how much the child grows from one year to the next. This is a velocity curve which reveals the pattern of stature growth. The infant grows more rapidly than at any time in life, yet the rate of growth is also rapidly slowing and, in fact, has been slowing since the 7th month of fetal life. At about 3 years of age, a plateau appears when the child grows comparatively steadily for 8 or so years until puberty begins. The adolescent growth spurt now starts, and for the only time in postnatal life, the child accelerates rapidly. At the middle of this puberty period, a peak velocity is reached, and then a rapid deceleration occurs until the annual height gain, or increment, is zero. Growth in stature has ceased.

Growth in stature has been chosen as an example of the continuum because length and height are comparatively stable indicators of growth. Body weight increases in a similar manner, but tends to react rapidly and intensely to environmental influences such as illness or variation in nutrition.

Velocity curves for screening use can only be obtained by regularly and accurately measuring reasonable numbers of the same children. Individual children will show many deviations from the average curve, and their measurements will not produce smooth curves. This is caused by many different factors such as seasonal variation, nutrition, and illness. So the control of growth over short periods of time is not stable. The average curves are smooth because individual peaks tend to average out

since the children are all maturing at different times and growing at different rates. It is important to keep this in mind, especially for the adolescent period.

Growth, then, is a form of motion, similar to a journey in a motorcar. The upper curve in Figure 1 is one of distance traveled (a distance curve), the lower one, of speed or velocity (a velocity curve). At any point in time, the velocity, or rate of growth, clearly indicates the child's growth status better than does the distance achieved. Body substances that change in blood and tissue concentration with age commonly run parallel to the velocity rather than to the distance curve. In some areas, the acceleration or deceleration of the velocity actually best reflects physiological events.

Parenthetically, it must have been noticed that in a paper on female growth, the illustrative figure is that of an individual male. This is probably due to long-held traditions. As long ago as the mid-1700s, the first longitudinal study, revealing the importance of velocity growth, was published by the Frenchman Count Gueneau de Montbeillard who measured his son's (not his daughter's) height at each birthday, from birth to age 18.

GROWTH STANDARDS

Human growth is not simply a series of height and weight charts. Growth standards are necessary, though, and are a basic instrument in child health epidemiology. It is essential to realize that the majority of children born in the United States in the 1980s will be born to blacks, Chicanos, Puerto Ricans, Cubans, and to other racial or ethnic groups.

There is no proper substitute for a country's having its own child growth standards based on a representative sample of the population. The use of growth standards for screening should be carefully distinguished from the use of growth measurements to compare disadvantaged with privileged groups of the population. Particularly, the use of such standards to screen individual children must not divert attention from the need to change existing differences between disadvantaged and privileged groups.

PRENATAL GROWTH

Fetal growth curves, depicting distance and velocity, are for obvious reasons hard to come by. Those that do exist are derived from the measurement of fetuses born too soon at various gestational ages. The concern here is that such fetuses may not be "normal" in the sense that normal fetuses remain growing in the uterus until 40 weeks of gestational age, at which point they can be measured as newly born infants. With the advent of ultrasonography, it is to be hoped that this gap in knowledge of prenatal growth will be filled.

Good indicators of fetal growth patterns may, however, be gleaned from past and present multidisciplinary data. Velocity is unremarkable in the embryonic period, the first 8 weeks. Morphogenesis is the shaping of different body regions by differential cell growth or cell migration. The major part of morphogenesis is completed by the 8th gestational week, though it continues, in fact, until adulthood and in some body parts until old age.

The fetus grows fast. This velocity is due largely to the fact that cells are still rapidly multiplying. The velocity in growth in length starts to drop off rather sharply after 30 gestational weeks, and the velocity in weight gain starts to drop after 34 weeks of gestation.

It should be noted that the complex interaction of nature and nurture influences on growth start to operate prenatally. As an example, a slowing down of growth enables a child genetically destined to be large to develop in the uterus of a small mother and to be delivered successfully. Mothers with adverse environments or adverse circumstances in their own growing periods are likely to have small fetuses. Two generations may be needed to undo these ill effects of poor environment.

The process of sex differentiation, prenatally, and postnatally up to adolescence, starts at conception. Of the 23 pairs of chromosomes found in human cells, only the male has one pair of chromosomes that are very different from each other. In this pair, the "X chromosome" is notably large, and the "Y chromosome," among the smallest. These are the sex chromosomes, so-called for this reason: The single-cell female ovum always carries but one chromosome, an X. The male sperm, also single-celled, can carry either an X or a Y chromosome. After fertilization, therefore, the resultant sex chromosome pair is either an XX or an XY. All cells of a subsequently developing girl will have an XX pair, and all of a boy, XY. Thus, the sperm determines the sex of the child-to-be.

We can tell whether a human embryo is male or female only by examining the sex chromosomes. When the gonad appears it looks the same for male and female. It develops, however, more slowly in the female. It is at about 10 weeks gestational age that the female gonad is recognizable as an ovary rather than a testis. The external female genitalia are apparent and developing at 12 weeks without being, it seems, under specific hormonal control. It seems, too, that embryos develop quite passively into what some term the "basic" sex, the female, in the absence of any hormonal stimulation. The secretion of testosterone from the testes, results in the marked formation of the penis and scrotum. This sex-differentiation feature is noted throughout growth, even in the last stages of differentiation at adolescence. Although both females and males have their own hormonal-stimulation mechanisms, the female's changes are less striking and extensive than the male's.

Sex differentiation continues, the most important difference now being in the rate of maturation. The male fetus matures faster than the female for the first gestational month until the developing palate is closed. Thereafter, the female fetus matures faster. She reaches 50 percent of her adult height on average at 1.75 postnatal years, whereas the boy does so at 2 years of age. The female starts her puberty earlier than the male and ceases to grow earlier. This difference in tempo starts early; at the halfway mark of fetal growth, the female skeleton already is nearly 4 weeks in advance of the male. At birth the difference is some 6 weeks and, by the start of puberty, 2 years. Girls are also more physiologically mature in some other organ systems, and it is possible that this is a major reason why more girls survive perinatally than boys.

The actual milestones of maturation are the same, and in the same sequence, for girls as for boys up to puberty. Sometimes, though, the

intervals between them are psychologically different, especially for adolescents. The earlier maturation of the female is a common characteristic of mammals and is found in nearly all primates.

Nearly all the differences between the sexes in body composition and shape develop during puberty. The overall difference in body size is, however, largely due to the boys' delay in growth. Although they are a little larger than girls at birth, the differences are small and stay so until puberty. Boys are 2 years behind girls in starting their adolescent growth spurt, and thus have 2 more prepubescent growth years before they do start.

ADOLESCENCE

We do not know what triggers the adolescent growth spurt. The sudden onset of rapid somatic growth and maturation is striking. It is accompanied by psychological and social development. It is a phase of life in which variations are exceedingly large, not only between different individuals of a given age, but also within the same person over time. It is important that this should be understood by adolescents themselves, their families, the health professions, and the public at large.

Rapid physical growth, changes in organ systems of the body, and completion of sexual development are basic in early adolescence. Adolescence is a period in growth when marked morphological changes occur in virtually all organs and systems. In particular, an immature hormonal system becomes mature. The main changes are:

a. The adolescent growth spurt: marked acceleration of size and change in shape of the body and many organs. An important fact needs to be repeated, for it has important biomedical and social implications: because girls, on average, begin their adolescent growth spurt 2 years ahead of boys, they temporarily become larger and more mature.

   The actual amount of height gained during the spurt is greater in boys than in girls, but only by some 3-5 cm. The stature difference between the adult male and female is of the order of the female being 13 cm. shorter. Eight to 10 cm. of this is due to the extra time for prepubertal growth of boys, and to the earlier end to somatic growth of the female.

b. Changes in body composition.

c. Gonadal growth and development and growth of the secondary sexual organs and sexual characteristics.

d. Growth of respiratory, circulatory, and muscular systems leading to increased strength and efficiency of body energy production.

With the very large variation in the age of onset of the growth spurt among healthy adolescents, chronological age becomes of little biological importance. It certainly is important, however, to the individual who is early or late in maturing compared to most boys or girls of the same age. Probably the two most common general growth problems are based upon this aspect of growth typified by the 11-year-old girl of tall stature who wants shorter, and the 15-year-old boy of small stature who wishes to grow.

Growth of an individual bone ceases when its epiphyses are completely fused. When all the epiphyses of the involved bones are closed, adult stature has been reached. So, study of such maturation of the skeleton, the assessment of bone age, is enormously helpful. Since rapid maturation of the bones coincides with the adolescent growth spurt, it helps us to define an early-maturing, average, or late-maturing child. Skeletal maturation may be assessed by simple radiography using one of a few acceptable rating methods.

Regarding body composition, it has been shown that in adults, there is no significant interrelationship between the amounts of fat, bone, and muscle. This lack of relationship also has been found in adolescents irrespective of age or sex. These three tissues seem to grow almost independently.

Fat growth is important to the girl and those concerned with her health. Bone and muscle, although growing independently, have very similar growth patterns. Fat is markedly different. It is steadily gained from 2 years of age until before the girl's peak height velocity. Then there is a deceleration and an absolute loss of fat with the "low point" occurring at the peak of height velocity. Thereafter, girls gain fat quite fast, reaching stability at the end of adolescence. This is particularly important in discussing adolescent nutrition and dieting.

There are clearly racial differences in adolescent body composition, and there is a need to exercise caution in assuming that data gathered largely in the Western hemisphere are applicable to other populations. There is a need for studies in so far unstudied populations, particularly studies of under- and overnutrition. The black adolescent seems to have a higher proportion of body fat than the adolescent Caucasian, who has a higher proportion than the Oriental. Caution is necessary here, too, because of the racially different rates of maturation of children. These differences are not always taken into account when comparisons are made.

There is also the question of physical activity when studying body composition in adolescents and the difficulty of assessing such. Two adolescent girls of the same age, recording that they spent a weekend skiing, might be referring to intense physical activity for one and little or no physical exercise for the other. There is a parallel between the development of lean body mass and the marked physical activity in adolescents and also with aerobic capacity as measured by oxygen consumption. A recent study in Holland showed that if you measured physical activity (cycling, for example, a sport in which many Dutch children participate), timed in minutes per day, a very great difference existed between adolescents of the same age (at 13 and at 16 years) from two very different schools with different levels of activities.

The growth of the gonads and the secondary sexual organs starts at the onset of puberty and is associated with complex hormonal events in the endocrine glands and their relationships with the brain. Messages are transmitted from the brain to the pituitary gland, and the pituitary hormones then stimulate the secretion of sex hormones in increasingly large amounts. These hormones have important effects on various

tissues of the body, and probably facilitate the maturation of the brain. Hormonal changes also seem to be related to concomitant changes in behavior.

Growth at this period is related to a complex set of endocrine processes going all the way back to prenatal life. Changes occurring in adolescence ultimately depend on the adequate development of the reproductive system in the prenatal period.

Both boys and girls produce the male hormone, androgen, and the female hormone, estrogen, in relatively equal amounts throughout childhood. When a child reaches adolescence, the hypothalamus and pituitary mature sufficiently to develop the typical hormonal secretions of adults. A balance is created that is characterized by more androgen in boys and more estrogen in girls. These hormonal changes lead directly to the physical developments that occur during puberty.

During puberty, the ovaries and testes produce enough steroid hormones to cause accelerated growth of the genital organs and the appearance of secondary sex characteristics. In girls, fluctuating excretion of estrogen anticipates the menstrual cycle before menarche.

The great biological variability in individual patterns of growth and of pubertal change can have profound psychological effects on the adolescent who is markedly early or late in comparison to friends and classmates.

In girls, growth of the breast is usually the first sign of puberty. Pubic hair may appear at this time, but, as in boys, it usually occurs later and coincides with the onset of the adolescent height growth spurt. Menarche is such an easy event in time to pinpoint that it is a valuable maturity marker in the female. The most important fact regarding the sequence of events in female puberty is that menarche invariably occurs after the peak height growth velocity and thus towards the end of puberty. It does not usher in puberty, as so many parents and physicians believe.

There is a need to assess all indicators of maturity. For example, an 11-year-old girl who is genetically tall may frequently be labelled as not having started puberty because menarche has not occurred. Thus, the patient and her parents are alarmed at the possibility of her becoming a giant. However, the majority of children like her are early maturers whose breast stage often reveals that they are in a late stage of puberty and about to menstruate for the first time. They are well along the decelerating velocity height curve and will grow little more.

It is important to note that growth clinics, asked to advise on and screen the growth status of children, have a large proportion of clients who are simply early or late maturers in no need of pharmaceutical or clinical therapy. Reassurance and psychological therapy are, however, very much needed. The late-maturing boy is distressed by his small size and lack of secondary sexual characteristics. The early-maturing girl not only fears she will continue to tower above her peers, but she is embarrassed by her noticeably large breasts.

There is an important variation in pubertal timing among children. In many children, linkages between the various maturity indicators are strong; in some, they are loose. Not only does the rate of passage through puberty vary, but it is unrelated to early, average, or late maturation. A healthy girl may complete her puberty phase in 2 years; at the other extreme, another may reach adult stages of breast and pubic hair growth and yet menarche may not have occurred. As very approximate guidelines, 95 percent of girls will exhibit the first sign of puberty between 8 1/2 and 13 years; maximum (peak) height velocity on the average at 12 years, with menarche on the average varying from 12.8 to 13.2 years in various present-day developed world populations. The female is, on the average, more advanced than the male in nearly all maturation indicators.

It is useful to summarize the age sequence and relationship between the events discussed. Tanner has done so for each sex in diagram form. Figure 2 depicts the sequence of events in girls. It is important to be able to judge individual deviations from these averages. With the various puberty stage indicators, the ages shown represent the range of ages to be expected when these events start and end. The menarche, as was emphasized earlier, almost invariably occurs after peak height velocity. The appearance of the breast bud is usually the earliest sign of puberty in girls. The range of the early and late maturers is given in ages at the start and end of breast development. Pubic hair stages show there is a very large variation in age at which the various events occur.

SPORTS PARTICIPATION

Young athletes, whether boys or girls, grow similarly to nonathletes. The sport at which an individual is likely to excel can be decided by athletic experts. For any healthy female, this decision rests upon somatic growth patterns as described above. The main consideration of athleticism is ultimate performance. The consideration of the human biologist must be whether the female involved would be at risk for injury or ill health.

Contact sports seem to be at the base of current controversy and here the only real concern is similar for boys and girls. The epiphyses of the growing bones are not "solidified" onto the main shafts until adolescence is well on its way. Therefore, traumatic displacement of these epiphyses can be harmful.

The female pattern of fat growth at, during, and after adolescence has been described. In addition it is necessary to note that, compared to the male, the female's fat, on average, is more steadily acquired, reaching stability as adolescence ends. The female will also finish with a larger percentage of fat in her body than the male. This is an important consideration in sports for the female, since greater fat means more weight of fat that will tend to lessen the efficiency of muscles and add to the tendency in early adolescence to be uncoordinated. Common sense and absence of exploitation and pressure is necessary for all growing children, and athletic training should be in the hands of experts with knowledge of human growth.

NUTRITION

Only two aspects will be discussed:

(a) With such a huge amount of growth occurring in the adolescent growth spurt, it might be thought that energy requirements would be vastly increased. In fact, the female adolescent's requirements are increased but not so much as might be expected. Thus, for optimal growth the ancient maxim holds--good mixed diet with appropriate minerals and vitamins included.

A common danger springs from the female adolescent's wish to have the currently modish slim-stick figure. Knowledge of the normal changes in body composition is needed by such an adolescent and by those who influence her. Severe dieting during this period of adolescent growth can quickly slide into deficient growth, and sometimes perhaps anorexia nervosa.

(b) The pregnant adolescent has a peculiar problem. She is still growing and, in addition, needs to increase her food intake, not to "feed for two," but to ensure that her growth requirements are met in addition to requirements for normal weight gain, in the order of 25 pounds, occurring during pregnancy.

CONCLUSION

Knowledge of the normal somatic and physiological growth patterns of females is at the root of achievement for those who wish their health and happiness. Of particular importance is knowledge concerning the various sequential events in adolescence over time, and relating gonadal, genital, and physical growth to each other. Education about the great variability of age of occurrence of these events among healthy adolescent females will lead to a greater understanding of the psychological problems that may beset them.

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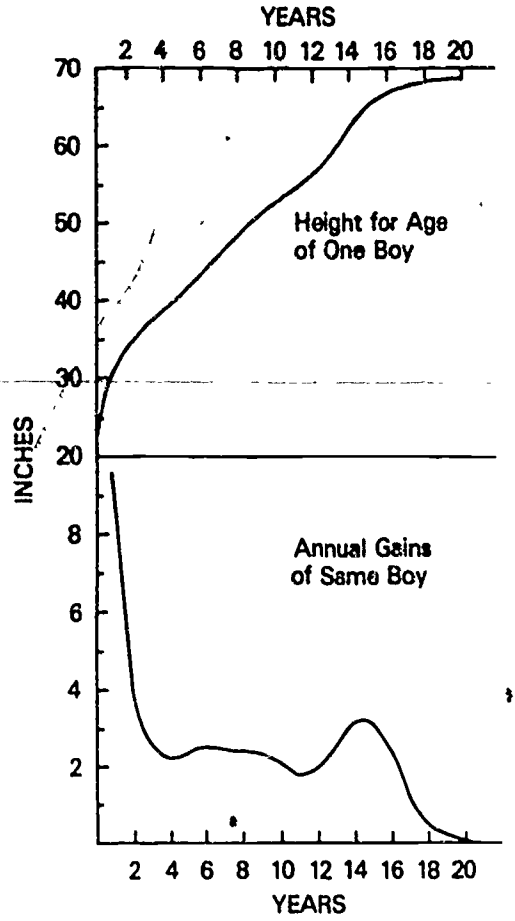

Figure 1. Curves showing (above) height of a boy at various ages (distance) and (below) annual gains, plotted from first curve (velocity). (Falkner, 1972).

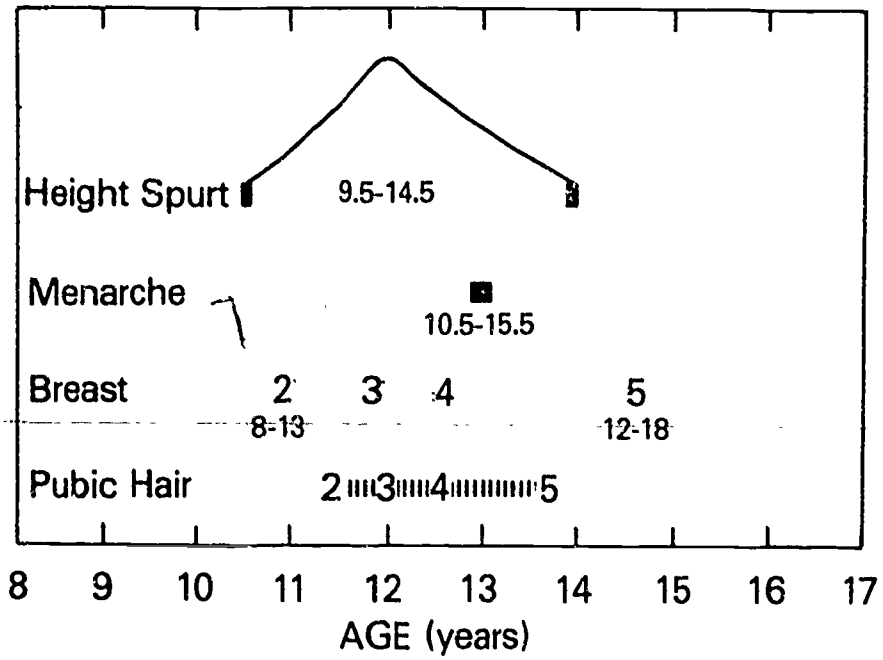

Figure 2. Range of age of puberty stage indicators in girls. The ratings for breast and pubic hair are stages clinically described by Tanner. (Tanner, 1975).

Socialization of Black Female Children

Pamela T. Reid, Ph.D.

The behavior, values, and attitudes that a child is expected to acquire are strongly related to the sex of the child. Although the behavioral responses considered appropriate for a particular sex may vary from one culture to another, every society makes some distinction between the roles of the two sexes. During the early years of life, four major psychological processes operate in the development of these behaviors and attitudes: (a) desirable behaviors are acquired; (b) undesairable behaviors are inhibited; (c) approved values are acquired, and (d) disapproved values are supprassed (1).

According to Kagan, it is the child's own cultural group which decides which behaviors are desired and approved or undesired and disapproved. In the United States and in many other countries, role distinctions are determined by racial characteristics as well as by sex. However, little data have been collected on cultures other than white middle-class America. The fact that various cultures have not been analyzed has not deterred psychologists from assuming that the mechanisms for developing culturally acceptable behavior are the same for all people. There may, indeed, be no fallacy in this assumption. Problems arise, however, when psychologists judge acceptability of others' values and behavior based upon norms from white middle-class samples.

It is important for a child to learn what is appropriate behavior in order to establish a place in society. Children become aware of the distinctions and expectations made by society through the intricate processes of socialization. Those who deviate from the defined norms of society are usually reprimanded and may ultimately face rejection if they do not conform. Information from close associates is an important factor determining social roles children must learn.

Parents, siblings, peers, teachers, and even television personalities may exert pressure on the developing awareness of what constitutes acceptable behavior. In American society researchers have found that acceptable behavior for white boys usually includes aggressive, independent, and highly active types of responses. For white girls, traditionally acceptable behavior includes dependent and emotional

responses, and an interest in domestic activities. Definitions of acceptable behavior for black children, male or female, are not so readily available because most of the socialization studies have excluded black children from the samples.

The primary purpose of this paper is to present a critical review of research about socialization and black children. Although investigations dealing with boys and girls are included, the emphasis of this paper is on female development. In addition to concerns about methodology and theoretical implications of research efforts, the assessment of research on black children and socialization must address the question: Who does evaluate the black child's behavior for acceptability or unacceptability? The perspective that what is "appropriate for white society" may not be appropriate for the black community, and vice versa, has aroused some controversy. Crosscultural concerns, therefore, are considered important in this review. Finally, an attempt is made to assess the effects of social class as a variable, as well as the influence of race, since it must be recognized that neither the black nor the white community is homogeneous in its values. There are many interrelated components of the socialization process which children must undergo. As children learn about the rules that govern adaptation of principles of morality, attitudes toward family and community, and behavior in public and private places, two processes seem to have special importance: the development of sex-role identity and the development of self-esteem. Since these two functions have been frequently studied when black children were subjects, this paper presents a review of the research dealing with these topics.

SEX ROLE SOCIALIZATION

Sex-role socialization is perhaps one of the most important aspects of personality and social behavior since it defines how individuals react to themselves and how others react to them (2). According to Brown (3), adjustment to the appropriate sex-role is an integral component of normal and satisfactory development. Brown believes that in order to attain a normal adjustment, it is necessary for an individual to assimilate the values accepted by society as appropriate for everyone in general, and specifically those values thought appropriate for his or her sex. With respect to sex-role behavior, it becomes necessary for individuals to discover the values and limitations applicable to a particular situation.

The problem of cultural differences seems greatest for females of minority groups. While there is widespread agreement on the masculine and feminine roles in the dominant society (4), questions exist concerning the degree to which minority men and women fit those standards. Black women, especially, have been stereotyped as unfeminine and having negative characteristics, very unlike the white model of femininity (5). While men and boys of minority groups certainly experience conflicting demands and circumstances, they do not experience the additional anxiety of knowing that discrimination may come as a reaction not only to their minority status but also to their sex. The dual possibility of discrimination based on racism and sexism is known as "double jeopardy" and has placed black girls and women in a uniquely difficult situation. It is, therefore, somewhat surprising that even today so little research has been conducted that attempts to analyze these conditions.

Theoretical Perspectives

There exists a consensus among social scientists that environmental factors, including family practices and attitudes, as well as biological conditions, operate in the development of sex-role behavior. Psychological theorists may be divided into three broad groups depending on the amount of emphasis they give each of these factors as determinants of sex-role behavior. The groups are cognitive-developmental theorists, the psychoanalytic theorists, and the social-learning theorists.

The cognitive-developmental group emphasizes the internal capabilities and innate functioning of the child. According to cognitive theorists, the need for self-categorization is the mechanism which leads children to observe the sex-typed behavior of men and women, to come to understand the roles, and, finally, to decide which role to adopt (6). Although differences in background and experience are recognized as variables in development, little attention is paid to them by the cognitive theorists. This theory, in fact, does not address the issue of individual and group differences in behavior. Cognitive theorists attempt to uncover and understand the universal laws governing intellectual development. Sex-role behavior, then, is explored by them primarily in terms of the awareness and acceptance children have of male and female roles as they exist in our society. The applicability of this theoretical perspective to black girls is limited by the assumptions of researchers. Most researchers begin their investigations by defining the male and the female role in the manner traditional for the white community. Studies proceed by comparing how much or how little black girls meet these criteria. Cognitive studies of sex-role behavior also lead to inferences about maturity and intelligence based upon girls' acceptance of the female role as defined, not by their own cultural group, but by white society (7,8).

Psychoanalytic theorists, who emphasize the role of parents in the establishment of personality and social behavior, believe the development of sex-typed behavior results from identification with an adult model. Through the process of identification, values, attitudes, and beliefs of an adult are accepted by the child (9). It is usually assumed that a girl identifies with her mother, thereby accepting the feminine role and ultimately rejecting the masculine one. While the basic tenets of this approach seem applicable to any group, closer examination reveals that, again, assumptions are made that do not accurately reflect minority females' experiences. The most obvious fallacy is the assumption of a nuclear family situation, in which the mother and father are the only adult models. Black people, however, more often than whites, live in extended family situations. McAdoo (10) in her study of middle-class families found that even when the black family appeared nuclear in structure, an extended family network existed for the emotional and instrumental support of its members.

Social-learning theorists place more emphasis on environmental variables as effective determinants of sex-role behavior than the other theorists do. Their approach recognizes both modeling and direct reinforcement as the means through which children develop social and other behavior. The major principle of the theory with respect to sex-role behavior is that females' sex-role behavior develops from their experiences as females, as well as from the

rewards received. The flexibility and breadth of this assumption makes it most applicable to the study of minority females. For this reason, much of the empirical research presented in this paper takes this perspective. Difficulties still occur, however, from the biases that some researchers bring to the interpretation of their results. Tulkin (11) identified this problem and described the solution in his call for "cultural relativism" in research dealing with minorities. Cultural relativism means that behavior should be considered within the context of the group being studied; different is not always interpretable as "better" or "worse." Few researchers, however, have attempted to study black girls by establishing norms for the group.

Family Influences

For most children, the mother is the primary agent of socialization during the first few years of growth. The mother's responsibilities include not only the child's feeding, cleaning, and toileting, but also the shaping and directing of sex-related activities and interests. The mother interprets societal values and expectations for the child. Based upon experimental data and observations (5,12), the interpretations presented to black children seem to differ in several important ways from those given to white children. These differences are especially salient in the socialization of black girls.

The definition of the masculine and feminine roles is an important one. Strong agreement has been found between the sexes about the nature of the male-female role distinction in several studies utilizing white participants (13,14,15). Observers of black Americans, however, believe that the characteristics traditionally ascribed to and valued in white women do not reflect the traits encouraged in women of the black community (12,16,17). In fact, black families have been able to achieve a level of stability by integrating the roles of husband and wife (18,19). Men shared in household duties and child rearing, and women shared in financial support.

Black women are noted for their strength, independence and resourcefulness. Black girls and boys both learn and accept this interpretation of the female role. Agreement about this has been documented in research with black college students (20). Some researchers have become aware of this distinction between white and black societies and have concluded that the female role was in fact the preferred and dominant model of black community life (21). This position is certainly a misinterpretation; the black female role has relatively high status when compared to the white female role, but it does not surpass the black male role in power or prestige in the black community. The refutation of the matriarchy theory has been presented a number of times (22,23,24,25). Joyce Ladner (5) suggests that the myth of the black matriarchy has been reinforced by the failure of many students of the black family to distinguish between the terms "dominant" and "strong." In order for the black family to survive, the black woman has had to be strong, but not necessarily dominant. Hill's research (19) clearly showed that the husband in most black families is the primary breadwinner even in lower class black families. The wife's income is usually less than half of the total family income.

Another dimension in the socialization experience of black girls is that they receive family recognition and support of achievement. Traditionally black girls, more than black boys, have been encouraged to remain in school and to become high achievers. Bock (26) explained this phenomenon as "the farmer's daughter effect." He believed that the practice was based in part upon black parents' realistic consideration of the opportunities for their daughters' success versus the opportunities for their sons', as well as the realization that education offered some protection to their daughter. The black girl was protected in two ways by remaining in school: first, attending school provided physical protection from sexual involvement or harm, and second, educated black women had alternatives to working in white homes as domestics. More recent research provides evidence that black girls continue to receive support for high academic achievement (27,28,29).

Academic achievement is not the only goal towards which black girls are socialized. Just as white girls, they are expected to become mothers and are trained accordingly. For black girls from families of lower socioeconomic status, the preparation is especially rigorous, and for many girls, motherhood is viewed as a "rite de passage" (30). Schultz (31) in his study of black urban families found that girls as young as 9 years of age may have the primary responsibility for rearing their younger siblings. By 13 years, a girl may have to undertake total control and care of her mother's youngest baby. This responsibility is usually given to the first-born daughter and is probably a tradition from farm families where everyone went to the fields except for one older child, usually, female, and those too young to help (32). Stack (33) reported that black women in lower class communities feel few if any restrictions about childbearing. "Unmarried black women, young and old, are eligible to bear children, and frequently women bearing first children are quite young. These findings do provide an insight into the disproportionate number of births by girls in their early teens" (33, p. 121).

The study by Bell (34) of black lower class women reveals that the mother role is considered a highly significant one, but this may be less true for middle-class women. When making a forced choice between the roles of wife or mother, 84 percent of black lower class women but only 50 percent of black college women chose mother (this compared with only 26 percent of white college women). In the lower class black community the role of mother has unchallengeable respectsbility. According to Schultz (31), lower class black women have status because they are associated with ties to relatives, continuity of family, and with respectable institutions, such as church and school. Very few investigators have examined middle-class black mothers, but the study by Hommson (35) of the fertility rates of black doctorates indicated that blacks with Ph.D.'s appear to limit the number of children they produce. While researchers note that a class difference exists with respect to the degree of child care and other responsibilities given girls in black families, investigations indicate that maternal discipline for middle- and lower-class black girls is similar (36).

Although both black and white girls receive socialization toward a "mother role," black girls do not have so stereotyped an image of that role as white girls do (37). Since many black women work outside of their homes, their children are presented with a model of

working mothers. Thia model seems to have s dramatic impact on black girls. When examined as college students, black women preferred and expected to combine marriage, children, and employment; their expectationa did not reflect the role conflict expressed by white women (38). Weston and Mednick (39) alao found that black college women exhibited significantly fewer responsea scored as indicating the motive-to-avoid-success, than white college women did.

In actuality, it appears inappropriate to compare the socialization experiences of black families to those of white families except for deacriptive purposes. Recognition of differences in goals, practices, and assumptions of different cultural groups makes behavior outcome comparisons somewhat meaningless. This fact is emphasized by Baumrind's studies (40,41) of child rearing practices in black and white families. She found that if black families were viewed by white norms they appeared authoritarian. However, unlike white authoritarian families which produced passive and dependent girls, the highly "authoritarian" black families produced self-assertive and independent girls. What must be concluded, then, with respect to sex-role socialization within the black community is that the female role is much more powerful and highly valued than it is in the white community. This stronger image of women, however, does not appear to diminish the importance of the male role for blacks (25).

The role that fathers play in the socializing experiences of black girls has rarely been investigated. In apite of reports of high father absence, most black obaervers concur that fathers do exert s aignificant influence on their families. For those families which are lacking a male head-of-household, the extended family structures in lower income families and close aupportive ties in middle income families insure an ample supply of male role models, e.g., uncles, brothers, grandfathers (42). Johnson (43) offered the hypothesis that fathers are important in the development of feminine behavior. She suggested that with the encouragement of the father, s girl becomes appreciative and accepting of the feminine role. Fathers serve, she asserted, as mentors to sons and platonic lovers to their daughters. The mother's role, according to Johnson, is to assist the father by defining him as a worthy person to the child. In fact, father's practices were found to have an impact on lower class black girls. Lower claas black ginls who were rated high in leadership ability received significantly more principled discipline, i.e., discussion and explanation for control, from their fathers than their lower class white counterparts (36). The black fathers appeared to model those behaviors needed to help their daughters become effective leaders. The effects of father absence on black girls and differential social class effects have not yet been well demonstrated. However, based upon interviews with 400 black women, Myers (32) reported that the father was the most admired man in the lives of the women and he provided the women with emotional support during their childhood.

Media Influences

It has been widely accepted that media models strongly affect sex-role development. The actions of fantasy characters as well as the behavior of real people have an impact on the sex-typing of children. Researchers have investigated the dimensions of characters represented

in a variety of media. The two types of presentations which have the most impact on the socialization of young children are children's books and television.

From studies on children's literature, it has been found that characters typically conform to racial and sexual stereotypes (44). Boy-centered stories outnumber girl-centered stories; male biographies exceed female biographies, and women were shown in a limited number of occupations, while men were presented as active in a wide variety of fields.

Children receive messages that males are more valued and that achievement is expected from boys but not from girls. The underrepresentation of female characters and the restricted nature of their activities exist in popular literature for children, and in their school readers (45,46). Of the studies examining the racial stereotypes in children's books, Dickerson's (47) found that black female characters also were portrayed in limited and often negative roles, usually as either housewives or domestics. Researchers agree that the effect of these rigid interpretations of role models can serve to limit the aspirations and expectations of black girls.

The modeling provided by television characters probably is even more powerful than that of books because of the widespread distribution (98 percent of American homes have television sets) and the heavy usage, especially among children (48). Most television programming has been found to present stereotypic characterization of female roles and of black roles. In a study of popular comedy programs, raters found that black women were usually portrayed as high in nurturance and low in achievement behavior. Black women were also depicted as higher in dominance behavior--much higher than white women--and as high in dominance as both black and white men were shown to be (49). These characteristics are recognized by young viewers and they play an important role in the learning of sex-typed behavior and racial expectations. Data for white preschool girls showed that the effect of stereotypic programs directly influenced their sex-typed choices (50). Frueh and McGhee (51) also found a relationship between television viewing and sex-role stereotyping. Their studies indicated that heavy viewers displayed more stereotyping than light viewers did. Given the lack of black female representation in television programs and commercials, however, some may question their impact on black girls. The underlying question which has not yet been fully addressed by researchers is to what extent do black girls identify with white female characters. Friedrich and Stein (52) demonstrated that children model different aspects of their television experiences depending on their sex. Girls modeled verbal labeling, while boys modeled active behaviors. Additional research may find that racial factors also lead to differential modeling.

Teacher's Influence

One arena in which black children are able to interact in face-to-face situations with representatives of white society, often for the first time, is the school. Since the teacher is the principal representative of the school for the child and her family, she/he becomes important in socialization as a model and

as one who dispenses rewards and punishments to the children. For many children the teacher's evaluation plays a critical role in determining expectations and in setting limits upon their role definitions.

Race and sex of children have been found to affect the behavior of teachers, as well as their evaluations of the children. The reinforcement practices of 60 female black and white teachers in integrated classrooms were studied by Byalick and Bersoff (53). Their observations indicated that the teachers reinforced opposite race children more frequently than children of their own race. They also found that boys were reinforced more frequently than girls. Finally, they found that black females were the least reinforced group. The failure of the teachers to give encouragement and rewards to black girls seemed to reflect a negative image which teachers had of these children. Other researchers have noted the tendency for teachers to be influenced by the ethnicity of their students. Jensen and Rosenfield (54) revealed that teachers' behavior was modified to some degree by the child's social class. White and black middle-class children were rated more favorably than white and black lower class children. Interestingly, however, academic ability has a reverse effect upon teachers' reinforcement of black children. Black girls with high academic ability were ignored even more than those with lesser abilities. The same effect was true to some extent for black boys (55). It seems as though teachers preferred black children to conform to expectations of low academic ability.

The teachers' judgments of black girls and of other students are probably based upon a number of factors. One factor is the attractiveness of the child. There are many contradictions between black girls' physical characteristics and those which are held to be desirable by white society. Physically, black women are considered to be the antithesis of white women, and even today, the standards of beauty for blacks are not independent of white standards (56). Teachers have been found to systematically rate children with attractive faces more favorably than unattractive children. Another factor relevant to teachers' evaluations within the school setting is language. Although black children do not all use Black English to the same degree because of peer and community identity, their speech is often noticeably different from the speech of their white counterparts and the speech of their teachers. When white and black students read identical responses, white teachers assigned significantly higher grades to the white students (57). Of course, the use of a dialect is not restricted to female black students; however, this disadvantage is apparently heightened in the comparison between black girls and white girls. The disadvantages of teachers' perceptions of the black girl's speech, attractiveness, and ethnicity may well be additive, resulting in lack of attention. The experience of socialization in school for black girls, then, will probably include social isolation, rather than attention. A black girl in integrated classrooms may have the most negative experiences (58), since it is unlikely that she will be the lead in the class play, the May Queen, or have other opportunities which are reserved for a child whom the teacher perceives as epitomizing the female role.

SELF-ESTEEM

Self-esteem is a dimension of personality which undergoes shaping during early childhood; however, it may be reformed throughout one's life. The nature of self-esteem has been defined as the evaluative component of self-concept (59). Children must first develop an awareness of the self as an individual, then as a member of a group, before beginning to associate labels of "good," "bad," "pretty," or "smart" with themselves.

Differential modeling based on race may act not only on the learning of sex-typed behavior but also on the development of self-esteem. Many essential contributions to a child's sense of self are made by other people. The expectations of important others greatly determine what the child expects of himself/herself. In the establishment of the self-concept of black children, two factors heighten the experience of cultural separation and bring conflict to the formation of a positive self-concept. First, black children live in communities and with families that often hold expectations that differ from those of the white cultural group. These differences are sharply drawn for black girls. Second, even children from families who have adopted the mores of white society are subject to discriminatory treatment and reactions to their behavior based on stereotyped perceptions of race. A review of socialization experiences of black girls, then, must consider the impact of the dualistic nature of pressures placed on them by both cultural groups.

Theoretical Perspectives

Many of the same processes which are involved in sex-role development and identification are also believed to operate in the formation of self-esteem. Cognitive-developmental theorists, for example, explain self-esteem as the development of self-awareness. Infancy marks the beginning of self-awareness. The child must first become aware of his/her organic needs, then develop the ability to express herself/himself symbolically. As this ability develops, the child gradually gains consciousness of the self as a separate entity (60). Children appear to draw their knowledge about themselves from (a) their ability to decenter, (b) accumulated experiences, (c) impressions based on interactions with others, (d) ability to attain goals and standards derived from experiences with others, and (e) ability to accurately evaluate their performance with respect to the standards previously set (61). For much of the research focusing on black child development, the assumption has been that whites were important in setting the standards of achievement. Considering the differences in expectations for black and white girls, it is realistic to expect that black girls do not accept goals for themselves from whites. Researchers should also recognize that few of black children's experiences are interactions with whites. Instead, cognitive theorists must consider the experiences within the black community as salient to the child's self-awareness (62).

Psychoanalytic theorists invoke the process of identification as an explanation of personality development. The interaction between children and their parents is critical in the development of self-esteem. Erikson (63) viewed identification as a series of experiences which should lead to the alignment of drives with opportunities by the adolescent stage. This perspective would certainly lead to the hypothesis that black girls will have difficulties in establishing

self-esteem, since society strictly limits their opportunities as blacks and as girls. Manaster, Saddler, and Warkasch (64) attempted to relate drives, as represented by measures of the ideal self, and opportunity, as measured by cognitive development score, with a sample of white adolescents and preadolescents. They found that cognitive development score significantly predicted the ideal-self score, and that sex was an important contributing factor in the adolescent group. It is important to determine if the same relationship can also be found in a black population.

The social-learning theorists emphasize the role of parents as models for the development of self-esteem. According to this theory (65), standards and values are acquired through observations of adults' behavior. Predictions for black children's self-esteem depend not only on the types of behavior the child is able to observe, but also on the evaluations which other adults give to that behavior. It cannot be assumed that black children only observe black adults in positions of inferior status. In fact, the opposite is more likely the case, especially for younger children. Children interact with black adults who are in superior positions, e.g., parents, ministers, grandparents, teachers. Although some black adults that children observe may represent "negative" models, Baughman (66) reported that these models were given poor evaluations by the "respected" segments of the black community, and therefore are not necessarily an important source of influence.

Inferiority Model

Some early efforts to determine the effect of racial barriers on the behavior of black children revealed that the results of degrading social barriers were negative attitudes, disturbed behavior, and a low sense of self-esteem (67,68). These studies and others stressed the fact that black children lived under a system of prejudice and discrimination. The implicit assumption was that the black child was fully aware of the inferior status assigned to her/him by the larger society. The low status and generally negative stereotype of black Americans was believed to have an undeniable effect on black children (16).

What is seen as matriarchal in the character of the lower class black family also was assumed to present critical problems for the personality development of black children. Rainwater (69) investigated contributors to black identity and suggested that much of the problem was due to an abundance of "inappropriate" or "negative" models. The black youth was said to be unable to form a positive image of himself/herself, or to assume a hopeful attitude toward the future. Hauser (70) also studied the effects of early exposure to degraded role models. He found that black adolescents experience a tendency toward "identity foreclosure," i.e., they seem to fix their self-image upon those roles that have been presented to them as most undesirable. The conclusions of this study were extrapolated from an examination of the fantasies and aspirations of black adolescents.

Other researchers have described the experiences of black Americans in terms of pathologies and problems that result, in their view, in deformations of the black personality. The absence of fathers from a relatively high percentage of black families has been studied, as

well as teenage pregnancies, illegitimacy, unemployment, alcoholism and lack of education among blacks. From studies of this nature a view has developed of the black community as incompetent and unhealthy.

Upon reexamination, a number of theoretical and methodolcgical flaws have been detected in some of the early studies on black children's self-esteem (71). For example, the highly acclaimed Kardiner and Ovesey study (68) was based on clinical data from a sample of only 25, and half of the subjects were patients in therapy with the authors. Frequently, studies of race differences have used only boys as subjects, or the studies did not assess sex differences.

Researchers also have ignored the impact of social class on self-esteem. Hare (72) stated that the common practice of comparing middle-class white children with lower class black children and attributing differences to race, makes many conclusions invalid. Interestingly, many of the stereotypes which are believed to characterize black behavior are not based on empirical research but on anecdotes assumed to hold for the entire population of blacks (66). Even in anecdotal accounts and stereotypes, however, black girls are invisible. Many characterizations have been proposed as descriptions of black boys, men, and women. There appears no carryover from the women's roles, as mammy, seductress, etc., to those of black girls. Black girls are not adequately accounted for on any level.

Ladner (5) reviewed the research on black families and suggested that the level of actual psychological impairment was not so great as many scholars have maintained. She especially rejected the contentions of Grier and Cobbs (16) with respect to black female development. Ladner's interviews with black preadolescent and adolescent girls revealed a strong sense of racial pride and self-acceptance, not the handicaps and discouragement predicted by Grier and Cobbs. Ladner's research findings made necessary reexamination of investigations in which black children were depicted as damaged by an image of themselves as black.

Black Models for Black Children

The underlying assumption of many studies reporting low self-esteem for black children has been that black childrens' self-esteem is derived from the reflected appraisals of white models. The assumption that whites are the significant others for black children is questionable. It seems more reasonable to assume that black people have developed their own frames of reference. Since blacks have been relegated to a marginal position in American society, to separate communities, and often to segregated schools, it must be recognized that whites are not readily available as interacting role models. Interacting role models are distinguished from literary or television characters, which may act as static role models of behavior but cannot respond to or interact with the child. The significant others with whom black children interact are found within the family and the black community. As previously discussed, the models for black girls are typically strong and independent black women. Black youngsters find that measuring themselves against white norms and their white counterparts is less relevant, and perhaps more destructive, than comparing them-

selves with other blacks (73). Recent research efforts seem to provide strong support for this contention.

In the last several years many researchers have modified previous views of the psychological status of black children. Current studies of self-esteem find that black children hold very positive attitudes about themselves. Several researchers have found that black schoolchildren's self-esteem actually surpasses that of whites (74,75). As investigators attempted to understand the sources of high self-esteem among black children, their studies focused on factors commonly assumed to be responsible for differences between blacks and whites. The data revealed virtually no relationship between self-esteem and perceived status of membership groups, social class, family structure, school performance, or skin color (76). Instead, racial insulation was one important condition which was shown to contribute to high self-esteem among black children. Another factor identified as having an impact on the level of black self-esteem was the general attitude of significant others toward the child, i.e., what the child believes his significant others think of him/her. Significant others for the children were parents, siblings, friends, and teachers. It was found that the relationship between significant others' attitudes and the child's self-esteem was somewhat stronger for black than for white children. Rosenberg and Simmons also provided evidence in support of a persistent pattern of high self-esteem. They found that black adolescents, aged 15 through 19 years, as well as school age children, scored significantly higher on measures of self-esteem than white adolescents did.

Hare (72) conducted a study which has focused on the differences in self-esteem as affected by sex and race. He measured self-perception and academic achievement in fifth-grade black and white girls and boys. Black girls in this study had significantly higher self-esteem scores than any other group. Black boys had the second highest self-esteem scores, but their scores were not significantly greater than those of white boys and girls. Although their self-esteem scores were high, black boys' actual achievement scores in reading and math were well below those of the white boys. Hare suggested that the existence of sex differences in the academic performance of black children needs further investigation. It appears that different socialization processes are operating for black boys and black girls in the development and maintenance of self-esteem.

Another investigator, Schratz (77), also supported the hypothesis of differential socialization of self-esteem for race and sex groups. She found in an exploratory study of adolescents and preadolescents that self-esteem scores were unrelated to performance on cognitive tasks for black males. In addition, her data indicated that black males had significant increases in self-esteem from preadolescence to adolescence. There was a strong trend in the same direction for black females, but white females showed significant losses during that stage of life.

SUMMARY AND CONCLUSION

This paper presented a review of some of the literature dealing with the socialization of black girls. The emphasis was restricted to two facets of the socialization process, sex-role development and formation of self-esteem. The examination revealed support for

the importance of both race and sex as interacting variables in the processes by which black girls learn about their role in society. The analysis also explored salient differences between the socialization of black and white children and the relevance of white models to black children's experiences.

Sex-role socialization is an important component of personality development, yet few researchers have examined the unique situation of black girls in a society which denigrates both the female and the black role. Analysis of a variety of studies showed that there are key differences in the interpretation of the female role by whites and blacks. One basic difference is that the black female role is one of strength and resourcefulness as contrasted with the traditional white female role of passivity and dependence. This provides black girls with models of achievement and assertiveness. Another difference is that black families appear to be more egalitarian than white families, with men and women sharing many tasks. The black child, therefore, is exposed to a less stereotypic definition of femininity.

While family images of strength may operate for black girls, other agents of socialization present a different view. Media models of black women are seriously lacking. Examinations of children's literature, school readers, and television programs revealed that the few black characters were presented in stereotypic and even demeaning roles. Researchers have not yet established, however, what effects nonexistent and negative media models have on black children.

The school environment also seems to have drawbacks for black girls' experiences. Studies of black and white children's interactions with elementary schoolteachers indicated that black girls, especially high achieving ones, were least reinforced in the classroom. No direct explanations have been suggested for this phenomenon. Indirect evidence, however, leads to the hypothesis that black girls least fulfill the teacher's expectations about blacks and about girls.

In spite of seemingly numerous opportunities for self-denigration, black girls and black boys have been found to maintain high levels of self-esteem, higher than those of white children (78). Some researchers have chosen to interpret these high self-reports as unrealistic and as confirmation of black pathology (79). The prevailing view, however, is that black children utilize a variety of resources within the black community to build this positive self-image. The assumption that the black child accepts white models and the white society's evaluation of blackness has not been supported. For the black girl, the support and encouragement of her family in the early years and, later, rewarding comparisons with friends, seem to provide the salient experiences for the understanding of her role and her self.

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On the Distinction Between Sex-role Attitudes and Sex-linked Traits and Their Stability*

Robert L. Helmreich, Ph.D.

Despite a rapidly burgeoning literature, there has been a great deal of confusion regarding what factors are subsumed under the label "sex roles." Laypersons and psychologists alike have assumed that the term "sex role," or "sex-role identity," has connotations regarding sex-role attitudes and behaviors (opinions regarding the rights and roles appropriate to each sex and preference for the enactment of such roles), biological gender, sexual orientation (the choice of opposite or same sex partners), and sex-linked personality traits (psychological masculinity and femininity). It is often assumed that these aspects of the self are highly interrelated and that knowledge about one component is an adequate basis to make strong inferences about the others (e.g., a person with a "feminine" personality is likely to be female, heterosexual, and devoted to stereotypically feminine familial and vocational roles).

Janet Spence, our students, and I have been investigating these phenomena for the past 8 years. A large corpus of data from a variety of populations in the United States and several other cultures seriously challenges this broad definition of "sex roles" (1,2,3). The relationships among these characteristics seem to be consistently weak and complex rather than strong and simple. It is our thesis that an understanding of the complexity of these relationships and their distinctiveness can lead to a better understanding of the positions of women and men in contemporary society.

This paper focuses on sex-role attitudes and psychological masculinity and femininity, their interrelationships and stability across time and across the lifespan.

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PSYCHOLOGICAL MASCULINITY AND FEMININITY

It is important to provide some historical background about the data collected and the measures employed. Psychological masculinity and femininity have frequently been measured by self-report inventories that contain a mixture of trait descriptions and role descriptions, for example, the Femininity scale of the California Personality Inventory (4). Frequently, items were selected for such instruments on the basis of their ability to differentiate between biological males and females or heterosexuals and homosexuals (for example, "I prefer cold showers to warm baths") rather than on the basis of psychological implications. An assumption underlying the early measures of masculinity-femininity was that these dimensions are strongly bipolar, possession of masculine characteristics precluding the manifestation of femininity, and the converse (5).

More recently, a number of investigators have challenged this assumption theoretically and empirically by developing measures of masculinity and femininity that assess these dimensions independently. The two most widely used measures are the Personal Attributes Questionnaire (PAQ) (6), and the Bem Sex-role Inventory (BSRI) (7). This discussion is limited to the PAQ although both measures have many common features.*

The PAQ Masculinity (M) scale contains traits of an instrumental, goal oriented nature (e.g., independent, active, makes decisions easily). The Femininity (F) scale consists of expressive traits reflecting an interpersonal orientation (kind, helpful to others, warm in relation to others). In the development of the PAQ, traits were assigned to the Masculinity scale on the empirical basis of meeting four criteria: (a) Traits were rated by respondents as socially desirable for both sexes; (b) The ideal male was seen as possessing significantly more of the trait than the ideal female; (c) The typical male was seen as possessing significantly more of the trait than the typical female; and (d) Male respondents scored significantly higher than female respondents. The Femininity scale was developed using the same procedure to specify socially desirable traits stereotypically and actually more characteristic of women than men. The resultant scales correspond closely to Parsons and Bales instrumental and expressive (9) distinctions. The ability of each scale to distinguish normatively between the sexes justifies their operational definition as measures of "masculinity" and femininity." The independence of masculinity and femininity has been replicated in a variety of samples, thus effectively refuting the concept that they are bipolar. In samples ranging from adolescence to middle age, we have found minimal correlations between the two scales (average about .10) (2).

Masculinity and femininity have also been shown to relate to effective functioning in a number of areas. M and F scales correlate

* Although many of the items on the BSRI Masculinity and Femininity scales are similar to the PAQ, the BSRI is more mixed in content, containing score items that are socially undesirable (e.g., "gullible") and some that are neither instrumental nor expressive (e.g., "masculine" and "feminine"). As a result, the BSRI is more factorially complex. The BSRI Masculinity and Femininity scales typically yield four discrete factors (8).

significantly and positively with self-esteem for both sexes (2). M is strongly correlated with achievement motivation for both sexes (10). A number of studies have looked at the conjoint influence of M and F. Those individuals classified as androgynous (that is, high in both masculinity and femini ty) appeared to be more effective as parents than those high ir nly one dimension, or low in both (2). Similarly, Ickes (11) re orted several studies showing that androgynous persons, in contrast with nonandrogynous persons, interacted more with each other, liked each other more, and had greater satisfaction from their interactions.

