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AUTHOR Herz, Elicia J.; And Others
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ABSTRACT

The impact of three family life education courses for black, inner-city, junior high school students was the topic of this study. A total of 172 students in 7th and 8th grades participated in experimental and control groups. The programs varied in their intensity; students in the experimental group met for 40 minutes once a week for 15 weeks during the school day, while students in control groups met for 40 minutes once a week for 10 weeks. Results revealed that students in the more intensive program gained greater knowledge about reproductive physiology, contraception, and the consequences of teen pregnancy and parenthood, and became more familiar with various birth control methods. Changes in personal acceptance of premarital intercourse and perceived responsibility for contraception were observed only in the most intensive program. The impact of school-based sex education programs is discussed and suggestions for improving such programs are provided. (Author/IS)

FAMILY LIFE EDUCATION FOR YOUNG ADOLESCENTS: A SUMMARY OF THREE QUASI-EXPERIMENTS

by

Elicia J. Herz, Ph.D.
Center for Health Services and Policy Research
Northwestern University
629 Noyes Street
Evanston, Illinois 60201

Wendy A. Goldberg, Ph.D.
Program in Social Ecology
University of California at Irvine
Irvine, California 92717

Janet S. Reis, Ph.D.
Center for Health Services and Policy Research
Northwestern University
629 Noyes Street
Evanston, Illinois 60201

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FAMILY LIFE EDUCATION FOR YOUNG ADOLESCENTS: A SUMMARY OF THREE QUASI-EXPERIMENTS

The impact of three family life education programs for inner-city, junior high level students was investigated; in general, these three interventions varied by treatment intensity (i.e., high versus medium versus low). Separate pretest-posttest nonequivalent comparison group designs were utilized to assess program impact. Survey results revealed that, in comparison to no-treatment groups, the more intensive the program (a) the greater the gains in knowledge about reproductive physiology, contraception and the consequences of teen pregnancy and parenthood (especially among experimental group females), and (b) the more birth control methods participants became familiar with over time. Changes in personal acceptance of premarital intercourse and perceived responsibility for contraception were observed only in the study examining the most intensive treatment. The impact of school-based sex education programs is discussed within the broader context of the young adolescent's social environment. Suggestions for improving such programs are also provided.

FAMILY LIFE EDUCATION FOR YOUNG ADOLESCENTS: A SUMMARY OF THREE QUASI-EXPERIMENTS

In the 1980's, premarital sexual activity, contraceptive use and pregnancy among adolescents continue to draw national attention, due to recent trends in these behaviors. Experience with sexual intercourse during adolescence appears to be on the rise. Although generally available, use of contraceptives remains inconsistent at best (Baldwin, 1980). The teen birth rate declined over the 1970 decade, however, the pregnancy rate continued to rise with one-third of the sexually active, unmarried females under 20 reporting at least one pregnancy in 1979 (Zelnik and Kantner, 1980). The vulnerability of the female teen to unintended pregnancy is further underscored by data which suggest that nearly half delay seeking contraceptives at clinics until 9 or more months after their first coital experience (Alan Guttmacher, 1981). Clearly, there is a need for effective prevention strategies which reach male and female teens prior to initiation of sexual activity (Zabin, Kantner and Zelnik, 1979).

School-based sex education programs represent one promising strategy for pre-conceptional intervention. Public school systems serve as natural catchment areas for the majority of teens and provide a learning environment where didactic teaching is expected. However, the effectiveness of these programs is not yet well understood. Recently published results from a nation-wide survey of 15 to 19 year olds are encouraging in so far as they show that females receiving sex education are less likely to become pregnant and more likely to have ever used contraception than teens not receiving such instruction (Zelnik and Kim, 1982). However, the causal (i.e., temporal) sequence among these events requires more study.

In contrast to the growing body of empirical studies on the impact of sex education for older adolescents, little is currently known about the impact of comprehensive family life education courses in school settings for junior high level teens. One study of this type (Kapp, Taylor and Edwards, 1980) found a significant increase in participants' knowledge and "consistent interest" in the course content over time, but lacked any type of comparison group. The present study provides a more rigorous assessment of the effects of school sex education on 7th and 8th graders, utilizing a pretest-posttest nonequivalent comparison group design. Two replications of the first study were also conducted. The findings across all three investigations (Study I, Study II, and Study III) are compared and contrasted below.

METHOD

Sample

Data for Study I were obtained during the spring of the 1982-83 academic year. A total of 56 students at two elementary schools in an economically disadvantaged section of Chicago participated in this study. Both schools were located in the service area of the neighborhood health care agency which provided the personnel to conduct the Family Life Education Program. The experimental group of 28 students, balanced for grade level and gender, was randomly selected from a pool of 7