SEX-ROLE ATTITUDES

Another aspect of the self that we have examined is characterized by attitudes regarding the appropriate rights and roles for the two sexes. The instrument employed is the Attitudes Toward Women Scale (AWS) (2,12). Items deal with attitudes toward vocational and educational equality, marriage, dating, and social behavior. Factor analyses indicate that the scale is essentially unidimencional, and that the various categories of items are quite highly correlated. Thus a single sum score represents the sex-role attitudes of respondents.

RELATIONSHIPS BETWEEN SEX-ROLE ATTITUDES AND MASCULINITY AND FEMININITY

Contrary to the assumption that there are strong relationships between sex-role attitudes and personality, very weak, and generally nonsignificant correlations have been found between the AWS and the M and F scales of the PAQ (r's typically less than .20). There is a tendency for women high in masculinity and men high in femininity to be more egalitarian in their sex-role attitudes. However, the low magnitude of the relationships suggests that these aspects of the self are essentially independent (2,13,14). On the other hand, there is substantial linkage between gender and sex-role attitudes, with women of all ages tending to be more liberal and profeminist in their sex-role attitudes than men (15).

The relationships between sex-role attitudes (as measured by the AWS) and sex-role preferences as measured by a new instrument, the Male-Female Relations Questionnaire, has also been examined (16). The latter instrument assesses the tendency of individuals to modify their behavior in social situations which pose sex-role demands. The correlations between role preferences and role attitudes are substantial (r's of .70) but not perfect. Conceptually, this is quite sensible, as the relationship between the measures may often be asymmetrical. For example, it is unlikely that one would have cross-sex-role preferences without egalitarian role attitudes. One might, however, be quite egalitarian and profeminist in attitude, but prefer to enact traditional roles (for example, be a strong believer in equal vocational rights for women but prefer to be a housewife). The role preference measure (like the AWS) is very weakly associated with the PAQ M and F scales for each sex (the largest r obtained = -.16 with M for females).

COHORT DIFFERENCES

The PAQ and AWS have been administered to samples ranging in age from mid-teens to early 20s to middle-age. PAQ scores for four

groups (high school students, college students, parents in their mid-thirties of elementary school students, and parents in their mid-forties of college students). Significant sex differences were found on both scales at each age, with males scoring higher on the M scale and females scoring higher on the F scale. No differences in females' scores were found as a function of age on the F or on the M scale. However, a significant age effect was found for males on the M scale. This reflected the elevated scores of the two groups of fathers. These samples were drawn from well-educated, generally professional groups, and the higher M scores found may reflect the influence of instrumentality on successful attainment. In contrast, samples of students may be less selective. It is also possible that as males move through the life cycle, their instrumentality aids in the mastery of tasks associated with education, vocation, and family. Such self-validating experiences may, in turn, strengthen the males' instrumental characteristics.

The results for the AWS are quite different, as shown for these groups in Table 1. Data from the parents of school children are not available. In addition to highly significant sex differences in each age group, with females in every case being profeminist, there were significant differences between the groups within each sex. Female high school and college students were significantly more liberal than female parents, but the two groups of students did not differ from one another. However, male college students were most liberal, and male high school students most conservative, with the middle-aged group intermediate. In the next section the stability of these measures over time is discussed.

TEMPORAL EFFECTS

One of the stated goals and projected outcomes of the feminist movement is the development of an "androgynous" society, presumably one in which sex-role distinctions and personality distinctions between the sexes are eliminated (17,18). In concert with this, it is often argued that the younger generation, as primary recipients of the benefits of societal change, should have higher androgyny scores than others on measures such as the PAQ. The PAQ has been administered to successive cohorts of college students drawn from the same general population since 1973. Absolutely no changes have been found in mean masculinity and femininity scores of males and females. It would seem that psychological masculinity and femininity as measured by the PAQ have been quite impervious to the effects of social change, at least over the past decade. Further support for this position comes from two additional sources. One source is the data cited above, showing rather minimal differences between students and adults on the M and F scales. The second comes from data collected from children on children's versions of the PAQ (19). Elementary school children from first to fifth grade have been tested, and the pattern of sex differences on M and F was similar to that in adults and was firmly established by age six.

In the case of sex-role attitudes as measured by the AWS, the situation is quite different. We have data from samples of college students tested in 1972, 1976, and 1980 and from samples of parents of college students tested in 1972 and 1976 (20). These data are summarized in Table 2.

Paralleling the data reported above, each cohort of females is more liberal and profeminist than the corresponding male cohort. In both 1972 and 1976, the student generations were significantly more liberal than their same-sex parents. Most striking, however, was the large shift toward liberality by students and their parents between 1972 and 1976. Indeed, the parents tested in 1976 were significantly more liberal than the students tested in 1972.

Comparison of student data between 1976 and 1980 suggests that the trend toward acceptance of sexual equality may have levelled or even peaked. Males were essentially unchanged in their attitudes while female students have become significantly more conservative.

CONCLUSION

The data presented here support the contention that psychological masculinity and femininity are only weakly related to sex-role attitudes and preferences. The use of the term "sex role" to encompass these various components of the self is potentially misleading and can lead to highly erroneous conclusions about the status of the sexes. Masculinity and femininity, as measured by the Personal Attributes Questionnaire, are quite stable clusters of internalized traits that appear to be relatively independent of societal changes in the status of the two sexes. Changes in the relative strength of these dimensions are likely to occur only in response to sweeping changes in the structure of society, especially changes in child rearing practices.

Sex-role attitudes and preferences, on the other hand, are much more responsive to societal changes, and the data suggest that meaningful increases in the acceptance of sexual equality have occurred over the last decade. Such change does not appear to be limited to the young. Considerable modification in attitudes was noted in middle-aged adults who grew up in a period when there was little concern with the status of women. A final note is that the trend toward increasing acceptance of sexual equality may have slowed or stopped. It should be an important research concern to continue to monitor society's attitudes over the next decade.

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Table 1. Means on the Personal Attributes Questionnaire Scales (PAQ) and the Attitudes Toward Women Scale (AWS)

	PAQ M Scale		PAQ F Scale		AWS	
Group	Male	Female	Male	Female	Male	Female
High School	21.7	19.4	20.9	24.1	23.0	30.1
College	22.4	20.1	21.4	24.0	25.8	30.7
School parents	24.2	20.1	20.4	24.0	----	----
College parents	23.2	19.7	21.1	24.0	24.2	26.8

Higher scores on the PAQ mean more of the attributes and, on the AWS, a more liberal, profeminist attitude.

Table 2. Means for the Attitudes Toward Women Scale, 1972 - 1980

	1972 Students	1976 Students	1980 Students	1972 Parents	1976 Parents	ANOVA Results	F	P
AWS Ms*	21.28[a] N=281	25.82[b] N=301	26.04[b] N=284	19.69[c] N=228	24.06[d] N=395	Cohort	151.31	<.001
Total Fs**	24.31[a] N=241	30.70[b] N=298	29.46[c] N=369	21.25[d] N=288	26.83[e] N=432	Sex	123.05	<.001
	F=89.43	F=46.71	F=34.9	F=16.49	F=21.55	Cohort x sex	4.09	<.003
	p<.001	p<.001	p<.001	p<.001	p<.001			

Each item was scored on a four-point scale with 0=strongly agree and 4=strongly disagree.
For each row, items with different superscripts are significantly different at the .05 level by Newman-Keuls computation.

* Ms = Males, ** Fs = Females

Black Women's Nutritional Problems

Myrtle L. Brown, Ph.D.

The subject of nutrition-related health problems of black women is difficult to address. With some few exceptions, adequate data are lacking. Some questions arise by inference from health statistics, from the limited data available from national nutrition surveys, and from studies of selected population groups. The following discussion will summarize the available data. Any conclusions drawn, however, must be viewed cautiously since it must be recognized that much of the available data is nearly 10 years old and may not reflect current conditions.

MEASUREMENT OF NUTRITIONAL STATUS

The classic approaches to measuring nutritional status consist of (a) assessment of dietary intake; (b) determination of biochemical levels of nutrients, nutrient metabolites, or nutrient-related enzyme systems in blood or urine samples; and (c) clinical examination for symptoms of nutrition deficiencies including anthropometric measurements denoting body size and, to some extent, body composition. These methods may be used singly or in combination. However, each measures a different state of nutriture and, therefore, the three methods do not necessarily correlate with each other.

Dietary surveys tend to be the least accurate. The least expensive method, and the most commonly used, is the 24-hour recall (1). This method measures dietary intake for only 1 day and relies entirely upon the subjects' ability to recall the kind and amounts of foods eaten on the day prior to the interview. The defects in this methodology are obvious. Nevertheless, rightly or wrongly, the method is assumed to reflect food and nutrient intake of a population group, but it is known to have virtually no relevance to an individual within the population group.

Dietary information may be collected also for a household unit. Such information represents food brought into the home for consumption and may best be described as a measure of economic consumption. These studies do not take into account food waste or distribution within the household. Therefore, calculations of per capita intakes tend to be high, and variances among individuals within the household cannot be determined. Even so, such data may be indicative of trends in food consumption and are useful as a population screening device (1). Dietary data, however, are not a measure of nutritional status.

Biochemical measurements and clinical examination provide information that tends to reflect dietary intake over a prolonged period of time. The time interval varies with the nutrient or symptom under study. These methods also have limitations. They vary in precision and may be affected by environmental factors other than food intake. Nevertheless, they are more definitive indicators of nutritional state (2).

OTHER INDICATORS OF NUTRITIONAL RISK

Other factors may indicate nutritional risk within a community or population group (3). Socioeconomic status affects purchasing power as well as implied ability to utilize available monies to best advantage. Within selected groups of low-income black families, however, educational status of the mother has been reported to be a more valid predictor of family food consumption patterns than economic status per se (4,5). This phenomenon, however, is not peculiar to black families and seems, rather, to be a societal trend. There are, of course, economic limitations below which the provision of adequate food on a continuous basis is virtually impossible. Moreover, poor housing conditions and lack of equipment for cooking and/or serving food affect the ability of the poor to provide adequate food for their families (4).

Vital statistics and health statistics are affected by many factors including environmental conditions and availability of adequate medical care. However, trends in morbidity and mortality aid in identifying high-risk groups within a population and the extent of risk to a community (3). Such data often are suggestive of a nutritional problem, but obviously are far from definitive. Identification of the problem requires more extensive evaluation and, unfortunately, such data are not currently available.

For purposes of this discussion I have chosen to look at some available socioeconomic and health data concerning black women (and black families) and to attempt to address the issues in terms of what little is known of their dietary intake and nutritional status. The data often appear to be contradictory and are most certainly confusing. The following discussion, therefore, may provide some food for thought but few, if any, conclusions.

SOCIOECONOMIC STATUS OF AMERICAN BLACKS

The report Health United States, 1979 (6) published in 1980 by the U.S. Department of Health, Education, and Welfare (now Health and Human Services) provides statistics on socioeconomic and health status of the American population. The general conclusions are well known. Only certain aspects believed to be pertinent to this discussion will be described briefly.

In terms of income and education, black families consistently score below whites. The differences are striking, with 30 percent of black families earning less than $5,000 annually as compared to only 11 percent of white families. Only 22 percent of black families have incomes over $15,000 as compared to 47 percent of white families. The statistics in terms of education are equally predictable, with 50 percent of blacks attaining a high school education compared to 70 percent of whites.

HEALTH STATUS OF AMERICAN BLACKS

Overall mortality and infant mortality. In 1970, there was little difference between crude death rates of blacks and whites (10.0 and 9.5 deaths/1000, respectively); however, the age-adjusted death rates for blacks was 10.4 as compared with 6.8 for whites (6). Infant mortality (i.e., deaths within the first year of life) in 1977 was 23.6/1000 live births for blacks as compared to 15.4/1000 for whites. In the District of Columbia, the results reported for 1975-77 are even more shocking (30/1000 as compared with 15/1000). Reports on neonatal mortality (under 28 days of age) are equally dismal (16.1/1000 as compared with 8.7/1000).

In the United States, infant mortality appears to be strongly associated with infant birth weight. The lower the birth weight, the greater is the perinatal death rate. Bergner and Susser (7) hypothesize, for example, that in New York City the distribution of birth weight among the races could account for the entire excess of perinatal deaths among black babies as compared with white babies. Although survival of low birth weight infants has increased considerably during the last decade due to sophisticated techniques of fetal monitoring and newborn care (8), the more prudent means of lowering infant mortality would seem to be through preventing low birth weight.

Obesity. The prevalence of obesity among women in the United States appears to be related to race, educational level, and income status (9,10). The highest prevalence (about 35 percent) is reported to be among low-income black women aged 20 to 44 years (9,11). Low-income women of all races show a greater prevalence of obesity than women of higher economic status. Similarly, women with less than 12 years of schooling show a greater prevalence of obesity (10). Among blacks, however, socioeconomic status appears to be less important. There are more obese black women regardless of income and educational status.

As a matter of interest, the reverse situation exists among males. Black males are generally leaner than white males (9), and males of lower socioeconomic status are generally leaner than males of higher educational and economic attainment (10).

Iron deficiency anemia. Iron deficiency anemia evidenced by low hemoglobin levels has been reported to be generally higher among blacks than among whites (12,13). Hemoglobin concentrations are somewhat higher among blacks above the poverty level than those below the poverty level (11). In a nationwide survey, 21.5 percent of black women below the poverty level and 14.1 percent of black women above the poverty level had low hemoglobin levels, as compared with 6.8 percent and 4.6 percent of white women in these respective income groups (9).

Hypertension. Hypertension is not a nutritional disease, but it should be mentioned because of the high prevalence of this disease among blacks (14), and because of the possible relationship to dietary sodium in some individuals. Roughly one-third of black women examined in the first health and nutrition survey (15) were classified as hypertensive. Inasmuch as approximately one-third of black women are classified as obese, the health implications of hypertension may be even more serious. Individuals, who are both hypertensive and obese, are at greater risk for coronary heart

disease than those who experience only one of these conditions. The risk, however, is considerably less for females than for males.

FOOD BUYING PATTERNS AND DIETARY INTAKE DATA

Data collected in 1965 by the U.S.D.A. (16) on food buying patterns of U.S. households indicated that blacks spent more money on meat, poultry, fish, and grain products than white families but somewhat less on milk products, vegetables, and fruits. Both black and white families purchased approximately the same amount of bacon and salt pork, variety meats, and lunch meats. Calculations of nutrients based on these data indicated that diets of blacks were most often low in calcium, vitamin A, and vitamin C. A more recent analysis of a limited sample of the 1977 U.S.D.A. household survey indicates that differences in food intake between the races are considerably less marked (17). Calculated nutrient values are nearly identical, with calcium somewhat lower for black families and vitamin A somewhat higher for black, than for white families. These data provide only a gross measure of nutrient availability but suggest that the differences in food intake between the races are lessening.

Analysis of individual 24-hour recall data in 1971-74 indicated that energy intakes and intakes of most nutrients were lower among blacks than whites (17,18). Blacks in the lower income groups had lowest energy intakes, and many blacks over 60 years of age had energy intakes of less than 1000 Kcal. Calcium intakes were lowest among black females of all ages. Iron intakes were low for both blacks and whites and were not strikingly different.

Data on nutrient intake of individuals by race are not yet available from the U.S.D.A. survey of 1977. However, data on the total sample for the spring of 1977 were recently published (19). The lowest income group had lowest intakes of energy and all nutrients except vitamin A, thiamin, riboflavin, and vitamin C. The lowest income group had the highest intakes for vitamin A. Differences due to income were not striking, however. In general, energy intakes were less than reported in the 1965 survey, but average intakes of those nutrients that were studied compared favorably with recommended intakes. Four nutrients tended to be low among adult females: calcium, iron, magnesium, and vitamin B-6.

DISCUSSION

Four major health problems with nutrition implications appear to be significant among American black women: high infant mortality rate, obesity, iron deficiency anemia, and hypertension. The effect of diet and nutrition, however, is not equally clear in each of these conditions.

Birth weight appears to be an important influence on the infant mortality rate (7,20). Birth weight, in turn, is markedly affected by maternal weight gain and maternal diet (21,22,23,24). Improved pregnancy outcome has been demonstrated by supplemental food programs in conjunction with nutrition counseling (25,26,27), and the effects of such programs are influenced by the length of time the expectant mother is enrolled in the program. Improved pregnancy outcome has also been observed in adolescents attending special schools with feeding programs in addition to other services (28,29).

In one school, only three out of 104 pregnancies resulted in low birth weight infants over a period of 3 years (29), whereas in an outpatient service providing nutrition counseling alone, seven low birth weight infants were born to 76 adolescent women within 1 year (30). It seems reasonable to suggest, then, that early prenatal care including a strong nutrition component can be a step toward lowering the mortality rate of black infants and improving the health of their mothers as well.

Good prenatal care, however, begins before pregnancy. Epidemiological evidence suggests that the condition of the mother at conception influences the outcome of pregnancy (31). Small mothers tend to have small babies. Results from the Collaborative Perinatal Project of the National Institute of Neurological and Communicative Disorders and Stroke suggest that optimal weight gain for underweight mothers may be as much as one-third higher than that of women of normal weight (20). The woman with a history of undernutrition is clearly at risk and requires special management during pregnancy. Preventive measures, then, may best be directed at the young through education and whatever means are available.

The problem of obesity in black women is confusing. If black women indeed consume less food than white women, one would expect the incidence of obesity to be less. Admittedly, a single 24-hour recall survey is not the most accurate tool for assessing dietary intake, but if there is an error, it is a consistent error. According to most reports, diets of black women provide some 200 Kcal per day less than those of white women (13,14,32), yet obesity is much more prevalent among black women. Some obese individuals apparently reduce activity level to such an extent that weight is gained on relatively low food intakes (33,34). Thus, it is possible that energy expenditure may be lower among black women, although I know of no evidence that this is the case. One might hypothesize that there is a metabolic difference such that black women utilize food more efficiently and thus gain weight and body fat more readily than whites. This possibility seems unlikely, however, since black males do not show a similar trend. The paradox of a greater prevalence of obesity among black women in conjunction with lower energy intakes deserves study, including careful evaluation of the validity of dietary data.

The problem of iron-deficiency anemia is also confusing. Low hemoglobin levels among blacks are reported consistently, yet dietary intakes of iron are generally low in comparison to recommended intakes among blacks and whites alike. On the average, the difference in hemoglobin levels amounts to approximately 0.5 g/dl in children (35) and 1.0 g/dl in adults (3). Some investigators now question whether current criteria for defining anemia on the basis of hemoglobin determination should not be different for blacks and whites, particularly since, although hemoglobin levels differ, the distribution of other measures of iron status (i.e., serum iron and total iron binding) are similar for blacks and whites (35,36,37). Limited data suggest that the difference in hemoglobin levels between blacks and whites is real and independent of income, socioeconomic status, and iron intake (37). The evidence, therefore, is based for the most part on analysis of survey data. Controlled studies are required to establish firmly that the difference is due to genetic make-up. On the basis of available data, however, it seems very possible that the prevalence of anemia among blacks is [illegible] than had been thought.

The prevalence of hypertension among blacks appears to have a strong genetic component which may be exacerbated by diet. Sodium intake has been implicated specifically. There is evidence that susceptibility to high blood pressure stems from different metabolic and hormonal influences in blacks and whites, and it is suggested that sodium sensitivity perhaps may be of greater significance in blacks (38). However, the etiology of hypertension is complex and varied. Some hypertensives are sensitive to sodium and others are not (39). Meneely and Battarbee (40) suggest that the ratio of sodium to potassium may be more significant than the amount of sodium per se, with high potassium intake exerting a protective effect.

Although the level of dietary sodium which will permit the development of hypertension in susceptible individuals is not known, it seems clear that blacks are at high risk. Particularly in families where there is a history of hypertension, control of salt intake begun early in life may provide some protection (41).

Other dietary factors may be involved in hypertensive disease. Recent studies demonstrate a reduction in blood pressure in subjects maintained on a low saturated fat diet (25-35 percent of calories as fat) without salt restriction (42). Changes in blood pressure coincide with changes in plasma cholesterol. The implications of this study for the possible prevention of hypertension are not known.

SUMMARY

Limited data from the 1977 U.S.D.A. household survey suggest that diets of black Americans have improved over the past 10 years. Until data on individuals are available, no conclusions can be drawn as to the diet of black women. It is suggested that poor nutrition may be a contributing factor to high infant mortality rates among some segments of the black population. Obesity is prevalent among black women, although energy intakes are reportedly low. This paradox deserves further study. The prevalence of iron-deficiency anemia may be less than generally reported if recent indications of a black-white difference in hemoglobin levels are valid. Hypertension among blacks may be related to sodium sensitivity; other dietary factors may be involved as well. Individuals with a family history of hypertension would be prudent to restrict sodium intake.

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Women and Work

Introduction

Wendy H. Baldwin, Ph.D.

The growth of women's participation in the labor force has been dramatic; it touches each of our lives directly and indirectly. These changes in the behavior of individuals and society have been the occasion for much research, and as our understanding grows, new questions emerge. Each of the papers today reflects on employment and also on families. Early growth in female employment was concentrated among those women for whom family life created few conflicts: the unmarried, the childless, those with grown children. The observation of an inverse relationship between employment and family size led researchers to ask about the conditions under which the role of mother and the role of worker would be combined; to question whether employment influenced childbearing; whether childbearing influenced employment; or whether both conditions prevailed but at different points in time. The trend in female labor force participation is at once simple and complex: simple because there has been a clear upward climb in participation rates, complex because the rates have increased most for the women for whom employment is most difficult. Working outside the home is generally agreed to be most difficult when there are preschool age children, and yet this group of women have shown the greatest increases over time.

The following papers are examples of critical areas in research on women in the workplace. First, Carmen Maymi presents a statistical overview of the trends in female labor force participation and occupation. This is an arena of much change and much stability. The growth in participation rates has been impressive and, increasingly, women are being represented in traditionally male occupations. However, women are still largely concentrated in jobs primarily held by women and receive lower wages than men and stable or declining returns from education relative to men.

The trend towards increased labor force participation of mothers of preschool age children raises the critical question of child care. Harriet Presser notes most arrangements are made by individuals and do not involve organized centers or institutions; many involve family members. Women who work also report constraint

on the number of hours they work because of child care arrangements. While there is a history of research on the effect of child care on children, there is very little on the effect on mothers and other family members, a gap Dr. Presser helps to fill.

Chuya Piotrkowski reports on the effects of women's employment on families, specifically family interactions. She addresaes the difficult question of how women's employment may influence the quality of women's lives, time spent on housework, mothering and themselves. She reminds us that a woman's participation in the labor force may affect her husband and her children and her own satisfaction with her use of time.

Finally, Myra Strober looks at recent economic theories of family welfare in regard to women's employment. She, too, is interested in the multiple effects a woman's employment may have and reminds us that the consequences will vary from family member to family member. The unitary concept of family welfare is challenged, and she shows how the individual-level solutions we may propose are seriously flawed, and suggests structural solutions.

Women in the Labor Force*

Carmen R. Maymí, M.Ed., Ph.D.

At least four major trends had an impact on women's participation in the workplace of the 1970s. The first was the growing presence of women in nearly all sectors of the labor force. By their numbers alone, women are a force to be reckoned with in this decade. The second trend included very real political and legislative gains that will provide a base from which to work throughout the 1980s and beyond. Third is the increasingly higher level of educational attainment of women in this country, and fourth is the change that failed to take place: women did not reach earnings parity with their male colleagues, nor was there any progress in narrowing the earnings gap.

The first trend concerns the sheer growth in the number of women workers. For the first time in history, the number of women participating in the labor force passed 50 percent. In September 1980, more than 44.5 million women, or 51.5 percent of all women 16 years and over, were working or seeking employment. In other words, more women are now working outside the home than not. During the 1970s, some 11.9 million women joined the nation's work force, including 2 million minority women. Women accounted for nearly three-fifths of the total labor force growth in that period.

This trend is expected to continue during the 1980s. In fact, current projections indicate that the number of women workers could increase from the present 44.5 million to 57 million by 1990. In the workplace of the 1980s, there are likely to be dramatic increases in the participation of both young and older women. More than 85 percent of the women 20 to 24 years of age might well be workers by the end of the decade. Unlike their counterparts in previous decades who left the labor force temporarily or permanently, women in this age group now have a strong labor force attachment. Forecasters also predict that nearly 20 million women 40 years old and over could be working by the end of the 1980s--up from more than 16 million in 1979.

*Statistical information for Table 1-16 and text was taken from three sources: (a) Employment Goals of the World Plan for Action: Developments and Issues in the United States, U.S. Department of Labor, Women's Bureau, 1980; (b) Time of Change: 1980 Handbook on Women Workers, U.S. Department of Labor, Women's Bureau, in press; and (c) unpublished information, U.S. Department of Labor, Office of the Secretary, Women's Bureau, 1980.

A number of reasons account for the fact that so many women are working outside their homes. The most apparent reason is simply economic. About two-thirds of women in the labor force are single, widowed, divorced, or separated, or are married to husbands with incomes less than $10,000 a year. A rising standard of living, growing divorce rates and rampant inflation compelled many women to seek employment in order to support themselves and their families, or to supplement family income.

A second factor which undoubtedly contributed to women's growing participation in the labor force was the women's movement during the 1970s, which helped many women realize that they have a right to challenging and satisfying jobs. The movement also increased awareness among women about different kinds of employment opportunities long believed inappropriate for women, and about the differences in pay between traditionally male jobs and traditionally female ones. College-educated women sought jobs in which they could fully utilize their education and training, while other women tried to overcome barriers in relatively high-paying jobs in skilled trades and technical fields.

A third factor which contributed to the growing presence of women in the workplace was that many young women postponed marriage and childbearing in order to pursue their careers and education goals. The trend toward smaller families also relieved many women of some of the burdens of family responsibilities and made it easier for them to manage home and workplace obligations.

A fourth factor which enabled some women to work outside the home was a trend toward alternative work patterns, including part-time and flexitime schedules, compressed work weeks and job sharing. Such alternatives to the standard 8-hour day, 5-day week have permitted women workers to better structure their work time to meet personal needs or to have more time for continuing education, family activities, or personal interests. Although the acceptance of part-time workers in most professional and administrative jobs is certainly not widespread, opportunities for such schedules should increase in the future.

In the Federal government, such opportunities have already improved. In 1978 Congress enacted two laws to further experimentation with flexible work hours and to create more part-time job opportunities in Federal government. Part-time work has long been permitted in Federal employment, with benefits prorated. The legislation removed a deterrent to the use of part-time staff by changing a personnel ceiling system that had counted a part-time person the same as a full-time person against an agency's overall limitation on personnel. As of October 1, 1980, part-time workers will be prorated against the ceiling in accordance with hours worked, which should have the effect of increasing opportunities for part-time work.

The flexitime legislation removes obstacles to varying the 8-hour day, and requires a 3-year study to determine the effects on government operations, service to the public, use of mass transit facilities, energy consumption, employment opportunities, and the impact on individuals and families. A number of Federal agencies are experimenting with flexitime schedules, providing employees with options to manage their work and personal lives without losing time or earnings.

Another significant element of women's labor force participation is their occupational distribution. The majority of women workers are still employed predominantly in occupationa closely related to homemaking and nurturing roles, or to being supportive of others. In 1979, more than one-third of all women workers were employed in just 10 occupations. These were, in order of the numbers employed: secretary, bookkeeper, sales clerk (retail trade), cashier, waitress, registered nurse, elementary school teacher, private household worker, typist, and nursing aide More than 800,000 women were employed in each of these jobs. About 80 percent of all women workers were employed in 71 occupations, out of the 441 possibilities listed in the census occupational classification system. More than 100,000 women were employed in each of these jobs. While this indicates that women are still concentrated in a relatively small number of jobs, these numbers reflect a substantial improvement in women's occupational distribution as well as the significant increase in the number of women in the labor force. For example, in 1973, there were only 57 jobs in which more than 100,000 women were employed, but in 1950, there were only 29 such occupations.

In 1978, 68.5 percent of all women workers were employed in traditionally female jobs (55 percent or more women); 21.6 percent held jobs that were not stereotyped by sex (between 25 and 50 percent women); and 9.9 percent of women workers held jobs in traditionally male fields (25 percent or fewer women).

In just 4 years, women made considerable progress in gaining access to nontraditional jobs. For example, in 1975 they were 21 percent of computer specialists, 7 percent of lawyers and judges, 14 percent of life scientists and physicists and 19 percent of managers. By 1979 women were 26, 12, 19, and 25 percent of these professions, respectively. From an immeasurable few they became more than 7 percent of the industrial engineers, 5 percent of the construction painters, and 3 percent of the machinists.

Minority women have also increased their participation in the labor force. In 1979, 1.7 million Hispanic women were working or seeking employment. Hispanic ethnic groups vary considerably in their numbers and levels of labor force activity. Of Hispanic women in the labor force, 57 percent were Mexican Americans, 11 percent were Puerto Ricans, and 9 percent were of Cuban origin. The overall labor force participation rate of Hispanic women in 1979 was 48 percent, somewhat lower than the 51 percent recorded for all women. The rate for Mexican American women was 48 percent, while the rates for Puerto Rican and Cuban origin women were 35 percent and 55 percent, respectively.

Women of Hispanic origin were employed in blue-collar occupations to a greater extent than other women. Regardless of ethnicity, employed Hispanics were more concentrated in lower paid, lesser skilled occupations than the overall work force. More than half of the employed women in each ethnic group were either clerical workers or nontransport operatives in 1979. Although the large percentage of Hispanic women employed in clerical positions is similar to the situation among all women, their heavy concentration in operatives jobs--dressmakers, assemblers, machine operators, and operators of similar equipment--is strikingly unlike other women.

The labor force participation of black women also increased, reaching 53.1 percent in 1979. However, their unemployment rate at 14.8 percent

was considerably higher than that for all women or for minorities other than black. The unemployment rate for all women was 6.8 percent in 1979, and for Hispanic women it was 8.9 percent. The jobless rates for black women reflect the extremely high unemployment among black teenagers. The unemployment rate of young black women was several times the rate of their white counterparts, 39.1 versus 13.8 percent at the end of 1979. Despite the obstacles to finding work, the number of teenage black women looking for work has been growing three times as fast as the teenage black population.

The number and grade levels of women in Federal employment have also increased significantly. In October 1978, more than 737,000 women were full-time Federal white-collar workers, and they made up about 37 percent of the Federal white-collar work force. However, women continue to be concentrated in the lower civil service grades. By far the largest number of women (319,000, or 43.3 percent) were in general administrative, clerical, and office services. In October 1978, women accounted for nearly three-fourths of all employees in General Schedule (GS) and equivalent grades 1 to 6 (the lowest paid grades), 30.3 percent in grades 7 to 12, and only 6.4 percent in the highest grades of 13 and above. However, there has been some upward movement of women in the Federal grade structure. Between 1975-78, for example, the rate of increase of women in grades 7 to 12 was 20.3 percent and in grades 13 and above, it was 32.8 percent. The number of women in the "supergrade" category (GS 16 and above) increased significantly, from 192 to 293, in this period.

Federal employment of minority women nearly doubled during the 1970s, reaching 218,552 in 1978, up from 116,843 in 1972. By 1978, black women made up nearly 24 percent of women in Federal white-collar jobs. In the private sector, black women have only 9.5 percent of the white-collar jobs in which women are employed. Hispanic women workers constituted nearly 3 percent of the female white-collar work force in the Federal government, and employment of American Indian women and women of oriental origin also increased substantially from 1972 to 1978.

The second of the four trends mentioned earlier, concerns the significant gains women have made in the political arena. Legal status and political activity of women may be considered in a separate category because these are areas that give us the greatest hope for further change. Today, there are more women who are elected officeholders, more serving in state legislatures, and more in appointed positions, than at any other time in our history. Much of this progress occurred at the local level of government, but even in state legislatures, the number of women serving more than doubled over the decade, from 305 in 1969 to 767 in 1979. This is not a record with which women should be satisfied, but it is a good one to build upon.

In the area of legislation, our laws are becoming increasingly more responsive to the needs of women. Existing laws which underline the rights of women serve as precedents for even greater and more equitable gains in the future. The following are examples of legislative changes in the 1970s:

Title VII of the Civil Rights Act of 1964 was amended to prohibit discrimination based on pregnancy.

The Federal Minimum Wage and Hour Law was amended and coverage was extended to a large number of workers, many of whom are women, including household workers.

The Department of Labor issued regulations setting goals and time-tables to increase the participation of women in apprenticeship programs and in construction work.

The Comprehensive Employment and Training Act (CETA) was revised, and the new legislation included a number of provisions to increase the participation of women in the CETA process and to improve services to disadvantaged women.

A national policy was established by executive order to expand opportunities for women entrepreneurs, particularly with respect to Federal contracting.

Legislation known as Title IX of the Education Amendments of 1972 was passed, and implementing regulations were issued to prohibit sex discrimination in educational programs and activities receiving Federal financial assistance. Vocational education legislation also required elimination of sex discrimination in vocational education programs.

Finally, the Equal Rights Amendment was passed by both Houses of Congress and sent to states for ratification, and Congress extended the March 1979 ratification deadline to June 1982.

These laws contribute to the improvement of the labor force status of women, but it is essential that they be implemented and enforced.

The third encouraging trend relates to women's educational attainment. In the 1970s, the level of educational attainment for women rose from an average of 12.4 to 12.6 years. In 1979, the median for number of years of education for black women in the labor force was 12.4 years and for Hispanic women, it was 12.2 years. Women made substantial gains in higher education. In 1977, they accounted for 46 percent of all bachelor's degrees, 47.1 percent of all masters degrees, 25 percent of all doctoral degrees, and 19 percent of all first professional degrees. An increasing number of women received degrees in the more nontraditional professions such as law, medicine, and engineering. For example, in 1977 women represented 22.5 percent of the persons earning law degrees, compared to 6 percent in 1970; 19.2 percent in medicine, compared to 9.2 percent; and 23.6 percent of undergraduate degrees in business and management and 4.5 percent of engineering degrees, compared to 9.3 percent and .8 percent, respectively, in 1970. Black women also made educational strides. In the early 1970s, over a quarter million black women under age 35 were enrolled in college. By 1978, the number had more than doubled, and women accounted for 56 percent of all blacks enrolled. Significant numbers of women were also enrolled in continuing education programs. In 1978, women accounted for two-thirds of the 1.5 million persons 35 and over enrolled in school. Higher education is being recognized as a key to better jobs for women. While women have made significant gains in higher education, men are still more likely than women to have attended or completed college.

The fourth and final trend is the earnings gap between women and men. Women's earnings have remained about 40 percent lower than those of men for the past two decades. Women who work year round and full-time

have average earnings of only $9,350, compared with $15,730 for similarly employed men, according to 1978 figures. The gap in wages persists through all educational levels, with women high school graduates earning less on the average than men with an elementary school education, and women with 4 years of college earning less than men with only a high school education.

The earnings gap is tied very closely to the fact that women are concentrated in certain industries and occupations that historically have been dominated by women. Women are still working primarily in jobs at the low end of the pay scale. For example, in manufacturing, women are predominantly in clothing and electrical manufacturing where wages are lower than in many other industries. Another factor contributing to the earnings gap is the fact that a higher proportion of the female work force now consists of younger and less experienced women and older reentrants whose job skills are no longer current.

Although the male-female earnings ratios vary considerably, women's earnings rarely approach parity with men's even in the same major occupation groups. Preliminary information on median usual weekly earnings of full-time wage and salary workers in mid-1979 indicated that women's paychecks were 62 percent of men's. Farm women's weekly earnings most closely approached those of comparably employed men at 82 percent. The earnings of farm workers for both sexes, however, were the lowest of the reported occupational categories. Even professional women's pay was only 70 percent of men professionals' and women clerical workers took home only 63 percent of the pay of men in clerical positions.

Allegations are increasingly being made by women individually and collectively that their jobs are undervalued and underpaid, and that perceptions of the lesser value of work done by women have been translated into lower wage rates. This issue, known variously as pay equity, equal pay for work of equal value or comparable worth, or occupational wage discrimination, will certainly be one of the key women's issues for the 1980s.

Pay equity addresses the pervasive discrimination that affects the wages of women who perform work which, although different from that traditionally performed by men, is perceived to be of equal value. For instance, the question arises when skilled jobs performed by women involving quality control and use of complex electronic equipment are paid below the common labor or janitorial rate for men. Lawsuits, proposed regulations, hearings, and studies address the issue of employers' job evaluation and wage plans which may discriminate against women.

In addition to pay equity and issues relating to the earnings gap, there are several other issues that will be important to women in this decade. These include sexual harassment, occupational safety and health, child care, and the special needs of certain groups of women who have particular difficulties in acquiring the training and education needed for jobs that pay well, and in finding and keeping such jobs.

Sexual harassment in the workplace has been drawing increasing attention. In March 1980, the Equal Employment Opportunity Commission published interim guidelines reaffirming its position that sexual harassment is an unlawful practice. The guidelines hold an employer, employment agency, joint apprenticeship committee, or labor organization accountable for

its acts and those of its agents and supervisory employees. Urging prevention, the guidelines state that an employer should take all steps necessary to prevent sexual harassment from occurring, such as alerting employees to the fact that such harassment will not be tolerated, and developing appropriate sanctions. The Office of Personnel Management has instructed Federal agencies to supplement their affirmative action process with a plan indicating the steps the agency will take to prevent sexual harassment.

Another major unresolved policy area concerns workplace health hazards. The Federal government has a dual responsibility to assure safe and healthful workplaces for all workers, men and women, while at the same time assuring them equal employment opportunities. Employers, however, concerned about liabilities that might accure from damage suffered by a woman or a fetus because of a woman's exposure to toxic substances at the workplace, have traditionally excluded women from employment in areas involving such exposure, or have restricted women's employment opportunities in these areas.

More recently there are indications that substances which endanger a fetus or a woman's reproductive capacity also tend to pose dangers to men, and to body systems other than the reproductive system in both men and women. Thus, to exclude women from employment in areas entailing exposure to toxic substances has an adverse effect on both men and women. The effect on women is to exclude them from employment opportunities often involving skilled jobs with high pay. The effect on men is to transfer to them the full risk of exposure to the toxic substances concerned.

On February 1, 1980, the Equal Employment Opportunity Council and the Department of Labor published proposed interpretive guidelines on employment discrimination and reproductive hazards. The guidelines are intended to provide guidance to the employer or contractor in meeting its responsibilities under Title VII and E.O. 11246 to ensure nondiscrimination and to provide equal employment opportunity. These guidelines and the objectives of Title VII and E.O. 11246 are based on the assumption that laws prohibiting discrimination in employment are consistent with those laws designed to assure a workplace free of conditions that threaten the health or safety of employees. They clarify the fact that employers and Federal contractors cannot routinely exclude all women of childbearing capacity from exposure to alleged reproductive hazards. Sex-based exclusions are discriminatory on their face and will be closely scrutinized by enforcement agencies. Temporary exclusion of persons of one sex would be permitted only if their reproductive health were shown by reputable scientific evidence to be in danger of significant harm, and in such cases, research on the effects upon the other sex would be required. The employer or contractor must investigate alternatives to excluding employees of one sex, particularly the alternative of providing a workplace safe and healthful for men and women. The final shape of the policy in this area will be determined by the agencies after they receive and evaluate public comment on the proposed guidelines.

Child care has been an issue of considerable concern to women workers for a long time. At present, new urgency for child day care services is developing. The number of young children with working mothers has increased dramatically. By 1979, more than half (16.6 million) of all mothers with children under age 18 were in the labor force. About 6.0 million had children under the age of 6. Today half of all children

between ages 3 to 5 have mothers in the work force. Projections show that by 1990, two-thirds of all mothers with children under 6 years of age will be in the work force and three-fourths of two-parent families will have both parents at work.

Therefore it is essential to address the needs of children and families within the context of affordable, quality care for children with working parents, emphasizing such areas as parental choice of child care and arrangements, factors in child growth and development, and implementation of Federal regulations. Among other employment-related issues are fair wages to providers, funding of day care centers, flexible work schedules, and legislative initiatives to encourage industry's participation in child care.

The last employment-related issue is poverty. Poverty has become a women's issue. Among poor persons, women outnumber men by 4.4 million. The 10 million women living in poverty accounted for 64 percent of all persons aged 16 and over with low incomes in 1978. Certain target groups of women require special assistance to enable them to compete successfully in the job market and to overcome the effects of poverty. These groups include racial and ethnic minority women such as blacks, Hispanics, American Indians, and Asian and Pacific Americans, who bear double burdens of racial and sex discrimination. Other low-income groups with particular needs are rural, mature, and teen women whose economic or geographical positions or age make it difficult for them to seek jobs and training. Among mature women the needs of displaced homemakers are especially acute, as are those of adolescent mothers among teen women. For all these women, there is need for additional efforts on the part of both government and the private sector to take affirmative action to open access to counseling, education, training, support services, and placement in jobs that will help them enter and remain in America's economic mainstream.

Table 1. Women 16 years of age and over in the labor force, 1950-1979

Year	Total women (in thousands)	Women in labor force as a percent of	
		Total labor force	All women age 16 years and over
1979	43,391	42.2	51.0
1978	41,878	41.7	50.0
1977	39,952	41.0	48.4
1976	38,414	40.5	47.3
1975	36,998	39.9	46.3
1974	35,825	39.4	45.6
1973	34,510	38.9	44.7
1972	33,277	38.5	43.9
1971	32,091	38.2	43.3
1970	31,520	38.1	43.3
1969	30,512	37.8	42.7
1968	29,204	37.1	41.6
1967	28,360	36.7	41.1
1966	27,299	36.0	40.3
1965	26,200	35.2	39.3
1964	25,412	34.8	38.7
1963	24,704	34.4	38.3
1962	24,014	34.0	37.9
1961	23,806	33.8	38.1
1960	23,240	33.4	37.7
1959	22,483	32.9	37.1
1958	22,118	32.7	37.1
1957	21,732	32.5	36.9
1956	21,461	32.2	36.9
1955	20,546	31.6	35.7
1954	19,678	30.9	34.6
1953	19,382	30.8	34.4
1952	19,269	31.0	34.7
1951	19,016	30.7	34.6
1950	18,389	29.6	33.8

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Handbook of Labor Statistics, 1978" and "Employment and Earnings," January 1979 and 1980.

Table 2. Employed persons 16 years of age and over, annual averages 1950-1979

Year	Employed (in thousands)		Difference from preceding year (in thousands)		Percent change from previous year	
	Total	Women	Total	Women	Total	Women
1979	96,945	40,446	2,572	1,564	2.7	4.0
1978	94,373	38,882	3,827	2,197	4.2	6.0
1977	90,546	36,685	3,061	1,590	3.5	4.5
1976	87,485	35,095	2,702	1,542	3.2	4.6
1975	84,783	33,553	-1,153	136	-1.4	.4
1974	85,936	33,417	1,527	971	1.8	3.0
1973	84,409	32,446	2,707	1,374	3.3	4.4
1972	81,702	31,072	2,582	1,197	3.3	4.0
1971	79,120	29,875	493	208	.6	.7
1970	78,627	29,667	725	583	.9	2.0
1969	77,902	29,084	1,982	1,277	2.6	4.6
1968	75,920	27,807	1,548	914	2.1	3.4
1967	74,372	26,893	1,477	917	2.0	3.5
1966	72,895	25,976	1,807	1,228	2.5	5.0
1965	71,088	24,748	1,783	917	2.6	3.8
1964	69,305	23,831	1,543	726	2.3	3.1
1963	67,762	23,105	1,060	580	1.6	2.6
1962	66,702	22,525	956	435	1.5	2.0
1961	65,746	22,090	-32	216	.0	1.0
1960	65,778	21,874	1,148	710	1.8	3.4
1959	64,630	21,164	1,594	551	2.5	2.7
1958	63,036	20,613	-1,035	-101	-1.6	-.5
1957	64,071	20,714	269	292	.4	1.4
1956	63,802	20,422	1,631	872	2.6	4.5
1955	62,171	19,550	2,061	1,060	3.4	5.7
1954	60,110	18,490	-1,071	-260	-1.8	-1.4
1953	61,181	18,750	927	180	1.5	1.0
1952	60,254	18,570	292	388	.5	2.1
1951	59,962	18,182	1,042	842	1.8	4.9
1950	58,920	17,340	1,271	617	2.2	3.7

Source: U.S. Departments of Labor and Health, Education, and Welfare, "Employment and Training Report of the President, 1978," and U.S. Department of Labor, Bureau of Labor Statistics, "Employment and Earnings," January 1979 and 1980.

Table 3. Unemployment rates of women and men, 16 years of age and over, annual averages 1950-1979

Year	Number of women unemployed (in thousands)	Percent of labor force unemployed		
		Both sexes	Women	Men
1979	2,945	5.8	6.8	5.1
1978	2,996	6.0	7.2	5.2
1977	3,267	7.0	8.2	6.2
1976	3,320	7.7	8.6	7.0
1975	3,445	8.5	9.3	7.9
1974	2,408	5.6	6.7	4.8
1973	2,064	4.9	6.0	4.1
1972	2,205	5.6	6.6	4.9
1971	2,217	5.9	6.9	5.3
1970	1,853	4.9	5.9	4.4
1969	1,428	3.5	4.7	2.8
1968	1,397	3.6	4.8	2.9
1967	1,468	3.8	5.2	3.1
1966	1,324	3.8	4.8	3.2
1965	1,452	4.5	5.5	4.0
1964	1,581	5.2	6.2	4.6
1963	1,598	5.7	6.5	5.2
1962	1,488	5.5	6.2	5.2
1961	1,717	6.7	7.2	6.4
1960	1,366	5.5	5.9	5.4
1959	1,320	5.5	5.9	5.3
1958	1,504	6.8	6.8	6.8
1957	1,018	4.3	4.7	4.1
1956	1,039	4.1	4.8	3.8
1955	998	4.4	4.9	4.2
1954	1,188	5.5	6.0	5.3
1953	632	2.9	3.3	2.8
1952	698	3.0	3.6	2.8
1951	834	3.3	4.4	2.8
1950	1,049	5.3	5.7	5.1

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Handbook of Labor Statistics, 1978," and "Employment and Earnings," January 1979 and 1980.

Table 4. Labor force participation rates for persons 16 years and over, 1975-1979

Age groups	1979	1978	1977	1976	1975
			All Persons		
Women					
16 years and over	51.0	50.0	48.4	47.3	46.3
16-19 years	54.4	53.9	51.4	49.9	49.3
20-24 years	69.1	68.3	66.5	65.0	64.1
25-29 years	65.7	64.2	61.7	59.2	57.0
30-34 years	61.8	59.7	56.8	54.6	51.7
35-39 years	63.4	60.9	59.4	57.2	54.9
40 years and over	38.6	38.2	37.5	37.3	37.2
Men					
16 years and over	77.9	77.9	77.7	77.5	77.9
16-19 years	61.7	72.1	61.0	59.4	59.2
20-24 years	86.6	86.0	85.7	85.2	84.6
25-29 years	94.8	94.7	94.6	94.3	94.5
30-34 years	96.1	96.1	96.3	96.4	96.3
35-39 years	96.3	96.3	96.1	95.9	96.2
40 years and over	67.8	68.3	68.6	69.2	70.4
			Black and Other Minority Groups		
Woman					
16 years and over	53.5	53.3	50.9	50.2	49.2
16-19 years	38.0	38.1	33.6	32.5	35.6
20-24 years	61.6	62.8	59.4	57.9	56.2
25-34 years	69.0	68.7	66.5	65.3	61.4
35-44 years	67.5	67.1	63.7	62.2	61.7
45 years and over	39.1	38.9	38.1	38.4	38.3
Man					
16 years and over	71.9	72.1	71.0	70.7	71.5
16-19 years	43.9	45.4	43.4	42.1	42.7
20-24 years	80.1	78.0	78.2	78.4	78.4
25-34 years	90.6	90.9	90.4	90.6	91.4
35-44 years	90.9	91.0	19.4	90.6	90.0
45 years and over	59.8	60.7	58.9	59.2	61.2

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Employment and Earnings," January 1976-80.

Table 5. Woman's labor force participation rates, by marital status, March 1950, 1960, 1970, 1975 and 1979*

Marital status	1979	1975	1970	1960	1950
Total	50.7	45.9	42.6	34.8	31.4
Single	62.7	56.7	53.0	44.1	50.5
Married:					
husband present	49.4	44.4	40.8	30.5	23.8
husband absent	58.8	54.8	52.1	51.8	47.4
Widowed	22.6	24.3	26.4	29.8	36.0
Divorced	74.0	72.1	71.5	71.6	36.0

*. Data for 1950 and 1960 are for persons 14 years of age and over; data for 1970, 1975 and 1979 are for persons 16 years of age and over.

Source: U.S. Department of Commerce, Bureau of the Census, Current Population Report P-50, No. 29 and U.S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Reports 13, 130, and 183 and unpublished data.

Table 6. Labor force status of women who maintain families, 1975 and 1979 (numbers in thousands)

Labor force status	1979	1975
Civilian noninstitutional population	8,417	7,238
Civilian labor force	4,993	3,933
Employed	4,581	3,541
Unemployed	413	392
Unemployment rate	8.3	10.0
Not in labor force	3,424	3,305

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Employment and Earnings," January 1980 and "Marital and Family Characteristics of the Labor Force," March 1975, Special Labor Force Report 183.

Table 7. Labor force status of women 16 years and over, by marital status and age of children, March 1975 and 1979 (numbers in thousands)

Marital and labor force status	1979 Total	1979 Children center under 18	1979 Children center under 6	1975 Total	1975 Children center under 18	1975 Children center under 6
Woman 16 years and over, total	84,686	30,482	13,317	79,477	29,820	13,850
In labor force	42,971	16,616	6,046	36,505	14,145	5,392
Labor force participation rate	50.7	54.5	45.4	46.5	47.4	38.9
Unemployment rate	6.6	7.3	10.0	9.5	N.A.*	N.A.
Never married	17,564	913	613	14,915	N.A.	N.A.
In labor force	11,006	493	303	8,464	N.A.	N.A.
Labor force participation rate	62.7	54.0	49.4	56.7	N.A.	N.A.
Unemployment rate	9.7	20.7	21.8	12.4	N.A.	N.A.
Married, husband present	48,239	24,765	11,110	47,547	25,432	12,115
In labor force	23,832	12,858	4,795	21,111	11,408	4,437
Labor force participation rate	49.4	51.9	43.2	44.4	44.9	36.6
Unemployment rate	5.1	6.2	8.5	8.5	N.A.	N.A.
Married, husband absent	3,075	1,679	770	17,015	4,388	1,735
In labor force	1,808	1,001	409	6,932	2,737	955
Labor force participation rate	58.8	59.6	53.1	40.7	62.4	55.0
Unemployment rate	9.8	12.6	18.2	8.9	N.A.	N.A.
Widowed	10,358	694	89	10,104	N.A.	N.A.
In labor force	2,358	344	33	2,453	N.A.	N.A.
Labor force participation rate	22.6	49.5	36.5	24.3	N.A.	N.A.
Unemployment rate	5.2	9.0	N.A.	5.5	N.A.	N.A.
Divorced	5,559	2,431	736	3,982	N.A.	N.A.
In labor force	3,967	1,920	508	2,873	N.A.	N.A.
Labor force participation rate	74.0	79.9	68.9	72.1	N.A.	N.A.
Unemployment rate	6.1	7.6	10.4	8.3	N.A.	N.A.

* N.A. = Not available.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Marital and Family Characteristics of the Labor Force," March 1975, Special Labor Force Report No. 183 and Press Release No. 79-747, October 1979.

Table 8. Employment status of women by race/ethnic group, 1976 and 1979 (numbers in thousands)*

	1979	1976
Women, 16 years and over:		
Civilian labor force	43,391	38,414
Employed	40,446	35,095
Unemployed	2,945	3,320
Unemployment rate	6.8	8.6
Labor force participation rate	51.0	47.3
White women, 16 years and over:		
Civilian labor force	37,528	33,371
Employed	35,304	30,739
Unemployed	2,224	2,632
Unemployment rate	5.9	7.9
Labor force participation rate	50.6	46.9
Black women, 16 years and over:		
Civilian labor force	4,984	4,369
Employed	4,324	3,748
Unemployed	660	621
Unemployment rate	13.2	14.2
Labor force participation rate	53.1	49.8
Other minority women, 16 years and over:		
Civilian labor force	879	675
Employed	817	608
Unemployed	62	67
Unemployment rate	7.1	9.9
Labor force participation rate	56.0	52.3
All Hispanic women, 20 years and over:		
Civilian labor force	1,731	1,408
Employed	1,577	1,246
Unemployed	154	162
Unemployment rate	8.9	11.5
Labor force participation rate	47.9	44.4
Mexican women, 20 years and over:		
Civilian labor force	989	753
Employed	892	664
Unemployed	98	89
Unemployment rate	9.9	11.8
Labor force participation rate	48.2	45.3
Puerto Rican women, 20 years and over:		
Civilian labor force	185	164
Employed	167	144
Unemployed	17	20
Unemployment rate	9.3	12.1
Labor force participation rate	35.3	32.0
Cuban women, 20 years and over:		
Civilian labor force	157	146
Employed	145	132
Unemployed	12	15
Unemployment rate	7.9	9.9
Labor force participation rate	55.1	50.7

*Numbers for white, black, other minority and all women are for all those 16 years and over. Numbers for Hispanic, Mexican, Puerto Rican, and Cuban women are for all those 20 years or over.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Employment and Earnings," January 1976 and 1980.

Table 9. Women employees on nonagricultural payrolls, by industry division, 1970-October 1979

Industry	October 1979	Annual averages (numbers in thousands)								
		1978	1977	1976	1975	1974	1973	1972	1971	1970
Total	37,629	34,996	32,994	31,498	30,157	30,026	28,924	27,404	26,301	26,060
Mining	94	75	65	58	52	45	40	37	37	37
Contract construction	388	332	268	245	231	234	221	205	188	177
Manufacturing	6,576	6,172	5,816	5,590	5,259	5,819	5,803	5,411	5,191	5,436
Durable	3,137	2,868	2,612	2,446	2,274	2,606	2,547	2,259	2,111	2,278
Nondurable	3,439	3,305	3,204	3,144	2,985	3,213	3,256	3,152	3,080	3,158
Transportation and public utilities	1,260	1,117	1,036	986	982	1,000	975	943	943	953
Wholesale and retail trade	8,798	8,218	7,677	7,404	7,053	7,003	6,712	6,342	6,095	5,997
Wholesale	1,339	1,216	1,079	1,039	1,002	1,004	956	899	871	877
Retail	7,459	7,002	6,597	6,365	6,052	5,999	5,756	5,443	5,225	5,120
Finance, insurance, and real estate	2,932	2,687	2,523	2,377	2,293	2,246	2,141	2,033	1,960	1,907
Services	10,095	9,242	8,648	8,184	7,737	7,410	7,020	6,666	6,395	6,222
Government	7,486	7,153	6,961	6,656	6,550	6,270	6,012	5,767	5,491	5,331
Federal	871	869	859	808	805	798	780	747	715	723
State and local	6,615	6,283	6,102	5,848	5,745	5,472	5,232	5,020	4,776	4,608

Source: U.S. Department of Labor, Bureau of Labor Statistics. "Handbook of Labor Statistics, 1978," and "Employment and Earnings," January 1980.

Table 10. Number of women as a percent of total employment, by major occupation group, annual averages for selected years, 1960-1979

Occupation group	Annual averages					
	1979	1978	1977	1975	1970	1960
Percent of total employed	41.7	41.2	40.8	39.6	37.7	33.3
Professional and technical workers	43.3	42.7	42.6	41.3	38.6	36.2
Managers and administrators (except farm)	24.6	23.4	22.3	19.4	15.9	15.6
Sales workers	45.1	44.8	43.3	42.5	43.1	39.8
Clerical workers	80.3	79.6	78.9	77.8	74.6	67.8
Craft and kindred workers	5.7	5.6	5.0	4.6	3.3	2.6
Operatives, except transport	39.9	39.7	39.6	38.4	30.9	27.9
Transport equipment operatives	8.1	7.3	6.8	5.7		
Nonfarm laborers	11.3	10.4	9.4	8.6	3.7	2.3
Private household workers	97.6	97.7	97.0	97.4	97.4	98.5
Other service workers	59.2	59.1	58.3	58.3	60.2	53.5
Farmers and farm managers	9.6	8.9	6.4	6.4	4.6	3.9
Farm laborers and supervisors	27.7	28.6	29.4	26.7	32.4	35.3
	Percent Distribution of Employed Women					
Professional and technical workers	16.1	15.6	15.9	15.7	14.5	12.4
Managers and administrators (except farm)	6.4	6.1	5.9	5.2	4.5	5.0
Sales workers	6.9	6.9	6.8	6.9	7.0	7.7
Clerical workers	35.0	34.0	34.7	35.1	34.5	30.3
Craft and kindred workers	1.8	1.8	1.6	1.5	1.1	1.0
Operatives, except transport	10.8	11.1	11.2	11.0	14.5	15.2
Transport equipment operatives	.7	.7	.6	.5		
Nonfarm laborers	1.3	1.3	1.2	1.1	.5	.4
Private household workers	2.6	2.9	3.1	3.4	5.1	8.9
Other service workers	17.2	17.7	17.9	18.2	16.5	14.8
Farmers and farm managers	.3	.3	.3	.3	.3	.5
Farm laborers and supervisors	.9	1.0	1.0	1.1	1.5	3.2
(Total employed in thousands)	40,446	38,881	36,685	33,553	29,667	21,874

Source. U.S. Departments of Labor and Health, Education, and Welfare, "Employment and Training Report of the President, 1979, and "Employment and Earnings," January 1980.

Table 11. Number of women as percent of total employment in selected occupations, 1974-1979*

(numbers in thousands)

Occupation	1974	1975	1976	1977	1978	1979
Professional and technical	40.5	41.3	42.0	42.6	42.7	43.3
Accountants	23.7	24.6	26.9	27.5	30.1	32.9
Computer specialist	19.0	21.2	19.1	23.2	23.1	26.0
Industrial engineers	(1/)	2.7	4.5	7.0	8.7	7.3
Lawyers and judges	7.0	7.1	9.2	9.5	9.4	12.4
Librarians	N.A.	81.1	82.4	83.4	84.5	80.9
Life/physical scientists	15.9	14,4	12.1	15.6	17.9	18.9
Physicians	9.8	13.0	12.8	11.2	11.3	10.7
Registered nurses	98.0	97.0	96.6	96.7	96.7	96.8
Elementary teachers	84.3	85.4	84.8	84.2	84.0	84.3
Secondary teachers	48.3	49.2	50.5	51.2	51.6	50.7
Surveyors	N.A.	--	1.4	1.5	2.4	3.5
Airplane pilots	N.A.	--	--	--	1.4	--
Managers and administrators	18.5	19.4	20.8	22.3	23.4	24.6
Bank officials/managers	21.4	23.6	24.7	27.3	30.4	31.6
School administrators	27.8	28.1	32.6	36.2	35.6	37.5
Craft and indred workers	4.5	4.6	4.8	5.0	5.6	5.7
Carpenters	(1/)	.6	.7	.9	1.0	1.3
Painters, conatruction and maintenance	(1/)	3.8	2.9	3.3	5.2	5.0
Machinists and job setters	(1/)	2.5	2.9	2.6	3.0	3.3
Auto mechanics	(1/)	.5	.6	.9	.6	.6
Printing craft workers	18.1	17.6	19.2	22.4	21.8	22.2
Telephone repairers	4.9	4.8	5.0	5.0	6.7	9.9

Table 11 (continued)

Occupation	1974	1975	1976	1977	1978	1979
	(numbers in thousands)					
Clerical workers	77.6	77.8	78.7	78.9	79.6	80.3
Typists	96.2	96.6	96.7	96.3	96.6	96.7
Operatives, including transport	31.1	30.2	31.2	31.4	31.7	32.0
Meat cutters and butchers, manufacturing	N.A.	27.0	29.9	35.2	28.9	31.5
Press operatives	30.6	27.7	32.9	36.2	30.1	29.1
Sewers and stitchers	95.8	95.8	95.9	95.2	94.8	95.3
Bus drivers	37.4	37.7	39.5	42.2	45.1	45.5
Truck drivers	(1/)	1.1	1.2	1.3	1.9	2.1
Service workers	62.9	62.3	61.5	62.0	62.6	62.4
Cleaners and servants	97.6	97.3	97.1	96.5	97.0	97.3
Waiters	91.8	91.1	90.7	90.4	90.5	89.4
Nursing aides, orderlies	86.9	85.8	86.8	86.3	87.0	87.5
Hairdressers/cosmetologists	92.4	90.5	88.0	88.2	89.1	89.2
Protective service	6.4	6.3	6.4	7.9	8.5	8.8

* Percent not shown where employment estimate is less than 35,000.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, June 1975 and January 1976, 1977, 1978, 1979 and 1980.

Table 12. Comparison of median earnings of year-round full-time workers, 14 years of age and over, by sex, 1955-1978*

Year	Median earnings: Women (1)	Median earnings: Men (2)	Earnings gap in dollars (3)	Women's earnings as a percent of men's (4)	Percent men's earnings exceeded women's (5)	Earnings gap in constant 1967 dollars (6)
1978	$9,350	$15,730	$6,380	59.4	68.2	$3,267
1977	8,618	14,626	6,008	58.9	69.7	3,310
1976	8,099	13,455	5,356	60.2	66.1	3,141
1975	7,504	12,758	5,254	58.8	70.0	3,259
1974	6,772	11,835	5,063	57.2	74.8	3,433
1973	6,335	11,186	4,851	56.6	76.6	3,649
1972	5,903	10,202	4,299	57.9	72.8	3,435
1971	5,593	9,399	3,806	59.5	68.0	3,136
1970	5,323	8,966	3,643	59.4	68.4	3,133
1969	4,977	8,227	3,250	60.5	65.3	2,961
1968	4,457	7,664	3,207	58.2	72.0	3,079
1967	4,150	7,182	3,032	57.8	73.1	3,032
1966	3,973	6,848	2,875	58.0	72.4	2,958
1965	3,823	6,375	2,552	60.0	66.8	2,700
1964	3,690	6,195	2,505	59.6	67.9	2,696
1963	3,561	5,978	2,417	59.6	67.9	2,637
1962	3,446	5,974	2,528	59.5	73.4	2,790
1961	3,351	5,644	2,293	59.4	68.4	2,559
1960	3,293	5,417	2,124	60.8	64.5	2,394
1959	3,193	5,209	2,016	61.3	63.1	2,308
1958	3,102	4,927	1,825	63.0	58.8	2,108
1957	3,008	4,713	1,705	63.8	56.7	2,023
1956	2,827	4,466	1,639	63.3	58.0	2,014
1955	2,719	4,252	1,533	63.9	56.4	1,911

* For 1967-78, data include wage and salary income and earnings from self-employment, for 1955-66, data include wage and salary income only.

Column 3 = column 2 minus column 1.
Column 4 = column 1 divided by column 2.
Column 5 = column 2 minus column 1, divided by column 1.
Column 6 = column 3 times the purchasing power of the consumer dollar (1967 = $1.00).

s: U.S. Department of Commerce, Bureau of the Census: "Money Income of Families and Persons in the United States," nt Population Reports, 1957 to 1977, and "Money Income and Poverty Status of Families and Persons in the United s: 1978." (Advance Report)

Table 13. Median usual weekly earnings of full-time wage and salary workers, 16 years of age and over, by sex and occupational group, second quarter 1979 (preliminary)

Occupation group	Women	Men	Women's earnings as percent of men's
Total	$183	$295	62
Professional and technical workers	261	375	70
Managers and administrators, except farm	232	386	60
Sales workers	154	297	52
Clerical workers	180	287	63
Craft and kindred workers	189	305	62
Operatives, except transport	156	257	61
Transport equipment operatives	194	277	70
Nonfarm laborers	166	220	75
Service workers	138	203	68
Farm workers	125	153	82

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Women in the Labor Force. Some New Data Series," 1979.

Table 14. Civilian labor force, 16 years of age and over, 1975 and 1979 and projected 1985 and 1990

Sex	Actual		Projected					
			High growth		Intermediate growth		Low growth	
	1979	1975	1985	1990	1985	1990	1985	1990
	(Numbers in thousands)							
Total	102,908	92,613	117,005	125,603	112,953	119,366	108,900	113,521
Men	59,517	55,615	65,013	68,220	63,007	65,115	61,169	62,472
Women	43,391	36,998	51,992	57,383	49,945	54,253	47,731	51,049
	Labor force participation rate							
Total	64.2	61.2	67.7	69.7	65.3	66.2	63.0	63.0
Men	77.9	77.9	79.4	80.0	77.0	76.4	74.7	73.3
Women	51.0	46.3	57.1	60.4	54.8	57.1	52.4	53.8

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Labor Force Projections to 1990: Three Possible Paths," Monthly Labor Review, December 1978, pp. 25-35 and "Employment and Earnings," January 1976 and 1980.

Table 15. Summary of laws and Executive orders for nondiscrimination and equal opportunity programs

Program area	Number of laws and Executive orders*	Number of times prohibited basis of discrimination is mentioned in program category											
		Race	Color	Religion, creed belief	Sex	National origin	Marital status	Physical handicap	Political affiliation	Age	Moral belief or conviction	Economic status	Alien status
Employment	65	47	43	37	43	38	3	13	1	12	3	3	1
Public Services, Benefits and Facilities Programs	31	21	20	15	19	18	2	8	6	7	2	3	1
Housing	18	14	14	9	8	11	3	4	2	4	2	2	1
Education	20	14	1	9	12	11	2	4	3	3	2	2	3
Credit	10	9	9	6	5	6	3	2	2	3	2	2	3
Public Accommodations	10	10	10	7	4	7	2	3	2	2	2	2	3
Voting and Jury Service Programs	13	12	12	5	4	7	2	2	3	4	2	3	3
Criminal and General Civil Remedy Programs	13	12	12	7	5	7	2	2	3	3	2	2	3

* A total of 87 citations of Federal laws and Executive orders were identified for nondiscrimination and equal opportunity programs. Many of these citations affect more than one program area, and as a result, the number of laws and Executive orders in this column total more than 87.

Source: U.S. General Accounting Office Staff Study, August 2, 1978

Table 16. Women as percent of total employed by employers reporting to Equal Employment Opportunity Commission, by occupation group, 1970, 1975, and 1978 (numbers in thousands).*

	Total employment	White-collar						Blue-collar				
		Total white-collar	Officials and managers	Professional workers	Technicians	Sales workers	Office and clerical workers	Total blue-collar	Craft workers	Operatives	Laborers	Service workers
1970												
Total	28,883	13,347	2,542	2,433	1,279	2,214	4,880	13,535	3,944	6,927	2,664	2,001
Female	9,969	5,877	261	610	345	940	3,721	3,093	274	2,060	759	999
Percent female	34.5	44.0	10.3	25.1	27.0	42.5	76.3	22.8	6.9	29.7	28.5	49.9
1975												
Total	29,945	14,600	3,180	2,440	1,450	2,634	4,895	12,970	4,029	6,469	2,473	2,374
Female	11,123	6,851	450	731	484	1,259	3,927	3,005	287	1,958	760	1,267
Percent female	37.1	46.9	14.2	30.0	33.3	47.8	80.2	23.2	7.1	30.3	30.7	53.4
1978												
Total	36,029	17,953	3,972	2,963	1,729	3,629	5,659	14,716	4,392	7,317	3,006	3,360
Female	14,395	8,831	689	1,004	648	1,840	4,651	3,730	378	2,332	1,020	1,834
Percent female	40.0	49.2	17.3	33.9	37.5	50.7	82.2	25.3	8.6	31.9	33.9	54.6
Percent gain 1970-1978	+5.5	+5.2	+7.0	+8.8	+10.5	+8.2	+5.9	+2.5	+1.7	+2.2	+5.4	+4.7

* Employers of 100 or more workers are required to file annually on Standard Form 100 (Employer Information Report EEO-1). They account for approximately 48 percent of private, nonagricultural employment.

Source. U.S. Equal Employment Opportunity Commission. "Job Patterns for Minorities and Women in Private Industry," 1973, 1977, and unpublished data.

Market Work, Housework and Child Care: Burying Archaic Tenets, Building New Arrangements

Myra H. Strober, Ph.D.

In seeking to explain the dearth of effective policies for ending the Great Depression of the 1930s, John Maynard Keynes observed that our ability to search for solutions to problems is often hampered by our unthinking, often unconscious, fealty to outmoded scholarly doctrines (1). In our own time, the rapid increase in employment outside of the home for married women and/or mothers has been seen by many as producing numerous frictions and difficulties. Attempts to solve these difficulties have generally been viewed as unsuccessful. This paper argues that important factors in our lack of success have been a faulty conception of our problems and an unwarranted reliance on certain postulates of neoclassical economic theory. In particular, it contends that our concern with the welfare of "the family" and our collective allegiance to the notion that market earnings can be substituted for home production have prevented us from seeking creative solutions to the role conflict now faced by many employed women.

The first section of the paper examines the concept of family welfare and argues that it is an unmeasurable and irrelevant policy goal. The second section looks at empirical studies of housework, family expenditures and child care and demonstrates the time squeeze faced by employed women as well as the limited substitutability of market earnings for home production. The final section of the paper examines some possible new structural arrangements for more equitably allocating the burdens of market work, housework, and the care of young children.

FAMILY WELFARE: What Is It?

Carl Degler, in his recent book on the history of women and the family in the United States, argues that women's fulfillment as persons and the future of the family are in considerable conflict. He asserts that after 200 years of development, both the future of the family and the fulfillment of women as persons are at odds as never before. (2)

When Degler and others argue that the welfare of "the family" is at odds with women's welfare, what do they mean? When government officials call for family impact statements to examine the potential effects of particular policies on the welfare of "the family," whose welfare do they propose to measure? Even apart from the difficulty of

trying to define what "the family" is in an age of widespread divorce and separation of spouses, the notion of "family welfare" is illusory and inconsequential.

The so-called "New Home Economics," of course, has made it fashionable to talk about families as maximizers of utility. Yet as any introductory economics text makes clear, positive economics cannot make welfare comparisions between or among people. Suppose we examine a husband-wife family with no children or with grown children. Suppose further, that while the wife in this family develops an ardent desire to find a paid job outside of the home, her husband is equally ardently opposed to her seeking employment. Whether family welfare is maximized at a point in time, or over some period of time, by the wife's acquiescence to her husband's wishes or by her fulfillment of her own inclinations cannot be ascertained by positive economic methods. Unless one knows how to weight the preferences of the two spouses one cannot say in which situation "the family" as an entity is better off.

That is, while it is quite simple to ascertain whether a woman's goals put her at odds with her husband, and/or her children, it is not possible to measure the extent to which women may be at odds with "the family." Since a woman is a member of her own family, a calculation of the change in her family's welfare when she pursues goals at odds with those of her husband or children requires a weighting of the relative preference functions of each family member.

In the utility maximization models of Gary Becker, the problem of making welfare comparisons between or among people is solved by assuming that the husband "cares fully" for the other family members. Thus, the maximization of the husband's utility becomes tantamount to the maximization of family utility (3). Most analysts, when this assumption is pointed out, object to such cloaking of intrafamily dissension. Yet quite sophisticated scholars and policymakers often assume that when there are conflicts or potential conflicts between spouses, and the wife fulfills her own goals, that the future of "the family" is endangered, i.e., the welfare of "the family" is decreased.

In welfare economic theory, welfare comparisons between or among persons are generally made by postulating a so-called social welfare function which "decides" the weights to be given to different individuals. Such decisions are seen as being made either through a democratic process or arbitrarily by some dictator. Thus, in welfare theory terms, scholars who conclude that women are at odds with "the family" are implicitly using a social welfare function that gives a lower weight to the welfare of a woman and those in the family whose goals may be similar to hers as compared to the weight given to the welfare of those family members whose goals are different from hers.*

If we move from the realm of theory to matters of policy, we find that although some governmental or corporate policies may unambiguously increase the welfare of all family members, the effects of other policies may be less clear-cut, increasing the welfare of

*For an outline of a model of family utility maximization which explicitly takes into account both spouses' preference functions, see Ferber and Birnbaum (4).

some family members but decreasing the welfare of others. Policy analysts clearly are not authorized to assign weights to the various utility functions of family members. Thus, if a given policy ostensibly benefits children but makes it difficult for mothers who wish to work to leave the home, it is not possible for the policy analyst to conclude that "the family" is strengthened by such a policy.* It is possible only to point out which class of individuals is harmed and which is benefited.**

The notion of a family is merely a shorthand for a group of individuals. Its welfare cannot be calculated by omitting the welfare of one of its members (the wife or mother). At the same time its welfare is not greater than the sum of the welfares of its members. If an AFDC program is altered so that fathers can continue to live with their wives and children while the family receives AFDC payments, the ramifications of such a policy need to be analyzed with respect to their effects on individuals. Thus, the AFDC alteration might be considered beneficial, not because of its effects on "the family," but because of its presumed benefits for individual family members involved. It may be that the intactness of nuclear families (poor or otherwise) yields external benefits or costs to others outside of the family, for example, neighbors, teachers, friends, psychiatrists, or members of the extended family, or that statistics regarding the divorce or remarriage rates provide satisfaction or dissatisfaction for the electorate. Nonetheless, the welfare of "the family" at a point in time or over some time period is nothing more than the weighted sum of the welfare of its members.

Policymakers or analysts who wish to promote the intactness of families as a goal, in and of itself, must recognize clearly that such a goal may or may not increase the algebraic sum of the welfares of family members. Perhaps the external benefits of a stable or declining divorce rate are so great that they warrant the promotion of family intactness. If so, however, arguments for keeping families together should be made in terms of their presumed external benefits.

None of this is meant to discredit policies designed to help reduce family discord. No doubt most individuals prefer harmony to strife. The point is that it is all of the individuals in families on whom we need to focus our attention, when designing and assessing policies. Focusing on families as an aggregation, except when we wish to examine external benefits and costs, is likely to conceal important conflicts and potential conflicts about the relative importance of various family members' goals. These need to be squarely faced and carefully examined.

*In terms of a democratic social welfare function, such a conclusion would be warranted only if the society had reached some consensus that women's preferences should be given less weight than those of other family members.

**For an early statement of the arguments for analyzing policies in terms of their effects on individuals, see Bell (5).

In keeping with this analysis, when, in the third section of this paper, we assess the new arrangements proposed to relieve some of the tensions generated by the employment of wives and/or mothers, we will evaluate them in terms of their likely effects on wives and mothers, on children and on husbands and fathers. We will purposely not, however, seek to assess their effects on "the family."

MARKET WORK, HOUSEWORK AND CHILD CARE: The Three-Way Squeeze

Just as the concept of a family welfare function serves to deflect policy analyses from properly focusing on the individuals in a family, so, too, the neoclassical economics notion that market earnings can be, or are, substituted for household production serves to obfuscate the pressures facing employed women and especially mothers. In this section, the neoclassical proposition is briefly outlined and the empirical work refuting it is presented.

Neoclassical economic models seeking to explain the increase in women's labor force participation during the post-World War II period have relied heavily on the notion of differential "wages" or "productivity" in the home and in the market. Women have increasingly opted for market work, these models argue, because their wage or productivity in the market has become greater than their shadow wage or productivity in the home. Thus, women could more effectively maximize their "family welfare function" by working and substituting goods and services purchased in the market for goods and services produced in their own homes.

In part, this scenario is no doubt correct, although of course it fails to note or explain the long-term changes in family desires for market versus home goods. However, this framework is inadequate for explaining women's increased labor force participation. As Claire Vickery Brown has pointed out, econometric work based on these models explains only a small portion of the change in women's labor force participation (6).* Moreover, and more central to our discussion here, cross-section empirical studies find that substitution of market goods and services for the working wife or mother's own home production is remarkably limited. They also find that because so much of wives' earnings are eaten up by the costs of working, families with employed wives and families with full-time homemaker wives are probably not equally well-off even when they have the same total income. We turn now to an examination of these empirical studies.

Women who are employed outside of the home report much greater time pressures and have less leisure time as compared to their counter-

*According to Vickery Brown's calculations, Jacob Mincer's model explains only 36 percent of the change in women's labor force participation rates from 1960-70; only 7 percent of the change from 1970-77. See Mincer (7), and Cain (8), whose model explains only 37 percent of the change in white women's labor force participation over the years 1957-76.

parts who are full-time homemakers. Many of them suffer from what psychologists have termed role conflict or role stress (9,10,11).*

An analysis by John Robinson of the time diaries kept on a single day between late 1965 and spring of 1966 by 2,000 Americans indicated that employed women in 1965-66 had 66 minutes per day less free time than did other women (12). Similar results were obtained from Frank Stafford and Greg Duncan's examination of the 1975 study of 1519 adults' time diaries for a single day during the fall of 1975 (13,14). The time resources of women in poor or single parent families are even more constrained (15).

With the exception of child care, by and large employed women do not substitute market goods and services for their own household production to any greater extent than do homeworkers. A study by Kathryn Walker and Margaret Woods examined the time diaries of 1,296 husband-wife families in Syracuse, New York in 1968. With respect to household work other than child care, Walker and Woods found that 78 percent of families never used paid help for ordinary household care. Only 5 percent used paid help on a regular basis. This was confirmed by Stafford and Duncan's analysis of the 1975 University of Michigan survey in which only 7 percent of respondents used paid help on a regular basis. Moreover, Stafford and Duncan found that although husbands' hourly wage rate was a significant predictor of the use of paid household help on a regular basis, wives' hourly wage rate was not (10,13). Robinson, too, found no relationship between wives' employment and use of paid household help (12,16).**

In two papers using data from the Michigan Survey of Consumer Finances for 1968, Myra Strober (17) and Myra Strober and Charles Weinberg (18) found that, holding constant family income, family net assets, life-cycle stage and whether the family had changed its residence recently, wives' employment was not significantly related to the decision to purchase durable goods that might help to substitute for household labor such as dishwashers, dryers, refrigerators, and stoves.

*Most of the studies discussed here use the Current Population Survey definition of employment when categorizing a woman (or man) as employed. Employed persons are (1) those who worked for pay any time during the week that includes the 12th day of the month, or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. The Walker and Woods study (10), however, defines employed persons as those who are gainfully employed for at least 15 hours per week. For a discussion of role conflict and especially its relation to stress, see Zappert and Weinstein (11).

**Vickery Brown did find that in families with wives employed full-time, expenditures on domestic services and materials were 20 percent higher than in families with wives who were full-time homemakers. Income, assets, number of family members and their age grouping were all held constant in Vickery Brown's analysis. This higher expenditure, however, does not mean that market goods were being substituted for home production.

In a later study, using data obtained from a 1977 survey of 2,000 married women who were members of the Market Facts Consumer Mail Panel, Strober and Weinberg again examined the relationship between wives' employment and the ownership and purchase of potentially time-saving durable goods. Holding constant income and life-cycle stage, we noted that wives' employment was not significantly related to the ownership or purchase of microwave ovens, dishwashers, freezers, dryers, washers, stoves or refrigerators (9). Moreover, a recent paper by Robinson, based on the 1975 University of Michigan data (19) indicates that ownership of durable goods is not associated with the amount of time spent on housework. And a small study of about 300 households in Evanston, Illinois found a significant although small positive correlation between number of household appliancea and time spent on housework (20).

There also seems to be little evidence, based on the Strober-Weinberg analysis of the 1977 Market Facta Mail Panel that, when income group and life-cycle stage are held constant, working wives are any more likely than full-time homemakers to use frozen foods, another potential market subatitute for household production (9). An earlier small scale study by Susan Douglas (21) also showed that working wife families do not purchase convenience foods any more frequently than nonworking wife families.

The only housework apart from child care that seems to be taken over in part by the market is meal preparation and clean-up. Using data from the 1972-73 Consumer Expenditure Survey and holding constant family income, family aize and life-cycle stage, Strober found that expenditures for food eaten away from home were significantly higher in families where wives worked 1 to 15 weeks per year than in families where wives were full-time homemakers (22). However, most of this transfer from home to market production seemed to involve the lunch meal only, especially in families with children under 18, and one could argue that lunch away from home for employed wives is as much a cost of employment as a deliberate decision to substitute market for home production (9,10).

With regard to child care there is, of courae, considerable replacement of the services of the working mother. Unlike housework, child care cannot be postponed to early morning, evening or weekend hours. However, it appears that most of the replacement consists of nonmarket rather than of market services. First, a recent article summarizing various atudies of the child care arrangements of working parents with children under 14 indicates that even when mothers worked, parents uaually reported themselves and schools as the major caretakers of their children (23). Care by a relative, both inside and outside of the child's home, was also found to be a popular source of child care. Second, among preschoolers of working parents, in 1974-75 only about 3 percent under 2 and only about 5 percent of those 3-5 were cared for in day care centers. In that sane year, family day care homes cared for about 7 percent of working parents' children under 5. The National Childcare Consumer Study of 1975, moreover, ascertained that even among respondents who used nonparental child care, more than half either did not pay for these services or were involved in exchanging services or favors in order to obtain the care.

As Vickery Brown has pointed out, one of the reasons why households do not substitute market services for household services is because they are such poor substitutes (6). A meal in a restaurant is not equivalent to a meal at home; it is less private, generally more time consuming and possibly of a lower quality. Similarly, a nursemaid who cares for a sick child in the middle of the night is simply not a substitute for a child's own parent.

However, there are also significant financial considerations which limit the substitutability of market goods and services for household production. Even apart from the fact that families with employed wives are missing the services of a full-time homemaker, two-earner families are less well off economically than single-earner families with the same total family income. Data from the 1972-73 Consumer Expenditure Survey indicate that after-tax income, assets, number of family members and their age grouping, families with full and part-time employed wives spent significantly more on goods and services directly and indirectly related to wives' employment: transportation; retirement and pension payments, including social security; drycleaning, laundry and clothing repair; and clothing. Moreover, families with full-time employed wives spent significantly more on insurance, gasoline, and personal care. In 1972-73 approximately 14 percent of wives' before tax earnings were spent on work-related expenditures (16). Possibly as a result, we find that at the same income level, the families of employed wives save a lower percentage of their income than do families with full-time homemakers (16,17). Moreover, using the 1972-73 Consumer Expenditure Survey and holding constant family income before taxes, age of the husband and family size, Strober found that the mean value of financial assets and the estimated value of financial assets and the estimated market value of their home were both significantly lower for families where the wife worked at least 15 weeks per year as compared to families where the wife was a full-time homemaker (22).

As a result of the nonsubstitution of market services for their own household labor, employed women and especially mothers are faced with a tight three-way time squeeze. While employed women spend less time doing housework than nonemployed women (between 2.2 hours to 4.2 hours less per day depending on the time-study involved and the definition of number of hours per week of employment (10,13,24)) they nonetheless spend considerable time in household work and family care (19,25). Moreover, they rarely substitute the labor of other family members for their own labor. Based on a national probability sample of 24-hour time diaries from 750 husband-wife households, Richard Berk and Sarah Fenstermaker Berk concluded that the majority of husbands whose wives are employed full-time do not seem to pick up much of the household work burden (26). In a more quantitative vein, Robinson estimated that, income and demographic variables held constant, husbands of employed wives spent only 5 minutes more per day on child care and only 5 minutes more per day on housework as compared to husbands of full-time homemakers (12). Indeed, the whole notion of substituting husbands' labor for that of wives' may be misconceived. One of Robinson's most interesting observations regarding the 1975 time-use diaries was that the amount of time spent by wives and husbands in family care was positively rather than negatively correlated (19).

In summary, it is clear that employed women, for the most part, do not substitute market goods and services for household production to any greater extent than do their counterparts engaged in full-time homemaking. Mere technology in the form of dishwashers and frozen foods does not significantly mitigate the severe time pressures faced by employed wives and mothers. It is important that this reality sink firmly into the American consciousness. For only when it does will it be possible for us to examine seriously the more far-reaching new arrangements necessary to solve the burden of overwork faced by so many employed women.

What are these new arrangements? Who will benefit from them? And who will lose by their introduction? It is to these matters that we turn in the next section.

NEW ARRANGEMENTS

The solutions currently used by many women for dealing with the time squeeze or potential time squeeze have been, for the most part, personal solutions. Short of merely struggling, women have either reduced their career aspirations, withdrawn from the work force for a number of years, sought part-time positions, decided to forego motherhood and/or obtained more "help" with housework from husbands or children. Before examining more structural solutions to the problems of the three-way time squeeze, let us briefly analyze some of the reasons why these types of personal solutions tend to be suboptimal from the point of view of both women and society as a whole.

Women who consciously reduce their career aspirations in order to meet their goals for marriage and motherhood or who decide to forego motherhood for the sake of their careers often do so with a profound sense of loss (27).* Those who withdraw from the work force for a number of years face risks during the time they are out and penalties in terms of salaries, career development and/or seniority when they return. In a recent paper, Barbara Bergmann has outlined some of the risks associated with being a full-time homemaker (28). Chief among these is the difficulty of entering the labor market and earning enough to support oneself (and possibly one's children, in case of divorce). Investigations of the effects on women's wages of labor force withdrawal have been carried out by Mary Corcoran (29), Jacob Mincer and Solomon Polachek (30), and Steve Sandell and David Shapiro (31). While their findings are conflicting in some respects, they all appear to agree that for married white women age 30-44 in the late 1960s and mid-1970s, annual wages were about 1.2 - 1.4 percent lower for each year spent out of the labor force.** From the point of view of society as a whole, both reduction of women's career aspirations and labor force withdrawal produce an undesirable loss of important talents and skills.

*My experience counseling women MBA and Ph.D. students during the past 10 years has provided evidence regarding the affect eccompanying these decisions.

**Corcoran did find, however, that the negative effects of withdrawal were more pronounced for women 30-44 than for women in other age groups.

For some women, part-time work is often the ideal solution to their attempts to balance employment, housework, and child care. However, for many, part-time work takes them off the career track or forces them into traditional female occupations in which part-time employment opportunities are more readily found (32). In addition, part-time work frequently does not provide fringe benefits.

Seeking "help" from husbands and children is also often unworkable on a single-family or personal basis. Husbands frequently have demanding work schedules which make it impossible for them to increase their housework and child care without entering into the same time squeeze from which their wives are trying to extract themselves. Finally, the knowledge among husbands and children, especially teenagers, that their peers are not engaged in very much housework adds a measure of righteous obstinacy to their refusal to participate, which is often impossible to overcome.

What sorts of structural arrangements might better solve women's time problems? While many may be suggested, I will concentrate here on three: wider availability of a variety of high-quality extrafamily child care options, a less rigid progression from school to employment and then to retirement for both men and women, and the institution of less than full-time employment for both men and women.

Except for our efforts during the second World War, the United States has been quite uncreative in dealing with extrafamily child care. In large part this is because we have not viewed the labor of mothers as vital to our economic well-being. Yet, as demonstrated, the external economic benefits of high quality child care are considerable (33). We need to have a national debate on the forms this care should take: what the ratio of adults to children should be, whether we should follow one of the European models (34), whether child care should be sponsored by employers and/or labor unions, whether it should be tied to public schools, how it should be financed and/or whether it should combine center care with care in family day care homes (33,35).* When President Nixon vetoed a federal child care bill in 1971, he did so on the grounds that extrafamily child care would weaken "the family." Yet, although further research needs to be done, there is no evidence that good quality child care is harmful to children (36), and certainly it is beneficial to parents.

Whenever additional child care options are suggested by feminists as a way to improve the time pressures faced by women, proponents of private marketplace solutions to problems immediately question the need for government, corporate, or union intervention in this matter. Why, they ask, can't the private marketplace provide child care which is paid for by parents in much the same way that other services are provided and paid for? Of course, there already is a small private market in child care services. Without going into great detail, however, the difficulty is that good quality child care is highly labor intensive and, hence, expensive. Most parents

*A recent survey by the Women's Bureau found only 105 employer- or union-sponsored child care centers in the U.S. Of these, 14 were sponsored by government agencies, 75 by hospitals, 9 by private companies, and 7 by labor unions.

cannot afford it. As noted earlier, it appears there is a case to be made for subsidization of this care with the size of the subsidy varying inversely with parental income.

The second and third structural rearrangements described need to be implemented together. By loosening the current lock-step progression from school to employment and then to retirement, and simultaneously making it the norm for men and women to work less than full time, we would loosen the time squeeze for employed women and also make it possible for both men and women to participate in housework and the rearing of children. A key aspect of this restructuring is that it would apply equally to men and women. Otherwise, if it applied to women only, women would continue to be "ghettoized" into female-typed jobs and would continue to take primary responsibility for housework and child care.

What this new arrangement would accomplish, of course, is a marginal reallocation of income, work, and leisure, over the life cycle. It would lead to a small reduction in the income and the work week for those who are currently employed full-time and would increase income and the time allocated to market work for homemakers and retired persons who might like to reenter the work force on a part-time basis. Moreover, it would offer possibilities for training and retraining at all stages of the life cycle. The scheme would be beneficial for parents and children alike, although it would probably require parents to increase their borrowing during the child-rearing years against income to be earned in later years and might well necessitate increased availability of low-interest loans. The plan would be somewhat costly to employers because of the additional clerical costs involved in increasing the number of employees on the payroll.

What about the effects of such a plan on productivity? The likely outcome is not entirely clear. Factories and offices presumably would still run for a 40-hour week. Productivity might be lessened by replacing some of the labor of "prime-age" workers with the labor of older workers and less experienced workers. However, opportunities for ongoing lifetime training might lessen these negative effects for all but the most demanding physical work. Moreover, on the positive side, productivity might be enhanced by reducing the number of hours each worker were employed and it would certainly be enhanced by permitting women to utilize their skills and talents.

Of course, in recent years we have been vitally concerned with our national productivity. Yet it would be tragic if in our single-minded pursuit of increased productivity we neglected the quality of our lives: our interest in adequate leisure time, enjoyable parent-child and adult interaction, and reduction of life-threatening stress. The challenge of the 1980s is to meld the productivity concerns of the seventies with the quality of life concerns of the sixties. A national discussion of the structural changes suggested here would constitute some initial steps toward meeting this challenge.

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Women's Work and Personal Relations in the Family*

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The World Health Organization has defined health as a state of complete physical, mental, and social well-being. In this paper we will focus on one aspect of women's social well-being: their personal relations within the family context. Traditionally, psychologists have viewed the quality of a woman's interpersonal relations as determined largely by stable personality characteristics and early experience. However, as we have come to understand that individual development continues throughout the life cycle, it becomes important to examine those current life forces and ongoing life experiences that influence a woman's well-being. Freud once noted that the ability to work and love indicates healthy emotional development. Here, we consider the relationship between working and loving, that is, how a woman's daily work, both paid and unpaid, may influence the affective quality of her interpersonal relations within the family. We begin with the assumption that major life roles interact and influence each other. Thus, we assume that the work women perform can have an impact on the affective components of their roles as mothers and wives.

In examining the relationship between women's work life and their relations within the family, we do not intend an exhaustive review of the literature. Not all dimensions of family relations will be included in our discussion. For example, we will omit a consideration of decision-making processes and power relations within the family. Instead, we will focus on the affective component of family relations and, in particular, the extent to which relationships within the family are emotionally satisfying to women. Similarly, our consideration of work variables will be selective. Our aim is to highlight a neglected area of research by exploring how particular aspects of women's work may affect relations between mothers and children and between husbands and wives.

Before beginning our discussion, a number of serious limitations in the literature should be noted. Because there exists no agreed upon conceptual framework to guide empirical investigation, research on

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the possible impact of women's work on their family relations has tended to be atheoretical. Rather than being guided by theory or moving towards its development, much of the research has been shaped by the social debate over women's "proper place." The importance of the ongoing struggle for sexual equality cannot be minimized. Nevertheless, by determining the types of research questions asked and the variables studied, this debate may unnecessarily limit our understanding of the relationship of women's work to their family adjustment.

Concerns about maternal "deprivation" and the possible detrimental effects of maternal employment on children have resulted in a research literature that focuses almost exclusively on child outcomes. In contrast, reaearch examining how women's jobs may affect their relationships with their children is sparse. Despite almost three decades of research on maternal employment, we still know little about the ways in which women's work life may influence the affective quality of their relationships with their children. Such intervening variables may be critical in understanding the links between maternal employment and child outcomes (1). Furthermore, virtually no research has looked at how the quality of the mother-child relationship affects women's personal development.

In addition to the literature on maternal employment and child outcomes, considerable research attention has been directed at the relationship between women's employment and their marital adjustment. This body of research generally has been directed at determining whether wives' employment is or is not harmful to marriages, and studies have relied on cross-sectional designs comparing dual-earner and traditional single-earner marriages. Nye has commented on the difficulties in interpreting group differences in such cross-sectional comparisons, for we cannot assume that dual-earner and single-earner families are equivalent in ways other than the fact of wives' employment (2). Such comparisons also are not designed to answer the question of whether women's work life has an effect on marital relations, nor can they explicate the processes whereby women's work may be implicated in marital adjustment. It is our opinion that an especially fruitful approach to the atudy of women's work and marital adjustment is to deemphasize questions about which family type fares better, and to focus instead on the processes linking women's work to marital relations.

Although the influx of women into the labor force has resulted in a substantial research literature on the effects of women's employment on children and marriage, the types of employment variables studied have been severely restricted. Because social debate haa centered on the consequences of female labor force participation, social scientists have tended to inveatigate general variables--such as the fact of employment and attitudes towarda and commitment to the employment role--and their consequences. Rarely have the experiences of women at their particular jobs been examined. General variables cannot capture the employment experience and do not help us to determine which particular features of women's jobs influence their personal relations in the family. In fact, as female employment becomes normative we would expect factors such as employment status and attitudes towards the employment role to diminish in importance, while the specific features of employment--such as salary, job satisfaction, health and safety conditions--become increasingly significant for women and their fa'lies.

Finally, social debate surrounding women's labor force participation has tended to obscure women's other work role: their unpaid work in the household. When social scientists refer to "working women" or "working mothers" they almost uniformly mean employed women. Because it is unpaid and because it is performed by women, housework has been ignored by social scientists (3). Moreover, housework is unnoticed until left undone. A clean, well-cared for child is not noticed; a neglected or abused one is considered a "social problem." The fact that 47.6 percent of married women and 58.9 percent of women heading families are employed (4) also indicates that many women still work primarily in the household. Using data collected in the 1960's, Vanek has estimated that married urban women who are full-time housewives work 55 hours per week (5). Although nonemployed women may be decreasing the time devoted to housework (6), they still spend a considerable amount of time doing household work. Moreover, employed women also are housewives. Despite changing sex role mores, employed women still do a major proportion of household work (7). Walker has estimated that, when we add housework, full-time employed married women work a total of 66 to 75 hours per week (8). Considering only women's paid work, while ignoring the hours spent on household work, renders housework invisible. Unfortunately, there is little systematic research on the nature of the relationship between household work and mother-child or wife-husband relations. In our discussion we will explore the possibilities for research in this much neglected area.

Given these limitations in the existing literature, the conclusions we draw about the nature of women's work roles and their impact on family relations must remain tentative. However, it is useful to develop some propositions as a spur to further research and the development of theory in this area. Because both employed and nonemployed women perform housework, we begin with a discussion of full-time housework and then examine women's paid work. This organization reflects our conviction that a fruitful approach to understanding the links between women's work and their family life is to understand each work role and their interaction.

WOMEN'S HOUSEHOLD WORK AND FAMILY RELATIONS

To ask about the relationship between women's household work and affective relations in the family requires that we distinguish between the concepts of the "household" and the "family." Households are systems for providing the goods and services necessary for the maintenance and reproduction of human life. They are economic units that can be composed of non-kin and may encompass whole villages (9). Anthropologists use the term "family" to refer to systems of kinship. The popular notion of women's household work as a "labor of love" obscures the conceptual distinction between household work activities and the emotional transactions among kin (10). Once we make such a distinction, we can ask about the possible influence of household work activities on these affective transactions.

While we can draw broad conceptual distinctions between household activities and emotional transactions among kin, their operationalization is more problematic. Care of the family dwelling, the preparation of food, and the laundering of family member's clothing are activities that are readily incorporated into a conception of household work. Other activities, particularly child care, pose problems. Sociologists have remained unclear as to whether child

care should be considered as part of the household work role. Some have regarded it as "conceptually distinct" and as an activity belonging to another role, that of mother (3,11,12). Yet, such distinctions remain unsatisfactory. Dressing children, for example, is not entirely distinguishable from laundering their clothes. Even the socialization of children, teaching them manners, toilet training them, helping them with their schoolwork, has a productive component to it. When families hire others to perform such tasks, the instrumental nature of these activities becomes apparent. These paid others often form emotional attachments to those they help feed, clothe and teach. Nevertheless, the work component of their activities is readily recognized through payment. Thus, it is possible for transactions between women and other family members to have both an instrumental work component and an affectional component. Distinguishing between the affective and the work components of transactions allows us to ask whether and how the emotional aspect of these relationships is related to household work activities. In addressing this question, mother-child relationships will be discussed separately from husband-wife relations.

The structure of modern American households and families creates settings wherein women have sole responsibility for household work, including child care, while they simultaneously attempt to provide for their children's and their own emotional needs. Whereas children are excluded from most work settings, household work often is performed for children, and children's help or at least cooperation must be enlisted to perform household work adequately. Thus, it is likely that considerable interaction between mothers and children centers around domestic activities in the household. In a case study of one household, Piotrkowski found that almost 50 percent of all observed interactions between a mother and her three preschool children were related to household activities. An analysis of one day of observations indicated that one-third of all initiations made by the mother to her children were influencing behaviors related to her domestic work (10). Similarly, in an observational study of 11 families of child subjects, aged from 2 through 9 years, Simmons and Schoggen found that mothers, more than fathers, were sources of significant environmental force for children (13). Since children are neither blank slates nor automatons, domestic interactions do not always run smoothly. In the family she studied, Piotrkowski found that approximately one-third of observed household initiations by the mother to her children were met with some sort of negativism on the part of the children, a finding consistent with the research reported by Simmons and Schoggen. She concluded that a young child's orientations to the realities of time, space, and things, and his or her difficulty in deferring gratification of needs, can place the child's "world" at variance with the instrumental orientation of the household. Simmons and Schoggen similarly found that approximately 41 percent of "environmental force units" involved some conflict, i.e., a discrepancy between the goals of the child and that of the adult.

These observational data suggest that the structure of household life, in which lone women care for children in settings where working and loving are fused, introduces emotional tension into the affective relationship between women and children that goes unrecognized by the idealization of full-time motherhood. Indirect evidence from several nonobservational studies is consistent with this proposition. The women Oakley studied complained that children make messes and interrupt household work, thereby adding to the work and making it difficult

to complete. She concluded that, in principle, the roles of housewife and child rearer are contradictory (3). Wittner noted that the more a housewife controls housework and its scheduling, the less control children have over their own daily activities, thereby creating potential conflicts between them (14). Analyzing crosscultural data from a study of mothering in six cultures, Minturn and Lambert concluded that maternal instability was associated with the stress of the mother's role caused by prolonged association with children and responsibility for their care. Maternal instability referred to mood variation in the hostility and warmth directed by mothers toward their children. They found that maternal instability decreased when the burden of child care was eased (15). Research involving differing household situations would be especially useful in determining the effects of household structural variables on mother-child relations.

The potential structurally induced antagonisms between mothers and children in the household may be exacarbated by a mother's lack of satisfaction with the household work role. Although the numbers have been hotly debated, it is evident that many women do not like being housewives and find household tasks onerous and stressful (3,11,12, 16,17,18). We would expect this to be true even when tensions indigenous to the household are minimized. Some research evidence suggests that degree of satisfaction with the household work role may influence relations between mothers and their children. Yarrow and her colleagues hypothesized that a mother's gratifications and fruatrations in other adult roles influenced her maternal functioning (19). They compared nonemployed mothers on a measure of adequacy of mothering, derived by rating eight dimensions of "good" mothering from an interview. Variables included were sensitivity to the child's needs, expression of warmth, and degree of satisfaction in the mother's relationship to her child. They found that women who were dissatisfied with their current work status, i.e., did not prefer to be full-time housewives, scored significantly lower than those women who reported satisfaction with their current work status. For example, they found that 78 percent of nonemployed women who were dissatisfied with their current work status had unsatisfying emotional relationships with their children, in comparision with 35 percent of satisfied women. A limitation of their study is that they did not consider satisfaction with specific aspects of the household work role. However, these data do suggest that a mother's satisfaction with her household work is related to her emotional relationship with her children.

Evidence regarding the relationship between the household work role and marital satisfaction is even more scanty. Although there is considerable data on the distribution of household labor between husbands and wives and on the comparative marital adjustment of employed women and full-time housewives, we know almost nothing about how the household work role may influence emotional transactions between husbands and wives. Bernard has suggested that the different work experiences of employed husbands and nonemployed wives may provide them with few common experiences to discuss (20). Still, it remains unclear whether wives' employment necessarily enhances communication. Heckman and colleagues found that dual-career couples in the same profession reported that their shared activities were a source of both gratification and disagreement (21). Burke and Weir found that employed women and their husbands reported greater communication than nonemployed women and their spouses (22), but it is unclear to what extent this difference was a consequence of wives' differing work roles. Similarly, we know little about how husbands' participation in household work

influences the marital relationship. Oakley found a positive association between housewives' reports of husbands' household work participation and women's marital satisfaction (3), although the causal direction is unclear. On the other hand, Gross and Arvey found no such relationship (23). Clearly, the relationship of housework to marital satisfaction requires further empirical research.

In sum, the invisibility of housework has obscured the relationship between women's household work and their affective relations with other family members. We have suggested that the manner in which household life is organized may create tension between mothers and children. Moreover, by influencing their psychological well-being, women's feelings about household work may be a significant additional influence on their satisfaction with relations with children. We would predict that the housebound mother with young children who has little help with housework and who does not enjoy household work would experience the greatest dissatisfaction in her relations with her children. Conclusions regarding the possible relationship between household work and marriage are more difficult to draw, as the evidence is inconsistent. Clarification is needed regarding the relationship between women's roles as full-time household workers and communication patterns between husbands and wives, the relation between household work satisfaction and marital satisfaction, and the conditions under which husbands' participation in housework enhances the marital relationship.

WOMEN'S EMPLOYMENT AND FAMILY RELATIONS

Because the employment role takes mothers away from their children for hours each day, one of the major debates in the early maternal employment literature concerned the effects of such separations on attachments between mothers and children. Much early maternal employment research was rooted in the assumption that a great deal of contact was necessary for normal child development and the formation of adequate attachments between mothers and children. However, the amount of contact necessary for the development of adequate mother-child relations remains unspecified (24). In fact, in our discussion of the household, we proposed that contact between women and their children in the context of the household setting may be stressful.

Clearly, some physical proximity and shared activities are necessary for the development of satisfying parent-children relations, and certain employment situations may severely restrict such contact. The timing of work hours is an important but neglected variable in research on employment. In a study of male shift workers, Mott and colleagues found that men who worked the late afternoon shift complained of feeling inadequate as parents to their school-aged children (25). When the employment setting makes telephone contact difficult as well, shift work may create particular problems for parents and their children. Apart from such extreme circumstances, however, there is no clear indication that women's employment role severely constrains the development of adequate relationships between women and children. Propper found that maternal employment does not necessarily result in decreased closeness between mothers and their adolescent children, as reported by children (26). It may be that, within limits, quality of contact is more important than the amount of contact (27).

Women and their children also must be viewed as agents who actively cope with constraints on time. Although employed women complain about insufficient time with their children, research suggests that women may manage time constraints by carefully attending to their relationships with their children (28,29,30), even compensating for presumed deprivation occasioned by their employment. Thus, Hoffman concluded that the employed mother may spend more time interacting positively with her child than the nonemployed mother (31). We do not know whether employed women actually spend more or less time than nonemployed women in positive interactions with their children. It appears that simple calculations of hours away from home provides little meaningful information about the influence of employment hours on mother-child relations. Rather, we need to include information about the timing of work hours in interaction with the ages of children, as well as the coping strategies families develop for dealing with constraints on time together.

Job-related psychological variables may be as important as structural ones in their effect on mother-child relations. For example, insofar as a mother's job satisfaction influences her psychological state, it may be more salient for the affective quality of the mother-child relationship than amount of contact. Hoffman found that the children of employed women who liked their work reported greater positive affect from their mothers than did the children of employed women with a negative attitude toward their work (32). Harrell and Ridley found a significant positive association between the job satisfaction of employed mothers and their reported satisfaction with interpersonal relations with their children (33). As in the case of the housework role, women's level of gratification in their paid jobs may be a potent influence on the affective quality of mother-child relationships.

Despite numerous studies comparing dual-earner and single-earner marriages, knowledge about the relationship between particular aspects of women's jobs and the emotional satisfactions and dissatisfactions of marriage is still limited. We will focus on three job factors that may influence marital adjustment: time spent at work, job satisfaction and occupational rewards.

Although time for the marital relationship has been viewed as less important than time for the parent-child relationship, it has been assumed that amount of time spent at work can pose a constraint on adequate performance in the spousal role. However, in a study of family adjustment and female employment, Piotrkowski and Crits-Christoph found no significant association between amount of hours spent at work and women's reported marital satisfaction (34). The relationship between working hours and marriage may not be a simple linear one. Again, time spent at work may be too gross a measure of the possible subtle effects of working hours on interactions between husbands and wives. Future research should go beyond simple reports of amount of hours spent working to consider at least the timing of work hours.

Job satisfaction has been viewed as both interfering with the marital relationship and enhancing it. Underlying the hypothesis that positive emotional involvement in one's job interferes with emotional involvement in the family is the implicit assumption that positive psychological "energy" is finite. In contrast, the hypothesis that job satisfaction can spill over into family relations rests on the

assumption that human psychological energy is expandable. Data concerning the relationship between women's job satisfaction and husband-wife relations are inconsistent. On the one hand, Safilios-Rothschild found that employed women with a high work commitment were more satisfied with their marriages than those with a low work commitment (35). Her measure of work commitment included questions about job satisfaction. Ridley also found a positive relationship between female teachers' job satisfaction and marital satisfaction when their work role was salient for them (36). On the other hand, Locksley found no relationship between a measure of women's work interest, which included questions about interest in their job, and marital satisfaction (37). Piotrkowski and Crits-Christoph also found that marital satisfaction was relatively immune from job satisfaction. Instead, other aspects of employed women's family relations were associated with job satisfaction and job-related mood. They hypothesized that marital satisfaction may be more sensitive to husbands' job satisfaction and the interaction between husbands' and wives' jobs than to women's satisfaction with their jobs alone (34). Further research is required to reconcile these apparent inconsistencies.

Functionalist sociological theory predicts that occupational status competition between husbands and wives poses a threat to affectional relations in marriage. In this view, women's occupational achievement (not men's) is viewed as a threat to marriage. However, Richardson found that wives' occupational prestige was unrelated to reported marital satisfaction (38). Safilios-Rothschild has suggested that wives' higher occupational status can be tolerated as long as their incomes are lower than their husbands (39). Analyzing longitudinal data on a national probability sample of married women, Cherlin found that the greater the wife's actual or expected wage relative to her husband's, the greater the probability of marital dissolution 4 years later (40). This link was weak and the nature of the causal relationship unclear. Although employed women are more likely to admit thoughts of divorce, they do not necessarily report lower marital satisfaction than non-employed women (41,42). Thus, it would appear that wives' income does not directly threaten marital adjustment. A more likely explanation is that the independent income provided by their employment allows women to consider alternatives to their marriage and to act on those alternatives.

In sum, existing research on the connections between the specifics of women's jobs and affective relations in the family is limited. Time spent at work does not appear to negatively affect the mother-child relationship or marriage. Future research should be directed at the timing of work hours and at extreme circumstances such as shift work. Satisfaction with the employment role is more clearly related to satisfaction with parent-child relations than to marital adjustment, but this conclusion is based on limited data, and needs to be further investigated. Women's occupational prestige appears to pose no threat to the marital relationship. However, independent income from work may result in increased independence, thereby allowing women to imagine and act upon alternatives to marriage.

MULTIPLE WORK ROLES

Thus far, we have treated women either as full-time housewives or as full-time employees. As we noted in our introduction, however, the

vast majority of employed women work at two jobs. The discussion of each work role separately provides a context for a discussion of how work roles may intersect to influence a woman's relationships with family members. As before, the discussion is hampered by lack of systematic research. We will attempt to outline those situations in which multiple roles may pose special risks for women's social well-being.

Work overload and its negative consequences for family relations has been cited as a possible hazard of adding full-time employment to household work. Women do complain about the burden of two roles. In a national survey of working women 46 percent complained that fulfilling the two roles was a problem for them. Of married women with dependent children, 70 percent raised such a complaint (43). Herman and Gyllstrom found that reported conflict between work and family responsibilities increased as roles were added (44). In attempting to determine the possible relationships between dual work roles and family relations, it is useful to distinguish conceptually among several aspects of multiple roles that may pose problems for women: demands on time, demands on physical energy and demands on psychological energy.

Insofar as time to perform activities is finite, adding work activities may pose external constraints on family relations. However, available evidence suggests that women cope with time constraints by reorganizing their priorities. Even though their husbands may not substantially increase their help in the household, employed women spend less time doing housework (6), although it is unclear whether they become more efficient and/or develop less exacting standards. Affluent families can afford to hire household help. In our discussion of women's paid jobs we suggested that employed women may take special care to spend time with their children. Thus, time with family members may take priority over individual leisure time. Indirect evidence consistent with this hypothesis comes from a recent national survey. Approximately two-thirds of employed mothers reported that they had insufficient time for themselves.

Although many employed women are able to cope with increased demands on their time by changing priorities and the allocation of their time, there are limits to such adaptations. Work demands and time pressures may result in overload and physical exhaustion. Employed women with preschool children may be especially susceptible to work overload, as household demands are particularly great when children are young. The marital satisfaction of these employed women have been found to be consistently lower than that of their nonemployed counterparts (41,46). Under conditions of work overload, women may slight the marital relationship or may feel particularly upset with their husband's lack of participation in household work.

Employed single mothers also may be particularly prone to work overload and physical exhaustion, making them less able to cope with children and the requirements of dual work roles. Female-headed households are significantly poorer than two-parent households, so that their ability to purchase support services is severely limited. Unfortunately, lack of empirical research on the employed single parent represents a particularly glaring omission in the research on work and family. Nevertheless, some data indicate that dual work roles, coupled with insufficient resources, may create special

difficulties for them. In an ecological study of child abuse in New York state, Garbarino found that incomes of female-headed households were negatively correlated with rates of child abuse (47). Lack of community resources for mothers and children increased the problem. In a laboratory study of mother-infant interaction, Cohen found that the 21-month-old children of nonemployed mothers received more positive attentiveness from their mothers than the infants of employed mothers (48). However, when only two-parent families were considered, the difference was no longer significant, suggesting that employed single mothers were responsible for the decrement. Thus, for the employed single mother, multiple roles may pose special risks for the parent-child relationship that have yet to be thoroughly investigated.

The assumption that multiple roles necessarily create conflicting psychological demands is based on the assumption that human psychological energy is finite. However, Spreitzer, et al. (49) found no support for the hypothesis that women occupying multiple roles (e.g., worker, parent, spouse) experience less well-being than women with fewer roles. Indeed, Marks has proposed that human energy is expandable and that the addition of satisfying roles can "create" additional energy (50). Empirical evidence on the positive relationship between work satisfaction and satisfying parent-child relationships is consistent with this interpretation. Adding an additional satisfying work role may enhance family relations. Under some conditions, satisfaction with work roles may be more important in influencing women's satisfaction with family relations than the work load and time constraints associated with multiple roles.

CONCLUSIONS

Research on women's work and family relations has been shaped by the social and political struggle over women's "proper place." The debate over the family consequences of female labor force participation has resulted in a relatively atheoretical empirical literature that emphasizes the fact of working status, child outcomes and comparisons between traditional single-earner and dual-earner marriages. The question of the impact of women's work on family adjustment is an important one. Rather than continuing to ask whether women's employment is or is not detrimental to children and marriage, efforts need to be directed at three fundamental tasks. First, our discussion makes clear the need for developing a theory on the relationship of women's work to family relationships. Such theory necessarily will be transdisciplinary, for both social-structural and psychological factors are relevant. Although the importance of building theory in this area cannot be underestimated, continuing changes in family and work roles necessarily will place limits on our theoretical efforts.

A second important task is to extend the range of methodology used in studying women, their work and their family life. Much existing research utilizes correlational designs, making it difficult to draw conclusions about causal relationships. Influences can flow from the family to the workplace. Longitudinal research and "natural experiments" would be especially useful in helping to determine the causal direction of relationships. The reliance on self-report data, usually from one family member, also limits the validity of results. Gathering data from at least two family members would help reduce bias in our measurement procedures. Such an approach also allows for testing the possibility that work influences are not uniform throughout the family. Including

observational data about family interaction also will allow us to go beyond the global information about family relationships provided by self-report. It may be that worklife has its impact on family dynamics primarily through its influence on mundane, daily interactions that go unnoticed by family members.

Finally, a third task is the development of an adequate body of empirical research that can guide social policy makers. Little research attention has been devoted to the specific characteristics of women's paid work, to the household work of nonemployed and employed women as it influences family dynamics, and to the processes connecting women's worklife to family relations. Those studies that have taken an in-depth approach to the relationship between work and family life primarily have considered white, professional families. Such families represent a minority, albeit a visible one. We know almost nothing of the problems of managing work and family life in working-class families or in female-headed households, nor do we know what unique problems nonwhite families may have. Our discussion has pointed to several specific empirical questions. They include: Which features of worklife are important for family adjustment? Can we identify particular groups whose working hours pose special problems for them and their families? Are particular aspects of family relationships (e.g., the mother-child relationship) more sensitive to work-related factors than others? Under what conditions does the addition of a second work role enhance or detract from women's social well-being? How do differing household structures influence the relationships between parents and children? Clear answers to questions such as these have important implications for public policy. They can help us to identify the conditions of work which affect women's well-being in the family, the groups at risk for developing family problems, and the neceaaary community supports for employed and nonemployed women.

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Working Women and Child Care*

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The study of child care is critical to both understanding and changing women's status in the labor force and at home. Regardless of one's convictions about whether it is appropriate or inappropriate for women to have major responsibility for rearing children, the fact that they do represents a major constraint on female achievement outside the home and leisure time within the home. This is particularly relevant for industrialized societies such as the United States which have been experiencing an increase in female labor force participation, most notably among mothers with young children. In 1965, one-fifth of U.S. mothers with preschool children were in the labor force; by 1979 this had more than doubled to over two-fifths (1,2). This increase could not have occurred without an accompanying expansion of substitute care for young children. As of 1979, there were 7.2 million preschool children with mothers--and fathers--in the labor force (3).

A related trend is the increased use of child care among nonemployed mothers who may utilize this child-free time to attend school, do volunteer work, participate in recreational activities, or take care of other household tasks including taking care of other children. We know very little about the extent to which nonemployed mothers participate in these activities. Who are watching the children, what are parents doing with their child-free time, and are child care needs being met? As basic as these questions are, our answers are limited due to the lack of data. Moreover, studies that have been done are not readily comparable because sample populations are very different. The following is a brief review of what is known about child care use and constraints in the United States, a report of some recent findings that relate to mothers with preschool children, and some suggestions for future research directions.

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OVERVIEW OF LITERATURE

Much of the research on child care focuses on the types of arrangements that are made (4,5,6,7,8,9,10,11,12,13).* A general finding is that children of employed mothers are cared for mostly by relatives, neighbors, and babysitters, and that such care is much cheaper than licensed, institutionalized arrangements such as nursery school and day care centers. Without informal low-cost arrangements, many women would not consider it economically feasible to work--particularly those with preschool children. The fact that both men and women typically relate the cost of child care to the mother's income, which is generally low, and not to the father's income, which is usually much higher, or to the family's total income, is clearly a deterrent to female employment. This should change as more people accept child rearing as the dual responsibility of both parents.

There is evidence that the presence of nonemployed female relatives in the home is associated with relatively high employment rates among women with young children (15,16). Such families, however, constituted only 4.8 percent of all families in 1970 with children under (16). It has been argued that the expansion of child care facilities would increase the number of low-income women in the labor force, as well as the hours worked among the currently employed (17). The cost to parents of child care arrangements has been viewed by economists as a determinant of demand (4,5,18,19,20). While there has been some consideration of the cost to the government of broadening the child care deduction (21), there has been no assessment of the effect that the recent tax credit for child care has on demand.

The cost of child care is only one aspect of availability. Location and quality are some other aspects. The fact that so many mothers with young children are in the labor force does not necessarily mean that such women can easily arrange suitable child care. The unavailability of quality child care that is convenient and affordable may be an important constraint on female employment and educational attainment. There apparently are no national data on child care as a constraint on educational attainment, but there are two studies that look at child care as a constraint on female employment. These studies suggest that a substantial minority of nonemployed women perceive that arranging for child care is problematic. Dickinson (22) found that among nonemployed mothers with children under 12, 16 percent felt that if they wanted to take jobs, child care arrangements definitely could not be made, and 16 percent were uncertain. This finding is based on the 1973 wave of the National Panel Study of Income Dynamics. In the Westinghouse study (13), 18 percent of nonemployed mothers said they were not employed because they could not make or afford satisfactory child care arrangements. This finding refers to a population of women in families with annual incomes of $8,000 or less and with a child under 9 years of age.

The stability of child care arrangements, as well as their availability, may be related to female employment. We have little data on this, since almost all studies are cross-sectional and do not include retrospective data on child care histories. A longitudinal

*For a review of findings from the major studies, see Woolsey and Nightingale (14). There is also a considerable body of literature on child development and administrative aspects of nonfamilial child which goes beyond the focus of this paper.

study of New York City women with preschool children (23) revealed that those who used child care changed their arrangements frequently; moreover, being able to change arrangements was an important factor determining whether they were able to continue their educational and employment activities. Having alternative options if one mode of child care is no longer available appears to be an important factor.

It may be concluded even from this brief review that our knowledge of child care use and its relationship to women's roles is scanty. For a more extensive review, see Presser (24). There is clearly a need for more up-to-date descriptive data on child care use and constraints; there is also a need to explicate and test specific hypotheses about the complex way in which child care availability may affect women's lives, and also men's.

CHILD CARE USE AND CONSTRAINTS: 1977

A modest effort in this direction was made in the planning of the June 1977 Current Population Survey (CPS), a representative sample of households used to estimate the country's unemployment rates. In June of each year, questions on fertility and fertility expectations are typically added to the standard set of employment questions. The additional supplement that was added in June 1977 on child care, restricted to women aged 18 to 44 with children under 5 years of age,* permits a view of the interrelationships between female employment, child care, and fertility for women with preschool children. Some of the preliminary findings are briefly summarized below.

Based on this national sample of June 1977, an estimated 35.1 percent of all women with children less than 5 years old were employed, 5.3 percent were unemployed, that is, looking for work, and the remaining 59.6 percent were not in the labor force. Of all employed women with children less than 5 years of age, 66.4 percent were employed full time and 33.6 percent were employed part time. We see, then, that not only are over one-third of mothers with preschool children employed, but two-thirds of the employed with preschoolers are working full time.

Child Care Use

Both employed and nonemployed women were asked about care arrangements for their children under 5 years of age, although the questions differed for each group. For the employed, child care was broadly defined to include any care while the mother is working, day or night, unlike the usual definition of child care, which is essentially day care. The specific question asked was as follows: "Who provides most of the care for your (Child/youngest child/second youngest child) while you are working outside the home?"

*The subsample of women aged 18 to 44 with children under 5 years of age residing in the household (including step and adopted as well as natural children) is 8,331; of these women, 2,996 are employed and 5,335 are nonemployed (that is, either unemployed or not in the labor force). The figures presented in the tables result after applying the appropriate weighting procedures.

Responses relating to the youngest child are shown in Table 1, according to whether the mother is employed full time or part time.* Relatives cared for the child only slightly more than nonrelatives in the sample as a whole. Child care centers and nurseries are included in the nonrelative category. There are, however, notable differences depending on whether the mother is employed part time or full time. Relatives are more likely to care for the child when mothers work part time rather than full time. This is primarily attributable to the increased role of fathers as caretakers of the child when mothers are employed part time: over one-fifth use father care. Indeed, it is interesting to find that for the sample as a whole, 14 percent of fathers are the primary caretakers.

Father care is clearly not the predominant mode of child care, but it is an especially important one, given the complexities of role sharing between husbands and wives that this implies. Unfortunately, we cannot assess the trend over time in paternal child care, since very different types of samples have been studied, but the 1977 CPS estimate of 14 percent is remarkably close to the 1965 Low and Spindler estimate of 15 percent and the 1971 National Longitudinal Survey estimate of 13 percent (10). These earlier estimates, however, are for children under 14 years of age, and might be considerably lower if restricted to children under 5 years of age, as in 1977. In other words, there may have been an increase in paternal child care for preschool children, but this is speculative.

How can fathers, most of whom are employed full time themselves, be the primary person caring for their preschool children when their wives are employed? It may be that many of these couples work split shifts--for example, one works days, the other works evenings or nights. Data on the hours of employment of husbands and wives are not available from the June 1977 CPS, but the occupation of the wife--unfortunately not also of the husband--is available. Taking a one-sided view of the split-shift hypothesis, we were able to consider whether women whose husbands care for the child are more likely than other employed women to be in shift-work type occupations. This appears to be the case.

Table 2 reports on married couples only, husband present and employed. We see that father care is most prevalent when mothers are employed as professional and practical nurses, salesworkers, and waitresses--occupations that disproportionately entail shift work. "Other clerk," a diffuse occupational grouping, also shows a high prevalence of father care. Between 35 and 43 percent of fathers whose wives are working part time in these occupations are the principal caretakers. Moreover, over 30 percent of fathers whose wives are full-time waitresses and practical nurses are the principal caretakers. Again, it should be emphasized that these are children under 5 years of age, young enough to require almost continuous attention. The nature of the care these children receive is unfortunately an issue that cannot be addressed with these data.

Thus far we have been looking at employed mothers. Nonemployed mothers were also asked about child care use, but in a different way. The specific question was: In the past 4 weeks has your (child/youngest

*For women with more than one child less than 5, there was little difference in type of use when the second youngest child rather than the youngest was considered. Also, there is little difference between [illegible] who had only one child and those with two or more, and little difference due to age of youngest child.

child/second youngest child) been cared for during the day in any regular arrangement, such as a day care center, nursery school, play group, babysitter or some other regular arrangement?" The emphasis here was on day care to eliminate the reporting of babysitting in the evenings for social reasons.

The data indicate that 9.6 percent of nonemployed mothers with children under 5 years of age have a regular child care arrangement. This statistic refers to care for either the youngest child or, in case of more than one child in the household under 5 years of age, the second youngest child. Of all nonemployed mothers with children under 5 years of age, 69.2 percent had one such child, 25.6 percent had two such children, and 5.2 percent had three or more such children; this includes step and adopted as well as natural children. Looking specifically at the youngest child under 5 years of age, 8.5 percent of nonemployed mothers report the use of a regular child care arrangement for this child. The prevalence of such care varies by age of youngest child as follows. The weighted sample sizes for each age group are in parentheses.

<1 (1361)	4.2%
1 (1071)	7.0%
2 (830)	7.4%
3 (754)	11.3%
4 (625)	18.8%

As might be expected of preschoolers with nonemployed mothers, the older the youngest child, the more likely they are to participate in a regular child care arrangement.

Nonemployed mothers were also asked whether they regularly participated in any specific activities while their youngest or second youngest child under 5 years of age was being cared for. This may be the only source of data of this type, and provides an interesting perspective on the use of child care among the nonemployed. Overall, 60 percent of these women say they regularly participate in nonfamilial activities during this time. The primary regular activity of nonemployed child care users is recreation; this is characteristic of about one out of five such women. However, as may be seen in Table 3, the primary activity varies according to the woman's level of educational attainment. For women who have had some college but have not graduated, child care is used on a regular basis primarily to go to school. For those who have not completed high school, child care is most often used either to go to school or to look for work. It is most particularly college graduates who use child care regularly in order to engage in recreational activities. Again, we are referring here to nonemployed mothers.

Child Care Constraints*

As previously noted, over one-third of all women with children less than 5 years old were employed in 1977. This high employment rate

*For a more detailed discussion of the findings on child care constraints based on the June 1977 CPS, see Presser and Baldwin (25). It should be noted, however, that the Presser and Baldwin paper is based on unweighted sample sizes, whereas this paper is based on weighted sample sizes. Thus the percentages in the two papers for similar variables differ somewhat.

might lead us to expect that all mothers with young children who want or need to work are able to find satisfactory low-cost child care without much difficulty. This does not, however, appear to be the case either for employed or nonemployed women.

Mothers who were nonemployed and not looking for work were asked the following question: "If satisfactory child care were available at reasonable cost, would you be looking for work at this time?" A substantial minority, 18.2 percent said yes, and an additional 6.1 percent did not know. Thus, close to one out of five mothers with preschool children and not in the labor force said they would be looking for work (or employed) if suitable child care were available (more than one out of five if the "don't knows" are included).

Employed mothers were asked, "If you could find additional satisfactory child care at reasonable cost, would you work more hours?" Again, a substantial minority answered affirmatively: 15.9 percent said yes and 3.3 percent did not know. As might be expected, those employed part time were much more likely to feel prevented by the unavailability of suitable child care from working more hours than those employed full time. About one out of four part-time employed mothers indicated they would work more hours, compared with about one out of eight full-time employed mothers. Although relatively low, the prevalence of child care constraint among full-time workers is surprising--these women usually work at least 35 hours a week.

Women who are most in need of employment were most likely to report that the unavailability of satisfactory child care at reasonable cost affects their labor force participation, including the young mother 18 to 24 years old, the unmarried mother, the black mother, the woman who did not graduate from high school, and the woman whose family income was less than $5,000. We expected that the characteristics of the children, such as age of youngest child, the number of children in the household under 5 years of age, and the total number of children ever born, would be related to perceived child care constraints, but this was not the case. Moreover, among employed mothers, controlling for type of care, there was no consistent relationship between paying for child care and feeling constrained from working more hours.

CHILD CARE AND FERTILITY

An area of particular interest to demographers is the relationship between child care and fertility. It has been argued that the use of child care, by reducing the burden of child rearing, would serve to encourage women to have more children (26,27). It has also been argued that by freeing women to enter the labor force, child care may serve to discourage childbearing (28,29). Both positions have been taken in the absence of data.

The June 1977 CPS provides data that may be used to test the relationship between child care and fertility from two perspectives. First, we considered whether nonemployed women who regularly used child care were more likely than nonemployed women without such arrangements to expect more births. Comparing women with the same number of children already born, we found the number of future births expected was not related to current child care use.

The second issue we addressed with these data was the relationship between child care constraints and fertility expectations. We know that women in the labor force expect fewer births than those not in the labor force. What about women who feel they are prevented from working or working more hours because of child care unavailability--do they expect fewer births than those who do not feel this way? Here the answer seems to be positive. Women constrained by child care unavailability were less likely to expect more children than those who were not so constrained. This was most apparent for first-parity mothers, both employed and nonemployed (data presented in Presser and Baldwin, 1980). This suggests that it is not only employment but the desire and need for employment that reduces women's fertility expectations.

FUTURE RESEARCH ISSUES

Only a few findings from the June 1977 CPS child care supplement have been presented, but the descriptive data and preliminary analyses of some relationships between variables revealed many questions that need to be explored further with different data sets. One such issue is the role of fathers in child care. We have seen that a high proportion of preschool children are cared for by their fathers when their mothers are employed, particularly if their mothers are employed part time and work in shift-type occupations. The nature of fathers' occupations are undoubtedly important as well. Given the implications that shift work may have for family life, research in this area would seem to merit high priority. Not only would it be of interest to explore the relationship between shift work and child care, but also how this relates to the timing and number of children couples have.

The data presented suggest that despite the high employment rate of mothers with preschool children, there is considerable hidden unemployment and underemployment. Looking at the personal characteristics of individuals, we found that child care as a constraint on employment is most prevalent among those with the greatest economic need to work. But we need also to consider some of the structural determinants of child care constraints, namely the lack of employment opportunities and the unavailability of different modes of child care. Does perceived child care constraint vary by the extent to which jobs for women are available? To what extent are the wages offered for jobs that are available to women a determinant of child care constraint? How indeed do women with preschoolers go about combining the job search with the child care search, and which typically comes first? Economists, who are interested in the job search, have never addressed this question.

This raises the general issue of child care use and availability in relation to women's status attainment vis-a-vis that of men. To what extent does the unavailability of satisfactory and affordable child care prevent women from achieving higher levels of educational and occupational attainment? To what extent does this put women at a disadvantage in relation to men? This is difficult to assess in a society that restricts women's work options to a few traditional female occupations; barriers to entering traditionally male occupations exist even for women in the labor force who have made satisfactory child care arrangements. On the other hand, it is difficult to conceive of attaining equal opportunity between the sexes when there are unequal constraints on women's time due to

their primary role in child rearing. We need to get a better handle on what this means, what the opportunity costs of child rearing are for women. This calls for more research of an analytic nature on child care as it affects women's lives vis-a-vis that of men's.

The paucity of research in this area is striking, given the increasingly large numbers of women who are dealing with both employment and child care problems. Moreover, the number of preschool children will rise considerably during the 1980s, as well as the employment of their mothers. It is projected that in 1990 there will be 10.4 million children under 6 years of age with mothers in the labor force, as compared to 7.8 million in 1980 (Hofferth, 1980). This trend for children is an area of concern. It should be equally as obvious that we need to consider the implications for women--and men. As Strober has noted in her paper in this volume, we cannot consider the consequences of social change for the family without looking specifically at all family members, and it is generally women who have been neglected.

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Table 1. Percent distribution of persons caring for youngest child for employed women with children less than 5 years of age, according to whether employed full or part time: United States, June 1977.

Person caring for youngest child		Total	Full time	Part time
Child's father		14.0	9.8	22.3
Child's sibling		2.4	2.4	2.4
Other relative		29.5	32.1	24.4
Nonrelative		42.7	47.9	32.6
Mother watches child at work		3.5	2.2	6.0
Mother works at home		7.5	5.4	11.9
Child watches self		.4	.4	.4
	(N)*	(3899)	(2589)	(1310)

*Weighted sample size

Table 2. Percent of youngest children cared for by father according to occupation of mother for employed women with children less than 5 years of age, husband present and employed: United States, June 1977.

Occupation of Mother	Percent cared for by father: Mother employed full time		Mother employed part time	
	%	(Total N)	%	(Total N)
Teacher	2.6	(136)	12.6	(70)
Nurse (RN) and other health professionals, excluding physicians, dentists, and other practitioners	14.9	(86)	39.7	(99)
Other professional	13.3	(98)	13.8	(50)
Managers and administrators	9.5	(73)	21.6	(39)
Sales worker	14.0	(50)	42.6	(144)
Bookkeeper	6.1	(79)	5.3	(49)
Office machine operator	9.8	(61)	*	(12)
Steno/secretary	5.3	(258)	10.1	(66)
Other clerk	10.0	(307)	36.2	(144)
Craftsperson	7.3	(30)	*	(19)
Operative, durable	21.8	(168)	*	(18)
Operative, nondurable	18.4	(173)	17.9	(39)
Operative, other	11.0	(45)	4.8	(25)
Laborer	12.7	(26)	*	(15)
Private household worker	7.0	(24)	10.4	(44)
Cleaning service	14.6	(31)	10.4	(46)
Waitress and other food service	31.7	(68)	34.8	(89)
Practical nurses and other health service	32.1	(67)	40.7	(40)
Personal or protective service	5.5	(94)	7.2	(83)
Farmer and unpaid family laborer	0	(50)	8.3	(34)
TOTAL**	12.0	(1926)	24.7	(1124)

*Percentage not computed; base less than 20
**Weighted sample size

Table 3. Percent of nonemployed mothers with children under 5 who regularly use child care and regularly participate in selected nonfamilial activities, by education: United States, June 1977.

Selected activities[2]	Total[3] (N=741)	Education[1] <12 (N=98)	12 (N=274)	13-15 (N=169)	>16 (N=200)
Going to school	14	14	10	26	9
Other instruction or training	8	11	9	7	5
Looking for work	8	14	11	5	3
Volunteer work	10	3	5	13	18
Recreational activities	19	9	18	18	27
Other regular activities	16	19	10	16	21
No regular activities	40	33	46	36	39

1-Highest grade completed.
2-Women may participate regularly in more than one activity, thus, the percentage for each column exceeds 100.
3-Weighted sample size

Reproduction and Giving Birth

Introduction

Gloria E. Sarto, M.D., Ph.D.

In medicine, some of the greatest influences on women's health have been through basic and applied research in the area of human reproduction. At the same time, this area of medicine has received some of the strongest criticism. For instance, medical providers look with great pride at the dramatic reduction in maternal and neonatal mortality. However, many people feel the delivery of health care has lost some humaneness because of innovative management techniques such as electronic fetal monitoring during the birth process.

Critics believe medical providers have developed impersonal attitudes and have introduced sterility into patient management. However, in my own area, for example, it is difficult to feel anything but positive about the advent of amniocentesis, the use of cytogenetic techniques to counsel pregnant women about prenatal diagnosis of chromosome abnormalities, and the possibility of having abnormal children.

The women's movement and women's expressed concerns about having control over their health care have had an impact on the delivery of obstetric services. Carolyn Ferris speaks about the women's movement as a catalyst for change in this service and will highlight the transition toward certified nurse midwives and alternative birth settings in many communities.

Helen Barnes addresses comprehensive obstetric care, safe contraception, and causes and treatments of infertility. Joan Hodgman is concerned with pregnancy outcome, particularly neonatal mortality and long-term morbidity. The advances made in her discipline are also great. The transporting of premature babies to medical centers for high-risk infants and the provision of specialized care have made it possible to save smaller and smaller babies. Prenatal assessment of the fetus has also improved infant mortality. As Dr. Hodgman emphasizes, it is now time to look at morbidity and to research the long-term developmental course of high-risk babies.

Scientific investigation is the most effective means of reducing obstacles to healthy reproduction and safe parturition, and basic and applied research is vital to improved clinical management of all gynecologic conditions. Carl Pauerstein has chosen to discuss the ways laboratory investigations have influenced treatment of malignant disease, infertility, menstrual disorders, and menopause.

Reproduction, Obstetric Care, and Infertility

Helen B. Barnes, M.D.

The ultimate goal of good obstetric care is to deliver a normal, healthy baby to a healthy, happy mother. Good obstetric care includes the provision of nutritional, social, psychological, as well as medical counseling and advice during pregnancy, labor, delivery, and the postpartum period. Obstetric care also includes advice on the planning and spacing of pregnancies and the provision of a safe and effective method of birth control 4 to 6 weeks after delivery.

Accomplishing these goals and objectives in a mature population is fairly easy. By instituting and maintaining a regular schedule for prenatal visits in early pregnancy, the pregnant woman's physical and mental condition can be assessed for any changes. Abnormal blood pressure and weight, headaches, and vaginal bleeding all indicate possible risk. The presence of sugar or protein in the urine alerts the practitioner to investigate for conditions such as diabetes, kidney infection, and toxemia.

Other laboratory tests such as a hemoglobin test to assess anemia, blood type and Rh factor, a serologic test for syphilis, and cervical cultures for gonorrhea are performed at the initial physical evaluation. Depending on the results of these tests, the patient is counseled about the effects of Rh negative blood on this and subsequent pregnancies, and the effects of syphilis and gonorrhea on her unborn child and on herself. Black patients with low hemoglobin are counseled about the possibility of sickle hemoglobin and other tests that need to be performed. If the patient has sickle hemoglobin, she should be counseled about the chances of passing the genetic abnormality on to the unborn child and future generations. Nutritional information and advice should be given for the prenatal and postpartum periods, and the working mother should be informed of potential hazards and risks her work environment may pose to her baby.

Psychological attitudes are also assessed. How does the patient feel about herself and her pregnancy? Is she happy? Is she depressed? Is the child wanted, or will the baby be just another mouth to feed? Will the patient accept mental health counseling, or consider adoption? Many women who experience depression and negative attitudes during the first trimester of pregnancy change

these attitudes during the later months of pregnancy and, although emotional instability may persist to a degree, many women seemingly become more accepting of the pregnancy as the baby grows and fetal movement is perceived. The birth of a normal, healthy baby and the realization that the miracle of life has been accomplished, often somehow decrease the perception of previous problems, mental or medical. The rapidity with which this transition is made is often amazing. Even more amazing is the commitment required of a woman with diabetes to have a normal, healthy child, such pregnancies sometimes require the woman to be hospitalized and separated from her family.

Accomplishing the same goals and objectives in a high-risk, pregnant, teenage population, ages 13 to 19, however, is almost impossible. Pregnancy in the adolescent is a serious threat to the life and health of the young woman. Her pregnancy presents serious medical socio-economic, and educational implications for herself, her offspring, and for society.

Unfortunately, the availability of prenatal care, no matter how comprehensively designed, seemingly is unable to reduce major high-risk factors such as prematurity, toxemia, anemia, and congenital malformations in this population because psychosocial factors are overwhelming. The pregnant woman who is 16 years old or younger usually drops out of school. As a matter of fact, pregnancy is now the most common cause of teenage school dropouts. Since the teenage mother has no vocation or marketable skills, she and her baby often become the responsibility of society.

Also because of social pressures, the young teenager usually does not come for prenatal care until late in the second trimester or early third trimester of her pregnancy. Recent research (1) has shown that babies of teenage mothers are nearly twice as likely to die during the first year of life as babies born to women in their 20's. Moreover, mothers who are age 15 and younger are approximately twice as likely to have low birth weight babies as 20 to 24 year old mothers. Maternal deaths from complications of pregnancy, birth, and delivery are also much higher among teenagers than among older women -- in one study (1) 18 compared with 7.1 per 100,000 for 20-24 year olds.

Toxemia and anemia are the worst hazards. Pregnancy in the young depletes the already poor nutritional reserves needed for their own growth, and places them at a higher risk for a variety of other problems.

The important issue is how to prevent the first unintended or unwanted pregnancy. There are two types of services that can be made available. First, parents, churches, schools, and public media can provide relevant sex education that includes realistic information about matters such as sexuality, body functions, risks of unprotected intercourse, and safe and effective methods of contraception. Second, health facilities and family physicians should provide counseling and services in an environment of privacy and confidentiality. Each method of contraception should be presented and the risks, safety, side effects, cost, and possible complications discussed with the young woman. She should select her method of fertility control. It is important to note that it is the young woman's responsibility to control her future and her destiny. This may be done in concert with her partner or family, but once again, it remains her primary responsibility.

Infertility is a very serious problem for one of six couples of childbearing age in America. There are 220 million Americans; 66 million (or 30 percent) are in the childbearing ages between 22 and 40. If we apply the accepted rate of infertility (15 percent), 10 million people are currently affected. The causes of infertility may be anatomic, physiologic, psychological, and nutritional. These causes are probably distributed equally between males and females.

Anatomic causes of infertility are related to abnormalities of the vas deferens, vagina, uterus, tubes, and ovaries. These abnormalities may be sequelae of tubal infection following IUD use or ascending utero-tubal infections secondary to gonorrhea, or they may be due to varicoceles or hydroceles in the male. Physiological causes may include endocrine dysfunctions of the hypothalamus, pituitary, ovary, thyroid, and testes. Psychological factors are varied, but most important is the frustration and anxiety aroused by being told one is "normal" although year after year passes without conception.

Infertile couples need tremendous understanding, compassion, and counseling. The first step is education to help the couple understand and plan the investigative tests and treatment regimen. This gives them a sense of control in determining their own destiny. Another important factor is emotional support and accessibility. Family and friends should be encouraged to learn as much about infertility as possible, and couples should be encouraged to read and share the knowledge of social organizations that offer counseling for infertile couples. Last, but not least, the physician should be available at critical times when the couple is depressed.

Improvements in technology such as microsurgery have permitted great strides to be made in discovering and curing problems of male and female infertility in recent years. It is estimated that 50 to 60 percent of all infertility can now be treated if there is access to expert medical care. This represents great advances in the past 20 years. In order to maintain and accelerate this progress, the National Institutes of Health should be encouraged to continue its role in investigative endocrinology and technology.

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Pregnancy Outcome, Neonatal Mortality and Long-Term Morbidity

Joan E. Hodgman, M.D.

Perinatal mortality is considered one marker for evaluating health care, and the relative position of the United States as 18th among reporting countries has caused concern.* Perinatal mortality reported as deaths per 1000 total births, includes fetal deaths from 20 weeks' gestation and neonatal deaths from birth to 28 days. Perinatal mortality in the United States has decreased an impressive 50 percent since 1960, but since perinatal mortality is decreasing worldwide, the relative positions of nations have remained essentially unchanged (1).

Perinatal mortality is only one method of evaluating pregnancy outcome. With the increased emphasis on quality of life, factors influencing long-term prognosis for infant development are of at least equal importance. Perinatal mortality and long-term morbidity are both closely related to birth weight of the infant, and this single factor best identifies high-risk populations. Mortality and morbidity are increased when birth weight is either above or below the norm, but low birth weight carries the greatest risk (2). Prolonged or too short gestation also influences outcome. Although gestational age has been included on birth certificates for years, the reporting has been inaccurate; consequently, these statistics are of little use in evaluating perinatal data.

Many of the factors influencing pregnancy outcome are societally or economically determined rather than directly under the control of the health care system. To design programs for both research and patient management, it is important to recognize which factors can be altered by changes in health care and which factors require a broader approach to be altered. Maternal age influences the risk of poor outcome. In the extensive Collaborative Perinatal Study, the lowest rate of perinatal mortality occurred with mothers who were between 20 and 24 years of age, with significant increases for those mothers who were less than 16 years old and more than 30 years old (3). The risk of perinatal mortality for teenage mothers between 16 and 19 years old was not significantly increased. Young and old mothers are overrepresented in popula-

* Editor's note: In 1978, the most recent year for which the National Center for Health Statistics has figures, the U.S. ranked 14th internationally among countries reporting on infant mortality rate.

tions from low socioeconomic levels. The age for significant increases in mortality for infants of older mothers changed from 30 years old and older in the early 1960s (3) to 35 years old or older in 1974 (4). This change is presumably related to the postponement of pregnancy in the middle class, illustrating the effect of social change on perinatal statistics. Birth order also influences outcome (3). The second baby has the safest birth, while there is an increased risk for the primiparous mother, and a marked increase in perinatal mortality for infants who are later born; for example, the fourth infant is at twice the risk for perinatal death as the second infant. Short interpregnancy interval is also clearly related to increased perinatal mortality, with a marked increase in risk at intervals of 6 months or less (4). Previous pregnancy history also influences outcome of the next infant. The risk of perinatal mortality is tripled if the previous infant died during the fetal or neonatal period (3,4). This mortality is closely related to the 25- to 30- percent incidence of repetition of low birth weight in infants born consecutively.

THE EFFECTS OF PRENATAL CARE

It is difficult to determine how prenatal care affects infant outcome because mothers who register for early care are self-selected. Mothers who receive no prenatal care have the highest rates of low birth weight infants of all groups studied (4). The extensive study of perinatal mortality in New York demonstrated conclusively that early prenatal care was associated with improved perinatal statistics when other factors were held constant, and also that low-risk mothers received proportionately more care than high-risk mothers (5).

Maternal education is an indicator of socioeconomic class, and the more education the mother has, the lower the incidence of low birth weight infants. The greatest degree of improvement is associated with the mother's completion of high school (4). The effect is less marked for the black than the white mother.

The high perinatal mortality rates in the "inner city" have attracted much attention, but the magnitude of the problem in rural areas has been less well appreciated. Nationwide, more than 16 percent of low birth weight infants are born in rural areas (4). Provision of care to high-risk mothers scattered throughout rural areas requires different capabilities than provision of care in metropolitan areas.

Of all the maternal factors that have been evaluated in large population studies, race stands out as the single most important factor associated with perinatal mortality (3,4,6). The effect is mediated through the increased incidence of low birth weight infants born to black mothers. For most factors analyzed, the incidence in the worst category for whites is lower than the incidence in the best category for blacks. When known factors associated with socioeconomic status are held constant, perinatal mortality is still higher for black infants. Little research has been devoted to investigation of specific risks for black women. In fact, even the question of whether there are specific risks related to race has not been answered. Maternal race is usually reported as white, black, or other; the category of "other" lumps mothers of very diverse social and racial backgrounds and, as such, is not very useful in identifying trends or areas for further study. California and Hawaii are two areas that have large enough Oriental populations to report them separately. The

perinatal mortality reported in these states is always lower for Orientals than for any other racial group (Table 1) (6). When Orientals are further classified, Chinese have the lowest reported perinatal mortality.

Many factors that make up maternal life style influence pregnancy outcome. It is becoming increasingly apparent that almost anything the mother does can affect the development of the fetus and the health of the infant. Some of these influences are obvious and readily identified while many are more subtle. Wedlock status has been one of the more readily identifiable factors. Unmarried mothers are more likely to deliver low birth weight infants (4). Maternal smoking during pregnancy has been clearly linked to the birth of lower weight infants (7). More recently, intake of alcohol during pregnancy has been shown to produce not only smaller, but also dysmorphic infants with mental retardation (8). The magnitude of the Fetal Alcohol Syndrome has not been defined as yet and the risk associated with moderate alcohol intake is unknown. A very interesting study correlating maternal smoking and drinking habits with perinatal mortality revealed that mothers from low socioeconomic levels who did not smoke or drink had as low perinatal mortality as middle-class mothers (9). Although regular use of some drugs, both prescribed and self-administered, have been known to have a deleterious effect on the fetus, the magnitude of the problem is only recently being appreciated, including effects of caffeine and aspirin. The long-term risks of many agents are virtually unexplored.

ADVANCES IN PERINATAL MEDICINE

Dramatic advances have been made in high-risk care for mothers and newborn infants during the past 10 years. Across the country, mortality rates at hospitals that serve high-risk populations have shown impressive decreases. The Los Angeles County University of Southern California (LAC-USC) Medical Center has 14,000 deliveries yearly; the perinatal mortality changed from 55/1000 total births in 1969 to less than 20/1000 in 1978 (Figure 1). Deaths of low birth weight infants (who constitute 8 percent of total births) account for more than 80 percent of the total mortality. Infants weighing 1500 grams or less at birth comprise only 1.5 percent of total births, yet account for more than 60 percent of total mortality (Table 2). These tiny infants are clearly the major risk group, and both morbidity and long-term outcome are correlated with mortality rate. Review of neonatal mortality at the LAC-USC Medical Center from 1975 to 1979 demonstrates that survival of the very low birth weight infant has increased progressively (Figure 2). The survival rate is 50 percent for infants weighing less than 1000 grams, whereas it was formerly 50 percent of infants weighing less than 1200 grams. In many neonatal intensive care units at the present time, the majority of the patients weigh less than 1000 grams at birth. Intensified research in the perinatal field has produced methods for evaluating the fetus during abor and delivery. The use of this information and methods for providing intensive care to the newborn has also contributed to this increased survival rate. Although many problems remain unsolved, prevention of premature delivery does effect the greatest improvement in pregnancy outcome and reduction of mortality and morbidity in he infant.

With increasing survival, the issue of long-term prognosis for intensive care graduates gains special attention. Follow-up studies of ogic and developmental performance of the infants have been

generally favorable (10-12). In the LAC-USC studies, less than 20 percent of the infants weighing fewer than 500 grams at birth have been neurologically abnormal; about 30 percent of the infants have had developmental delay (Table 3) (13). More than 66 percent of the infants have been normal (Figure 3). Neurologic abnormality is related to events in the nursery such as asphyxia at birth and the need for ventilatory assistance. Developmental abnormality usually accompanies neurologic defect, but approximately 10 percent of the infants have developmental delay only. The quality of care received by the infants after discharge from the hospital appears to be the most important factor associated with their abnormal performance. The influence of caretaking on physical growth has been well known for years, and it is not surprising that quality of caretaking has an even more profound effect on development (14,15). Research has identified some of the characteristics of families who have difficulty nurturing an infant (16). Unfortunately, many of these same factors also increase the risk of premature birth.

The responsiveness of the very young infant to environmental stimuli and caretaking methods has been demonstrated by a number of studies (17,18). Social responses have been recorded in infants as early as 30 weeks gestational age (19). The appreciation that nursery routines may have a significant effect on the later development of infants cared for in neonatal intensive care units, has opened a new area for investigation. The effect of noise levels, lack of diurnal variation in the environment and the dichotomy between physical handling and social stimulation in the high-risk nursery, all require evaluation (20). This area of current research is particularly promising because nursery routines can be changed more readily than many of the societal factors influencing perinatal outcome.

SUMMARY

Maternal characteristics related to socioeconomic status and life style have a profound effect on pregnancy outcome, neonatal mortality, and long-term morbidity. The effect is primarily mediated through the incidence of low birth weight infants. The race of the mother is the most significant factor related to outcome, with the black mother at a disadvantage. Prenatal care significantly improves outcome, and yet it is not sought by many pregnant women. The reasons many women seek prenatal care late, or not at all, have never been well documented. This is an area in which there are many opinions but little hard data.

Exposure of the mother during pregnancy to a variety of chemical substances, including drugs previously considered innocuous, may have significant effects on the developing fetus. Further delineation of risks to the mother and her offspring is needed, especally risks from use of common substances, both short term and long term.

Significant advances have been made in management of the high-risk mother and neonate. Mortality rates for newborns have decreased dramatically, and the survival of very low birth weight infants is now common.

Follow-up studies indicate that the outcome for the very low birth weight infant is favorable with two-thirds being neurologically and developmentally normal. Studies of the influence of parenting disorders and routine nursery care on the behavioral development of the infant appear to be promising areas of research.

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Table 1. Perinatal mortality by racial groups, California, 1965 (6)

Race	Perinatal Mortality	Adjusted Mortality*
White	26.2	27.4
Spanish surname	28.7	26.2
Black	45.1	39.2
Oriental	19.6	20.6

*Adjusted for maternal age, parity, and occupational level.

Table 2. Newborn mortality LAC-USC Medical Center, 1973

Birth Wt. Grams	Births	% of Total Births	Deaths	% Mortality	% of Total Mortality
< 500	2	.02	2	100	2.0
501 - 1000	39	0.4	28	71.8	27.5
1001 - 1500	97	0.9	36	37.1	35.3
1501 - 2000	165	1.6	20	12.1	19.6
2001 - 2500	504	4.9	5	1.0	4.9
2501 - 4000	8595	83.4	11	0.1	10.8
> 4000	901	8.8	0	0.0	0.0

Table 3. Comparison of combined developmental and neurologic outcome by birth weight groups (13)

	<1,000 gm		1,000 - 1,500 gm		Total	
	No.	%	No.	%	No.	%
Normal	27	67.5	91	67	118	67
Abnormal	8	20.0	27	20	35	20
Suspect	5	12.5	18	13	23	13
Totals	40	100.0	136	100.0	176	100.0

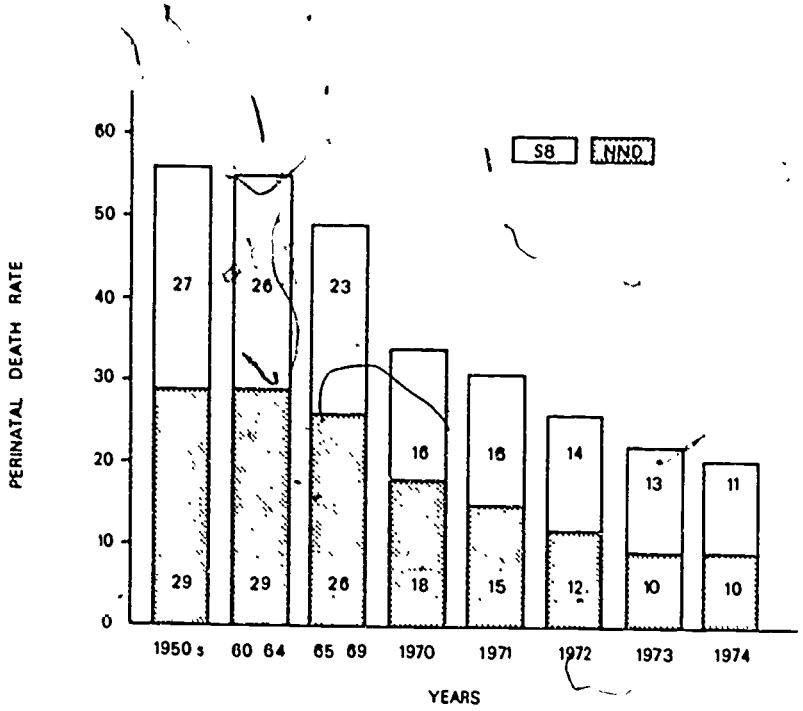

Figure 1. Stillbirths (SB) and neonatal deaths (NND) at Women's Hospital from the 1950s to 1974.

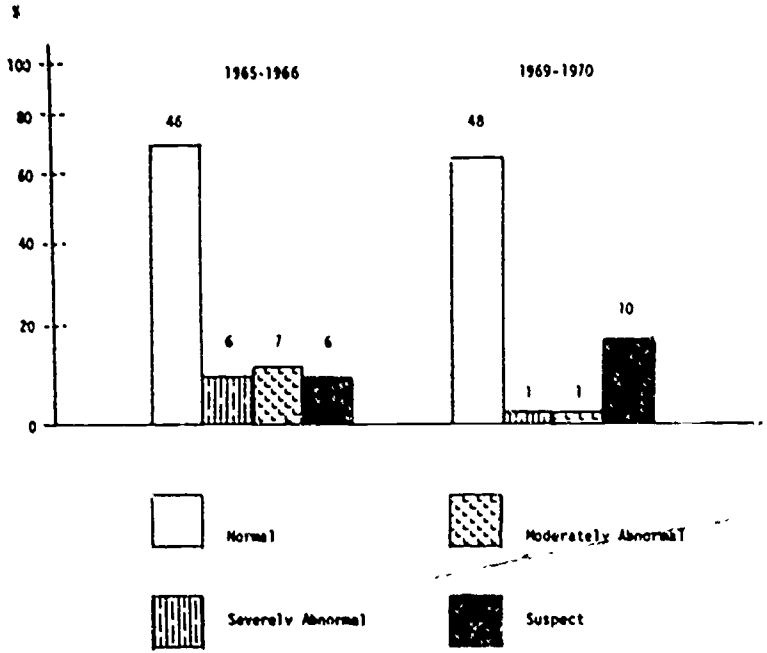

Figure 2. Neonatal mortality, 1975-1979, by 100-gram birth weight intervals for infants weighing 1500 grams or less at birth.

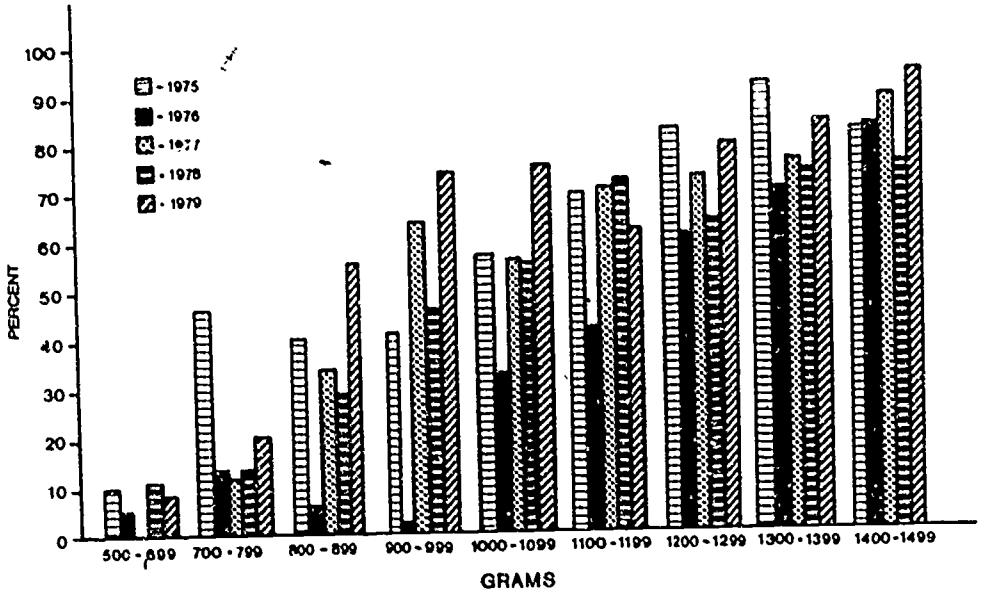

Figure 3. Comparison of outcome for infants weighing 1500 grams or less at birth born at Women's Hospital from 1965-1970. The majority of the infants were normal, and moderate and severely abnormal outcome decreased during the time period. (Note that the abscissa is a logarithmic scale.)

The Women's Movement as Catalyst for Change in Obstetrical Care Services

Carolyn Ferris, R.N., C.N.M.

It seems appropriate that one focus of attention for the women's movement has been woman's unique biological capacity to bear children. This attention has led to reevaluation of the delivery of obstetric services in the United States with respect to the provider, the content of services, how and where service are provided, and the cost. This paper deals with two aspects of change in obstetric care for low-risk pregnant women: the growth of midwifery and the development of alternative birth centers.

GROWTH OF MIDWIFERY

Over the past 10 years, nurse midwives have increased dramatically in numbers, and the practice of midwifery has assumed a new status among health care professionals. Traditionally, nurse midwives served the poor where physicians were scarce or their services unavailable to segments of the population, such as rural Appalachia and the deep South. Now, nurse midwives are increasingly sought as caregivers by women from middle and upper socioeconomic and education levels.

Many believe the shift is an outcome of the women's movement and the emphasis on the need for women to assume responsibility for decisions related to their health and medical care and their desire to gain control of their bodies and experiences. Another social influence that has contributed to this activism is the consumer movement which advocates patient responsibility and participation in health care. Both of these movements have increased attention to humanistic concerns by health care providers, and both have found their strongest proponents among articulate middle and upper class citizens. Within this social context it does not seem surprising for a woman seeking health care during pregnancy to turn to another woman. It also does not seem surprising that concerned nurses would turn to midwifery as a means to assertively upgrade their professional skills while pursuing humanistic goals in the provision of care to other women and their families.

CONTENT OF NURSE-MIDWIFERY SERVICES

The term midwife is compounded from the Anglo-Saxon word "mid," meaning together with, and "wif," a woman--literally, "a helping

woman" (1). This concept is central to the training and practice of midwifery. Nurse-midwives are not substitute or junior obstetricians. They provide services that are different in content and style of delivery. First, midwives work in a different setting from that of the busy obstetrician-gynecologist, who must necessarily allot substantial time to gynecologic and hospital practice. Office visits for women with normal pregnancies are allowed the least amount of time, and are often scheduled as frequently as every 15 minutes. This reflects the pressures not only on the obstetricians' time but also their training which traditionally has emphasized detection and treatment of disease.

The training of the nurse-midwife, on the other hand, is directed toward serving the needs of healthy women with normal pregnancies, i.e., toward the enhancement of the health of the mother and, consequently, of the infant. The midwife is taught to address the "whole life" needs of the pregnant woman, and, in her practice, she has time to discuss comfortably with her client concerns such as changes in sexuality, emotional adjustments, and changes in family relationships that accompany and follow childbirth (2). Health education in areas such as nutrition and infant care is a major component of the nurse midwife's service to her clients. A thorough dietary history is taken, and a high-quality diet formulated within the pregnant woman's preferences. Exercise is discussed, and recommendations are made for maintaining the client's optimal activity, to help her cope with the physical changes and discomforts of her pregnancy, and to prepare her for the stresses and exertions of her labor. The nurse midwife also helps the client plan for needs at home for herself and her baby after the birth so that family relationships are not unduly stressed immediately after their homecoming. Thus the midwife, through understanding and education, helps the client to make responsible choices and to plan for the childbirth experience, and then collaborates with the client for a safe delivery.

The diagnostic training of the nurse midwife is aimed at detecting signs of a problem. When evaluation of a woman indicates a condition of risk, the nurse midwife refers her client to a physician trained to provide the different type of care required for high-risk conditions. The midwife may continue to follow and work with a high-risk client with consultation and direction from a physician, providing the patient with education and support and supervising her health status. She is not trained to assume primary responsibility for high-risk women or their infants.

LABOR AND DELIVERY SERVICES

In the United States over the past 40 or 50 years, the usual labor and delivery has become increasingly routinized and embellished with instrumentation which is directed toward reducing perinatal morbidity and mortality through application of scientific knowledge and monitoring capabilities. Often the laboring woman is left alone, frightened and without the comfort or emotional support of someone close to her. Frequent "checks" by hurried nurses or physicians, who may or may not communicate their findings to her, do little to enhance her self-confidence or control. She may be restricted in her movement by monitoring devices she does not understand and this may contribute further to her anxiety, discomfort, and feelings of isolation. As the patient reaches second-stage labor and is in the greatest distress, she is moved unceremoniously to a delivery room where she is placed in lithotomy position

and asked to cooperate in completion of the delivery. If she has received analgesia or anesthesia, her sensations are blurred, and her infant may be depressed (3).

Patients, husbands of patients, health professionals, childbirth educators, and many others have resisted what they perceive as the routinized, depersonalized experience described above. In many maternity services, family-centered approaches to childbirth have been introduced for both high-risk and low-risk women. Support persons, such as husbands or friends, are more frequently being granted access to labor and delivery rooms and, in some instances, are allowed to be present for cesarean births. One of the most popular avenues to more individualized, sensitive care has been the establishment of alternative birth centers. Midwives have frequently assumed leadership roles in requesting and using this type of delivery service, since their philosophic backgrounds and training experiences are compatible with the concepts embodied by birth centers. Birth centers offer an alternative to home birth as well as an alternative to traditional labor and delivery services. The issue of home birth versus hospital delivery is controversial among nurse midwives. Many nurse midwives are willing to attend home births rather than leave a woman without assistance, but they prefer to work within a setting where emergency back-up is immediately available. Midwives strongly advocate unmedicated childbirth, an inherent part of most alternative birth services. They also advocate classes for preparation for childbirth and early parenting. Other educational services may also be available from the birth centers and their resource staffs. All of these enhance and support the midwife's own services to her clients. Some birth centers employ midwives as their primary care providers, while others provide privileges for midwives who are in private practice to use the services with obstetric back-up.

ALTERNATIVES PROVIDED BY BIRTH CENTERS

Alternative birth settings may be separate units within a hospital maternity complex, or may be outside a hospital but with rapid access to emergency facilities. The atmosphere of a birth center is usually homelike, with a bedroom-sitting-room decor for the labor and delivery room. Amenities are offered, such as music, plants, pictures or the comfort of personal objects. The essence of the center is the individualization of its services. Each mother or couple plans the experience in cooperation with the obstetric care provider, and routines such as shaving, enema, and episiotomy can be planned or waived. The plan is part of the prenatal record, so that all staff assisting with the birth know what is desired. Friends and, in some settings, siblings are permitted to be present in the room (4), and their inclusion is also part of the plan.

The criteria for admission to a birth center are strictly followed and are generally based on meeting low-risk criteria as defined by the American College of Obstetrics and Gynecology. Preparation for childbirth through classes of International Childbirth Education Association (ICEA), Lamaze, Bradley, Read or similar classes is required (5) and most centers also require a support person to attend this preparation with the mother. The laboring woman may move about during early labor and use a position of choice for later labor and delivery. Monitoring is done by a skilled obstetric nurse or midwife on a one-to-one basis. Equipment for resuscitation of the infant is present at the delivery and equipment for emergency needs of mother and infant are in the room,

although out of sight. Many parents have a desire to remain together with their infant after the birth, both for emotional satisfaction and to enhance the attachment process (6). Most birth centers have established criteria for immediate rooming-in and the early discharge of mother and infant. Therefore, the infant and parents are not separated during their stay. Discharge from most alternative birth centers may take place as early as 6 hours after the birth. Follow-up at home is provided by birth center nurses or midwives.

There is substantial variation in alternative birth centers, but as more centers are offered, the need for standards has become apparent. The American Academy of Pediatrics and the American College of Obstetrics and Gynecology are presently preparing a joint statement in this regard (7).

The following description of various birth centers represents different settings and modes of participation by nurse midwives in the provision of alternative care.

Booth Maternity Hospital in Philadelphia* is one of the oldest programs in the country and has employed midwives for many years. A team of ten full-time midwives, with four or five refresher students, manage some 1200 births a year. The center is a separate facility, and when high-risk situations develop, women are transferred to a medical center a few minutes away. Booth, traditionally a service of the Salvation Army, has long served teenage and unwed mothers but now provides services to any woman who desires to use the facility. Third-party carriers have endorsed the services and will authorize payment.

Back-up is provided by obstetricians, and births occur either in a labor room or delivery room, depending on the mothers' choice or the circumstances. Immediate contact with the newborn is encouraged, and the baby is separated from the mother only for the time required for bathing. The usual stay in the center is 3 or 4 days.

San Francisco General Hospital** is a county hospital that employs five full-time nurse midwives and also conducts a nurse midwifery training program. About 50 percent of the obstetric population chooses the midwifery service, a larger percentage than in most hospitals. This may be because a substantial number of women in the community come from a culture which includes a tradition of midwife attendance at childbirth. The midwives may deliver in either the alternative birth center or in the traditional labor and delivery area. Many births occur in labor beds. The staff believes that the service provides excellent training for obstetric and family practice residents, affording the opportunity to observe differences between the midwifery services and more traditional physician-managed delivery. Consultation is provided by members of the attending obstetric staff, and third-party payment is possible.

* Booth Maternity Center, 6051 Overbrook Avenue, Philadelphia, Pennsylvania 19131.

** Nurse Midwifery Service, San Francisco General Hospital, 1001 Potrero Avenue, San Francisco, California 94110.

Midwifery Services of Marin County * is an independent practice of three certified nurse midwives. Assistance with hospital and home births is provided. Clients are carefully screened for their ability and desire to deliver at home. All clients who choose home birth must be screened early in the pregnancy by an obstetrician who is willing to serve as a consultant. A hospital is also selected to be used should difficulties arise, and the client familiarizes herself with hospital policies and procedures to reduce confusion if hospitalization becomes necessary. The nurse midwives have privileges in two local hospitals, and about half of their clients choose a hospital alternative birth center for delivery. Payment is made by clients on an income-based sliding scale or with private insurance. Although the State of California has encouraged certification of nurse midwives, it is not yet possible for Medi-Cal payment to be made unless the service is provided in association with a physician.

EVALUATION OF MIDWIFERY AND ALTERNATIVE BIRTH CENTER SERVICES

In January 1974, a midwifery service was instituted for private patients at Roosevelt Hospital in New York City. Clients were screened by certified nurse midwives for high-risk conditions, and those who had problems were referred for physician supervision. The midwives provided services to the screened low-risk patients. In a retrospective study, 454 deliveries on the midwifery service were compared with 500 similar deliveries that were randomly selected births managed by the attending obstetricians (8). Significant differences between the two groups of mothers included education, race, operative deliveries and oxytocin use (See Table 1). Whether the higher educational level of women choosing the midwifery service is attributable to the feminist movement or to greater independence in making choices as a result of additional education is unknown. The site of the births is not reported and it is assumed that births were in either a labor or delivery room within a traditional hospital maternity complex. The authors did express the conviction that the midwifery service meets the needs of many women who would otherwise choose home delivery.

Table 2 shows comparative data for four midwifery services and the obstetricians' service at Roosevelt Hospital in New York City. These tables indicate equally favorable outcomes for the neonates on all the services, whether attendance at the births was by midwives or obstetricians.

The safety of alternative birth settings has been of concern to obstetricians, pediatricians, and other health care professionals. A prospective study of experiences in the Alternative Birth Center at Mount Zion Hospital and Medical Center in San Francisco was initiated when the center opened in May 1976 (9). The experiences of the first 1000 women admitted to the center indicate a lower use of anesthesia and analgesia among women choosing the birth center, compared with similar low-risk women using the traditional labor and delivery suite (Table 3). The number of infants requiring vigorous resuscitation was also smaller among birth center babies. The number of infants requiring observation in the intensive care nursery was comparable in both populations, as was the incidence of maternal complications. It is believed that for 3 percent of mothers or infants, serious compli-

* Marin Midwifery Services, 344 Woodland Street, San Rafael, California 94901.

cations or daath would have occurred if the birth had taken place in the home. The Mount Zion staff feels that the immediate accessibility of obstetric and pediatric specialists is essential to the safety of an alternative birth setting, and that home visits for follow-up are also necessary for a high standard of care. If discharge occurs between 6 and 12 hours after the birth, a home visit is made within 24 hours by an alternative birth center nurse to check the mother and infant and to provide emotional support. All mothers and infants are visited at home after 72 hours.

CURRENT ISSUES IN THE PRACTICE OF NURSE MIDWIFERY

Certification as a nurse midwife is obtained by meeting the requirements of the American College of Nurse Midwives, and is a professional credential (10). Certified nurse midwives are currently practicing in all but two states, but patterns of actual practice vary from state to state. Licensure requirements are determined by the state and vary substantially. In some states, a license to practice can be obtained by lay midwives through "grandmother" clauses, in other states physician assistants with special training in obstetrics may practice as midwives. For this reason, standards of care vary and are difficult for professionals and clients to evaluate.

During the 1970s, the birth rate across the nation declined. At the same time, the populations served by nurse midwives and obstetricians began to overlap. There was some resistance among medical staffs of many institutions to the practice of midwifery, and there was, in addition, some economic pressure on physicans which made them less willing to accept nurse midwives as coprofessionals. These feelings have begun to diminish somewhat, but much change will still have to occur before nurse midwives achieve recognition for the value and appropriateness of their services to low-risk women.

An important economic issue for midwives is whether or not they may bill for their services through third-party carriers. Most private insurance companies will provi payment to midwives in independent practice, however, this is not uniform. Payment through Medicaid programs varies from state to state. In California, for example, although the State Health Department has encouraged the certification and practice of midwives, their services cannot be billed through Medi-Cal unless the services are provided under the direction of a physician. Policies in other states vary from nonrecognition of midwives as care providers, to the provision of benefits equal to physicians' services. Midwives feel strongly that if they are accreditable as professional health care providers, then their services should be eligible for payment on the same basis as those provided by individuals from other disciplines.

DIRECTIONS FOR THE FUTURE

The provision of obstetric care by nurse midwives and the availability of birth centers for women with low-risk pregnancies, offer alternatives to traditional care with respect to provider, content of services, and style of delivery. Maternity care through birth centers usually costs less than care provided by obstetricians in traditional hospital maternity settings. Nonetheless, hospitals' maintenance of separate facilities and staff for birth centers contributes to higher costs than would be necessary if birth center services were integrated in the overall hospital maternity units. Birth center care provided

within the regular services of hospitals would provide more flexibility as well as more labor/delivery beds, and would eliminate the need to move mothers to delivery rooms. Parents' increasing awareness of the importance of the immediate postpartum period for parent-infant attachment, and their desire that the family remain together after the child's birth, create greater demand for immediate rooming-in. To provide services such as these, it will be necessary to change the routines, attitudes, and staffing patterns of traditional services.

Physicians' increased appreciation of the nature of midwifery services and of their value to women with low-risk pregnancies, would be conducive to more collaborative efforts by obstetricians and midwives to the benefit of clients and providers.

The individualized services and special attitudes which parents seek in alternative birth centers and midwifery services certainly could be diffused throughout traditional maternity services. Success would depend upon increased motivation for change, sharing of experiences and knowledge by care providers, and greater staff participation in alternative services by means of training programs and inservice educational experiences.

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Table 1. Characteristics of midwife- and physician-served clients at Roosevelt Hospital, N.Y.C. (8)

	Physicians		Midwives	
	N	Percent	N	Percent
Education				
8	13	2.6	6	1.3
9-11	27	5.3	9	20
12	123	24.4	74	16.3
13-15	99	19.6	82	78.1
16	113	22.4	130	28.6
17	72	14.3	101	22.2
Unknown	58	11.5	52	11.5
Race				
White	340	67.3	388	85.5
Black	113	22.4	59	13.0
Other	52	10.3	6	1.3
Unknown	-	-	1	0.2
Operative Deliveries				
Primary C-Section	63	12.5	37	8.1
Low Forceps	72	14.3	17	3.7
Oxytocin Use				
Induction	35	6.9	18	4.0
Stimulation	133	26.4	83	18.3
Total	505		454	

Table 2. Characteristics of patients and deliveries attended by midwifery services and obstetrician's services

Hospital:	S.F. General	Booth Memorial	Marin	Roosevelt	Roosevelt
Provider:	Midwife	Midwife	Midwife	Midwife	Physician
Population:	500	1200	300	454	505
Race:					
Caucasian	48%	58%	97%	85%	67%
Black	39%	39%	2%	13%	23%
Other	13%	3%	1%	2%	10%
Age:					
15-19	10%	14%	0%	3%	3%
20-29	57%	65%	75%	54%	58%
30-39	18%	19%	25%	40%	36%
Outcome:					
Apgars 1-minute*					
7-10	81%	-	93%	93%	86%
4-6	10%	-	4%	6%	10%
1-3	4%	-		1%	4%
Apgars 5-minute*					
7-10	92%	-	100%	98%	95%
4-6	2%	-		2%	3%
1-3	0.3%				2%
Deliveries					
NSVD**	80%	87%	87%	83%	64%
Forceps	8%	4%	5%	6%	18%
C-Section	9%	5%	6%	5%	13%

* Some scores not recorded
** Normal sterile vaginal delivery

Table 3. Infant outcomes of deliveries with maternal anesthesia and analgesia

	Alternative Birth Center N =1,000	Labor and Delivery N = 200
Maternal:		
Anesthesia	4.2%	68.0%
Analgesia	6.0%	63.0%
Infant Outcome:		
1-minute Apgar >6	3.5%	10%
5-minute Apgar >7	0.3%	2.5%
Intubated for resuscitation	0.6%	2.0%
Admitted to Intensive Care Nursery	10.4%	13.5%

Research and Women's Health

Carl J. Pauerstein, M.D.

This paper deals with the impact of research on the health care of women. Several major gynecologic conditions may serve as examples: malignant disease, infertility, contraception, menstrual disorders, and menopause. Clinical management of these conditions has been significantly altered by advances made in research laboratories.

MALIGNANT DISEASE

Breast Cancer

Cancer of the breast is the leading cause of death among middle-aged women in the United States. One of 13 women will develop the disease some time during her life. Two recent significant advances have markedly improved the outlook for treatment.

First, we are now able to select those patients with advanced or disseminated breast cancer who will respond to endocrine therapy. The current treatment of choice for selected patients is the administration of antiestrogens (1). This treatment is based upon the following laboratory information: Estrogen-responsive cells contain specific protein receptors in their cytoplasm, which form a complex with estrogen. The hormone-receptor complex moves into the cell nucleus where it affects the synthesis of proteins. The complex is rapidly broken down so that cell replication can be repeated or continued. This final step is blocked by antiestrogens. These agents bind to the receptor protein and enter the nucleus as the estrogens do but since the antiestrogen-receptor complex cannot be broken down, cell replication comes to a halt.

A clear correlation between a tumor's response to endocrine therapy and the presence of estrogen receptors was recently demonstrated in a large collaborative study conducted by the National Cancer Institute. Only 12 percent of patients whose tumors lacked significant estrogen receptors (ER-) responded to endocrine therapy, whereas 50 percent of those possessing significant estrogen receptor levels (ER+) responded to hormone treatment. The ability to predict the response of a given woman's breast cancer to endocrine therapy was further refined after the demonstration that estrogen initiated the synthesis of progesterone receptors. Using stringent clinical

criteria for "response," investigators demonstrated that 77 percent of patients whose tumors were positive for both estrogen and progesterone receptors benefited from endocrine therapy.

The second major advance in the treatment of breast cancer is the introduction of adjuvant systemic chemotherapy to prevent the development of disseminated disease. The results of local surgical or irradiation therapy for primary breast cancer have been disappointing. More than 50 percent of women with apparently localized disease ultimately develop distant metastases following such treatment, indicating that the tumor cells had spread beyond the breast even at the time of original diagnosis. Based upon this principle, many large surgical trials using systemic chemotherapy and endocrine therapy along with surgery have demonstrated that the latter adjuvants have significantly decreased the rate of development of disseminated disease (2). The use of estrogen receptor assays on the primary breast tumor aids in the decision whether to use endocrine therapy along with chemotherapy.

Thus, the laboratory research leading to the knowledge that the presence of estrogen receptors is critical to clinical responsiveness to endocrine treatment has become clinically relevant. Further advances in the treatment of breast cancer will doubtless follow from the continued partnership of laboratory and clinical investigators.

Gestational Trophoblastic Tumors

The designation, "gestational trophoblastic tumors," refers to hydatidiform mole, invasive mole, and choriocarcinoma resulting from the trophoblast of pregnancy. About 1 in 1200 pregnancies is complicated by hydatidiform mole, about 1 in 15,000 by invasive mole, and about 1 in 40,000 by choriocarcinoma. Prior to the advent of modern chemotherapy, nearly 90 percent of women with choriocarcinoma died of this disease.

Two major advances based on laboratory investigations have totally changed the management and prognosis of these trophoblastic neoplasms. One is the ability to measure human chorionic gonadotropin (hCG) which is produced by trophoblastic tissue in quantities related to the amount of trophoblast present. Earlier assays for hCG were bioassays developed in research laboratories. Although these earlier assays were time consuming and required experience for accurate interpretation, they were reliable for diagnosing and following the clinical course of trophoblastic tumors. Recently, the ability to accurately measure very low levels of hCG by specific radioimmunoassay (as detailed below under "Birth Control Vaccines") has greatly enhanced the management of these neoplasms (3). The other major advance dates back to the pioneering efforts of Roy Hertz and his associates (4) who demonstrated that chorioadenoma and choriocarcinoma responded to chemotherapy. This was the first example of the cure of a malignant tumor by medical therapy. Subsequent refinements of clinical management and chemotherapy have completely changed the outlook for these women, so that more than 90 percent are now cured (5). Therefore, women have been the beneficiaries of the first consistently effective treatment for a malignant disease.

INFERTILITY

Infertility affects about 1 couple in 6 in the U.S. Of the major advances in the diagnosis and treatment of female infertility in recent years, two examples will illustrate the contribution of laboratory investigation to the treatment of infertility in women. the predictable induction of ovulation, and the treatment of inappropriate prolactin secretion.

Induction of Ovulation

Prior to 1960 there was little to offer women who failed to ovulate, except surgical intervention in the Stein-Leventhal syndrome.

In 1961, Greenblatt and his colleagues first reported that treatment with clomiphene citrate induced ovulation in 28 of 36 anovulatory patients (6). Since then, many reports of clomiphene-induced ovulation with subsequent conception have appeared in the literature. Clomiphene has been useful to treat, not only anovulatory women desirous of pregnancy, but also some women who desire only restoration of normal menses. Moreover, restoration of normal ovulation can reverse precancerous changes in the uterine lining, obviating the need for repeated uterine curettage.

At about the time that clomiphene was being used, the first successful use of human menopausal gonadotropins (hMG), purified preparations of human follicle stimulating hormone (FSH) and luteinizing hormone (LH) appeared in the literature (7) Although treatment of anovulation with clomiphene or with a combination of clomiphene and human chorionic gonadotropin (hCG) is safer and less expensive than treatment with hMG, subsequent studies have shown that some patients who fail to respond to clomiphene do respond to hMG.

Basic research led directly to the use of clomiphene and hMG in the treatment of anovulation. Basic research suggested methods for monitoring and modifying the dosage regimens to assure a higher success rate and to avoid complications, and basic research elucidated the mechanisms through which these agents induce ovulation.

Prolactin-Secreting Tumors

At the start of this decade, it was uncertain whether or not prolactin was a separate hormone in the human. In 1971, scientists demonstrated that the human pituitary gland produces prolactin as a distinct hormone (8). Since then prolactin has been isolated, purified, and characterized chemically (9) so that it can now be measured by radioimmunoassay. This allows clinicians to demonstrate that some women fail to ovulate due to tiny prolactin-secreting pituitary tumors. Further basic investigations elucidated the brain-pituitary control of the secretion of prolactin and led to the use of the dopamine-like compound, bromocriptine, in treating prolactin-secreting microadenomas (10). Thus, it is now possible to restore ovulation and menstrual function in some women.

Restoration of ovulation by these two techniques has benefited many anovulatory women, restoring their ability to procreate. In each instance, the effective clinical treatment resulted from years of laboratory research with non-human species.

CONTRACEPTION

In the past decade, there has been a progressive change in the role of women in our society. Although many factors have been involved, the ability to avoid unwanted pregnancy has been one of the most important. A review of the development of contraceptive methods reveals a common pattern. The primary development arises from basic research and, after a relatively long lag, clinical applications are investigated (11). This suggests that applied research requires basic information and that it is impossible to predict which basic research will find practical application. Applications of basic discoveries depend upon the subsequent development of appropriate technology, and upon an appropriate consciousness in the scientific and medical community. To demonstrate these points, I will briefly discuss birth control pills, intrauterine devices, birth control vaccines, and gonadotropin releasing hormone and its analogs.

Birth Control Pills

The revolution in contraceptive technology began with the development and testing of oral contraceptives. These pills, which contained pharmacologic amounts of synthetic analogs of estrogen and progesterone, were first tested in rabbits by Pincus and Chang in 1953 (12). Their decision to begin testing was based on the observation of Makepeace et al., in 1937, (13) that progesterone inhibited ovulation. The first results of extended clinical trials with women were reported in 1956 (14).

In this instance, at least 20 years intervened between the critical observations in laboratory species and the application of the accumulated data to health care. It is likely that this time lag would have been much longer were it not for the organizational and leadership abilities of Dr. Gregory Pincus.

Intrauterine Devices

Although intrauterine devices (IUDs) were first developed in 1909, there was little active interest in them in the United States until the 1960s. IUDs are effective contraceptives but their acceptance has been limited due to an extremely high rate of discontinuation. The patient usually discontinues use because of increased vaginal bleeding, spontaneous expulsion, or pain.

Recent research has led to changes in IUD configuration and to the development of IUDs that release copper ions or steroid hormones. Such modifications have produced a new generation of devices which offer the advantages of reduced expulsion, decreased blood loss, and enhanced contraceptive efficacy. These clinically useful improvements are the result of a partnership between basic researchers and clinical investigators (see Harper (11) for review).

Birth Control Vaccines

The contraceptive vaccines are at a relatively early stage of development. The basic principles crucial to the development of such vaccines are identification of an antigen specific to reproduction, and subsequent alteration of that antigen so that the body will identify it as a "foreign" protein and will therefore manufac-

ture antibodies against it. When the reproduction-specific antigen is detected by the body, the antibodies combine with it to block its biologic activity.

The role of basic research in the development of contraceptive vaccines is well illustrated by the vaccine being developed against the placental hormone, human chorionic gonadotropin (hCG). Critical to this attempt is the laboratory observation that hCG, like other gonadotropins, is composed of two subunit polypeptide chains; one of these is specific to hCG and the other is common to several gonadotropins. Vaccine development was initially directed toward the production of antibodies against the unique, or beta, subunit of hCG. However, the beta subunit of hCG is quite similar to the beta subunit of the pituitary hormone, human luteinizing hormone (hLH), which is a regulator of ovulation. More refined laboratory research demonstrated a group of 30 amino acids on the beta hCG chain, which are not found on the beta LH chain. Antibodies specifically directed against this amino acid group do not cross-react with LH and thus will not damage the pituitary gland.

Although such vaccines are still far from practical clinical use, the combination of laboratory and clinical research has moved us well along the road to this goal.

Gonadotropin Releasing Hormone (GnRH)

In the middle of this century, investigators postulated the presence in the hypothalamus of neurohormonal substances that regulated the secretion of pituitary hormones. Early in the 1970s, groups led by Schally (15) and Guillemin (16) reported the primary structures of porcine and ovine gonadotropin releasing hormones (GnRH), respectively. This monumental work was recognized by the award of the Nobel Prize in Medicine and Physiology to Guillemin and Schally in 1977. Gonadotropin releasing hormone was subsequently synthesized and used in experimental studies in laboratory species and in humans. Within a few years, synthetic analogs of GnRH up to 150 times more potent than the natural substance were synthesized, as were antagonists of native GnRH.

Preliminary data suggest that "super" analogs of GnRH can prevent ovulation (17,18) and thus exert a contraceptive effect (19). Other studies have shown that GnRH agonists can cause luteolysis in women (20) and could thus prevent pregnancy.

Although we have yet to gather definitive data, population scientists are optimistic that these "super" agonists and antagonists will eventually prove to be efficient contraceptives. If this promise is realized, basic physiology and chemistry will have joined with clinical research to bring forth a novel family of contraceptives.

MENSTRUAL DISORDERS

Many American women suffer from various abnormalities of menstruation. Two of these, abnormal uterine bleeding and dysmenorrhea, illustrate the contribution of research to the health of women.

Dysfunctional Uterine Bleeding

Abnormal uterine bleeding is the symptom that most frequently impels women to seek gynecologic care. Only 25 percent of these patients have an organic lesion (21). For the rest, bleeding is a symptom of functional derangement of the menstrual cycle. Knowledge derived from basic investigations has drastically changed the management of uterine bleeding.

In the past, dysfunctional bleeding was usually managed by performing a dilatation and curettage of the uterus as the initial step in treatment. At least 40 percent of women so treated continued to suffer from recurrent episodes of abnormal bleeding (22). The next step in the sequence was often hysterectomy if multiple curettages had failed to control the bleeding (23,24).

The change from this empiric treatment to more rational management came only after the accumulation of sufficient basic knowledge. The key to modern management was the development of radioimmunoassay by Berson and Yalow (25). Scientists were then able to measure minute concentrations of hormones in blood and other biologic fluids. Armed with this new technology, the hormonal events and temporal relationships of the normal menstrual cycle were defined and the causes of dysfunctional uterine bleeding were elucidated. Clinicians found that about 90 percent of all episodes of dysfunctional uterine bleeding were associated with lack of ovulation and that many of the remaining episodes were due to inadequate or inappropriate production of progesterone from a deficient corpus luteum.

The next important step in transforming this knowledge into a real benefit for the female patient was the synthesis of synthetic steroid analogues. These are more effective than natural hormones in supporting the endometrium and are effective when taken by mouth. These agents, when properly administered, substitute for hormones the patient fails to produce. The abnormal bleeding is medically controlled and the need for multiple curettages or hysterectomy is obviated.

Dysmenorrhea

Menstrual pain affects many women. The discovery of the oral contraceptives, and the knowledge that these contraceptives can block ovulation, led to the use of induced anovulation in the treatment of dysmenorrhea. This treatment works well for many women, but interferes with the normal menstrual cycle and exposes women to the risks associated with the use of the oral contraceptives.

Recent information derived from basic research on the chemistry, pharmacology, and physiology of the prostaglandins has been used by clinicians to treat dysmenorrhea. The endometrial fragments released during menstruation are rich in prostaglandins which may induce strong uterine contractions. Clinicians reasoned that inhibition of the synthesis of prostaglandins would stop their action on uterine smooth muscle, thus relieving dysmenorrhea. Treatment of dysmenorrhea with inhibitors of prostaglandin synthesis has indeed proved effective. This is yet another example of work that was considered "basic" at its inception, but which eventually became "applied" to areas not envisioned by the original researchers.

THE MENOPAUSE

The average age of menopause in women in the United States is 50. A 50-year-old woman is expected to live to age 80; thus one-third of her life will be after menopause.

Menopause occurs because the ovaries no longer produce estrogen and progesterone and no longer ovulate. Endocrinologic research which has yielded important information about the endocrine events of menopause indicates that many problems women encounter due to menopause are associated with insufficient production of estrogen. The levels of the pituitary hormones, FSH and LH, rise significantly at menopause and the cyclic pulsatile release of these hormones is amplified in menopausal women. Some evidence suggests an association of these gonadotropin pulses with the hot flushes that plague menopausal women.

Research has also elucidated the sources and metabolic pathways of estrogens and androgens in postmenopausal women. Production of estrogen by the ovary essentially ceases at menopause, but the ovary continues to make the androgens, androstenedione and testosterone. Androgens from the ovary and the adrenal gland are converted to estrogens in peripheral tissues, mainly in fat.

Problems associated with estrogen deprivation include vasomotor symptoms such as hot flushes and sweating, atrophic vaginitis, urethritis, and osteoporosis. Serious vasomotor symptoms occur in 60 percent of postmenopausal women. Estrogen replacement therapy can effectively relieve vasomotor symptoms and restore atrophic vaginal mucosa. The benefit of estrogen replacement in the prevention of osteoporosis is less obvious although the weight of evidence supports the contention that estrogen is useful in its prevention. Osteoporosis is not a trivial problem. About 25 percent of Caucasian women over age 60 suffer from compression fractures of their vertebrae and about 20 percent of women who live to age 90 have hip fractures. A significant number of them die from complications directly associated with the fracture.

In spite of some controversy, it now appears that the only significant complication of estrogen therapy in postmenopausal women is an increased incidence of endometrial cancer. Therefore, estrogen therapy is indicated in postmenopausal women who have had a hysterectomy regardless of whether the ovaries have been removed. One might argue that estrogen should be given to women who are at risk for osteoporosis without consideration of the uterus, because the risk of fracture outweighs the risk of endometrial cancer. Estrogen therapy may also be indicated in women who suffer from menopausal symptoms, even if the uterus is present. The case for estrogen replacement is less clear in postmenopausal women whose uteri are *in situ*, and who are at low risk for osteoporosis (26-28).

Research will soon help the clinician to select the optimal formulation, dose, and route of administration for estrogen replacement. It now seems that oral treatment may present an excessive estrogen load to the liver, and that estrogens obtained from pregnant mares may lead to accumulation of unphysiologic equine estrogens in the patient (29). Newly developed assays of specific serum proteins offer the potential for evaluating the estrogenicity of various treatment regimens (30,31).

Thus, clinical and laboratory research has yielded information about the endocrinology of the menopause, about the adverse effects of menopause on the woman's physiology, and about appropriate treatment regimens.

SUMMARY AND CONCLUSIONS

Many other contributions to the health care of women have not been specifically identified in this paper. Such advances as the perfection of fiber optics for laparoscopic examination, the development of the concept and technology of menstrual extraction, the improvement in techniques for detecting and terminating pregnancy, the development of the tampon for menstrual hygiene, and the use of metronidazole for trichomoniasis and for anaerobic vaginal infections have all increased the well-being of women.

Much remains to be accomplished, and only by joining basic research with clinical research will further progress be possible. In making our plans, and in ordering our priorities, we must keep in mind that the difference between "basic" and "applied" research is temporal. Today's rat brain extract may be tomorrow's panacea -- and today's esoterica, tomorrow's commonplace treatment. Those who wish to support only "applied" research must confront the lessons of history.

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Women and the Family

Introduction

E. Mavis Hetherington, Ph.D.

In spite of the regular, gloomy bulletins on the demise of the American family, families still play an important role in the lives of women. Most women marry and have children and remain involved with their families of origin. However, women are going through a period of exciting opportunity. An increasing diversity of family options and social roles is available to contemporary women. The following papers present thought-provoking examinations of these social changes, the options available to women, and the impact of social changes on women's experiences. Each participant in this interdisciplinary group approaches these issues from a slightly different perspective. Judith Blake, a demographer, traces the evolution of new fertility and family patterns and explores their consequences.

Lois Hoffman, a developmental and social psychologist, has studied the changes in relationships within families which have accompanied the recent increase in maternal employment, divorce, and single-parenting. Dr. Hoffman questions some long-held notions about what is "normal" in this changing society.

Although divorce rates and rates of remarriage have risen rapidly, we have only a limited knowledge of the consequences of divorce and the future of restructured families. Frank Furstenberg and his colleagues present some interesting results of a large-scale sociological study of such families.

Finally, Ross Parke, a developmental psychologist who conducted the earliest studies of fathers' behavior with their infants, discusses a neglected but important topic, the father's contribution to the family system.

Demographic Revolution and Family Evolution: Some Implications for American Women

Judith Blake, Ph.D.

In this paper, I shall explore some implications for American women of the major increase in familial options that has occurred during the past decade, and is still occurring. From a long-term evolutionary point of view, this expansion in organizational variance has been continuous, however disjunctive recent events may appear to us. Organizational variability has increased regularly from insects to man and, among humans, has augmented over time.

In the developed countries, we have reached the point--temporary or stable, we do not know--when the basic demographic "reasons" for a traditional organization of mating and reproduction have been greatly attenuated. Specialization by sex in the major child care and homemaking role is no longer demanded by a need for high, or even medium, fertility. We can afford to have low fertility. We even can afford to have some population decline.

Thus, with the need for reproduction vastly abated, we have been freed up for a big spurt in familial variability. This variability is societally possible because of an efficient vital balance. It apparently also is necessary if the family is to catch up with changes in the rest of the society.

During the 1950's, the family was characterized by many social scientists as representing the "modern" accommodation to an urbanized, geographically and socially mobile, highly technological society. It was said to be "structurally differentiated," which meant that it specialized highly in a very few functions and was distinctly separated from other parts of the society that had their specialized functions. The family's functions were reproduction, socialization, emotional support, and status ascription for women and children. The only genuine link to the outside world, particularly the economic world, was the male breadwinner.

It has been argued at length elsewhere (1) that the family of the immediate postwar era was not, in fact, a "modern" adjustment. What it seems to have been, more accurately, was a traditional type of family, in terms of sex roles and division of labor, that

had simply been shorn of most of its primary economic, kinship, and political functions. The family of the post-World War II era bore little positive relationship to other trends and requirements of the society. For example, the incentives it engendered were pronatalist at a time when replacement fertility was becoming, on the average, more and more appropriate; it was ill-suited to the interests of rising cadres of educated women; it was inimical to the need for more paid laborers in the economy; and it emphasized status ascription for women and children at a time when the society was ideologically as egalitarian and achievement oriented as it had ever been.

We are now watching the family become modern. Individuals' relationships to family status and family groupings are becoming consonant with the fact that we do not need to specialize so heavily on reproduction, that we do not need to impound high proportions of adult females into a lifetime of devotion to parenthood, and that individuals can make relatively limited, incremental investments in a variety of family options without threatening social survival.

In what ways is the family becoming updated? One indication is that the traditional reproductive institution of marriage no longer so clearly defines whether people are "inside" or "outside" a family-type situation. We are seeing a rise in nonmarital domiciliary unions and a decline in stable marital ones.

As for unmarried couples residing together, the Bureau of the Census' Current Population Survey (2) shows that this number more than doubled between 1970 and 1978, from 523,000 in 1970 to 1,137,000 in 1978. The proportion of such households with no children present has increased even faster, from 327,000 in 1970 to 865,000 in 1978. The fact that unmarried couples are preponderantly without children reflects, in some measure, their youth. About half of such couples are under age 35, and the increases since 1970 in such nonmarital unions among the young have been momentous. Among those under age 25, the increase has been eightfold, from 29,000 to 236,000, and among those aged 25 to 34, from less than 60,000 to 325,000. The Census Bureau did not tabulate these data in 1970 by 10-year groupings for the age group 25-44. Hence, the 60,000 figure is for the 20-year grouping 25-44.

It would thus appear that young people today who wish to live in a marital-type situation, perhaps while they are building careers and in stages of advanced education, are increasingly creating an option for themselves. As most of us know from experience, more often than not these couples interact, entertain, and are entertained in the manner of married couples. Yet, they may eschew marriage because their careers are very unsettled and may not continuously mesh well, or because, for emotional reasons, they quite explicitly regard the relationship to be temporary.

Part of the reason that informal unions appear less momentous is that formal ones are more tenuous than in the past. With a divorce rate that seems to maintain itself at over 5 per 1,000 population annually, unmarried couples are far less of a breed apart than was the case in the 1950's. If, as Glick and Norton calculate (2), 40 percent of young marrieds will divorce, many youthful married couples

are on the road to splitting up at any given time, and millions of people have been divorced. We thus see that residing in unions, nonmarital or marital, and living "family-style" no longer involve the legal presuppositions of the recent past, most of which related to marriage as a reproductive institution rather than a companionate arrangement between two adults.

A correlative indication of family updating is that the singular emphasis on the husband as a status-giver for women, and for children as they appear, has been heavily eroded. It is less necessary to have a husband today than at any time in our history. This erosion of derived status and enforced dependency is indicated in a number of ways. Of major importance is the fact that becoming a parent decreasingly defines adulthood. Less and less are young women regarding their early adult years as preparation for finding a husband and having children, at which time they are accorded the status of having really grown up. Although there is still some distance to travel in this regard, there unquestionably exists a genuine niche in the United States today, a legitimate social status, for a young, fully adult, and independent woman. She may wish to have a child or children, but she does not feel compelled to do so to set the seal on her maturity. The enormous rise in young unmarried women in the United States reflects, in part, this increase in alternative status. For women aged 20-24, 28.4 percent were unmarried in 1960 and 47.6 percent in 1978 (2). Moreover, the increase has been greatest in the postcollege years, from 19.4 percent single in 1960 at age 23 to 38.2 percent in 1978, and from 15.7 percent at age 24 in 1960 to 29.7 percent in 1978.

A potential source of some decline in the husband's status-giving role is that, even when women do marry, the couple's socioeconomic level is no longer determined by the efforts of one breadwinner. Other papers in this volume document the momentous rise of married women, even those with young children, in the labor force. Less frequently noted is the fact that, among married couples in the mid-1970's where both husband and wife were earners, a third of the wives made approximately as much as or more than the husbands. This pattern of relative income equality is, of course, more prevalent where the husband's earnings are under the median for husbands with working wives. But, this very fact indicates that liberation from total dependency upon the husband as status-giver is not simply an upper middle class phenomenon. Given the occupations most women are likely to have, it is actually more probable that the wife of a lower middle class man will achieve income parity with her husband than the wife of a brain surgeon or a corporation lawyer. In any event, it is unquestionably true today that families where husband and wife were both employed in 1978 found themselves at a large relative advantage over those where the husband was the sole earner--$20,722 median income as against $15,796. That is a heavy

dose of legitimation for the working wife, and something of an antidote to the notion that her work simply compensates for her husband's relative lack of success.*

Finally, we are witnessing a large-scale erosion of the norms linking a child's status to that of its father and to its father alone. We have gone a long way to avoid stigmatizing out-of-wedlock children beginning with their birth certificates, and to providing support for one-parent families, usually women, whether these result from births outside of marriage, separation, divorce, or widowhood. In effect, the relative "putdown" for unmarried mothers of having their children characterized simply as fatherless, rather than as having a status derived from their mothers, is slowly disappearing. This is fortunate since, by early 1979, 19.7 percent of children aged 6-17 lived in one-parent households. All but 1.8 percent lived with their mothers (5). Moreover, as Glick has noted, one-eighth of the children who are shown to be living with two parents actually live with a natural parent and a step-parent. Hence, Glick estimates that approximately a third of the children today have parents (mostly mothers) who have at some time been involved in single parenting (6).

It should be emphasized that the importance of these familial changes is that they are making way for nonfamilial goals in people's lives, at the same time that they are providing various types of intermediate, adjuative, flexible status along the way. This is vitally important for a developed country that requires a permanent "tilt" toward very low fertility. Such a society has got to re-define status away from reproductive goals. Such a society has got to involve people, on a long-range basis, in demanding nonreproductive activities that are meaningful to them. But, as they respond to these new incentives, it is much easier to manage the social change if it is incremental rather than totally disjunctive. It is easier for individuals, and it is easier for the society at large. Hence, any evaluation of what is happening to the family today as a "failure," "a crisis," a "loss of control," is, I believe, a misreading of the reproductive demands of a demographically advanced society. Given the fact that we appear to be taking a major leap toward the long-range institutionalization of very low fertility, I would say that we are doing so with minimum disruption and with singular flexibility.

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* Economists have for some time been vitally interested in the effect of increased female labor force participation on overall trends in inequality of income distribution. This is a complex problem to analyze at a time when so many other changes affecting inequality of income distribution are also taking place--for example, the increase in one-person households among older people and young men. So far, the expectations and the results have been contradictory, depending in large part on which sectors of the overall income distribution one is comparing. For a discussion of the literature on this subject, and calculations indicating that increased female labor force participation results in small declines in overall inequality of income, see (3). For a calculation that would question this result, see (4).

SIGNIFICANCE FOR WOMEN

How should we evaluate the significance for women of this emerging evolution in family structure? Only a few facets of an answer will be discussed here.

Feedback Effect on Men

One point that requires some attention is that the changes affect women very differently from men because women start from such different vantage points with regard to the family. The alterations for women tend to be discrete and clear-cut--getting jobs, having more legal options both inside and outside of the family, experiencing less overt discrimination, watching educational gates open. By and large, the changes have an upbeat, take-hold-of-your-life quality about them. For men, on the other hand, the transformations are, typically, diffused feedback effects of what is happening to women. Moreover, the changes usually involve men in some sort of relative deterioration of status. The most simple example here is that the typical male role of "provider," with all its exaggerated privileges in the home, has all but disappeared. Even families where the husband is the sole earner tend increasingly to acknowledge the economically important role of the nonmarket activities of the wife and mother.

From a women's viewpoint, all this might seem to be one piece of the good news, except for the fact that most women have close relationships with men. Hence, women are not insulated from the negative effects on men of a relative deterioration of their status. How men feel radiates into women's personal lives. Women frequently find themselves living with threatened, confused, hurt, dissatisfied, mixed-up men who are difficult, either because they are so miserable they cannot help it, or because they are trying to control women's behavior. How to handle this problem is a major dilemma for women today, particularly since there is still in our society strong support for a ready solution: making the man feel better by putting his status at the center of one's life. This dilemma points to the importance of escape hatches in the "mating game"--nonmarital unions, divorce, nonmarriage, the chance to engage in a considerable amount of experimentation. Obviously, in the long run, men's expectations will change. Indeed, they are changing, but, the period of adjustment is stressful for both sexes, not just for men alone.

Need For Occupational Changes

A second point is that a continuation of familial change along the lines outlined above will require that women's relationships to the occupational world alter substantially. Two things seem crucial in this regard. One is the wage rate and the other is women's ability and desire to compete.

Women's Wage Rates. As for the wage rate, we seem to be witnessing a major lagged effect on the feminine wage rate of women's traditional labor market role as secondary workers in the family. As is well known, the earnings of white women, relative to white men, have actually deteriorated since the mid-1950's.* Very little of this

* As may be seen from Table 1, the earnings of nonwhites of both sexes, relative to white men, have increased over the period since the 1950's.

gap for white women, who earn less than 60 percent of what white men earn, can be explained by their individual characteristics--items such as educational level, work history, on-the-job training, or continuity of employment (8,9,10,11). The major component seems to be that white women are clustered in low-paying clerical and professional occupations. Why are these occupations poorly remunerated? In part, we can speculate, it is because they are primarily feminine, that is, they are disproportionally weighted with women, but it is difficult to demonstrate such discrimination conclusively. What seems less speculative is that there is a very large supply of women available to take these jobs and this supply drives the wage rate down. This supply of women has been available because, at least in the past, women saw their main careers as being in the home and they sought jobs that articulated well with their primary focus of interest. Ready educational and training conduits to these jobs became available to women, and it was not worth their while to invest in breaking out of these traditional niches or traps, if you will, and bucking overt discrimination of male occupations. Obviously, if the changes in family behavior and expectations continue, women will have to alter their occupational choices and quit flooding into occupations that have depressed wages. As they do this, they will meet obvious discriminatory barriers (unequal pay for equal work, blockages to advancement, etc.). Indeed, this is happening to women who are challenging the system today. But, there are now mechanisms for handling overt discrimination, however clumsy they may be. By contrast, a direct policy attack on the current feminine wage rate in "feminine" jobs is close to impossible because it is so difficult to measure discrimination against a whole class of occupations, much less eradicate it after it has been measured.

Women's Goals. Are the goals of most women today congruent with breaking out of feminine occupations? There is no ready, direct answer to this question because the masculine model is the only one we have of the characteristics associated with occupations that have been statistically "masculine." We have to acknowledge that this may not be the only recipe for success in occupations that have typically been held by men. However, it seems unlikely that women will break into these occupations if they maintain traditional notions about sex roles in the home and about the legitimacy of sexual discrimination in the labor force, or if they are uninterested in leadership, monetary success, or independent occupational prestige. Hence, studies of such topics have considerable relevance to our question, even if we are uncertain how to weight them.

With regard to women's views about appropriate and legitimate sex roles within the home, and overt discrimination in occupations or political roles, there seems to be little question that there has been a major change over the past 10 to 15 years toward "egalitarian" and "liberated" views (12,13). Moreover, as Mason, Czajka, and Arber have shown, there is a rising congruence between attitudes toward sex roles in the home and attitudes towards women's rights in the labor market and in politics (12). Mason and her colleagues interpret this to mean that women, generally, are increasingly recognizing the structural interdependence of their familial and nonfamilial roles.

What about women's interest in occupational values like money, prestige and leadership? A recent study by Lueptow, of high school seniors in 1964 and 1975, indicates very little change among women in setting a high priority on these values (14). Rather, as in the past, women show a preference for jobs that involve working with people and helping

others. The study also shows higher achievement motivation for women than for men--a result consistent with previous work by Maccoby and Jacklin (15). Lueptow suggests that conflicting research results concerning achievement motivation for women may be due to the fact that the TAT achievement-motivation scoring used in some studies includes winning out in competition over others. As he notes, females may be high achievers and weak competitors.

This information seems to tell us that women generally no longer view enforced traditional sex roles inside or outside the home as legitimate. They also appear to have high achievement motivation. What they often lack, however, is a clear understanding of how the occupational world operates, of what kinds of jobs really pay off, or of the difference between competing and achieving. They thus tend to project onto occupations traditional feminine sex-role values, to be attracted to jobs that they believe "should" pay off rather than those that actually do, and to think of being "twice as good" when it comes to advancement, rather than analyzing their competitive advantages and capitalizing on them. This is a hard way to live, and it is proving to be so for those women who are advancing today. In effect, women are in dire and continuing need of mentors to help them learn, from an early age, about the real occupational world. As women succeed the hard way, they do provide help to other women. But, this advice is not always the best, even if well-meaning.

The Present, Not the Past, Is Best

A third major point in evaluating the significance of recent family changes for women rests with accurate evaluations of the past. Familial conservatives in this country have a strong tendency to idealize the past and to selectively inattend or cover up the deviance in the traditional family. As a result, there is a totally inaccurate belief that the country is "paying a high price" for recent changes in the family and in women's roles within it. Three salient issues should be addressed among many that surface continuously in discussions of family policy: violence against women and children, the single-parent household, and the presumed negative effects on children of extremely small families, including the only-child family.

Violence in the Family. A major theme in the media and in popular entertainment depicts the enhanced probability of violence to women when they embark upon unconventional occupations, roles, and activities. Women who venture out in this fashion are presented as being peculiarly at risk for beating, rape, and murder. We tend to forget, and our national leaders who support traditional familism tend to forget, that statistically speaking women are far more likely to suffer injury at the hands of their husbands or other male relatives, than at the hands of sex perverts, controlled-substance abusers, or other deviants outside their families.* Regardless of what the family is believed to have been or to be, it has not proven to be a very safe place for women. We just seem to find it less appalling if a woman is beaten, raped, or murdered by her husband than by someone she met in a bar. Indeed, sometimes the police are hard to activate when the husband is the threat.

* See (16) for summaries of research in the field.

Equally, the notion that an increase in child abuse and battering is a spinoff of recent family changes and their effects on parents, is gratuitous. Cruelty toward and abuse of children has a long history and, if anything, it is probably less today than at any time in the past (17).*

Single-Parent Household. With regard to women's role as mothers, we also tend to fixate negatively on the recent increases in the proportions of children living in single-parent households. For example, the aforementioned increase from 12.9 percent in 1969 to 19.7 percent in 1979 is a case in point. We need to remember that 12.9 percent in 1969 was not zero, and that it occurred in a social environment that was much less supportive of women than the one existing today when the percentages are higher. Further, an idealization of more remote historical conditions for children overlooks the disruptive effect on children's lives of higher parental mortality in the past.**

It is worth noting that one of the most difficult things for single parents to handle is not the economic implications for their status so much as the continuing prejudice against them and their children from persons who are supposed to be helping them. For example, negative expectations of children from single-parent households, on the part of teachers and counselors, are remarkably prevalent (21).

Small Family Advantage. Finally, there is the notion that the relatively sizable family of the past was "better" for children than the small numbers of offspring in the present. The modern woman is sometimes depicted as penalizing her tiny family because of the lack of adequate numbers of siblings to act as socializing agents for each other. Having an only child, an option chosen by an increasing number of women, is a particular target of attack by supporters of the traditional family.

Yet, research does not substantiate the idealization of the traditional family. By and large, children from small families (one and two children) tend to be of demonstrably higher "quality" than children from larger families, especially than children from families of five, six, or more, even after parental socioeconomic status, race, and similar confounding factors have been controlled. Let us look at some of the evidence very briefly and schematically.

A large amount of research on the effects of family size has stemmed from a primary interest in differential cognitive scores, educational attainment, and occupational achievement. The family-size variable has been invoked to help explain differences in individual capability and performance which, themselves, were the principal foci of interest. Moreover, until recently most of this work has been on small samples that were often of questionable relevance to major population groupings.

The most notable advance of recent research has been the use of large, cross-sectional samples such as the data banks employed by Belmont and Marolla (22), Zajonc and colleagues (23,24,25), Breland (26), and

* For some historical perspective on the treatment of children, see (18, 19,20).

** For a summary of some of the research on this topic, see Blake (1).

Steelman and Mercy (27), all studying measures of intelligence, and Blau and Duncan (28), studying occupational achievement. Leaving aside relatively small interaction effects of family size and birth order, these studies show that being from a small family produces higher cognitive scores than being from a large one, even when socioeconomic background is controlled. Similarly, the occupational achievement studies have found that achievement is highest among those from small families. This effect is strongly influenced by educational attainment which, in turn, is quite probably mediated by the IQ differentials that are known to exist. Furthermore, research indicates that certain anomalies in the Belmont and Marolla/Zajonc data, such as the only child being an exception to the linear relationship, may very well be due to special circumstances--higher marital disruption among the parents of singletons, as a prime example. Steelman and Mercy's analysis of Health Examination Survey data in the United States suggests that only-children are anomalous solely in low-income families, where it may not have been possible to supplement the child's environment with nursery schools and the like.

Why does the negative association between intelligence/achievement and size of family of orientation exist? By and large, recent explanations are heavily weighted in favor of differential economic, social, and interactional inputs to child rearing. Physiological explanations, such as the possible effects of later born children in larger families having been born to older parents, seldom appear any more. We would expect them to reappear as we come to understand more about the deterioration of genetic material with parental age. At any rate, larger families are seen to dilute the economic, social, and interactional resources available to parents and, on the average, to produce children who are less cognitively able and less achieving.

What of characteristics other than intelligence and achievement? Sandra Rosenhouse and I at UCLA, with the support of the National Institute of Child Health and Human Development, have been addressing just this issue, in addition to the questions of intelligence and achievement. We are utilizing more than a dozen large data banks having information on a wide variety of characteristics. Moreover, we are interested in adults, as well as children.

One of these data banks, the annual General Social Survey of the National Opinion Research Center, contains data from 10,652 adult respondents, for all years combined, 1972-1978. Included are 627 only children. Multiple Classification Analysis of these data, taking account of parental educational background and religion, and the respondent's age, race, urban/rural background, and economic level when an adolescent, shows that respondents' educational and occupational achievement are negatively related to number of siblings. Beyond these achievement variables, we find that respondents from small families (again controlling for the background variables mentioned), are less likely ever to have been on welfare, are more likely to count themselves generally happy, and more likely to be satisfied with their health, their jobs, and their hobbies. Those from small families are more apt to believe that people are generally trustworthy and helpful; and, in response to questions concerning support for major social institutions (such as science, medicine, business, education, the press, the clergy, Congress, the Supreme Court, and the Presidency), those from small families are no more socially and politically alienated than are those from large families. An additional control, concerning whether or not the respondent came from a broken home, tends

to accentuate the advantage of small families because it removes a disadvantage from only-children (who are more likely to have come from broken homes). Moreover, ideal family size, and actual-plus-expected family size, are also negatively related to the respondents' own number of siblings.

Our preliminary analyses of other data banks sampling adults, adolescents, and children show that, although there are, at times, important interaction effects, the small family is a notably superior child rearing institution. To understand why this is the case will, of course, require extensive analysis. But it is important to make quite clear that the small, modern family is not an "also ran" in the competition with the traditional medium-sized, or large one. The facts seem to be just the opposite. Our modern demographic balance is not only socially, economically, and politically necessary; it also seems to be more personally beneficial for the individuals involved. Hence, however much familism may be espoused by some religious and social groupings, there is very little room for smugness about the average "quality" of children from large families. This evidence should perhaps be born in mind when spokepersons for familism and high fertility try to influence reproductive policy and reinforce traditional, differentiated sex roles.

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Table 1. Median income of year-round full-time workers by sex and race, 1955,- 1977*

Year	Median Income				As Percent of White Men		
	White Men	White Women	Nonwhite Men	Nonwhite Women	White Women	Nonwhite Men	Nonwhite Women
1955	$ 4,377	$ 2,858	$ 2,665	$ 1,468	65.3	60.9	33.5
1956	4,628	2,937	2,767	1,634	63.5	59.8	35.3
1957	4,874	3,096	2,983	1,810	63.5	61.2	37.1
1958	5,102	3,194	3,209	1,877	62,6	62.9	36.8
1959	5,391	3,300	3,150	2,125	61.2	58.4	39.4
1960	5,572	3,377	3,683	2,289	60.6	66.1	41.1
1961	5,817	3,429	3,692	2,264	58.9	63.5	38.9
1962	5,994	3,582	3,577	2,186	59.8	59.7	36.5
1963	6.245	3,687	4,019	2,280	59.0	64.4	36.5
1964	6,457	3,835	4,234	2,663	59.4	65.6	41.2
1965	6,802	3,935	4,272	2,672	57.9	62.8	39.3
1966	7,179	4,142	4,508	2,934	57.7	62.8	40.9
1967	7,505	4,307	5,01[illegible]	3,232	57.4	66.8	43.1
1968	8,047	4,685	5,518	3,489	58.2	68.6	43.4
1969	8,953	5,182	6,104	4,251	57.9	68.2	47.5
1970	9,447	5,536	6,638	4,664	58.6	70.3	49.4
1971	9,902	5,767	7,006	5,194	58.2	70.8	52.5
1972	10,918	6,172	7,576	5,341	56.5	69.4	48.9
1973	11,800	6,598	8,298	5,724	55.9	70.3	48.5
1974	12,399	7,235	9,320	6,805	58.4	75.2	54.9
1975	13,233	7,737	10,151	7,598	58.5	76.7	57.4
1976	14,272	8,376	10,478	7,884	58.7	73.4	55.2
1977	15,378	8,870	11,037	8,447	57.7	71.8	54.9

* Source: (7).

Social Change and Its Effects on Parents and Children: Limitations to Knowledge

Lois W. Hoffman, Ph.D.

A very popular question being discussed these days in the social sciences and the mass media is how has social change affected parents and children. Social science data are frequently invoked to describe and analyze emerging social patterns, often to express alarm about how things are going. In using these data the analyst is sometimes led astray because the data are inadequate or even faulty, or because, though accurate, they are inappropriately applied. In this chapter, the focus will be not on how social change has affected parents and children, but rather on some of the problems that interfere with efforts to deal with this question. There are three particular problems that will be discussed. The first is that knowledge of various family patterns and their effects on the child may be invalidated by the new and emerging social climate. The results of studies carried out under one set of social conditions cannot be generalized to social conditions that have changed. Thus, studies of the effects of maternal employment, divorce, and single-parent families carried out before these patterns were so prevalent may have little bearing on the effects of these patterns today.

A second problem has to do with the criteria for judging effects. To talk about the effects of a family form or a child rearing pattern, one needs appropriate outcome measures pertaining to the child's socioemotional state, attitudes, or performance. Researchers have typically taken too simplistic and evaluative an approach to measuring outcomes, and the validity of some of the measures used is questionable. A reexamination of the accumulated data from the standpoint of today raises serious questions about past conclusions, in part because of these inadequacies, in part because there have been shifts in our notions of what constitutes mental health.

The third problem with discussing the effects of social change is that it is sometimes very difficult to know when a new pattern has really emerged. If, for example, the percentage of married women on a national sample basis who state that they wish to remain childless changes from 2 percent in 1965 to 6 percent in 1975 (1), shall we say that the rate has tripled, or shall we say that the rate still is only 6 percent? And if the women who say this are predominantly from the younger age group, as is the case, shall we conclude it is a sign of

the future, or a temporary view that will change when they are older?

NEW SOCIAL CONDITIONS AND ACCUMULATED KNOWLEDGE

An example that will illustrate the first point is maternal employment. In recent years maternal employment has moved from the deviant pattern to the dominant one. The rapidity with which this change has occurred can be seen in Table 1. At present, for intact families, 59 percent of the mothers with school-age children are employed and 43 percent of the mothers of preschoolers. For mothers in single-parent families, the comparable figures are 72 percent and 60 percent (2). The effects of maternal employment on families and children obtained when this pattern was atypical cannot be generalized to the present situation when it is modal. Even if there were no other change, the shift in prevalence itself would alter the effects. If, for example, the employed mothers of the past responded with guilt and overmothering, as one study in the fifties showed (5), guilt is less likely to be the response now that the pattern is so widespread. In fact, at the present time, it may be that it is the nonemployed mothers who are on the defensive and, to justify their nonemployment, are overmothering (6).

Furthermore, it is not only maternal employment rates that have changed. Family size is down, the amount of necessary housework has diminished, divorce rates are up, the educational levels of women have increased, and there has been a considerable change in attitudes about women's roles (7). All of these are factors that influence and mediate the impact of maternal employment on the child and the family (8). These changes not only affect what the impact of maternal employment will be, but also on what it should be. If, for example, traditional patterns have changed, then children should not be socialized to fit the traditional patterns. As I have pointed out in a previous publication (1), longer life expectancy, diminished family size, and the increased likelihood that a woman will be employed while she has young children, mean that a female child today can expect to spend more of her adult life in active employment than in active mothering. The traditional family, with its sex-differentiated socialization patterns, prepared daughters to become mothers and sons to become breadwinners. Because the adult roles have changed, the socialization patterns need also to change. And in fact, such a shift in socialization patterns does seem to be taking place in the employed-mother families: the household division of labor is less traditional, the children do not hold as stereotyped sex-role attitudes, daughters are granted more independence and given more encouragement in competence, and they are more job- and career-oriented (9).

Much of what has been said about maternal employment can also be said about divorce and single-parent families. The sheer prevalence of these patterns has diminished the stigma, and this, along with other social changes, can be expected to influence the outcomes for children.

Another example of how the various social changes may alter conclusions based on previous research can be seen if we consider the role of the father who is present in the family. The accumulated data indicate that there are differences in the way fathers and mothers interact with their children. Perhaps the most frequently reported finding is that fathers differentiate between sons and daughters more than mothers do. Fathers are more likely to treat sons and daughters differently, to

reinforce in each, traditional sex-typed behavior, and to show preference for sons (10). In fact, this pattern is so marked that it has been suggested that the increased participation of fathers in child care will increase the differences between the sexes (11). It seems more logical to me, however, that as fathers become more involved in child care, as new cohorts of men become fathers who are less anxious about their own masculinity, and as the status of each sex moves closer toward equality, fathers may become less involved in shaping their children along sex-stereotyped lines.

Even in studies of father-infant interaction, there is some evidence that as mothers and fathers come to assume more similar roles in the family, some of the observed differences between maternal and paternal styles may diminish or disappear. For example, in a recent exploratory study of parent-infant interaction (12), it was found that when the father was the only employed parent, fathers more often engaged in the kind of interaction with their infants that has come to be known as characteristically paternal behavior, a pattern of social play and physically robust handling of the infant. In two-wage-earner families, however, the pattern was different: the mother's rate of such play was relatively high while the father's was low. The researchers suggest that what has been considered the "hallmark" of father-infant interaction style may be a function of work roles, and, in view of the increasing employment rates for mothers of infants, may be declining as a characteristically paternal behavior. Social change can alter the style of father-child interaction as well as the amount, so a prediction about the effects of any increase cannot simply be extrapolated from the present observations.

OUTCOME MEASURES

Turning now to an examination of how social change and maybe scientific progress have affected the acceptability of old outcome measures, perhaps the most obvious examples are the measures of masculinity and femininity. Before the Bem scale, which is now under attack for other reasons (13,14), probably the most common measures were the Gough Femininity scale from the California Test of Personality and the Masculinity-Femininity scale from the MMPI test. According to these scales, a boy would score less masculine if he "did not like Popular Mechanics, want to drive a racing car or feel like starting a fistfight"; a girl would score less feminine if she was "not afraid of windstorms or the dark," did not feel she would "go to pieces," or did not want to be a librarian (15). If such items were ever good measures of these traits, they would not be considered so now, and that they ever tapped a dimension of mental health now seems ludicrous. Nevertheless, these measures were frequently used in establishing the dangers of father absence for sons.

Because males have typically obtained higher scores on math than on verbal tests, while females score higher on verbal, the math-verbal ratio also has been used to indicate the femininity of sons without fathers. Several studies of father absence found that fatherless males were more likely than males with two parents to have higher verbal than math scores. This was interpreted as a deficit and a sign of femininity, although, as Herzog and Sudia (15) have pointed out, most researchers failed to examine if the fatherless boys had diminished math scores or enhanced verbal scores. If the "inversed"

ratio was simply the result of exceptionally high verbal scores, it is difficult to defend a deficit hypothesis.

There are a number of additional outcome measures less obviously flawed that can be challenged in light of present values. Good grades in elementary school, for example, might be a function of oversocialization or overconformity, and might not indicate good mental health or even high achievement at later ages. Child-reported measures of parent-child conflict might be an indication of a more open home atmosphere rather than of a more stressful relationship. Acknowledgement of fears on the part of a child might mean more anxiety, as has often been assumed, or it might signify more insight and self-acceptance. A trait that seems positive at one age might predict a negative trait at a later age. Longitudinal data indicate, for example, that the most popular children during adolescence were not the most well-adjusted when they were adults (16). We are moving toward a more holistic lifespan view of mental health. This is scientific progress, but it may also reflect a change in the social climate. A number of studies have shown a general shift in attitudes in America toward a broader notion of life goals, a distrust of unidimensionality, and a greater acceptance of deviance (17). Science is not immune to the influence of the social milieu.

While the focus here has been on child outcome measures, similar criticisms can be made of the measures of adult mental health and marital relationships. There is a pressing need to develop adequate outcome measures which take account of the complexity of human behavior and developmental changes.

ESTABLISHING THE EMERGENCE OF NEW PATTERNS

The third problem to be taken up has to do with establishing how much change has occurred and when a new pattern can be said to have emerged. Let's start with something as obvious as sex differences. Probably all of us feel that we have witnessed a revolution in sex discrimination, in the extent to which males are different from females in attitudes and behavior, and in the degree to which parents socialize boys differently from girls. Yet, in fact, one could provide documentation both for change and for the absence of change.

In their widely quoted 1974 book, Maccoby and Jacklin (18) tended to minimize the number of well-documented sex differences, claiming a clear case for only visual-spatial ability, mathematical and verbal skills, and for aggressiveness. They found little evidence of sex differentiation in parenting styles. Subsequent critiques of this book (1,19) and a flurry of research activity soon extended the list of differences between the sexes and very solidly documented differences in the socialization experiences of each sex. No doubt there has been a decrease in recent years in the amount of sex differentiation and in the resulting sex differences, but how much decrease is uncertain, and differences definitely still exist.

If the research focuses not on the educated academic community but on the United States at large, sex-role traditionalism still reigns. In a recent national sample study in which married couples were interviewed about their attitudes toward children, it was found that sons were preferred over daughters (1). Asked why they might want

to have children of each sex, the most common reasons for wanting daughters offered by women were to have a companion and because it would be "fun to dress her and fuss with her hair." The other common answers were that girls were easier to raise and more obedient, that a daughter would be more like her mother, that she could help and learn about housework and caring for the other children, that girls stay closer to their parents than boys, and that they are "cuter, sweeter, and not as mean." As in other recent studies, parents were more likely to stress occupational achievement goals for sons and to seek to develop in them traits such as being hard working, ambitious and responsible, while family goals and interpersonal qualities were stressed more for daughters.

In an 18-year gap replication study of the tasks children were expected to perform that was conducted in Detroit, some diffusion in the task assignment over the years was discovered but also a considerable continuance of sex-role traditionalism (20). For example, in the fifties, 65 percent of the mothers said only boys should shovel snow; in the seventies, 50 percent said this. In the fifties, 66 percent said only girls should dust, in the seventies, 62 percent. On the other hand, car washing and bed making had become more unisex, dropping from tasks seen as sex specific by over half the mothers in the fifties (65 percent and 52 percent, respectively) to about 30 percent in the seventies.

If we turn to the behavioral observation studies, where we examine what parents actually do instead of what they say, we find sex-based differences in socialization experiences that may be even more pervasive. For example, mothers of daughters have been observed to provide help in problem-solving situations more than mothers of boys (21). Fathers teaching preschoolers were more task-oriented with boys, more interpersonally oriented with girls (22). Such patterns where parents are not even aware that they are differentiating may be less responsive to the new social climate. As I have indicated in previous work, I do believe that social changes, and particularly the fact that women now spend more of their adult lives in occupational pursuits than in active mothering, will eventually lead to a diminishment in sex-based socialization differences and thus to a reduction in the actual differences between the sexes (1). It is important to realize, however, that at this point differences still exist.

Even when we consider the sphere in which probably the most change has occurred, achievement among college-educated women, many of the previous patterns still prevail. There has been an impressive increase in the level of women's education, their career commitment, and their representation in certain professions such as law and medicine. There are a few shining examples of dual-career couples who truly divide equally household tasks and work commitments, but by and large, women still face greater conflict between achievement goals and affiliative interpersonal concerns than men do. Aggressiveness, competitiveness, and top achievement are still considered less becoming in a woman than in a man. In a recent study of college men, most indicated they wanted an intelligent wife and they approved of her continuing to work after marriage, but few wanted to marry a woman who was more intelligent or successful than themselves (23). Male executives might marry their subordinates and male professors might marry their students, but female executives and professors are not yet likely to follow suit. Women still have the major responsi-

bility for parenting. Even in Sweden, where men can take paternity leaves from employment, few avail themselves of this possibility except for family vacations (24). And while there are exceptions, and these exceptions are important, women still take jobs where their husbands find work. It is unquestionable that there has been social change here, and both replication studies (17) and reinterview studies (7) over 15- to 20-year intervals indicate a movement toward more egalitarian attitudes, but sex-role traditionalism is still a social force in America and its demise should not be prematurely announced.

An area where many people feel there has been social change, but where the evidence is much more equivocal, has to do with the meaning of parenthood. Have other social changes--increased fertility control, for example, and higher female employment rates, mounting divorce rates, greater acceptance of alternative life styles, the new drive for self-actualization--diminished the value of children? There are two aspects to this question: Are more adults opting out of parenthood, and is parenting less satisfying?

The question of whether or not voluntary childlessness is a social trend is not easy to answer. In the national sample study of attitudes toward children mentioned earlier, 6 percent of the women, all married and under 40, said they preferred to have no children. When the same question was asked of comparable samples in the sixties, as already indicated, about 1 or 2 percent gave this response (1). Furthermore, the 1978 census data indicate that 6 percent of the wives expected to be childless (25). While these figures indicate an increase, it is still a small proportion of the population. In addition, as indices of voluntary childlessness, such figures have a number of problems. Some young women who indicate they expect to remain childless may change their minds, while others who do not state this intention may postpone motherhood until it becomes a decision that was never consciously made. Moreover, voluntary childlessness is not distributed equally throughout the population. It is more common among young, educated couples and thus might be a trend for this group though not for the country as a whole. The percentage of college-educated Americans is increasing, and some theorists hold that new social trends are first established among the more educated groups and then spread more broadly, so it may be that the college-educated is the crucial group. But even for this group, the case for a new social pattern does not yet seem conclusive.

Turning from the unanswered question about whether there is a new trend toward opting out of parenthood entirely, to the question of whether there is diminished satisfaction from parenting, the national Attitude-Toward-Children Study provides interesting data. This study supplies considerable evidence that married couples in the mid-seventies still saw the parent role as very central to their lives and a major source of satisfaction. Children were seen as a means of satisfying basic psychological needs, the most commonly mentioned being the need for love, the need for fun and stimulation, and the need to provide meaning and fulfillment in life. This was revealed both in answers to questions about what are the advantages of children and also in answers to questions about how certain needs were satisfied through having children (26,27).

One set of questions asked respondents how much satisfaction they obtained from each of several areas of life--their jobs, marriages, spare time activities, work in the house, and being parents. Though respondents indicated each area provided considerable satisfaction, none piled up such unanimous enthusiasm as parenthood. Among employed mothers, for example, 94 percent said that being a parent was a source of a great deal of satisfaction, while only a little more than half that many indicated such satisfaction from their jobs (26).

Another question that was included in the study was "How does having children change a person's life?" This same question had been asked in the 1957 study, Americans View Their Mental Health (28), in which a national sample of adults, married and unmarried, were interviewed, and also in a 1976 replication of that study (17). In all three studies--the Attitude-Toward-Children Study, the original 1957 study of mental health, and the 1976 replication--the answers were primarily positive. The replication study indicated a modest decrease over the years in the proportion of parents giving a totally positive answer, from 58 percent in 1957 to 47 percent in 1976. (For mothers only, the shift was less: from 54 percent to 46 percent.) The decrease in the percentage of all-positive responses was more evident among nonparents. In 1957, 56 percent of this group, including both married and unmarried respondents, gave an all-positive answer; in 1976, the figure was 33 percent. Most notable perhaps in the replication study was that there was a general change over the years in responses to all questions, whether about work or marriage or parenthood, toward greater acknowledgement of problems.

The overall picture provided by the two national studies in the mid-seventies is that, for most people, parenting is still an important source of satisfaction. If there is decreased enthusiasm for parenthood, it exists mainly among young men and women who have not yet had children. However, it is not yet possible to know if the data for this group reflect values associated with a stage in life and will change later, or whether they reflect the attitudes of a new cohort. So here again, we are left to puzzle over the question of whether or not a new pattern has emerged.

CONCLUSIONS

Does all of this mean that we should give up on the task of trying to understand how social change has affected parents and children? No. Three issues have been discussed that impede our efforts: first, the results of old studies may be misleading because the effects of a pattern may be different when that pattern changes from the unusual to the norm. Second, we cannot accurately project future outcomes if we rely on previous research that used inadequate outcome measures. And third, it is sometimes difficult to detect social change, to differentiate a ripple from a wave.

These problems are not intrinsic to social science but stem more from inadequacies in what has been done. While theory based research has been relatively rare, such work lends itself more readily to generalizations about how the observed patterns operate under changed conditions. Valid outcome measures need to be developed which take account of the complexity of human behavior. New social patterns can be identi-

fied with empirical research, and the new interest in obtaining social indicators on a national scale at regular intervals should facilitate this task.

Furthermore, pointing out the pitfalls of working with our present data base to analyze social change and its effects on parents and children should not lead us to believe that it is impossible to draw any conclusions. But it is important to keep in mind the limitations of the data and the complications in predicting change. And, it is hoped, the difficulties of applying the accumulated research findings to the present situation will highlight the need to sharpen our research tools so that one effect of social change will be better social science.

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Table 1 Labor force participation rates of mothers with children under 18, 1940-1978.

Year	% of Mothers
1978	53.0
1976	48.8
1974	45.7
1972	42.9
1970	42.0
1968	39.4
1966	35.8
1964	34.5
1962	32.9
1960	30.4
1958	29.5
1956	27.5
1954	25.6
1952	23.8
1950	21.6
1948	20.2
1946	18.2
1940	8.6

Source: U.S. Department of Labor (3) and U.S. Department of Commerce (4).

Patterns of Parenting in the Transition from Divorce to Remarriage*

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Our perspective on the contemporary family has been radically altered by a recent infusion of historical evidence on family life in previous centuries. We have long labored under the misconception that family variation, conflict and instability are by-products of industrialization and urbanization. Now we know better. As far back as statistical records and archival material permit us to go, we can find unmistakable evidence that family life was always fraught with tensions, subject to dramatic fluctuations, and full of diversity. The closer we get to the family of the past, the more it seems like the family of the present--buffeted by external forces and divided by internal strains (1,2,3).

Relinquishing our romantic illusions about the past does not lead to a sanguine view of the contemporary family. Nor do we embrace the comforting, but fatuous, adage: The more things change, the more they stay the same. As will become clearer later in this paper, we believe that fundamental and far-reaching changes are taking place in conceptions of marriage and parenthood, in part due to the remarkable rise in rates of divorce and remarriage. Some regard these transformations with concern, even alarm. In making such assessments, however, it is useful to retain an historical consciousness and a mistrust of glib comparisons of the crisis-ridden family of today with the secure haven which we have thought the family was in times past.

Certainly, no informed observer can question that the family, at least in the United States, is experiencing some profound alterations. As always, the magnitude of the perceived change depends in part on what is taken to be the baseline. Depending upon whether we begin at the end of the 19th century, the first period for which we have a large amount of reliable quantitative data, or in the middle of the 20th century, when we have a much richer variety of demographic and social information, somewhat different pictures

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emerge. Ironically, short-term family changes--those over the last few decades--are much more dramatic than the long-term changes--those over the last century. This is because in the period immediately following World War II, certain longstanding cyclical trends were temporarily upset. Age at marriage, which had been relatively stable, plummeted, giving the impression of a "marriage rush." Fertility, which had been on the decline, increased dramatically, creating the well-known "baby boom." Divorce rose precipitously at the end of the war, but then declined to prewar levels. In short, for reasons which are not yet well understood, in the middle of the 20th century, Americans observed an unusually high commitment to domestic life. We might think of this period as an era of mass production of families (4,5).

It is against this backdrop that we now view the past two decades as a period of "recession," even "depression," in family formation. Marriage age has risen close to historical highs for women, and fertility has declined to historical lows. Women have moved out of the home, joining men in the workplace. It must be conceded that we are prone to exaggerate these changes because our point of comparison is the baby boom period. In reality, these changes are less discrepant with long-term trends in family formation. Nevertheless, the end of the baby boom signaled some profound changes which have no historical precedent. The one that we wish to single out in this paper is the emerging pattern of conjugal succession--the increasingly common tendency for couples to divorce and remarry. Later on, we shall discuss certain implications of serial marriage for parents, looking particularly at the different roles of men and women in the family.

Elsewhere (6), we have tried to show that this pattern of conjugal succession is probably related to a series of demographic developments which have taken place in the past two decades. Briefly summarized, our argument is that whereas marriage was once closely bound to departure from the parental home, establishment of a new household, the onset of sexual activity, and parenthood, today marriage has become detached from these other transitions. Marriage no longer serves as the master event in the sequence of family formation, but is now merely one of a series of increasingly independent transitions that make up the process of creating a new family. Individuals can leave the parental household, set up their own residence, become sexually active, cohabit with a member of the opposite sex, and even have a child without getting married. All of these events are discrete acts that may or may not be linked to the decision to marry.

As marriage has become less central in the process of family formation, its meaning has changed accordingly. Matrimony is today viewed as more voluntary; that is, no longer do we take it so for granted that a person should marry, even though most individuals, in fact, will enter wedlock. Moreover, marriage is also regarded as involving a much more conditional commitment. A substantial proportion of the population accepts the inevitability, even the desirability, of divorce in the event of serious marital discord.

From the middle of the 1960's to the present, the rate of divorce has soared. In the past two decades, the annual rate of divorce (number of divorces per 1,000 total population) has risen from 2.2 to 5.3, increase of 241 percent. We can translate these divorce figures

into estimates of the probability that any given couple will terminate their marriage by divorce before one or the other dies. This calculation indicates that approximately half of all current marriages will end in divorce (7). In 1950, a quarter of all couples divorced by their 25th anniversary. In contrast, among couples marrying in the mid-1960's, it took just 10 years to achieve the same level of divorce. We would probably not be too inaccurate if we guessed that one out of four couples marrying today will divorce before their eighth anniversary (8). Thus, more couples are getting divorced, and the interval between marriage and divorce is dropping sharply. The typical divorcee in the 1950's was in her early thirties, whereas today she is in her late twenties (9).

Partly for this reason and partly because couples delay childbearing somewhat longer today, a slightly smaller proportion of divorces involve children under age 18 than was the case in 1960. However, most couples (approximately 57 percent in 1976) have young children at the time of divorce, and the number of children involved in divorces in a given year more than doubled from 1960 to 1976, rising from 500,000 to 1,100,000. Again, extrapolating from these annual figures, it is possible to estimate the likelihood of the child experiencing family dissolution before reaching age 18. Paul Glick (9) calculates that by 1990 approximately a third of all children will encounter a divorce before reaching their 18th birthday, excluding those cases where parents separate but never divorce. Needless to say, these figures have attracted the attention of both policy makers and the social science community. In the past decade, researchers have conducted a large number of studies on the causes of divorce and its consequences for family functioning (10,11,12,13).

For reasons that are not entirely clear, almost all of the current research on divorce regards marital dissolution as a terminal rather than a transitional status. Even studies that purport to look at the long-term effects of divorce ignore the well-known fact that most divorced persons remarry, parents and nonparents alike. Clearly, it is difficult to understand the consequences of divorce without examining the continuing conjugal career of the partners who terminate a marriage.

Approximately 75 percent of women and 80 percent of men who divorce eventually remarry. As the age at divorce has declined, the interval between divorce and remarriage has shortened. Half of all divorcees remarry within 3 years. No figures exist for the number of divorced persons who are cohabiting, but if we added in this contingent, the pace of recoupling would undoubtedly look even faster. It is widely believed that women with children have a lower probability of remarriage than those without children. However, this impression is not wholly accurate, because childless divorcees are generally younger, and age is strongly inversely related to the probability of remarriage. Whether they have children or not, more than two-thirds of all young women under the age of 25 remarry within 5 years, although those without children are slightly more likely to marry sooner than those who are mothers. Children have little effect on remarriage chances among women between the ages of 25 and 34; the probability of remarriage is approximately .57 within 5 years regardless of their fertility history. Older women are actually more likely to marry if they have children (14). In general, then, children from the former marriage are not a deterrent to remarriage.

The number of step-families has steadily increased as the rate of marital dissolution has enlarged the pool of divorced individuals with children. There are no precise estimates of the number of children living in reconstituted families. A conservative extrapolation from data on divorcees with children indicates that approximately one child in ten is living with a stepparent. Not included in this figure are children one or both of whose current biological parents were previously married and had a child in their former union. Thus, the number of children who are part of a reconstituted family (having either half or step-siblings) is perhaps as high as one in seven. Elsewhere, I have estimated that if we consider the chances of a child entering a step-family by his or her 18th birthday, the figure might be as high as one of every five.

Except for what has been learned from clinical studies and a handful of small-scale investigations, we have almost no current information on the operation of step-families (15,16). Most of the existing studies are limited in scope and have sampling problems. With one or two exceptions, all are cross-sectional rather than longitudinal, that is, they do not follow the experience of adults and children as they make the transition from divorce to remarriage. Consequently, we do not have even the most rudimentary information on how remarriage alters the life situation of the parents or affects the well-being of their children.

This paper will furnish information from an ongoing study of the transition from divorce to remarriage. The study, conducted in central Pennsylvania, suffers from some of the same methodological limitations characteristic of previous investigations in that it is based on a small sample of 210 persons who were not selected on a random basis. However, the study is longitudinal, beginning close to the point when the participants separated and following them for a period of 2 1/2 years (17). At the initial interview, conducted within 24 months of the breakup of their marriage; and at the follow-up conducted about 30 months later, an extensive amount of information was collected from the subjects, through structured interviews, each lasting approximately 2 hours, and through qualitative case studies, designed to supplement the formal interviewing. The first wave of the study was directed by Graham Spanier, who trained and supervised a group of graduate student interviewers. The follow-up was initiated by Frank Furstenberg and was funded by the Administration for Children, Youth, and Families. The field work was conducted by the Institute for Survey Research (ISR) at Temple University; Furstenberg and Spanier worked closely with ISR on the details of the data collection and data reduction.

Of the original 210 individuals first interviewed in 1977, 181 were reinterviewed in 1979. We had anticipated that close to half of the participants in the central Pennsylvania study would have remarried by the follow-up, 4 years on the average after the date of separation. The rate of remarriage was somewhat lower than expected probably because a fourth of the respondents were not yet divorced at the time of the initial interview. By the second interview, only 35 percent had remarried, but an additional 13 percent were

living with someone of the opposite sex.* Of the participants who were still single at this time, almost all had divorced. In the analysis which follows, we have usually combined the cohabiting and remarried persons together, because we discovered that their responses to common situations were not markedly different. One individual had returned to her original marriage and is not included in the analysis which follows.

The Spanier survey focused on adults' adjustment to separation and divorce. Consequently, it did not contain a great deal of information on the situation of the children. The follow-up interview included many more questions on the management of parenthood by both formerly married individuals and their current spouses and partners, in the event that they had remarried or were living with someone by that time. This paper will report, to the extent that our data permit, how participants altered their parental behavior over time, contrasting those who reentered relationships with those who remained single throughout. At times, we shall also comment on the situation of the children, although it is important to keep in mind that such information was provided by the parents, who may or may not be reliable observers. Our objective will be to examine whether and in what manner men and women are differentially affected in their parenting roles as they move from divorce to remarriage. Our intention is to explore what Jessie Bernard (18) has called the "his and her view of marriage," extending these divergent perspectives to divorce and remarriage.

CUSTODY ARRANGEMENTS

No exact figures are available for the United States as a whole on the disposition of children at the time of divorce. Available census information suggests that about nine out of every ten children in single parent families are living with their mother, and this proportion has been fairly constant during the recent period of rising divorce rates (19). However, since some single parent families are created by the death rather than the divorce of a spouse, and others result from out-of-wedlock childbearing, we cannot be certain how precise the ratio of one of ten is for the specific population of divorced parents. Moreover, the census figures offer no clues as to whether these custody arrangements are stable or whether they shift over time when the husband or wife remarries or enters a new relationship.

Although by no means based on a representative sample, the data from the central Pennsylvania study provide information on the stability of custody arrangements during the 2-year period of the study. We

* Our results are broadly similar to those of Koo and Schindran (14) that motherhood is not an obstacle in a woman's path to remarriage. Among the female respondents age 23 to 29, 27 percent of those without children remarried within 2 years of the date of termination of their previous marriage, and 28 percent of the mothers remarried by that point in time. Among the women 30 or older, 13 percent and 16 percent, respectively, of those without children and those with children entered remarriage within 2 years. Thus, the major determinant of the pace of remarriage among the female respondents was their age rather than whether they have children or not. Our is too small to rely on these results; however, the similarween these results and those of Koo and Schindran suggests r respondents are not atypical of divorced and remarried individuals generally.

can also examine how changes in the respondent's marital situation affect his or her involvement in the parental role. In the analysis which follows we shall first look at the custody arrangements over time, and then examine the performance of parental responsibilities for men and women separately as their marital situations change from the initial interview to the follow-up.

Of the 181 respondents who participated in both interviews, 104 (57 percent) had children who were still under the age of 18 in 1979. As is shown in Table 1, 80 percent of the children were living with their mother at Time 1. In another 13 percent of the families, children were split between the father's and mother's care or were in joint care of both parents. In 6 percent of the cases, the father had sole responsibility, while in the remaining 2 percent of the cases, the children were in the care of someone else, usually a close relative. Although the great majority of families maintained these arrangements in 1979, almost a fifth of the respondents reported a change in custody arrangements.

Table 1 provides information on the direction of these shifts. Overall, there was a slight decline in the number of families in which the wife assumed sole responsibility for the children, down from 80 to 75 percent of the cases. Significantly, there were no shifts in the six cases where the husband had sole custody at Time 1, while 17 percent of the families in which children were living with their mother at the time of the initial interview made some change in custody by the follow-up. In most instances, one or all of the children went to live with the father. Among the small minority who had less orthodox custody arrangements at Time 1, there was a good deal of turnover. Most children living in joint or split custody were located with their mother at Time 2. Actually, these descriptions of the amount of flux in these families may be misleading, because some of these children had in fact been living primarily with their mother at Time 1 even if they were described as being in joint custody.

What our data do seem to suggest is that joint or split arrangements may be either temporary accommodations to external pressures or makeshift attempts to resolve unsettled conflicts. Whether these arrangements are made for the child's benefit, we cannot say from the data at hand. Clearly, the children experienced the greatest amount of residential instability when custody was not exclusive.

It might be expected that shifts in marital status would upset child care arrangements. Are custody realignments more likely to occur when the respondents and their former spouses reentered new relationships? The data from central Pennsylvania provide some support for this expectation, but the picture is more complicated than we had anticipated. It was rare for both husband and wife to remain single throughout the study, but when they did, stability in the custody arrangement was relatively high: more than four-fifths of these previously married couples had the same arrangement at both interview points. At the other extreme, when both husband and wife remarried, there was also a high degree of stability in the location of children. Again, roughly four out of five couples maintained the same arrangement.

Change occurred most frequently among families in which one spouse remarried and the other did not. Half of these families altered

their custody arrangement in some way. Whether it was the husband who remarried or the wife seemed to matter less than the fact that only one changed his or her marital status, for in both instances the wife was less likely to maintain responsibility for the children.

We know from the reports of the respondents that some of these shifts were voluntary on the mother's part. Difficult-to-manage adolescents were sometimes transferred to their fathers, who offered more discipline than the mother felt capable of providing. It was also not unusual for a father to assume custody for a young son who was having emotional problems in the aftermath of divorce. In some instances, too, a male helped out, when his overburdened exspouse returned to work, by shouldering more of the child care responsibilities. However, not all of the changes were consensual. It seems as though, when males remarried and females did not, males made a claim for a greater share of child care by arguing that they could offer a more stable environment to their offspring. At the same time, when the wife married and the husband did not, men made the argument that continuity with the children should not be disturbed.

A detailed analysis of the small number of cases where the wife forfeited custody of the child reflects the mixed motives involved. In the more common case where women retained custody of their children, they were more likely to express high levels of satisfaction than those who relinquished some or all of their children to their former spouse (76 percent of the former were very satisfied at the follow-up, compared to 45 percent of those who experienced a custody change). Obviously, though, one cannot characterize the custody changes with any sweeping generalizations. Some women clearly felt that the placement of the child with his (or her) father enhanced their own situations, while others did so only with reluctance, as indicated in the quotation below.

> Interviewer: ...did the kids accept the (second) marriage pretty early or was that a difficult and slow process and is it still going on?
>
> Mother: Well, no. All three had accepted him but the oldest one which is in fifth grade did not accept him at all in the beginning and so therefore, he decided to live with his father. The other two, there was no problem at all....
>
> Interviewer: Was that part of the custody arrangement or was that something you worked out?
>
> Mother: We worked that out during our divorce proceedings but it was all voluntarily. I decided to let the child make his own decision and it has its ups and downs.

Overall, satisfaction with custody did not vary greatly over the course of the study. Parents who were living with their children usually were pleased with the arrangement at both the first and second interviews, while those living apart from their children were typically far less satisfied. Since women usually retained custody of their children, they were more likely to be contented with the current child care arrangement than were the men in the

sample. The sex differences are negligible when the custody arrangement is taken into consideration. About three-fourths of both the males and females living with their children were very satisfied with the arrangement, while nearly two-fifths of the parents who were living apart from their children expressed discontent.

There seems to be remarkably little awareness of this disparity in the perspectives of the parents. When asked to report on their former spouse's satisfaction with the arrangement, most custodial parents sensed little dissatisfaction with the arrangement. Since their former partners are not in the sample, we cannot check these perceptions against the actual reports of their former spouses. However, if we look at the sentiments of the noncustodial spouses, who are the counterparts of those former spouses, the evidence suggests that parents who have custody of their children generally underestimate the discontent of their former spouse. At least in part, this disparity in perceptions may serve to reinforce the view of the custodial parents that their former spouses are unwilling to shoulder their share of the responsibility, a view that will emerge as we present more of the findings from the survey.

Finally, we could discern no clear-cut differences in custody satisfaction between the respondents who remained single during the course of the study and those who remarried. Satisfaction was highest among the handful of couples where neither partner remarried, perhaps reflecting the stability of this arrangement, but the numbers are too small for us to be certain that this finding is not a result of random variation. And a change in marital status during the course of the study did not affect the level of satisfaction with the custody arrangements, for either the parents living with their children or those living apart from their children. Therefore, we are inclined to conclude that remarriage usually does not alter custody satisfaction, unless it alters the existing arrangements between the former spouses.

CONTACT AND CLOSENESS BETWEEN PARENTS AND CHILDREN AFTER DIVORCE AND REMARRIAGE

As might be expected, parents not residing with their offspring diminish contact with their children during the course of the study. Table 2 shows this pattern of attrition over time. The response categories for the amount of contact are not exactly the same at Time 1 and Time 2, but the drop seems to occur primarily among parents who were seeing their children fairly regularly, a few times a month, rather than those who in effect maintained joint custody, seeing their children at least several times a week. By the follow-up, the proportion of parents who saw their nonresidential children several times a month or more had declined from nearly three-fifths to less than a half, if we rely on the respondent's self-report (when he or she is the noncustodial parent) and from 49 to 38 percent if we use his or her reports about the former spouse's frequency of visitation (when he or she is the custodial parent). At the point of the initial interview, there was a fairly wide disparity between these two figures, but at the follow-up the self-reports and reports about the former spouse were quite similar.

Since 80 percent of the nonresidential parents are males, and given the small size of the sample, it is difficult to tell whether there are any distinct sex differences in the amount of contact between noncustodial parents and their children. Combining both respondents' reports about themselves (when they are noncustodial parents) and about their spouses (when they are not) provides enough cases to examine interaction patterns separately for mothers and fathers who do not live with their children. The data reveal no distinct differences in the behavior of male and female noncustodial parents regarding their contact with their children. Mothers have more contact with their children than do fathers, but the differences are not sizable or significant.

To what extent does cohabitation or remarriage contribute to the general decline in contact between nonresidential parents and their children? The results from central Pennsylvania are by no means definitive, but they do suggest that remarriage may contribute to a reduction of contact between nonresidential parents and their children. In families where neither parent had remarried, two-thirds of the nonresidential parents continued to see their children at least a few times a month. In the intermediate situation, when one parent reentered a relationship and the other did not, 40 percent of the parents living apart from their children saw them several times a month or more. And, when both partners had remarried, only 34 percent of the nonresidential parents continued to see their children on a regular basis.

There are many possible reasons why new relationships may intrude on the maintenance of parental contact and responsibility. Residential movement is associated with a change in marital status, increasing the difficulty of regular visits. Individuals who remarry or live with a new partner may have less energy to invest in parental responsibilities because they may be called upon to put their resources into new relationships with their partner and stepchildren. The assumption of a new relationship may also make it possible to relinquish ties with children which have been problematic. Ongoing analysis of the Centre County study data will explore these alternative explanations for the decline of parental responsibilities.

We might anticipate that the decline in contact would adversely affect the quality of the relationship between the parent and child. Unfortunately, the parent-child relationship was not measured at the initial interview in such a way as to provide a good baseline for assessing the change in intimacy over time. In the 1977 interview, a substantial minority of the nonresidential parents (42 percent) reported that their relations with their children had improved since the separation, but fewer (27 percent) respondents living with their children were so generous in their reports about the quality of the relations between the children living with them and their former spouse, who was living outside the household.

At the follow-up, it was again true that a substantial, albeit smaller, minority of respondents reported that relations have improved between them and their nonresidential children, while their opposite numbers, the residential parents, have harsher reports on the quality of relations between the nonresidential

parent and their children. Whereas half of the females and three-fourths of the males report that they are very close to their children who are not living with them, none of the female respondents and only 12 percent of the male respondents who are living with the children assess their former spouse's relationship with their children as very close.

We prefer to think of neither view as objective, but rather to think of each as capturing a certain perspective on the reality of family life after divorce. What is apparent is the wide gulf between the views of the former partners, a discrepancy which must make co-parenting hazardous indeed.

We might wonder at the extent to which remarriage contributes to these separate, and very different, outlooks on the success of the nonresidential parent in maintaining closeness to his or her children. Consistent with our findings on visitation, we have discovered that in families where neither partner was married, both self-evaluations and spouse evaluations indicate a closer relationship between nonresidential parent and children. Where one or both partners remarried, the quality of parent-child relations was evaluated less favorably.

Given the small numbers involved and the crudity of the measure, these findings cannot be taken to be anything more than suggestive. Moreover, it is entirely possible that the pattern of deterioration in the tie between the child and the parent outside the home which we observe may be temporary. Whether remarriage significantly worsens relations, and, if so, whether the disturbance is short-lived, are not completely clear from the data at hand. Nevertheless, our data suggest the possibility that parents who take on new family responsibilities are less willing or able to sustain commitments to preexisting parental obligations.

PARENTAL RESPONSIBILITIES

We can examine this possibility more closely by looking at the respondents' reports on their own participation in child care, when they are not living with their children, and their former spouse's contribution, when he or she is living outside the home. Is there evidence that parents not living with their children retreat from an active child care role, particularly when they become involved in new relationships?

Again, our data are too fragmentary to provide any definitive answers, but the disengagement from the parental role seems quite pronounced for both men and women who are not living with their children. Data were not collected on the degree of involvement of the nonresidential parent at the time of the initial interview; however, a number of measures were included in the follow-up. Perhaps the best of these was a question asking the parents, both residential and nonresidential, to report on how nine child care responsibilities are divided among possible caretakers. (The question is reproduced in Appendix A.) Parents were given a card which listed themselves, their former spouse, various relatives, their current partner, and the children themselves.

Using the nine items, a summary ratio was constructed indicating the [illegible]ribution of the nonresidential spouse relative to that of

residential apouse. If participation were equal, the overall ratio would be one. The lower the ratio, the less the involvement of the nonresidential spouse. In interpreting the results, it is important to remember that about half of the sample are residential parents reporting on the behavior of their former mates and themselves; the other half are their counterparts, though not their actual spouses, who are nonresidential parents providing their perceptions of their experiences. As we discovered about other measures, the views of residential and nonresidential parents do not coincide completely. Residential parents describe more limited involvement on the part of the former spouse than is indicated by the accounts of the nonresidential parents, themselves. Table 3 shows just how large the disparity is. Whereas 40 percent of the residential parents reported that their former spouse had no involvement in child rearing, only 8 percent of the noncustodial parents admit to not being involved at all. More than half report that their involvement is relatively high. (Ratios reaching .50 or greater were arbitrarily designated high involvement.)

This difference in perception of parental involvement reflects, in effect, a "his" and "her" view, because most residential parents are females and most nonresidential parents are males. However, the distortion is a result of the respondent's familial rather than gender role. Female nonresidential parents displayed the same enlarged view of their contribution as males. In short, the parents saddled with the principal responsibility of child rearing feel that they do virtually all of the work; whereas the nonresidential parent thinks he or she is making a fairly substantial, if not equal, contribution. In this respect, divorce may have the consequence of reenforcing traditional gender roles in the family because women typically retain custody over their children.

Some residential parents prefer to bear a heavier child care burden because they wish to limit the involvement of their former spouse, but a substantial minority (40 percent) complain that the child's other parent assumes too little responsibility. Nonresidential parents, on the other hand, generally voice the feeling that they have too little responsibility. Here, a gender difference does appear. Male noncustodial parents reporting about themselves, and female custodial parents reporting about their former husband, generally concur that the male has too little involvement. By contrast, the small number of females living apart from their children feel their involvement is about right, while male custodial parents complain that their former wives take too little responsibility. Possibly females who give up custody find it more difficult to acknowledge their limited maternal role to an interviewer; alternatively, they may feel that they have already paid their dues. This small, but very special, subgroup deserves more examination because it may very well grow in numbers in the future.

As responsibility declines, influence over the children decreases. When asked in the follow-up to report on the degree of influence that they exert on family decisions, about a third of the parents living apart from their children reported having a minimal role; only a fifth said that their influence was great. The reports by the residential parent accorded them even less decision-making authority; more than half assigned them little or no influence in decisions regarding the children. Females perceived that they and were acknowledged by male residential parents to have,

more influence than males when they did not maintain custody; but their role was not as great as they believed, if we rely on the report of the male custodians. Moreover, nonresidential mothers perceived a sharper decline in their influence over their children during the 2 years preceding the follow-up than did residential fathers. Twice as many (50 versus 24 percent) women say their decision-making role shrunk. Perhaps by virtue of their central position in the family prior to marital dissolution, it appears that mothers who do not retain custody assume a larger role in the child rearing in the period immediately following the divorce. Eventually, however, they experience the same sort of drop in decision-making authority as do fathers who are living apart from their children. By the follow-up, the males seem to have already adjusted to their position as outsiders. Indeed, as many nonresidential fathers report that their role in family activity increased as report that it decreased, suggesting that some leveling off may eventually occur in the allocation of responsibilities.

Are the decline of involvement and loss of influence of the nonresidential parent precipitated or merely hastened by remarriage? Keeping in mind the problems of sample size, there is some slight evidence that individuals who remarry take a less active part in child rearing decisions. In the atypical families where neither spouse married again, respondents were somewhat more likely to give themselves, if they were the nonresidential parent, or their former spouse, if they were not, a higher rating on the ratio of participation in decisions about the children than was true at the other extreme, in families in which both parents remarried. However, it is the asymmetrical situations, in which one spouse remarried and the other did not, which provide the most interesting bit of evidence on shifting roles. Whether or not they were the custodial parent, respondents who entered new relationships while former spouses did not, were more likely to acknowledge that the nonresidential spouses had a larger role in making decisions than those in the reverse situation. More than half of the respondents who married, when their spouse did not, reported that the noncustodial parents had increased his or her influence over the past 2 years, as compared to only 13 percent of the respondents in the reverse situation.

It would appear as though the nonresidential parent retains a greater measure of parental responsibility by avoiding a rapid remarriage. Of course, it is entirely possible that individuals committed to playing a central role in raising their children are less likely to remarry or cohabit, precisely because they are unwilling to face a competing set of demands. Thus, men who resist remarriage may do so because they are more committed fathers and are more aware of the difficulties of managing two families. Similarly, women who retain custody may be reluctant to reenter marriage if they feel that by doing so the father will gain a greater measure of control over the children.

Because a new relationship compels individuals to make emotional investments elsewhere, a shift often occurs in the balance of child care responsibilities. This may either be interpreted as an abdication when the noncustodial parent marries, or, on the other hand, if the custodial parent marries, the shift may seem more like a concession to permit greater involvement by the outside

Remarriage also alters the child care pattern for another set of reasons, having less to do with time and energy and more to do with domestic politics. Parents who remain single when their spouse does not may retaliate by tightening their control over the children as seems to have occurred in the case cited below:

> Noncustodial Father: I have a little boy, Junior. He is six years old.
>
> Interviewer: How does that work out? How often do you see him?
>
> Noncustodial Father: I haven't seen him since we got married. Well, he was supposed to be in our wedding and then my ex-wife put the screws to that idea. I mean, she just started causing little problems and stuff like that....She was trying to upset our wedding day.

DIVORCE, REMARRIAGE, AND PERCEPTIONS OF PARENTAL COMPETENCE

The final section of this paper examines respondents' feelings about how well they are managing their parental responsibilities. The data we present should not be taken as a reliable indicator of the parent's actual skill in performing his or her role, but only as a subjective measure of parental self-esteem. Whether feelings of competence are related to actual performance is an open question, one that goes beyond the scope of this analysis. Lacking information on the children's behavior, these items are nonetheless important, for they provide an indication of the degree of gratification respondents are deriving from the parental role and how the level of gratification is affected by divorce and remarriage.

Several indicators of perceptions of parental competence were drawn from a national study of well-being of children, which was conducted in 1976 by Nick Zill (20) sponsored by the Foundation for Child Development. For example, parents were asked how often they have felt worn out or exhausted from raising a family, whether there have been times when they have lost control of their feelings and felt that they might hurt their child, and how they rate their overall performance as a parent. Table 4 provides the distribution of responses to these questions in the national sample and in the central Pennsylvania sample, and breaks down the data for the central Pennsylvania respondents by sex, custody arrangement, and marital situation. At first glance, it appears that the overall distribution of responses in central Pennsylvania is remarkably similar to the distribution obtained in the national survey. In both the national survey and our study, three-fourths of the respondents gave themselves a good or excellent rating as a parent, slightly less than half said that they rarely or never felt worn out or exhausted, and nearly 90 percent hardly ever or never felt that they would lose control of their feelings to the point of physically hurting their child.

These general comparisons may, however, exaggerate the similarities between our respondents and the national sample of parents surveyed by Zill. Almost all the members of Zill's sample were females, usually the biological mothers of the study child, while nearly half of the central Pennsylvania sample consists of fathers, most of whom are not living with their children. When we examine only the residential mothers, sizable differences emerge on two of the

three items. Central Pennsylvania mothers with custody of their children are generally more likely than mothers in the national sample to say that they feel worn out and to report that they sometimes lose control of their feelings. They are also less likely to feel that they are good parents. It should be noted that our findings that divorced and remarried mothers experience more difficulties in their parenting role than do mothers in general are consistent with Zill's results, when he examined answers to the same three questions for parents who were, and were not, previously married (20).

Not surprisingly, the findings presented in Table 4 reveal that parents who have custody of the children were far more likely than noncustodial parents to report being worn out at least some of the time (79 versus 21 percent), and were more than twice as likely to report that they sometimes lost control over their feelings to the point of physically endangering their child. At the same time, a slightly higher proportion of the parents living with their children rated themselves as excellent or good in their parental role than the parents who were living apart from their children (80 versus 63 percent). The picture which emerges from the central Pennsylvania study is that noncustodial parents experience fewer strains associated with day-to-day child rearing, but they feel more deficient as parents, probably owing to lower involvement in the family.

Because women are typically custodial parents, our data show sharp gender differences which parallel the differentials reported above between residential and nonresidential parents. Women are significantly more likely to experience feelings of exhaustion and to report that they sometimes lose control of their feelings, but at the same time they rate themselves more favorably as parents. Unfortunately, there are not enough cases to explore the interaction between gender and child custody, but an inspection of the small number of cases of male custodial and female noncustodial parents strongly suggests that custody arrangements are more important than gender in shaping feelings about parental competence. There is the possibility, however, that females who have custody may experience more exhaustion and loss of control than males, perhaps because males with children receive more assistance from their former spouse, relatives, and paid help.

To what extent does entering a new relationship ease some of the burdens borne by divorced parents? Subjectively, respondents who were remarried or cohabiting seem to feel that it does provide assistance. Nearly two-thirds of the respondents who had entered a new relationship in the preceding 2 years stated that it had become less difficult for them to "manage the various tasks of raising (their) children" since they started living with their current partner, while only 8 percent of the respondents replied that child rearing had become more difficult as a result of their domestic change. One respondent reported:

> My children, having been fatherless since 1974, were more than ready. They had several father images--what do you call it?--father figures, along the way, and they were almost always very open and responsive. But, with him, they were even more....In fact, there were times when I thought he was coming to see the kids....But again, things really jelled at Christmas. After had decorated the tree, we sat there very calmly reading the per or doing something while the children decorated the tree.

Yet, we can find little evidence that people who were remarried at the follow-up actually experienced fewer strains in their parental role. Parents who had custody of their children and who had entered new relationships were actually more likely to report that they were sometimes or often worn out by the burdens of raising a family than those who remained single (87 versus 76 percent), though they were somewhat less likely to feel in danger of losing control over their feelings (13 versus 29 percent). Whether or not they had custody of their children, parents who remarried also had a somewhat lower evaluation of their parenting success, although the differences between the single and remarried groups are not statistically significant. It may be that remarried parents feel more demands on their time and energy and feel somewhat less adequate as parents because of the strains of managing two families. At the same time, they seem to feel that having an additional parent in the home compensates for the added difficulties of managing two families.

It is relevant to note here that in a separate analysis, we examined whether individuals who had two families were more likely to experience strain in their marriage, a prediction ventured by Andrew Cherlin (21) in his perceptive paper "Remarriage as an Incomplete Institution." We found little support for Cherlin's hypothesis. Despite the obvious problems of coping with the anomolous conditions of remarried life, respondents were no more likely to experience marital problems when they had two sets of children. Although the difficulties of living in families extended by remarriage are real enough, individuals nevertheless seem to fashion mechanisms for adapting to them. Indeed, an important but almost completely uncharted area of research is how families respond to the potentially stressful conditions of co-parenting after remarriage (22).

CONCLUSION

The data from central Pennsylvania offer a provisional view of the management of parenthood during the transition from divorce to remarriage. Our tentativeness derives from several limitations of the study: the nature of the sampling procedures, omissions in the information collected in the initial interview, and the difficulties of applying sophisticated analytic techniques, given the small number of cases. Nevertheless, the data we have assembled provide a fairly clear impression of the pattern of parenting during the first few years after marital dissolution. We have looked at shifts in the degree of involvement of the biological parents, in response to custody arrangements and rearrangements, as they move from one marriage to the next.

As we have noted throughout the paper, there are conspicuous gender differences in the management of parenthood after divorce and remarriage. The traditional division of labor, with women assuming most of the child rearing responsibilities, becomes even sharper as males typically diminish their involvement in the family following divorce. If anything, remarriage seems to intensify this pattern because males frequently reduce their participation in their first family as they become involved in a new relationship, especially if their former spouse remains single. In general, we found that when individuals, male or female, defer marriage, they are more likely to share parental responsibilities more equally than when one or both remarry.

It was not completely clear from the data which we examined whether males withdrew from paternal responsibilities or whether they were effectively locked out by persistent strains with former partners who maintained a gatekeeping function. From a previous analysis, we know that continued conflict between the formerly married couple strongly affects the level of paternal involvement (23). The inability of parents to resolve the disputes that led to the divorce has a powerful and persistent effect on the pattern of parenting after the marriage breaks up. As Paul Bohannon has written (24, p. 54):

> Coparental divorce created lasting pain for many divorcees I interviewed--particularly if the ex-spouses differed greatly on what they wanted their children to become, morally, spiritually, professionally, even physically. This very difference of opinion about the goals of living may have lain behind the divorce. It continues through the children.

Limited communication and divergent interests between the custodial and noncustodial parent, usually the child's mother and father respectively, often lead to two separate perspectives on parenting. Parents living apart from their children feel closer to them than they are believed to be by custodial parents. Noncustodial parents also feel that they perform a larger share of child rearing responsibilities and have relatively greater parental influence than they are given credit for by their former spouse. The "his and her" view which prevails in marriage thus becomes widened by divorce.

The "his and her" perspective on divorce is not, strictly speaking, a product of gender differences but rather emanates from the divergent situations of the parent who has custody and the parent who does not. When fathers get custody, they adopt an outlook that is very similar to that of most of the mothers in the sample. When mothers relinquish custody, they have much more in common with the males who are living apart from their children.

Our data pick up the story too late for us to draw any definitive conclusions about the causal impact of custody arrangements, but they suggest the possibility that exclusive custody may contribute to a decline of involvement on the part of the absent parent, further complicating the difficult process of co-parenting. A legal system which sharply circumscribes the rights and responsibilities of one parent in favor of the other inevitably creates divergent interests, which are bound to result in disparate perspectives on family roles. At the present time, these legal solutions are being challenged on a number of fronts, and the current state of the law can best be described as chaotic and uncertain. The findings presented in this paper suggest some considerations for those advocating a new system of allocating child care responsibilities after divorce.

However, we must make note of gaps in our knowledge that limit our ability to recommend an alternative to the clearly deficient system in place. In the first place, we understand too little about how divorce alters preexisting divisions of labor in the family. Only longitudinal research, beginning before divorce occurs, can answer the question of how marital dissolution affects the assignment of parental responsibilities.

We also do not know enough about the conditions which affect the couple's ability to negotiate with one another about child rearing practices after divorce. A significant minority of our sample reported changes in custody arrangements following the divorce which were not explicitly sanctioned by the courts. Often these changes involved the movement of one or more children to the noncustodial parent, usually the child's father. How and why these arrangements come about and what they mean for the well-being of the children are topics which we shall be exploring in further analyses of the central Pennsylvania study data. Ultimately, our aim will be to identify some of the conditions which lead to successful and unsuccessful styles of co-parenting, an area of investigation which may have profound importance for decisions about custody.

We have touched upon the complications created by the remarriage (or cohabitation) of one or both of the former partners. The presence of stepparents or surrogate parents does not noticeably contribute to worsening relations between the formerly married couple, but neither does it necessarily dampen conflicts.* Since our study spans only the early years after divorce, we cannot draw any firm conclusions about the long-term impact of remarriage on parenting patterns. The slight tendency of nonresidential parents who enter new relationships to withdraw from their children may signal a transitory disruption or, alternatively, may reflect an incipient trend toward fuller disengagement.

The most elusive but intriguing question introduced by these data, one which figures centrally in reconsiderations of custody arrangements, is whether remarriage alters conceptions of parental responsibility. At the heart of this issue is the relative weight of biological and sociological parenthood and the degree to which blood ties or legal ties count in the determination of parental rights and obligations. Is it possible that if conjugal succession becomes commonplace, parenthood in the future will be governed more by legal than by biological status?

At present we can detect little indication that biological parents who reside away from their children are willing to cede parental rights to their former spouse's current partner. As males become more involved in parenting, they will probably become even less inclined to relinquish their parental claims following divorce and remarriage. Ironically, in the course of marriage and divorce, men may develop a genuine interest in breaking down traditional gender roles, if only as a means of guaranteeing enduring ties to their children.

* Evidence from the qualitative case studies conducted after the structured interviews leads us to suspect that the net effect of new relationships on co-parenting patterns is not conspicuously positive or negative, but in particular cases the addition of a new spouse can have either very beneficial or very destructive effects on the balance of relations between the former spouses.

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Appendix A

Items Included in Ratio of Child Care Responsibilities

In dividing up the various responsibilities of raising (name of child), can you tell me who generally does what? For example, looking at Card _____: (response categories are: respondent, former spouse, respondent's relatives, former spouse's relatives, former spouse's current partner, respondent's current spouse/ partner, the child(ren), someone else).

a. Who usually contributes to their financial support?
b. Who usually supervises the children after school?
c. Who usually sees that they are doing their homework?
d. Who usually makes plans for their birthdays?
e. Who usually selects their summer camp or summertime activities?
f. Who usually arranges for them to see their relatives?
g. Who usually makes decisions about their religious training?
h. Who usually attends school conferences?
i. Who usually gets involved if there is a serious discipline problem?

Table 1. Shifts in custody arrangements. Centre County, 1977 and 1979

	Children at Time 1 (1977) with:				
	Father	Mother	Split Between Both Parents	Neither Parent	Total
Children at Time 2 with:					
Father	*	5%	8%	--	10%
Mother	--	83%	62%	*	75%
Split Between Both Parents	--	11%	23%	--	12%
Neither Parent	--	1%	8%	*	3%
Total	6%	80%	13%	2%	100%
N =	(6)	(83)	(13)	(2)	(104)

* Percent not presented due to small base of subgroup (N<8).

Table 2. Frequency of noncustodial parent's contact with their children by sex of parent: Centre County, 1977 and 1979 (based on self-reports and reports about former spouse)*

	1977					
	Self-Report			Report About Former Spouse		
	Total	Males	Females	Total	Males	Females
Daily	10%	7%	29%	5%	2%	19%
Few Times a Week	14%	12%	29%	12%	10%	19%
Once a Week	22%	26%	—	15%	15%	12%
Few Times a Month	12%	10%	29%	17%	17%	19%
Once a Month	6%	7%	—	12%	14%	6%
Less than Once a Month	22%	24%	14%	20%	20%	19%
Never	12%	14%	—	19%	22%	6%
N =	(49)	(42)	(7)	(75)	(59)	(16)

	1979					
	Self-Report			Report About Former Spouse		
	Total	Males	Females	Total	Males	Females
Daily	2%	3%	8%	2%	2%	--
Few Times a Week	14%	16%	8%	15%	12%	30%
Few Times a Month	24%	21%	33%	21%	24%	10%
Once a Month	10%	10%	8%	12%	12%	10%
Occasionally During Year	28%	32%	17%	28%	26%	40%
Hardly Ever	6%	5%	8%	10%	12%	—
Never	10%	10%	8%	12%	12%	10%
Summer Only	4%	3%	8%	2%	2%	—
N =	(50)	(38)	(12)	(61)	(51)	(10)

* Totals in this and following tables exceed 104 cases because of a small number of families with split custody.

Table 3. Extent of nonresidential parent's participation in child care by sex of parent: Centre County, 1979[1] (based on self-reports and reports about former spouse)

	Self-Report: Ratio of Noncustodial Respondent's Care to Custodial Former Spouse's Care			Report About Former Spouse: Ratio of Noncustodial Former Spouse's Care to Custodial Respondent's Care		
	Total	Males	Females	Total	Males	Females
Index Score[2]						
0	8%	8%	10%	40%	36%	60%
.01 to .49	36%	40%	20%	44%	46%	30%
.50 and above	56%	52%	70%	16%	17%	10%
N =	(48)	(38)	(10)	(62)	(52)	(10)

[1] See Appendix A for nine items from which ratio was constructed.

[2] Score of one indicates equal participation of both biological parents; the lower the ratio, the less involvement of noncustodial parent.

Table 4. Parental competence by sex, custodial status, and marital history of respondent: Centre County, 1979

	Totals from National Survey, 1976	Totals from Centre County Survey, 1979	Sex		Custodial Status		Marital History	
			Males	Females	Custodial	Noncustodial	Single	Remarried
Frequency of Feeling Worn Out From Child Raising								
all the time	2%	4%	2%	5%	5%	3%	--	8%
most of the time	5%	3%	--	5%	3%	3%	4%	2%
sometimes	48%	50%	23%	69%	71%	15%	50%	50%
rarely	30%	27%	37%	19%	19%	38%	33%	21%
never	15%	17%	37%	2%	2%	41%	12%	19%
N =	(1747)	(101)	(43)	(58)	(62)	(39)	(48)	(52)
Frequency of Losing Control and Hurting Child								
often	1%	1%	--	2%	2%	--	2%	--
sometimes	10%	13%	7%	17%	16%	8%	12%	13%
hardly ever	35%	31%	19%	40%	39%	18%	33%	29%
never	54%	56%	74%	41%	44%	74%	52%	58%
N =	(1747)	(101)	(43)	(58)	(62)	(39)	(48)	(52)
Rating of Performance as Parent								
excellent	12%	9%	12%	7%	3%	18%	10%	8%
good	63%	64%	55%	71%	77%	45%	69%	59%
fair	25%	24%	29%	20%	20%	29%	19%	28%
poor	1%	1%	2%	--	--	3%	--	2%
terrible	--	2%	2%	2%	--	5%	2%	2%
N =	(1747)	(98)	(42)	(56)	(60)	(38)	(48)	(49)

The Father-Infant Relationship: A Family Perspective

Ross D. Parke, Ph.D.

To fully understand the changing nature of women's roles in the family, it is necessary to recognize the interdependence among the roles and functions of all family members. Families are best viewed as social systems, and in order to understand the behavior of one member of a system, the complementary behaviors of other members also need to be recognized and assessed. As women's roles in families shift, changes in men's roles in families must also be monitored.

Men, in their roles as husbands and fathers, influence interaction in the family directly as well as indirectly. For example, by influencing the nature of the mother-child relationship, men can influence their children through changes in the way in which their wives treat their offspring. And in turn, women affect their children indirectly through their husbands by modifying both the quantity and quality of father-child interaction (1,2,3,4).

As other papers in this volume by Blake, Hoffman and Furstenberg have documented, the wide range of changes in women's roles in society are, in turn, increasing both the opportunities for, as well as the pressure on, fathers to participate more actively in parenting. The growing number of women who work outside the home, the increased mobility of modern families (which removes families from supportive extended family networks), and the greater likelihood of fathers receiving custody of children following divorce are all examples of changes that are modifying men's role within the family.

Change in the secular sphere, however, is not the only arena in which there are shifts that may affect views of men and women in the family. Our theories of the requirements for adequate "parental behavior" have shifted, and our views of the important ingredients for adequate social and cognitive development of infants and children have undergone revision in the past few decades (1). Challenges to the view that parenting has an exclusively biological basis continue to appear. In particular, the elegant studies of Jay Rosenblatt and his collegues (5,6) have demonstrated that virgin female and male rats will show parental behavior in spite of the lack of hormonal priming, although the behavior is slower to appear than in hormonally primed females. Rosenblatt suggests that the hormones associated with pregnancy, childbirth and lactation are not necessary for the appearance of maternal behavior. In fact, the

eliciting cues of newborn pups may assume a more important role in the maintenance of parental behavior than hormones.

In the past, psychological theories of development have severely limited researchers' views of the father's potential role in the family system. As the influence of psychoanalytic theory has subsided, with its emphasis on the primary importance of the mother as the central socializing agent, and on the feeding situation as the crucial context for the development of social responsiveness, the father has become increasingly recognized. At the same time, our current theories of development have shifted to an emphasis on the importance of sensory and social stimulation for the adequate cognitive and social development of infants and children. Fathers, of course, are just as capable as mothers of providing these types of stimulation, and hence the stage was set for a reemergence of interest in the role of fathers and other social agents in infancy and childhood.

FATHER'S ROLE IN INFANCY

To illustrate some of the ways in which fathers contribute to early development in the family context, let us consider the father's role in early infancy. A number of questions are relevant here. First, do fathers play an active role in early infancy? Second, do they show similar or different patterns of behavior than mothers? Third, do mothers and fathers play distinctive roles?

A series of observational studies of fathers and mothers interacting with their newborn infants and during the first year of life were conducted. There were a number of encouraging findings--encouraging in view of the increasing pressures on fathers for participation in the care and nurturance of infants and children (1,2). First, in the observations of mothers, fathers and their newborn infants during the hospital period, it was found that fathers, when given the opportunity, are interested and active participants. They are just as likely as mothers to hold their infants, and the types of behavior that they direct to their newborns are very similar to mothers' behaviors. Fathers engage in a wide variety of behaviors that we generally view as "nurturant." The similarities in quality of maternal and paternal behavior are more striking than the differences (7).

This is not to suggest father as a substitute for mother, but to make the point that it is important to study both fathers and mothers in the context of the family unit. Comparisons of mothers alone with their infants and fathers alone with their infants in contrast to mother, father and infant together in the family triad suggest that mothers and fathers provide support and stimulation for each other. Thus, each person's behavior toward the baby is altered. For example, parents smile at their babies and examine them more in the triad context than when each is alone with the infant (8). Parental affect and interest is enhanced by the presence of the spouse. In turn these observations suggest that our understanding of fathers (and mothers) will be increased by considering the family triad as opposed to the heretofore more common research strategy of considering the mother-child and father-child dyads separately.

Role Differentiation in Infancy

In spite of the interest and involvement of fathers, role differentiation early. In studies of relatively traditional families (1), we

have consistently found that mothers feed and caretake more than fathers--in both hospital and home. Even when adjustments are made for the amount of time available for caregiving activities of mothers and fathers, the same pattern of greater mother participation is evident (1,2,9). This pattern is present not only in U.S. samples (10,11) but in other countries, such as Great Britain (12), Australia (13), and France and Belgium (14) as well. There are, however, wide individual differences across families in the level of father participation; and in a later section, some of the factors that modify the father's contribution to caregiving will be considered.

Are fathers less competent than mothers to care for young infants? This is a question that we have examined in recent studies (15,16). Competence can be measured in a variety of ways: one approach is to measure the parent's sensitivity to infant cues in the feeding context. Success in caretaking, to a large degree, is dependent on the parent's ability to correctly "read" or interpret the infant's behavior so that his/her own behavior can be regulated to respond appropriately. To illustrate, in the feeding context, the parent attempts to facilitate the food intake of the infant. The infant, in turn, by a variety of behaviors such as sucking or coughing, provides the caretaker with feedback concerning the effectiveness or ineffectiveness of his/her current behavior in maintaining the food intake process. In this context, one approach to the competence issue involves an examination of the degree to which the caretaker modifies his/her behavior in response to infant cues.

Parke and Sawin (15) found that father's sensitivity to an auditory distress signal in the feeding context--sneeze, spit up, cough--was just as marked as the mother's responsivity to this infant cue. Using a conditional probability analysis, they demonstrated that fathers, like mothers, adjusted their behavior by momentarily ceasing their feeding activity, looking more closely to check on the infant, and vocalizing to the infant. The only difference found concerned the greater cautiousness of the fathers, who were more likely than mothers to inhibit their touching in the presence of infant distress signals. The implication of this analysis is clear: in spite of the fact that they may spend less time overall in caretaking activities, fathers are as sensitive as mothers to infant cues and as responsive to them in the feeding context.

Moreover, the amount of milk consumed by infants with their mothers and fathers in this study was very similar (1.3 oz. versus 1.2 oz., respectively), suggesting that fathers and mothers are not only comparable in their sensitivity but are equally successful in feeding the infant based on the amount of milk consumed by the infant. Invoking a competence/performance distinction, fathers may not necessarily be as frequent contributors to infant feeding, but when called upon have the competence to execute these tasks effectively.

Fathers do have the capability to execute caregiving activities competently even though they generally contribute less time to this type of activity than mothers.

Father as an Indirect Influence on Feeding.

Although research on the father's influence in infancy has centered primarily on the direct impact of the father's behavior (e.g., as a feeding or stimulatory agent), his influence, in some cases, may be

indirectly mediated through the mother or other members of the family as well. See (3,4) for detailed discussion of this issue. Even when they are not directly participating in feeding, fathers can indirectly affect this activity by modifying the behavior of the feeding agent. The father's indirect role in feeding is illustrated by Pedersen's (1975) investigation of the influence of the husband-wife relationship on mother-infant interaction in a feeding context (see also 17). Ratings were made of the quality of the mother-infant relationship in connection with two time-sampling home observations when the infants were 4 weeks old. Of particular interest was "feeding competence," which refers to the appropriateness of the mother in managing feeding. "Mothers rated high are able to pace the feeding well, intersperse feeding and burping without disrupting the baby and seem sensitive to the baby's needs for either stimulation of feeding or brief rest periods during the course of feedings" (18, p. 4). In addition, the husband-wife relationship was assessed through an interview. Pedersen summarized his results as follows:

> The husband-wife relationship was linked to the mother-infant unit. When the father was more supportive of the mother, that is, evaluated her maternal skills more positively, she was more effective in feeding the baby. Then again, maybe competent mothers elicit more positive evaluations from their husbands. The reverse holds for marital discord. High tension and conflict in the marriage was associated with more inept feeding on the part of the mother (18, p. 6).

Thus, even when fathers are not directly participating in caregiving, they still may be influencing the process by their relationship with their wives. Feeding, however, is not the only important interactional context; another significant context is play.

Play: Distinctive Roles of Mother and Father

Although mothers participate in caregiving more than fathers, fathers are not necessarily uninvolved with their infants. Both mothers and fathers are active playmates for their infants and children; however, fathers devote a higher proportion of their time with their children to play than mothers. For example, in one recent study of middle-class families, Kotelchuck (10) found that fathers devote nearly 40 percent of their time with their infants to play, while mothers spend about 25 percent of their time in play. Further evidence comes from Lamb (19) who observed interactions among mother, father and infant in their homes at 7 to 8 months and again at 12 to 13 months. Lamb found marked differences in the reasons that fathers and mothers pick up their infants: fathers were more likely to hold the babies to play with them, while mothers were more likely to hold them for caretaking purposes.

Fathers and mothers differ not only in quantity of play, but also in the style of play. Fathers' play is more likely to be physical and arousing, while mothers' play is more verbal, didactic and toy-mediated (see 1,9,20). Mothers and fathers provide distinctly different types of stimulation and learning opportunities (20). Only by considering both mother and father as separate but interdependent members of the family system can we understand early infant development.

PLASTICITY OF FATHER-MOTHER ROLES

A variety of factors may affect the extent to which the traditional role allocations of father as playmate and mother as caregiver, in fact, are valid. Changes in sex-role definitions, work status of women, type of childbirth and birth status (e.g., prematurity, perinatal trauma) all are modifiers of both mothers' and fathers' level of participation in caregiving and of the amounts of play exhibited by fathers and mothers. More importantly, these shifts illustrate the capacity of both mothers and fathers to change their traditional patterns of behavior in response to new conditions and demands.

Recent research suggests that certain medical practices, such as cesarean childbirth, can alter the fathers' level of participation in routine caretaking activities. In a recent study, Pedersen, Zaslow, Cain and Anderson (21) found that fathers of cesarean-delivered infants engaged in significantly more caregiving at 5 months than fathers in a comparison group whose infants were vaginally delivered. While the fathers of the cesarean-delivered infants were more likely to share caregiving responsiblities in several different areas on an equal basis with the mother, fathers in the comparison sample tended to "help out" with the mothers still meeting the major proportion of caregiving needs. Other studies confirm this finding (22,23).

The most probable explanation for these findings suggests that mothers, as a result of the surgery, are unable to assume a fully active role in caregiving during the early postpartum weeks. Fathers, in turn, as a result of their increased involvement in early care, continue this caregiving activity even after the time that the mother is able to resume a more active role. Support for this analysis comes from a recent study by Entwisle and Doering (24) who found that women who underwent cesarean delivery were less positive about caring for their baby than vaginally delivered mothers, at least during the early postpartum months. These findings illustrate the ways in which shifts in mother's behavior and needs, as a result of the type of childbirth, can influence the father's level of participation.

Another situation that may increase the father's role in early caregiving is premature birth of a baby. Approximately 14 percent of infants in the United States are born prematurely and an increasingly large number of these infants are surviving. Having an infant earlier than expected can be stressful for the family, thereby increasing the importance of the father's support for the mother. Investigators in both England and the United States have recently found that fathers of premature infants are more active in feeding, diapering, and bathing their infants than fathers of full-term babies, both in the hospital and later at home (25,26). These fathers' more active participation in caregiving is particularly helpful because premature infants usually need to be fed more often than full-term infants and experience more feeding disturbances. Premature infants also can be less satisfying to feed and to interact with because they are often less responsive to parental stimulation than full-term infants. Thus by sharing more than usual in caregiving, the father of a premature infant relieves the mother of some of this responsibility, giving the mother some much-needed rest. He thereby may indirectly influence the baby by positively affecting the relationship between mother and baby. The father's support is important in other ways as well. Often a premature infant is kept in the hospital for a period of time, and the father can play an important

role by visiting and becoming acquainted with the baby during this period. Furthermore, recent research by Minde, Trehub, Corter, Boukydis, Celhoffer and Marton (27) has shown that mothers who have supportive husbands tend to visit their premature babies in the hospital more often, and that mothers who visit more have fewer parenting problems later than mothers who visit less frequently. Again, we see that fathers can influence their infants indirectly by affecting the mother-infant relationship. Understanding the father's role in infant development clearly requires that the father's behavior be viewed in the context of his role within the family.

Changes in women's employment status are also resulting in shifts in the level of father participation in child care. In a recent national sample Pleck (28) found that husbands of women who were employed outside the home devoted significantly more hours per week to child care. Similarly, some shifts in the organization of work schedules can alter the father's role in child care. In a comparison of men who worked 4 10-hour days a week with men who worked 5 8-hour days, Maklan (29) found that the men who worked the 4-day work week spent a significantly greater amount of time in child care. These changes toward father assumption of a larger share of child care tasks may not only improve his relationship with his children, but may also alter the mother-child relationship by relieving the mother of some of the routine child care.

The increases in maternal employment outside the home may affect play patterns as well. In contrast to the usual finding that fathers play more than mothers, Pedersen, Cain, Zaslow and Anderson (30) found that mothers played more with their 5-month old infants if they held a job outside the home. Since the observations took place in the evenings after both parents came home from their jobs, Pedersen et al. suggest that the mother played more as a way of reestablishing contact with her baby after being away from home for the day. One result was that fathers in these two-earner families had less play time with their infants. Family work organization clearly can affect father's status as primary playmate. Whether or not these mothers continue to be as active play partners as the baby grows older remains unanswered.

Family ideology and belief systems are important correlates of family role allocations. In a recent study of Australian fathers, Russell (31) found that a man's sex-role orientation was an important factor in how much he participated in diaper changing, feeding, and other caretaking routines. Using Bem's (32) measure of sex role and androgyny, Russell found that the fathers who were androgynous, who described themselves as having both masculine (assertiveness) and feminine (sensitivity) traits, participated more in daily child care than did fathers who described themselves as masculine. The androgynous men took responsibility for daily care 25 percent of the time, while the masculine men participated less than 10 percent of the time in dressing, feeding, bathing, and diapering. The androgynous fathers also interacted with their children more overall, playing with them and reading them stories more often than did the more "masculine" fathers.

Wives' expectations about their husbands' behavior can affect fathers' behavior as well. Even the men who viewed themselves as masculine, tough, strong, and assertive, changed diapers more often if they were married to an androgynous woman or a woman who viewed herself as

masculine. Only when a stereotypically masculine man was married to a woman who viewed herself as stereotypically feminine could he avoid the diaper detail or the feeding routine. Russell's work reminds us that families distribute child care tasks in various ways. In the families he studied, however, mothers were still the primary caregivers, and even the androgynous men played a clearly secondary role in child care. However, some more recent studies in the United States (33) and Sweden (34) have failed to confirm this relationship between caregiving levels of fathers and androgyny.

Perhaps the most impressive indications of both the malleability of roles as well as the need for cultural support of parents--fathers as well as mothers--comes from the recent studies of rolesharing and reversed role families. In spite of their rarity, these alternative family arrangements can inform us about the possible roles that fathers can play in the family and the possible ways in which families can reorganize themselves to provide more flexibility for mothers, fathers and children.

In one recent study, Russell (31) examined 50 Australian families in which fathers took major or equal responsibility for child care. In these families, fathers and mothers shared about equally (55 percent for mothers, 45 percent for fathers) the full range of child care tasks such as feeding, diapering, and bathing. In traditional families, by comparison, fathers performed these tasks only about 12 percent of the time.

These nontraditional role-sharing families have different attitudes toward sex roles than conventional families. Not surprisingly, fewer of the role-sharing fathers feel that a mother's place is in the home. And the parents in nontraditional families have greater faith in the father's ability to care for children. More than 80 percent of the fathers and 90 percent of the mothers in nontraditional families believed that fathers could be capable caregivers, although some felt that fathers were still not as good as mothers. In contrast, only 49 percent of the fathers and 65 percent of the mothers in the traditional families felt that fathers were capable of taking care of children.

There are distinct benefits for both mothers and fathers from sharing roles. Mothers report increased self-esteem as a result of the opportunity to return to work, while fathers who take care of their children report that their relationships with the children improved.

Other evidence (33) of the effects of these types of alternative family arrangements on children suggests that children in these families show higher levels of internality, that is, a belief in their own ability to control events, than children in traditional families. In addition, children in the role-sharing families scored higher on verbal ability, and their fathers set higher educational standards and career expectations for their children than fathers in traditional families. However, caution is necessary since parents who reverse roles are a very recent phenomenon, and evidence suggesting that children from these families fare better is not conclusive. Such parents may be different in other ways from parents who maintain traditional roles, and might have influenced their children differently from "traditional" parents, no matter which parent stayed home with the children. However, it is likely that parents who reverse roles are significantly affected by [illegible]oice, and that therefore the nontraditional environment in which

their children develop is at least partially responsible for differences between children from traditional and nontraditional families. As new family role arrangements become more common and more intensively studied, the effects of role reversal and other innovations will be better understood.

Moreover, as Russell (31) found in a followup of his role-sharing families, only about one-fourth of his families were continuing with the arrangement 2 years after his first Australian study. A number of factors may account for the small number of families that choose these alternatives and persist in them. For example, in general men are still paid more than women so that most families may find that it makes better economic sense for the father to be the breadwinner. Men may be reluctant even to request leaves of absence that may jeopardize their job security--particularly in times of scarce jobs and inflation. In some cases, such as when the mother is breast-feeding a child, these role reversals may be difficult to implement. The basic problem, however, may still be one of attitude; as Levine (35) points out, there is still the widespread belief that a man does not belong at home taking care of children. Until there is some change in this traditional view about the roles that men and women can or should play in rearing their children, few families either will try alternative patterns or persist in them for extended periods of time.

CULTURAL SUPPORT SYSTEMS FOR FATHERS AND FAMILIES

In the light of the social and economic changes that are promoting increased father involvement in the caregiving of infants, it is important to provide cultural supports for fathering activities. First, there needs to be an increase in opportunities for learning fathering skills. These supports can assume a variety of forms such as the provision of both pre- and post-partum training classes for fathers to both learn and practice caretaking skills, and to learn about normal infant development (36). Parenthood training, however, need not wait until pregnancy or childbirth. As many have advocated both earlier (37) and more recently (38,39), parenthood training, including information about infant development, infant care, as well as the economic realities of child rearing, should be provided in high school, or even at an earlier age in light of the increasing number of teenage pregnancies. As noted elsewhere (2,40) such training would also aid in the prevention of child abuse.

Second, there need to be increased opportunities to practice and implement these skills. To provide the opportunity to share in the early caretaking of the infant, paternity leaves should be given wider support. These leaves could be usefully extended to the pregnancy period to permit the father to attend classes and to share in obstetrician visits with the mother. Other shifts in societal arrangements such as shorter work weeks, flexible working hours, and split jobs, whereby a male and female share the same position, are all changes that will increase the potential participation of males in fathering.

Another positive change involves modification of maternity ward visiting arrangements to permit fathers to have more extended contact with the newborn infants. To date, father-infant interaction in the newborn period is largely under institutional control, and as a result it is frequently hospital policy rather than father interest that determines the degree of father-newborn involvement. Although some

countries, such as Russia, are still highly restrictive of father-infant visitation, other countries such as Denmark and Sweden encourage father involvement in labor and delivery, and support frequent visitation during the immediate postpartum period (41). In the United States, there is an increasing trend toward greater father participation in both labor and delivery, and the opportunities for contact between father and infant during the early postpartum period are increasing.

However, providing the opportunity for contact is only a first step. Supportive intervention that may aid fathers in learning caretaking and social interactive skills can be provided during this early postpartum period as well. Recent evidence of the impact of hospital-centered intervention for fathers comes from an investigation by Parke and his colleagues (42,43). Fathers viewed a videotape that portrayed other males engaged in play, feeding and diapering. In contrast to a control group who saw no videotape, the fathers exposed to this 15 minute presentation were more knowledgeable about infant perceptual capacities, were more responsive to their infants during feeding and play, and fed and diapered their babies more often at 3 months in the home. However, the effect held only for fathers of boys; fathers of girls were unaffected by the intervention. The same sex effect is similar to other reports of greater father involvement with sons than daughters. See Parke (1) for a review of this research.

However, efforts to modify father involvement need not be restricted to the newborn period. In a recent study, Dickie and Carnahan (44) provided training to mothers and fathers of 4 to 12-month old infants in order to increase their competence. Utilizing Goldberg's notion (45) of competence as parental ability to assess, predict, elicit and provide contingent response experiences for their infants, these investigators provided eight 2-hour weekly sessions. Training emphasized individual infant variation, knowledge of the infant's temperament and cues, provision of contingent experiences, and awareness of the infant's effect on the parents. Fathers who had participated in the training sessions, in contrast to fathers who had not participated, increased their interactions with their infants; specifically, they talked, touched, held, attended more and gave more contingent responses to infant smiles and vocalizations. The infants of the trained fathers sought interaction more than infants of fathers in the control group. However, mothers in the trained group decreased their interactions; in view of the fact that training did increase the judgments of the spouses' competence, it is possible that the wives of the trained fathers encouraged their competent husbands to assume a greater share of the infant care and interactional responsibilities. Interestingly, this finding underlines the reciprocal nature of the mother-father relationship and provides further support for viewing the family as a social system in which the activities of one member has an impact on the behavior of other family members. Finally, these data are consistent with nonhuman primate findings that father-infant involvement varies inversely with the degree of maternal restrictiveness (see 46,47 for reviews).

Other studies (e.g., 48) suggest that father relationships with older infants (12-month olds) can be modified as well. Intervention need not be restricted to infancy or any other specific time period. The capacity of both parents and infants for continual adaptation to social circumstances probably overrides the paramount

importance of any single time period for the formation of social relationships (49,50). These demonstrations provide further evidence of the plasticity and modifiability of paternal behavior, and suggest that fathers can learn to adopt new roles as family systems evolve in new ways. At the same time, these studies suggest that more attention needs to be given to social support systems for fathers, as well as mothers, in order to facilitate their execution of parenting activities. Finally, these studies underline the value of a multilevel analytic approach to understanding the father's role in the family which recognizes that fathers and families are embedded within a wider network of social systems including institutions and communities (51, 52,53).

In summary, fathers do play important roles in the family and are able to assume new roles as families change and adapt to new social and economic conditions. Current indications suggest that fathers are capable of sharing with women many of the tasks of child care, and with societal support the potential for more equitable family arrangements may be realized. However, this essay is only a progress report of a changing and evolving situation. To monitor these shifts and to assess how they affect women, children, and men represent an important challenge for the next decade.

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Introduction

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The study of both male and female sexuality in Western science has been hampered by a set of beliefs and myths that have been slow to change. Because it has been a taboo topic both in the drawing room and in the laboratory, research on sexuality is less than 40 years old. Research on female sexuality has been particularly vulnerable both to social myths and to the assumptions that men have made about how women feel or should feel about their sexuality. Before the turn of the century it was widely believed that women had no interest in sexual activity other than for procreation, certainly not nice women. By the end of the first half of the century it became generally accepted that many women are interested in sex, but certainly not old women. A generation of women were raised on a soap opera which asked the question, "Can a woman over 35 still find romance?" Even today, prevalent public attitudes preclude research and often even discussion of the sexual behavior of children, particularly girl children. Research discussed in the papers presented here this afternoon indicates that sexual responsiveness begins prenatally and continues throughout the life cycle.

As Pepper Schwartz points out in her paper, as a result of the women's movement we have arrived at a greater understanding of the range of female sexual behavior. The limited research that exists on female sexuality is still by and large addressed in quantitative questions of how early, how often, with whom. The papers presented here today attempt to move beyond that level. They examine female sexual behavior in the context of the fabric of the entire life course of women and of their place in society.

The paper by Mary Calderone discusses the influence on adult sexuality of early childhood socialization. Such factors as birth order, employment status of the mother, birthing conditions and parental expectations all influence the young girl's gender development and sexuality. Information needs of children also are discussed.

Recent research on adolescent sexual behavior, contraceptive practices and fertility is discussed by Wendy Baldwin. She points out that while use of contraceptives has increased among teenagers in the last decade, more than two-thirds of girls who became pregnant were not using contraceptives. Reasons for lack of use are discussed in the paper.

In her paper on adult sexuality, Pepper Schwartz recounts the brief history of research on female sexuality. She stresses the need for research information on which therapeutic interventions can be based. The paper also emphasizes the need for conceptualizing research on sexuality within a broader theoretical framework. In particular, both social power and interpersonal power are seen as important to female sexuality, as well as to the sexual abuse of women.

Women: Sexual Aspects of Their Socialization in Childhood–By Parents, Institutions, Media

Mary S. Calderone, M.D., M.P.H.

Whatever happens to a woman in her childhood (0-12 years), that relates specifically to being female, will have profound repercussions in adolescence and adult life. This is also true for males, of course. In the past 15 years the knowledge coming from research in the broad field of sexuality has been such that, at last, we can state with confidence a number of its defining parameters, both developmental and behavioral. It is now a subspecialty, with an American College of Sexologists, an Association of Sexologists, major departments in medical schools and universities, and no less than 20 scientific periodicals in a field where 15 years ago only one existed.

A brief paper can only outline the barest essentials in the sketchiest of formats to present some idea of the process of sexual socialization, who participates in that process and how, and the nature of the results of that participation, whether positive or negative.

In doing this some of the constants and some of the major variables in the programming process for sexuality will be noted.

FACTORS IN SEXUAL SOCIALIZATION

1. Order of birth. Most parents are quite unaware of the importance of this variable. Following are some factors to be considered, in order of their possible impact from positive to negative.

The girl may be:

a. an only child. Women who are only children or first children followed by brother(s) have been shown to have specific advantages in development, particularly in their relationships with their fathers. Lozoff showed that these advantages are manifested in various positive intellectual and personality characteristics (1).

b. a first daughter after one or more brothers. This birth order probably offers similar advantages unless additional daughters are born, in which case the advantage might be somewhat diluted.

c. the eldest or youngest of several daughters.

d. neither the eldest nor the youngest of several daughters.

e. neither the eldest nor the youngest of several daughters who are followed by a brother. As soon as there is a cluster of daughters, in most families their individual values tend to be absorbed into a collective one and most advantages cancel out or are diluted.

2. Mother is a housewife who does not work outside the home and survives to the woman's adult life.

3. Mother is a housewife who works outside the home and who survives to the woman's adult life. A positive maternal influence is additive with that of the father.

4. Mother does not survive beyond the woman's childhood. Research on the last three conditions is not available but it can be hypothesized that the variables of personality structure of the mother, of her working or not working outside the home, and surviving or not surviving through her daughter's girlhood, might be important factors.

5. Circumstances of birth process. Was the birth easy and natural or difficult with anesthesia? Was the baby premature or born by cesarean section? The important variable here is an immediate post-birth opportunity for pair bonding.

An interesting and unexplained finding of Klaus' (2) is that 28 to 31 percent of abused children were born prematurely, contrasted with a 7 percent premature rate in all live births. One explanation is that immediate post-birth experiences that would provide the opportunity for pair bonding with one or both parents, particularly learning experiences with a first child, constitute an important variable.

6. Primary sexual socialization by parents.

a. Gender identity. This is a process, carried on by the parents quite unconsciously, by which they indicate to the child his or her gender, so that usually by age 18 months to 2 years, at the latest, even the nonverbal child is usually aware that "I am a girl" or "I am a boy." The parents apparently program the child's gender identity, correctly for the most part, by numerous cues, verbal and nonverbal. Fathers have been shown to handle their baby daughters differently from their baby sons. Pronouns "him" and "her" applied to the baby eventually serve to indicate to which collectivity the child belongs. Here it is obvious that the parents must be absolutely sure of the child's correct gender identity. On rare occasions there may be ambiguous appearing genitals which could cloud parental sureness, or possibly one parent, the mother especially, may have so wished for a child of the opposite gender that cues to the child about his or her real gender are blurred. In either case, this might be a possible beginning for later transsexualism. We do not know why there are more male-to-female transsexuals than the reverse. The ratio is probably two to one (3).

b. Gender role. This relates to the development of the "feminine" aspect of being female. What is the baby girl taught as to the kind of girl her parents would like her to be? Whereas the boy in our society is taught strongly about boyishness, in particular never to do or be or feel like a girl, the reverse is not so powerfully demonstrated to the girl child. A "tomboy" is rarely called that any longer, and in any case not pejoratively. The concept of female gender role is certainly "up for grabs" today because it is changing although girls are still likely to receive messages that boys are better or are more valuable than girls (4).

c. Erotо-sexual responsiveness. A third component relating to the sexual socialization of the child deals with the sexual responsiveness that is built into humans. We now know that in the uterus the male fetus has regular periodic erections (as he will throughout life), and though there are no intrauterine observations of similar phenomena in the female fetus, there are studies showing that the newborn infant girl's vagina begins very shortly after birth the periodic lubrication that will continue until menopause (5). Sexual responsiveness is shown by many infants with orgasm-like reactions that can be produced at will in the earliest months of infancy, as well as later in childhood. Thus we recognize that the sexual response system functions from birth, as contrasted with the reproductive system which will not begin functioning until puberty.

The components of sexual responsiveness in the infant and young child are not so specifically oriented to genitality as they are in the adolescent or adult. It is a diffuse pleasure, focusing in skin-to-skin contact, in sensory pleasures of various kinds and a sense of well-being, and in the genital pleasure mentioned above. Between 6 and 18 months almost all children learn how to produce genital pleasure for themselves, and this is where real difficulties arise. Because of the lack of understanding of the importance of genital pleasure in the child's sexual evolution, it is not accepted by most adults. Yet between the ages of 6 and 18 months, noninterference by parents is essential, at least to the extent that there is no punishment and no indication of discomfort or censure. Particularly important in this period are the attitudes about the excretory functions, which should be related to positive, or at least neutral, rather than negative attitudes of distaste, disgust, and the like.

Between 18 months and 3 years, acceptance of the capacity of the infant for sensory and genital pleasures must continue, with emphasis now increasing on socialization for privacy. There are three ways by which parents need to safeguard their child's evolving sexuality, in acknowledging the child's erotosexual manifestations. The first is by naming the genitalia accurately at the same times and in the same correct and respectful manner as other parts of the body are named. One particular difficulty is with girl children. Up until fairly recently parents failed completely in this task, having been given no language with which to acknowledge the genitalia of their girl children. So we find mothers who have learned to acknowledge that brother has a penis, but in trying to do the same for the girl they say, "And you have a vagina," something that is totally

beside the point because what good is a vagina at that age? It cannot be seen and touching it brings little if any response. The mother never shows the child exactly where it is, so it remains a vague concept for the child. What is needed here is acknowledgement of the clitoris analogous to the penis as an organ of pleasure, and identification of it with the help of a mirror. The second safeguard is the continuation of socialization for total privacy so that the child does not expose herself to unwittingly damaging reactions of disapproval if she has not been taught to continue explorations of her body in privacy.

Another step toward acknowledging the existence of the girl's sexual system is specifically to relate the genitalia of both boys and girls to their future pubertal and, of course, elective reproductive functions.

To recapitulate, by the age of 4 it is essential for the girl child to have had her entire generative apparatus validated by the parents (a) by naming the external parts accurately and identifying them with a mirror, (b) by accepting their present pleasure function and protecting the child by teaching her privacy, and (c) by specifically relating the generative apparatus of both males and females to future elective reproductive function.

7. Ages 4 to 6 years. This phase is critical, because it is between the ages of 4 and 6 that the child moves out of the home, coming into contact with peers in the outside world and getting to know other families. The child begins openly to express the need to solidify her own sense of self-acceptance and of being okay, by "looking" at others. This is when we see children "playing doctor." We need to recognize that part of this universal childhood preoccupation relates to making sure that one's self is normal and that there are others who are like oneself, as well as getting clear exactly how the other sex is constructed. Looking and seeing and some touching with others besides one's brothers and sisters are important for these contacts are reassuring and solidify self-other concepts and self-esteem. The self-protective concept can be emphasized now; that is, the girl has an absolute right to say no to anyone who wishes to touch her body.

8. The prepubertal child. The child from 5 to 12 is in a period of rapid cognitive learning, which means it should have absolutely correct facts about every phase of life, including the sexual and the reproductive phases (6,7). This information should come directly from parents, but it can be backed up by schools. Because of the heavy emotional content of this area, I think most people would agree and emphasize that the parents ought to be prepared to be the primary sex educators of their children, with the schools serving as complement and supplement to provide, or broaden, the scope of the information available. In school discussions, helping children to reconcile their information with their experiences and their feelings in order to turn that information into knowledge, can also serve to prepare them for the stormy period of adolescence.

If we have helped families acquire the sexual information and needed positive attitudes so that they can become transmuted into knowledge, and to feel comfortable about this knowledge and about their child's sexuality, they will be able to incorporate their own religious values this knowledge and impart it to their child as sexual wisdom, which child can accept.

SUMMARY

I have brought the girl child, and by implication also the boy child, to the moment of adolescence. That I leave them there indicates not only that adolescence is one sphere of life that has already received a great deal of study, but also that all I have described is the absolute minimum necessary for a strong foundation for adolescence (8). Study of adolescents has not been very productive in terms of learning how to serve their needs, and this surely is a reflection that these efforts are too little and too late. They reach young people at a moment when many stresses of living are competing forces. Adolescents are coping with the bodily changes that most do not understand, separating from their parents, finishing their education, learning how to hold jobs, and developing their own capacity for intimacy. Many have not had the benefit of a sound foundation in the kind of treatment parents and society have accorded their sexuality as infant, child, and preadolescent.

As to the role of institutions such as schools, and the role of the media, I shall simply say that with very few exceptions the schools are without strength at this time, reflecting the enormous division of opinion and the lack of cohesiveness of the society. We must look elsewhere than the schools to do more than a token job in the social sexualization of our children. As to the media, where the media is not exploiting the sick and unreal aspects of human sexuality, it is giving it a sugar-coated treatment, calories without nutrition, "educational" programs empty of true education about sexuality. It remains then for the family to continue doing what it has been doing for centuries, but to be helped to do it much better and more wisely, because of more information, knowledge, and wisdom, as these have and continue to become available. The family, constituted in no matter which way, is the soil in which every new life has to grow, and it can grow only in that soil. We have all kinds of families today. Any group calling itself a family is one, and should be accorded the recognition and support due one. We have mother-alone families, some headed by a teenager. We have father-alone families; and we have families headed by two mothers, and eventually we will have more families headed by two fathers. We will also have families of unrelated people. After the ordinary needs for nurture, food, clothing, shelter, and education are met, the chief mission of any family is to teach its members how to give and receive love.

Where shall we begin? One age group is peculiarly sensitized to absorbing the concepts of how child sexuality really develops: the group between approximately 16 and 30 years of age, the immediately preparental or newly parental group. We must address ourselves to this group, in particular to preparents and parents just beginning their families. Both groups need to be sensitized to becoming parents in ways that will lead to openness and to new concepts. These are two groups we must reach in some pilot programs that will consider the sexuality, the natural, beautiful sexuality of their children, which needs a fruitful soil in which to grow. A group of the clergy working with SIECUS has put it this way: "Parents should be taught to bless,

honor, conserve, dignify, and celebrate their children's sexuality." Parents who do this on behalf of their children will be doing it also on behalf of themselves, and their own sexual lives will benefit thereby.

What has been said here can be applied specifically to women, but equally specifically to men, and to the needs of both. One cannot talk about one without the other.

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Adolescent Sexual and Reproductive Behavior

Wendy H. Baldwin, Ph.D.

INTRODUCTION

The estimated 1 million pregnancies a year to women under 20 are accounted for by the more than 4 million sexually active young women. A quick calculation leads one to suspect that teenagers are at high risk of becoming pregnant if they engage in sexual activity, and so they are. While few married adult women expose themselves to the risk of an unwanted pregnancy, contraceptive practice among adolescents is less regular and less efficacious. This is one reason that adolescent sexual behavior has been the subject of increased attention in the past decade. During this time, women under age 20 contributed about 600,000 births a year in the U.S., or 15-20 percent of all births. Increasingly, births to teens were out-of-wedlock, and the social, economic, personal, and societal impact of teenage births was widely felt, recorded, and analyzed. Adolescents have accounted for one-third of the legal abortions annually, a figure that has topped 400,000 in recent years (Table 1). How many teens are sexually active, and how and why do they contracept? Why is sexual activity so often followed by pregnancy? Before answering these questions, another question must be addressed: how do we know anything about teenage sexual behavior?

SOURCES AND QUALITY OF DATA

The number of births is obtained from State records of births, records which include the mother's age, and in some states, her marital status, along with other information. Abortion data come from reports of hospitals, clinics, and doctors performing abortions. Information about adolescents' sexual behavior generally comes from surveys, the most prominent of them being the Johns Hopkins surveys, conducted in 1971, 1976, and 1979. They are all national samples, but in 1979, data are available only for metropolitan areas. Can one believe answers given to surverys about intimate behavior? Probably. Answers can be checked against vital records to see if implied rates are "believable" and the internal consistency of replies can be studied. There is such internal consistency that it is difficult to believe that wholesale fabrication of data is taking place. Large numbers of cases mean that if someone shades the truth from time to time, there is little overall effect. A more serious problem comes from those who

Table 1. Childbearing and abortion in the U.S. - 1970-1978

	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total number of births	3,731,386	3,555,970	3,258,411	3,136,965	3,159,958	3,144,198	3,167,788	3,326,632	3,333,279
Number of births to women									
under 20	656,460	639,520	628,362	616,957	607,918	594,880	570,672	570,609	554,179
under 15	11,752	11,578	12,082	12,861	12,529	12,642	11,928	12,455	10,772
15-17	223,590	226,298	236,641	238,403	234,117	227,270	215,493	213,788	202,661
18-19	421,460	401,644	379,639	365,693	361,272	354,968	343,251	348,366	340,746
Percent of births to women under 20	17.5	18.0	19.3	19.7	19.2	18.9	18.0	17.2	16.6
Total number of out-of-wedlock births	398,700	401,400	403,200	407,300	418,100	447,900	468,100	515,700	543,900
Number of out-of-wedlock births to women under 20	199,900	203,600	212,200	215,800	221,400	233,500	235,300	249,800	249,100
Percent of out-of-wedlock births to women under 20	50.1	50.7	52.6	53.0	53.0	52.1	50.3	48.4	45.8
Percent of all births to women under 20 that were out-of-wedlock	31.5	31.8	33.8	35.0	36.4	39.3	41.2	43.8	44.9
Total number of abortions	n.a.*	n.a.	n.a.	744,610	898,570	1,034,170	1,179,300	1,320,320	1,409,600
Percent of abortions to women under 20	n.a.	n.a.	n.a.	32.8	32.5	32.9	32.1	31.3	30.0
Number of abortions to women under 20	n.a.	n.a.	n.a.	243,440	293,420	342,300	378,500	413,410	422,900

Sources: National Center for Health Statistics (1,2,3,4,5,6,7,8,9,10), and Forrest, Sullivan, and Tietze (11).

* n.a.: not available

do not participate in these surveys. Since they may include young women living "on the street" and likely to be more active sexually as well as those whose parents refuse their participation and are probably less active sexually, it is difficult to know the total effect on survey results with any certainty. But the figures given are from samples and are, therefore, estimates. Clinic data and other data from special sources complete the picture. Such data often may be richer in content but more limited in scope, numbers of cases, and representativeness. All types of data may be used to help describe and explain adolescent sexual behavior.

SEXUAL ACTIVITY

Let me return to the sexually active adolescent, and in keeping with the focus of the conference and the weight of the available data, we shall limit ourselves to adolescent females. National data from 1971 and 1976 showed an increasing proportion of young women engaging in sexual activity before marriage, and a declining age of first intercourse (Table 2).

Table 2. Percent of never married women in the U.S. experiencing sexual intercourse, 1971 and 1976, by age and race

WHITE

	1976	1971	Percent of Change
15-19	30.8	21.4	43.9
15	13.8	10.9	26.6
16	22.6	16.9	33.7
17	36.1	21.8	65.6
18	43.6	32.3	35.0
19	48.7	39.4	23.6

BLACK

	1976	1971	Percent of Change
15-19	62.7	51.2	22.5
15	38.4	30.5	25.9
16	52.6	46.2	13.9
17	68.4	58.8	16.3
18	74.1	62.7	18.2
19	83.6	76.2	9.7

Source: Zelnik (12).

By 1979, the proportion who were sexually active had continued to grow, although there appeared to be no change in age at first intercourse (Table 3).

Table 3. Percent of never married women in metropolitan U.S. experiencing sexual intercourse, 1971, 1976, 1979

	Percent of Change, 1971-1979	1979	1976	1971
15-19	+66.7	46.0	39.2	27.6
15	+56.2	22.5	18.6	14.4
16	+80.9	37.8	28.9	20.9
17	+85.8	48.5	42.9	26.1
18	+43.3	56.9	51.4	39.7
19	+48.7	69.0	59.5	46.4

Source: Zelnik and Kantner (13, Table 1).

It appears that just under half of women 15-19 engage in sexual activity before marriage. When a comparison is made between 1976 and 1979 (metropolitan areas only), it is clear that the increase in sexual activity is among never-married whites. The prevalence of premarital intercourse is clearly higher for blacks, but the behavior of whites is changing more (13). Differences in sexual activity between blacks and whites are greatest at the youngest ages, a fact mirrored in the differences in age-specific birth rates (Tables 4a and 4b*).

Table 4a. Birth rates for women less than 25 in the U.S., 1970-1978, by race

ALL WOMEN

	1970	1971	1972	1973	1974	1975	1976	1977	1978
20-24	163.1	149.1	128.8	119.4	117.7	113.6	110.9	114.0	111.4
15-19	69.7	66.1	63.0	60.4	58.7	56.7	53.8	54.0	52.5
18-19	112.2	104.3	96.1	90.8	88.4	85.1	81.0	81.7	80.1
19	126.0	116.1	105.0	98.5	96.2	92.7	88.7	89.5	88.0
18	98.3	92.4	87.1	83.1	80.5	77.5	73.3	73.8	72.2
15-17	41.5	40.6	41.0	40.2	39.0	37.7	35.8	35.6	34.1
17	66.6	64.2	63.5	61.5	59.7	57.3	54.2	54.2	52.4
16	38.8	38.3	39.3	38.8	37.7	36.4	34.6	34.5	32.7
15	19.2	19.2	20.1	20.2	19.7	19.4	18.6	18.2	17.2
14	6.6	6.7	7.1	7.4	7.2	7.1	6.8	6.7	6.3

* Single year of age data are unavailable for blacks. Table 4a presents data by single year of age of all women, whites, and all other. Table 4b presents grouped data for blacks.

WHITE

	1970	1971	1972	1973	1974	1975	1976	1977	1978
20-24	158.6	143.9	123.7	114.3	113.0	108.7	106.1	108.9	105.4
15-19	59.0	55.2	52.3	50.3	49.1	47.4	45.1	45.1	43.7
18-19	99.6	91.7	83.8	79.0	77.3	74.3	70.9	71.2	69.6
19	114.0	103.9	93.2	87.1	85.5	82.2	78.8	79.3	77.6
18	85.2	79.5	74.4	70.9	69.0	66.3	63.0	63.0	61.5
15-17	32.0	30.9	31.3	31.0	30.4	29.5	27.9	27.7	26.5
17	54.3	51.8	51.2	50.0	48.7	46.9	44.3	44.1	42.6
16	29.0	28.6	29.5	29.5	28.9	28.1	26.6	26.4	25.1
15	12.6	12.4	13.2	13.6	13.5	13.4	12.8	12.6	11.8
14	3.6	3.7	4.1	4.3	4.3	4.4	4.2	4.1	3.9

ALL OTHER

	1970	1971	1972	1973	1974	1975	1976	1977	1978
20-24	189.9	179.7	159.8	149.2	143.7	140.4	138.0	142.2	142.3
15-19	133.4	129.1	124.7	118.4	112.4	107.6	101.7	101.6	98.4
18-19	186.8	178.5	168.3	158.2	150.8	145.0	137.0	138.3	136.0
19	197.7	187.9	175.0	164.0	156.5	151.0	143.6	145.3	143.5
18	175.8	169.1	161.5	152.3	145.0	138.9	130.4	131.3	128.5
15-17	97.9	96.2	95.4	91.6	86.9	82.7	78.1	77.3	73.4
17	139.3	135.8	133.7	126.5	120.4	114.5	108.0	107.4	103.5
16	96.3	95.3	95.6	91.6	86.8	82.3	77.6	77.0	72.5
15	58.0	57.6	58.2	57.0	53.6	51.2	48.6	74.4	44.1
14	23.8	23.6	24.1	24.5	22.8	22.1	20.5	20.0	18.5

Sources: National Center for Health Statistics (14,15,16,17).

Table 4b. Birth rates for black women less than 25 in the U.S., 1970-1978

	1970	1971	1972	1973	1974	1975	1976	1977	1978
20-24	202.7	187.3	166.2	154.6	148.7	145.1	143.4	147.7	147.5
15-19	147.7	135.1	130.8	124.5	118.3	113.8	107.0	107.3	103.7
18-19	204.9	193.8	181.7	169.5	162.0	156.0	146.8	147.6	145.0
15-17	101.4	99.7	99.9	96.8	91.0	86.6	81.5	81.2	76.6

Source: National Center for Health Statistics (9).

But now that we have reviewed data on the overall numbers, the rates, the racial differences, and the trends, does this help us picture the sexually active teen? Perhaps the data on frequency and number of partners will help. Drs. Zelnik and Kantner (13) note that about 12 percent of the sexually active have had sexual intercourse only once. Among those in 1976 who were no longer virgins, almost half had not had intercourse in the 4 weeks preceding the survey, and an additional 25 percent had had intercourse only once or twice (Table 5).

Table 5. Sexually experienced never married women 15-19 by frequency of intercourse in 4-week period by race and age

NUMBER OF TIMES

	0	1-2	3-5	6 or more	Total
1976					
All	47.6	25.4	11.7	15.3	100.0
White	49.2	21.2	12.2	17.4	100.0
Black	49.3	29.2	14.1	7.4	100.0
1971					
All	39.6	30.2	17.4	12.8	100.0
White	38.3	30.1	17.6	14.0	100.0
Black	40.1	34.0	17.6	8.3	100.0

Source: Zelnik (12).

(For comparison, among white married women, only 5 percent had not had sexual intercourse and 6 percent had had intercourse only once or twice in a comparable period for 1975 (16). In regard to premarital sex, one-half of the teens had had only one partner (Table 6).

Table 6. Sexually experienced never married women 15-19 by race and number of partners ever

NUMBER OF PARTNERS

	1	2-3	4-5	6 or more	Total
1976					
All	50.1	31.4	8.7	9.8	100.0
White	52.9	28.0	7.8	11.3	100.0
Black	40.2	42.0	11.8	6.0	100.0
1971					
All	61.5	25.1	7.3	5.6	100.0
White	61.6	22.9	8.5	7.0	100.0
Black	61.4	28.9	6.9	2.8	100.0

Source: Zelnik (12).

Why is frequency of sexual activity and number of partners of concern? Both dimensions of sexual behavior help researchers interpret the risk of pregnancy by improving our understanding of the extent to which teens are exposed to the risk of pregnancy. Such data also reflect on the teen's contraceptive needs and the milieu in which contraceptives will be used. For example, one could argue that occasional sexual activity is less compatible with the regimen of oral contraceptive use than is regular sexual activity (17).

When these features of sexual activity are considered, the comparison of blacks and whites becomes even more interesting. The likelihood that a black adolescent women will be sexually active is clearly higher than it is for a white, and she is likely to begin sexual intercourse at an earlier age, but once initiated, her behavior looks in many ways more conservative. The black adolescent is less likely to have had many partners (6 or more). The average number of partners in 1976 was 2.8 for whites and 2.4 for blacks. As noted before, frequency of sexual intercourse (as measured in the 4 weeks preceding the survey) was low but notably higher for whites, 3.0 for whites compared with 1.7 for blacks in 1976 (18).

An intriguing problem of separating cause and effect in cross-sectional data appears in the analysis of sex, contraception, and marriage plans, and the case is most clearly observed for whites. Sexual activity is most frequent for those using a medical method and for those with marriage plans. Perhaps the security of a medical method reduces fear of pregnancy and increases sexual activity, but the concomitant relationship with marriage plans leads one to suspect that an anticipated wedding both reduces barriers to effective contraception and increases sexual activity as pressures to hide sex--or the perceived costs of a pregnancy--are reduced (13).

Data on frequency and partners paint a fairly conservative picture of teenage sex. Sex--as Drs. Zelnik and Kantner point out--is more extensive among blacks but more intensive among whites. But for both groups the risk of pregnancy is high. One-third of those who had intercourse before marriage became pregnant before marriage (13). One out of three is terrible odds, especially considering irregular and infrequent sexual activity!

PREGNANCY--THE RISK

Dr. Laurie Zabin investigated the risk of pregnancy according to how long the adolescent had been sexually active and found that half of premarital first pregnancies occurred in the first 6 months of sexual activity, 20 percent in the first month. She also found that nearly 20 percent of women who begin sexual activity become pregnant in the first 6 months--the younger the woman, the greater the risk. Ten percent of those under 15 at first exposure become pregnant in the first month. This is the result of very poor contraceptive practices--the younger the woman, the worse it is (19).

Youth is of little value in protecting against pregnancy for few engage in sex in the year or two following menarche, even those who begin sex at young ages (18). If the teen is not protected with any "natural immunity," what is her protection? Information? Teens who do not use contraception give a range of reasons: I'm too young; we don't have sex often enough; contraceptives are too difficult to get; it's the wrong time of the month. The last suggests a gross lack of information about the reproductive processes of the body. Only a minority of teenage women have a generally correct idea about the periodicity of fecundity. More whites than blacks, especially more of those whites who have had sex education (12), have a notion of the mechanics of the menstrual cycle. An analysis by Presser leads us to question whether the proportion with correct knowledge is even lower when one accounts

for guessing (20). If you do not think you are at risk, how can you take the next step—to protect against risk? In fact, many teens delay coming to a clinic for service, a serious error when the risk of conception is so high.

PREGNANCY--THE RESOLUTION

Teens do experience considerable numbers of unwanted pregnancies. In 1979, data for teens living in metropolitan areas indicate only 18 percent of those completing a pregnancy while unmarried wanted the pregnancy; moreover, only 32 percent of those not intending to become pregnant had used a contraceptive at the time they became pregnant (Table 7).

Table 7. Proportion of first unwanted premarital pregnancies by contraceptive use status: Percent 15-19 year-olds in metropolitan areas, 1971, 1976, and 1979

	1979	1976	1971
Pregnancy			
Not wanted	82.0	75.4	75.8
Used birth control	31.5	20.6	8.6
Did not use birth control	68.5	79.4	91.4

Source: Zelnik and Kantner (13).

Is it possible that teens do not care if they become pregnant? In 1979, about one-quarter never used contraceptives, and over one-third always did, clear improvements over previous years. Of those who were unmarried when a pregnancy ended, 37 percent chose induced abortion, an increase over previous years. There is ample evidence that teens are trying harder than ever to keep from reproducing at young ages but also continue to have problems with contraception. Interestingly, those choosing abortion have better contraceptive histories than non-aborters, supporting the view that abortion is regarded as a backup method. Between 1976 and 1979, teens tried harder and were less successful in preventing pregnancies. One reason may be their movement away from the pill and toward withdrawal. The pill may be viewed with concern, although medical risks are greater for older women, or it may be a difficult regimen to follow if sex is sporadic (13).

HEALTH CARE DELIVERY SYSTEMS

In-depth studies of teens associated with organized medical care systems point to the difficulties inherent in using them. Fear of a pelvic exam, uneasiness about the doctor's demeanor or simply fear that the doctor will be male, and fear of a breach of confidentiality all may delay a visit. Nervousness during a visit may preclude meaningful understanding of the complex information about their bodies, the contraceptive methods, and how to fit a method to their sex lives (21). The desire to stay away from the medical system may be coupled with a belief that drugstore methods are not effective enough to be worth the difficulties. But the bottom line is unmistakable. The present delivery systems are largely dependent upon the teen recognizing his/her need and seeking the service. The

teen, for a variety of reasons, is reluctant and delays. The result is a large number of unwanted pregnancies and abortions. The implicit solution is very difficult, for it presumes that the system will reach the adolescent before he or she is at risk, i.e., that it will come from parents, schools, and perhaps clinics that can serve those who are not yet sexually active (19). The challenge to overcome the difficulties is enormous.

It presumes that the generalized support for sex education in the schools can effectively function in local areas, that parents can be afforded opportunities to learn more about what and how and when to talk with their children, and that other systems can make major changes in their view of who their "target population" may be. It also presumes that no one seriously fears that talking about responsible sex encourages sex. Such a reorientation in the approach to the needs of adolescents is made all the more difficult because adolescents develop their interest in sex at different ages and messages about sex and reproduction may have to be delivered over and over.

Adolescent sexual and reproductive behavior is very complex and the problems occasioned by early involvement are challenging. We have only recently begun documenting those behaviors and seeking to systematically address the causes and consequences. While much remains to be learned, we have considerable information which can be marshalled to enlighten the discussion of the problems of adolescents and inform us about possible solutions.

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Research on Adult Female Sexuality: The Next Decade

Pepper Schwartz, Ph.D.

This paper is meant to be a brief, heuristic reflection on the questions behavioral scientists ask about female sexuality rather than a research review or data presentation. In a very short time the contemporary study of female sexuality has passed from conjecture to measurement, from ideology to competing paradigms, from exotica and erotica to questions that have larger meaning for society as well as for the individual. Nonetheless, this seems an appropriate time to pause in our research progress to survey where we are and consider where we ought to go.

Just a few decades ago there was little empirical work on female sexuality. There were some fascinating refinements of established psychological and psychiatric theory by additional case study and model building. There were Kinsey's (1) startling statistics on American sexual patterns, Ford and Beach's (2) crosscultural contributions, and Simon and Gagnon's (3) interesting work in the late 60s on the "scripting" of sexual behavior. The study of male sexuality, however, and the study of sexuality in general was not yet accepted. Pioneers in these fields were criticized for their intellectual interest and students of their work were few in number. Attention to this area of study was seen, at best, as a trivial and perhaps prurient preoccupation.

Masters and Johnson's work helped change the climate. Although their work has been intelligently criticized by Zilbergeld and Evans (4), it has importance to the study of female sexuality which must not be underestimated or undervalued. Masters and Johnson (5) showed that sexuality could be studied, that it should be studied, and that there was information that needed to be revised and questioned. Masters and Johnson's work, with the help of the newly reborn women's movement, helped establish a new field, sex therapy, and gave impetus to more research on female sexuality. Studies on behaviors, attitudes, biological functioning, and social customs proliferated. Scholars were drawn to the area from their previous research interests and a new field developed.

While the study of female sexuality is still productive, some suggestions might keep the next decade as fruitful as the previous one. Presently, scholarly writing concentrates on four areas: the possi-

bilities of female sexuality (that is, the nature versus nurture argument), sexual attitudes and behaviors of women, varieties of sexual lifestyles, and sexual problems. The first area has been a response to cultural bias and psychoanalytic theory. Researchers felt it was necessary to distinguish between social prescription and biological and physical attributes. This is important for disciplines and has great implications for social policy. Such questions cease to be academic when the information may be used to determine who should have custody, who can join the army, or who should be president.

The second area includes what Simon and Gagnon (3) have called "social bookkeeping," that is, the cataloging of who does what with whom, under what conditions. Attitudes and behaviors are surveyed, percentages tabulated, and basic demographic variables are used to differentiate one group from another. Such research is used to understand what is happening in a given society and what social change may be occurring. Norms of action and belief are established. This approach has always been popular and necessary, though certainly never more ubiquitous than now. Popular writers like Sherri Hite (6) and Nancy Friday (7,8) compile widely read books based on the responses of hundreds of women. Popular magazines such as Redbook (9) and Better Homes and Gardens (10) conduct surveys of their own readerships and have these surveys designed and interpreted by social scientists. Respected and talented scholars like Zelnick and Kantner (11,12) plan random samples so that probability statements can be made about rates and percentages of various kinds of sexual activity. Social policy and therapeutic assessments use these statistics to understand prevalent sexual customs and issues. These popular and scholarly studies tell us about rates of premarital sexuality, extramarital sexuality, sexual satisfaction and frequency in marriage, etc. The studies provide information about contraceptive habits, attitudes in different classes, racial groups and age groups, etc.

The third area has a more recent genesis. Research on nonheterosexual patterns has been very limited. Kinsey was one of the first researchers who wrote about homosexuality or rare sexual practices within a context of investigation rather than condemnation or judgment. The redefinition of homosexuality, for example, had been occurring for a while before Kinsey's work, but it was his group that brought this perspective to the attention of the general public. By viewing homosexuality and other sexual practices as part of a continuum of sexual responses, rather than as an odd and deviant separate category, Kinsey created a new concept of human sexuality. Although Freud, in some of his writing and letters, had shared Kinsey's view, the impact on the scientific and general public was made by Kinsey.

New research, however, did not start to flourish until the women's movement and the gay rights movement began to debate sexual stereotyping, to influence scholars, and also to produce scholars to do additional research. The first articles tended to be written by journalists or activists who were angry and polemical, but they were often theoretically sophisticated, and spawned a good deal of research interest among sociologists, psychologists and some historians. They did not, however, attract most of the mass media. Surveys and case studies of premarital, marital, or extramarital sexual activity were commercial, but stories about homosexuality were not. Other noncentrist topics, such as communal marriage, were also taboo, and surveys on homosexuality or group sex were confined to academic study.

Even the research community was slow to respond. There was, and still is, some stigma attached to doing research on sexuality. The less "mainstream" the topic, the more likely it was to attract negative judgments or lack economic and academic support. All this notwithstanding, interested researchers and popular writers have persevered and there has been an enormous increase in writing in these areas. New research journals such as Alternatives to Marriage and The Journal of Homosexuality are now available commercially. While the research on female homosexuality, bisexuality and nonmonogamous sexuality is not as extensive as other research on sexuality, an impressive amount of material has nonetheless accumulated.

The fourth area of interest is social problems. This is a well-established line of inquiry. Sociology was initially oriented to finding out about and curing sexual anomalies and socially dysfunctional practices. Investigators at the turn of the century were very interested in "excess" sexuality such as masturbation or "untoward" female sexual response. These were seen as social problems because they threatened the mental and physical health of citizens and endangered the sanctity of the family. Today, we find such concerns quaint and turn to other issues such as sexual violence, sexual dysfunction, a high birth rate among unmarried teenagers, and other issues that threaten the common good as it is presently defined.

All of these areas of research, as well as others, produce useful information and are critical to the common goal of accumulating knowledge and questioning suppositions. Such investigations should not cease or be thought unworthy of discussion and analysis. Still, it appears that the study of female sexuality has cut itself off from important research directions by limiting itself to these foci. One methodological and two substantive perspectives which may be needed to reorient the process of selection and interpretation of topics are suggested here.

USE OF THE INTERACTIONIST PERSPECTIVE

The collection of rates and behaviors tends to reify the notion of female sexuality. While some of the nature-nurture debates discuss social explanations for sexual identity and behavior, there is a tendency to imply causes that originate or are located in "critical periods," if not in the genetic code or hormonal balance. Although such inquiry is necessary, what seems more challenging is an approach which emphasizes the situation and recognizes the changing nature of individual actors. Our current research on the acquisition of sexual identity, on couples, courtship, etc., indicates that the same actor changes through his or her interaction with others and because of contextual considerations. A woman who is sexually demanding in one relationship may be sexually disinterested in another. One environment may promote one set of responses quite different from the same woman's reactions under another set of conditions. In this framework such aspects of the self as needs, desires, fantasies, behaviors, even core concepts like sexual preference, can be dependent on opportunity structures, exchange relationships, and a number of other variables.

This is not a radical approach. W. I. Thomas (13), a grandfather of symbolic interactionism, has said that what is seen as real, is real in its consequences: Perception creates real effects. Erving Goffman, 1980 president of the American Sociological Association, is perhaps the most well-known inheritor of this tradition--but his impact has

not been as great as warranted. Goffman studied, as one of his books is entitled, "The Presentation of Self in Everyday Life" (14). According to Goffman we advance a conception of ourselves to the world--and see how it fares.

If we say we are Napoleon, and everyone accepts this definition, we can maintain that identity. If it is denied to us by those we interact with, we must change our notion of who we are or become increasingly dissociated from our fellow human beings. Goffman conceives of human behavior as floating assumptions which may or may not be confirmed, depending on how the action manipulates cultural definitions, and how the actors' "presentation of self" is accepted by others. "Teams" may be formed that help maintain group operating consensus and help institutionalize certain norms and values. The peer group, for example, may be such a team. Certain definitions are given that are backed with the moral force a group consensus can create. Persons act within that consensus, and the self-concept and observed acts that are performed are all defined through the window that environment allows.

The concept of "significant others" is important in this formulation. If "all the world is a stage," all audiences are not equal. Families, lovers, desired ones, etc., have more power than others to judge our performances or to establish norms for us to follow. The interesting problem becomes one of seeing what working consensus exists, how it is set up, how the self is created, how it can be changed, or how it is maintained. This perspective may allow that certain characteristics like gender are less malleable than others, but that maintenance and definition become interesting problems.

The present study of female sexuality and of much social behavior, for that matter, views actors as having consistent personalities fixed by early events and only slightly modified by later ones. We think of women, for example, as having a particular sexual response rather than having a particular sexual response with a particular person, under particular situations, in a specific social climate at a certain time of her life. The latter, of course, is a much more complicated concept, but it is a much more likely one.

It seems that we can understand the evolution, meaning, and possibilities of female sexuality if we view its changes over time. It is useful to study female sexuality within the context of changing social movements, for example, the right to life groups, home and family groups, and the gay rights movement. An interactional structural approach is needed.

One final example seems relevant from the work Philip Blumstein and I (15,16) have been doing the past 6 years. We are studying couples who live together in a sexual and/or romantic relationship. Married couples, heterosexual couples who live together, as well as male and female homosexual couples, are included. Both members of about 8,000 couples privately and individually fill out a long questionnaire about their relationship. About 300 of these couples have also been interviewed for 3 hours, both separately and together. The latter group has been stratified by the duration of their relationship, couple type, and social class. Other differencea have been allowed to vary randomly. The instrument provides information about past relationships as well as the present one.

While the data are not yet ready to be presented scientifically, it can be said that people show quite different sexual and other behaviors

in one relationship than in another. Women show great variation in the content of their fantasies and in the acts which are satisfying. They may be sexually more interested in one relationship or another and it may not be related to attraction or general satisfaction with the relationship. The addition of children or work to their lives may change sexual frequency but not necessarily mean frustration or a desire to change. Even the way a woman wishes to be touched may be calibrated among new dimensions, when she has a new partner.

Sexuality, as a social construction, must be studied within a context of changing variables. Failure to acknowledge that female behaviors, feelings, and needs are heavily influenced by whom the interaction is with, cultural definitions, definitions of significant others and situational contingencies, robs the study of sexuality of scientific detail.

SUBSTANTIVE CONCERNS: THE SOCIAL PROBLEMS APPROACH

A second suggestion concerns recent research on rape, sexual abuse, spousal abuse, and incest. For the most part, these are assaults against women. They are cowardly, frightening, dangerous, and demeaning. We must know about the reason for their occurrence, the ways to stop such aggression, and find appropriate help for victims. Yet, the recent popularity of this topic has its problematic aspects. The problem is that all of this attention is with women as victims. While surely women are victimized and surely they are physically weaker than most of their attackers, this social problem approach to female sexuality helps reinforce the view that women are passive and helpless.

Although this worthwhile research and service needs to be continued, research and service could be provided within a different context. Female passivity has been a focus of psychoanalytic theory. Orthodox psychiatrists posit severe flaws in the female ego because of an inadequately resolved "Electra" complex. Even the neo-Freudians view female passivity as an essential part of female sexuality. Female sexuality is supposed to be compliant, responsive as opposed to aggressive, and malleable.

There was an initial reluctance to help women victims based, in part, on the bias that sexual abuse was either occasioned by the victim's own permissiveness, or allowed to continue because of the victim's own ambivalence. Once the initial prejudice about women's right to protection was overcome, a sympathetic nation responded to help its sisters, mothers, wives, and future wives. Although this response is one of humanistic concern to the violation of women's physical and emotional integrity, it is not at all counter to prevailing social norms about female sexuality. It would seem wise to avoid inadvertent reinforcement of visions of the cowering, preyed upon, beaten down, frail female and put such discussions in a context that can accomplish the same practical and intellectual ends with perhaps fewer costs.

SEXUALITY IN THE CONTEXT OF POWER

The suggested refocus uses a broader theoretical paradigm for research on sexual violence and other abuse of women. One approach, among many possible approaches, views sexuality as part of the construction, exchange, and struggle for power. One can argue that every society is engaged in a struggle for scarce resources. Violence is one way to

achieve them. Another is to create a case or class system which gives advantages to certain groups of people, either by gender, or background, or relationship to the means of production. All individuals within any given system will try to use rules to their advantage. Failure or perception of possible failure within the rules may lead to attempts to achieve success in a counternormative fashion. Power, as Max Weber (17) defined it, is the ability to get what you want over and above what anybody else wants you to have. You may not have to exercise force. Your personality, your position in the situation, your size and possible ability to enforce your desires, all of these may give you power in the right situation.

There is a great deal to be learned from looking at the power relationships between men and women which would inform us about many aspects of female sexuality, sexual violence and abuse. Different societies and cultures have had historical periods of equality or domination. Differences between and within classes can be compared. Situations and circumstances can be identified when force has been applied. Circumstances when violence against women has been approved or condemned can be noted, and questions can be asked about the underlying reason for the nature of these relationships. The social psychology and psychology of gender relations in this context would be equally interesting. Structural variables will not always explain why a woman submits herself or her children to abuse or why she does not act violently herself. A more general level of analysis will not explain all there is to know about motivation, sexual imagery, and other elements that influence sexual conduct.

If power relationships such as equity, inequity, hierarchy, and control, are used as the independent variable and, for example, sexual assault as the dependent variable, one research question may generate others and in time a group of findi may make clear the structure of male and female sexual and role behavi s. Despite all the good research that has been generated, interdisciplinary research will not be integrated in a parsimonious explanation of female sexuality unless it is conducted at this level of inquiry.

Although it is more difficult to conceptualize at this level, as a community of scholars and lay persons with a special int est in female sexuality, we can interpret and reorient our own research. We can, at the same time, be more specific and more general. We can be more specific by our attention to the complexities of female sexual behavior and measure more fastidiously with more variables during more interactions at more periods of the life cycle. We can abandon the idea of a set of female sexual possibilities whose boundaries can be carefully chartered. If the individual is in a new circumstance much of her response will change. However, exactly what is more or less flexible is still conjecture.

Likewise, questions can be posed within a larger framework than a social problems or "social bookkeeping" approach. These kinds of research will always be useful and appropriate, but theory construction must not be neglected. Interestingly enough, there is more of this kind of work in feminist literature than in academic journals. Schulamith Firestone (18), Germaine Greer (19) and others offered arguments on power and other conceptual foci that have not really been well explored by others. To heed these voices and to explore the literature for appropriate leads could result in a discussion of female sexuality at the most illuminating level possible.

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Middle and Later Years

Introduction

Joyce B. Lazar, M.A.

No belief is more pervasive in Western thought than that the life course is determined by early childhood experiences and socialization. And this, of course, was the focus of the early part of this conference. But later life experiences also have profound consequences. Decisions to marry or not, to have children or not, to enter, remain in or leave the labor force, to get a divorce--and the sheer differential longevity of women--all have consequences for later life. Women are also affected by the culture and the historical time into which they are born.

In her paper, Matilda Riley discusses how the major topics of the conference relate to old age. She also expresses the strong belief that recent changes in younger women's lives will result in a richer and more fulfilling old age.

Implications for the Middle and Later Years*

Matilda White Riley, D.Sc.

My task is to tease out from the other papers in this volume some of the implications for the middle and later years. The papers have examined many aspects of women's early lives. For example, they have remarked upon:

--the experience of being born under "natural" conditions (Ferris,,
--"remembered" infant sexuality (Calderone);
--the breakdown of stereotypical sex role learning (Helmreich);
--the growing presence of women in the labor force (Maymi);
--the "big spurt in family variability" as women assume more autonomous roles (Blake);
--the strains of combining work with motherhood (Piotrkowski);
--and through it all, the "enormous physical and mental viability" of women (Ramey).

Now we ask. What do such early life experiences portend for women's later lives? This is a perilous assignment since we are required to peer over the edge of time and into the future. Fortunately, our interpretation can be guided by a powerful conceptual framework, the life-course perspective. This perspective embraces the developmental perspective of this conference. It has been of central concern to me as a sociologist of age (1), and to the Social and Behavioral Research program of the National Institute on Aging. This is a dynamic perspective. It stresses the interaction between social change and the processes of development and aging. Two principles are paramount:

1. All phases of the life course are interrelated. Infancy, womanhood, old age, are all parts of a life-long process of growing up and growing old. Every woman moves through the life course, starting with conception and ending with death. None of the life experiences discussed in this volume can be fully understood apart from its

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antecedents nor, of special relevance for my theme today, can any single phase or life experience be understood apart from its consequences.

2. The life course is affected by social change. Aging is not entirely fixed by biology. People are born and lead their lives at different times. They belong to different cohorts (or generations). Members of each successive cohort experience a unique slice of historical time--as society moves through wars, economic fluctuations, changes in style of life, advances in medicine and technology, rising educational levels for women, and so on. Thus members of different cohorts do not follow an immutable life pattern. Rather they grow up and grow old in widely differing ways.

How can we use this life-course perspective to gain insights into likely ways of growing old in the future? Two kinds of information are needed, information about the earlier lives of women who are now adult; and information about social changes, past and future, that can affect the lives of these cohorts of women.

For the first, it is hard to reconstruct the biographies of these young adult women, to probe beneath the surface of the well-known statistics, to seek in their childhood and their adolescence premonitory clues to their later lives. Yet some data are available. A 1960 study of girls who were then adolescents is relevant. These girls were in the same cohort now aged 35 or 36. And back in 1960 their self-reports might well have alerted us to many life events to come, to the mid-life realities discussed in this volume.

Here are some indicative findings from that small study (2), in which my colleagues and I at Rutgers questioned 750 juniors and seniors in public high schools:

--Most girls (70 percent) planned a college education (in contrast, only 25 percent of their mothers had attended college);
--Most, especially those who planned college, planned to work in the future, and in those days that meant combining a career with marriage;
--Among the girls planning college, a whole new view of work seemed to be taking shape. Their reasons for planning a career were largely noneconomic--they wanted to use their special interests, talents, and training. This "good life" view of work was in sharp contrast to the "hard life" view attributed to their mothers' working, prompted by the need for income and to help raise the family standard of living.

Back in 1960 these findings were portentous. They indicated that oncoming cohorts of young women were being socialized not only to reinforce the national trend toward rapidly rising rates of women's work outside the home, but also to transform the meaning of work for married women, to free women's working from the traditional stereotype of low income and the husband's default as an adequate provider.

One other finding from this study (3) was also predictive of the future:

--While most girls planned to work, very few boys in these same high school classes wanted their future wives to work!

Even then, we shook our heads at the prospect: what would happen when this cohort of women came to marry this cohort of men?

Well, these women are now young adults and we can see what has happened. It was the educated women in these cohorts who sparked the women's movement. It was the women in these cohorts who have prompted the central social message of this conference: the message that young women today are experiencing many pronounced strains, particularly those who are caught somewhere between work and family. They experience role conflicts and ambiguities in their daily lives; they often feel isolated in their personal lives; and they confront inequities in pay status and opportunities for coping with the outside world. Today's women, especially the less advantaged women, have a rough time of it. Current social arrangements do not make life any easier. If a man is suffering from stress on the job, his doctor will diagnose the symptoms and attempt to treat his specific complaint. A woman worker in a similar situation is much more likely to be dismissed with a tranquilizer, a pat on the head, and the rest of the day off.

REVIEW OF SOCIAL CHANGES

What, then, are the implications of such difficulties for the later lives of these young women? Clearly, these women's preparation for old age will be very different from that of the cohort of girl babies just born, or that of the cohorts of women already old today. Therefore, three of the massive social changes discussed in this volume will now be reviewed, as they affect the process of growing up and growing old: changes in work life, in sex-role definitions, and in the ratio of men to women in the population. We may conclude with two potentially positive implications for later life.

Consider first the century-long transformation in the worklife of women. Cohorts of women born late in the 19th century were decreasingly likely to work as they grew older. For recent cohorts, the life-course pattern is completely reversed: women are increasingly likely to work as they grow older (1, p. 56). No longer are children a major obstacle: as the paper by Lois Hoffman shows, there has been a steady rise in the labor force participation rates of mothers with children under 18, from 9 percent in 1940 to 53 percent in 1978. Just as our early studies foretold, not only the pattern but also the meaning of women's work has changed. At the beginning of the century, the women who worked were mainly the poorly educated, the young singles, the immigrants. Today, the higher a woman's educational attainment, the more likely she is to be in the labor force. And levels of educational attainment continue to rise.

Thus, despite the many obstacles, I have few doubts about the occupational future for women (4). Sizeable proportions will increasingly play important roles as doctors, lawyers, scientists, business executives, politicians, diplomats, musicians, artists, even chefs, that bastion of male superiority!

How will older women of the future be affected by these revolutions in work and education? As each new cohort passes through the changing social structure, women will have had more training, greater opportunity for lifetime earnings, and wider experience outside the household. Will they form unrealistic expectations for continuing participation in the

wider society? Or will they develop new capacities for homemaking, leisure, and cultural pursuits?

The second major change affecting the life course of women has to do with sex roles and the long-term pressures toward greater equality between men and women. Even though in Jeanne Block's sample, females were still more susceptible than males to lower levels of personal efficacy, in historical perspective, we can see how quickly social change can occur. Over the last half century in "Middletown," for example, the percent who felt that homemaking skills were the most desirable attribute for a mother dropped from 57 to 41 among men, and among women, from 52 to 24! (5). Today this new equality is expressed both in the labor force, and in new family roles. Judith Blake shows how the role of husband as status giver and provider has diminished, reporting that "it is less necessary to have a husband today then at any time in our history." Today oncoming cohorts of young women are being socialized to the new equality, as Robert Helmreich's paper demonstrates (see also 6).

A very dramatic process is at work here, a process I call "cohort norm formation" (7). That is, many individual women in the cohorts now in their 30s and 40s have responded to common social changes by making separate but similar personal decisions to move in new directions: to go to college, to have a career, to structure their family lives in innovative ways. We saw this process at work in the earlier lives of these women from our Rutgers studies. While a few women in previous cohorts had made similar decisions, these women were forerunners; they were in the minority. Only with the current cohorts of young women did such decisions become pervasive. These cohorts have burst the floodgates of custom. Through these "floodgate cohorts," new norms have been suddenly brought out into the open (cf. 8). They have become institutionalized. Sex role attitudes and behaviors are becoming transformed.

To be sure, the depth of the transformation in sex roles is still uncertain. Men seem to be lagging behind; for example, Lois Hoffman reports only the most recent cohorts of fathers beginning to participate in child care. Substantial minorities of women reject the changes (note the ERA). Older working women today are still facing pervasive discrimination.

Yet one thing is certain. If the transformation continues, it will affect every facet of American life: housing, child rearing, business practices, taxation, recreation, leisure. We must ask whether our social institutions can change fast enough to accommodate the trend toward sex equality through neofamilies, communal living, changed work schedules that enable fathers to emerge from their shadowy symbolic role (Parke), job sharing, and the gradual blurring of the lines dividing education, work and retirement. However far the changes go, many women are growing old in new roles and new social institutions.

How will older women of the future be affected by these changing sex roles? Will new family forms and falling birth rates leave them bereft of kin? Will those still married (typically younger than their husbands) continue to work after their husbands retire, potentially creating a new family phase of "husband retirement"?

The third major change is in sex ratios, i.e., the number of men per 100 women. Among those over 65, the sex ratio was 102 in 1900; today it is under 70, that is, there are fewer than 70 males to every 100 females (cf. 9). Of course, one of the most drastic changes in human history is the century-long increase in life expectancy, and this increase has been greater for women than for men. Now Estelle Ramey calls for biomedical researches toward prolonging the lives of men. Yet the most recent developments offer slight hope of redressing the balance (10).

How will older women of the future confront this last phase of life, the predictable phase of widowhood? Will many elderly widows live entirely alone, as they do today, or will new forms of congregate living or close relationships develop between women or between one man and several women?

Clearly, then, these three sets of social changes are transforming the lives of many women. Now we must ask: will the long-term consequences yield a major social disaster, a growing population of unwanted, disengaged, unhappy older women? Such questions require continuing research to monitor each cohort of women growing into old age, including all kinds of women, by race, ethnicity, socioeconomic status. My reading of the research indications from this conference points to certain serious problems ahead, as the numbers of the very old mount faster than new roles can be invented for them, faster than medical science can vanquish the major disabilities of senescence.

Yet I also see bases for hope. As many young women today are playing more roles than men, they will reach middle and old age with ever greater role flexibility. They will have had more and more practice in coping. They will have developed two capacities that I will call "self-help" and "self-hood."

In regard to self-help, they will have learned through experience with women's groups to help themselves; to find new sources of social support; to engage in the increasing variety of "self-help groups"; and even to forge self-built relationships with family membera in which they earn relations of intimacy with children and grandchildren, no longer demanding intimacy as a right. Clues from some recent cohort studies (e.g., 11) begin to bear me out. They suggest the need for achieved family roles (12, p. 978). Although increasing independence cuts older people off from their families, families are nevertheless increasingly used as sources of support and help in times of stress. Thus the cohorts who in early adulthood sparked the women's movement may find new ways to institutionalize "intimacy at a distance" when they grow old.

I also dare to believe that older women in the future, through the varied experiences of their earlier lives, will have developed a new capacity for selfhood, for independence, care of their own health, and personal mastery. Here too there are studies (13, 14, pp. 548-549) that suggest that the many elderly women who live alone do so by preference, prizing their independence. They suggest that older people have a special sense of inner integrity--perhaps this is what Erikson meant by wisdom. They suggest that elderly women in nursing homes are not only happier but may even live longer if they maximize their sense of personal control (15). This sense of personal control

persists up to the end of life. There are strong tendencies for people to influence not only when they die, but how they die.

To conclude, my image of older women in the future can be tested only by time. Meanwhile, it must rest on accumulating facts about the actual lives of cohorts already born, on the many research findings set forth at this conference, on the frequently overlooked fact that the cohort which sparked the women's movement will become the older women of the future, and on data that will be gathered in studies sponsored by the National Institutes of Health. We know that the life course is not immutable. We know that each new cohort grows old in new ways. It is up to us to develop the knowledge base for guiding that growth.

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Discussion

The conference Women: A Developmental Perspective brought together more than 500 participants including many active researchers, academicians, clinicians, government officials and interested others. During this conference, which featured much audience participation, several concerns recurred throughout.

One major concern was that women are often viewed as a homogeneous group. There is a scarcity of research data on women from racial and ethnic minorities such as blacks and Hispanics. Moreover, each minority group is composed of many individuals with diverse backgrounds and environmental circumstances. For example, all black women and children often are mistakenly assumed to be urban and poor. Speakers emphasized the necessity for more sensitivity in differentiating among the many kinds of subgroups comprising the total number of black women. It is necessary to consider regional, economic, and other characteristics rather than seeing these women simply as black or Hispanic.

Similarly, the needs of several special groups of women must be assessed in greater depth; these include women who are disabled or are responsible for the care of a handicapped child. To date, there has been little research on the experiences of these women in their families or the workplace, although their problems are clearly in need of attention.

It is critically important for researchers to describe their subject populations in adequate detail. There also is a need for research which focuses attention on women's experiences within the social context, and for family studies and research that follow women's development longitudinally.

At several points during the conference, participants noted that only a small proportion of research funds is devoted to topics of special importance to women. Information resulting from research about women is not readily available to the public or to policy-makers. Thus, policy decisions are often based on popular stereotypes. Several participants emphasized that it is the researcher's responsibility to press fo. greater funding for studies relating to women's concerns, and to bring research findings to the public.

ISSUES OF IMPORTANCE TO THE AGED

Adequate health care is beyond the reach of many women. Some are just above the poverty line and not eligible for Medicaid. The problem is exacerbated by the movement to do away with city hospitals, a movement begun in New York City and followed elsewhere. There is a need for clinical care for the poor which requires initiative at the state and local as well as the federal level.

A large proportion of the billions of dollars expended each year on health care goes to meeting the needs of the segment of the population more than 60 years old which is poor, a population which is largely female. Conferees deplored the common practice of warehousing older women and men in nursing homes, whether or not they need nursing care. This practice is enormously expensive and fails to meet the needs of many of the aged.

On the average, women live longer than men, and many are forced to spend their later years in poverty. Conferees pointed out that insurance companies have used the data showing sex differences in longevity to reduce women's pension benefits on the grounds that women live longer than men. The practice has been maintained although groups with shorter lifespans, such as black men, are not given increased benefits. It is important to compare expected longevity of women and men at different ages since as age increases, the expected longevity of both sexes becomes more similar Thus, at age 65 and above, men and women can expect similar longevity.

ISSUES OF IMPORTANCE TO ADOLESCENTS

Questions were raised about how adolescents might improve their health and well-being as adults. Research is sorely needed on the long-term effects of strenuous physical activity, nutritional habits, and use of drugs and alcohol.

A frequent concern throughout the conference was the increase in adolescent pregnancy and the health status of the pregnant teenager and her offspring. Social and physiologic problems make it difficult to achieve safe and effective birth control for the sexually active teenage girl. Rhythm methods are often ineffective because the adolescent is less likely to have regular cycles than older women. Data on effects of long-term usage of the pill beginning in early adolescence are not available, and the episodic nature of most teenagers' sexual relations may make the pill an inappropriate method of contraception. The view was expressed that sex education for adolescents in the schools is often too little and too late. It was suggested that education of parents may be an effective method of achieving good sexual socialization of children during earlier stages of development. Pregnant teenagers and their offspring are not necessarily at greater risk than other groups if early medical care, good nutrition, and counseling are available. However, this usually is not the case.

ISSUES OF IMPORTANCE TO WOMEN'S HEALTH

Hypertension is an important problem for many women, particularly black women. Answers must be found to questions such as the following: What is the relationship between obesity and hypertension? Would it be advisable to limit sodium intake by controlling

the amount of salt in processed foods? There is an association between sodium intake and blood pressure which can be found by studying widespread population groups, such as the Micronesians who have very low intake of sodium. However, a similar relationship has not been demonstrated within the United States, probably because of variability in sensitivity to our current sodium levels. Although not all people, not even all blacks, are sodium sensitive, blacks should be very much aware that there is a high rate of hypertension among the black population. Studies of the renal functioning of black people from the United States and other parts of the world have shown racial differences in the excretion of sodium which may account for the increased sensitivity that is found in the black population. The effect is genetic for blacks and for whites, and only members of particular families are affected.

The conference discussions of reproductive and gynecological issues included menstrual and menopausal problems, infertility, fertility control, and medication during labor. It was agreed that there is need for research about the menstrual cycle, a nearly universal phenomenon occurring among most women for nearly 50 percent of their adult lives. The conferees also took note of delayed menarche among adolescent girls who engage in vigorous exercise, and amenorrhea among women athletes.

Participants expressed concerns about the use of exogenous estrogens after menopause, on one hand, and the development of osteoporosis and other postmenopausal problems on the other. The potential value of exogenous estrogens in preventing bone damage and cardiovascular damage was recognized. Several studies have shown a statistically significant increase in early cardiovascular deaths among women who were not treated with exogenous estrogens although their ovaries were removed while they were in their twenties, compared with women who were treated with estrogens, and with nonovarectomized women. There is, however, great concern about the possible association between use of exogenous estrogens and endometrial and breast cancer. Although reports suggest a smaller increase in risk of breast cancer relative to the increased risk of endometrial cancer, any increase in breast cancer is disquieting because of the high base rate of breast cancer. Many postmenopausal women produce enough estrogen so that they are not in need of exogenous estrogens. There is a need for more research to find out what types of estrogens to use, in what combinations with progesterone, and how it should be administered. The conferees agreed that there is also a need for research on the relationships between nutrition, exercise, osteoporosis, and cardiovascular disease in postmenopausal women.

The discussion included questions about the prevalence of, and prognosis for, infertility due to tubal damage. Approximately 15 percent of all couples are infertile. Of these cases, approximately 15 percent may be attributed to damage to the fallopian tubes. Much remains to be learned about measurement of the many physiologic functions of the tubes, and prognosis remains poor if the tubes are absent or damaged beyond repair. However, new techniques of microsurgery have become quite effective in restoring fertility when the damage to the tubes is less extensive.

The recent trend toward nonmedicated deliveries was also discussed. Adequate data do not exist about the long-term effects upon the infant of many drugs which are administered during pregnancy, birth, and lactation. It was suggested that a contributing factor to the low infant mortality and morbidity in birth attended by midwives may be attributable to midwives' avoiding the use of medication during childbirth. Midwives' expertise in selecting low-risk patients is another important factor. Nonmedicated births are not advisable for all patients. Type of delivery and medication should depend on a complex of many factors and should be tailored to the needs of each particular woman.

SOCIAL ISSUES

Women's changing educational, work, and family roles were recurrent themes throughout the conference. It appears that single-sex colleges have a positive effect on women's self-esteem and achievement. Although many of the studies have not been adequately controlled for the quality of the institutions to be compared, it seems to be true that women's colleges do support achievement in their students. There is little data to suggest that a similar effect holds for men. The effect on women may be due to the fact that women's colleges are among the few institutions where there is egalitarianism at all levels, with women represented on the board of trustees and among t administrators and teachers. The effect may be similar for black students attending black colleges. Research has shown that it is difficult for black females to maintain their sense of self-esteem in white, coeducational institutions. There may be a lack of appropriate models among fellow students, as well as teachers, and the student may feel herself to be singled out for discrimination. This may be more true of younger children than of college-age students, and research is needed to pinpoint the ages at which single-sex classes and, perhaps, single-race classes might be helpful, and when they are not.

High-achieving women often enter professions which pay low wages while demanding a high degree of skill. Such professions, such as nursing, have traditionally been largely associated with women. These occupations usually are not unionized as lower skilled but higher paying men's jobs usually are. Although women may spend 25 to 35 years in a job, they often are hampered by the attitudes that the work is only "temporary" and that they are not engaged in careers.

It was pointed out that the frequent assertion that women's life styles are becoming similar to men's is far from true. Although work outside the home is often equated with the male life style, and despite changes that are evolving in male and female roles, roles in and out of the home are still quite different.

Although many women are coping with role overload, others are faced with role underload. There is some research which suggests that never-married women in low status jobs, or married women at home with no children, may have low levels of self-esteem and sense of well-being. The combination of work role and stage of family-life cycle may be quite relevant to physical and mental health. Conferees discussed ways in which work schedules might be adjusted over the lifespan to provide flexibility for

working couples with young children, and satisfying, productive work for capable older adults who were hitherto expected to retire.

As the lifespan increases, more and more women are faced with problems related to the care of elderly, dependent relatives. Moreover, these problems are arising at a time when a larger proportion of women is employed outside of the home and cannot themselves provide the needed care.

Finally, several issues have become important because of recent changes in family composition or structure. Little is known about the effects upon new marriages of children from previous marriages. Also, much remains to be learned about the effects of stepparents on children, and about the outcomes of divorced parents' varied styles of co-parenting. There is some evidence that the child's age when remarriage occurs may be a crucial determinant of the success of the relationships between stepparents and children. Some major studies are now in progress on these questions and data should be forthcoming.

SUMMARY

The concerns and issues discussed at this conference touch women of all ages, racial and ethnic groups, and socioeconomic status. That interest in these concerns and issues transcends women is reflected by the size, diversity, and degree of participation of the audience. It is the hope of those who planned the conference, those who attended it, and those who participated in it that this interest is translated into increased efforts to stimulate research in the areas described in this volume.

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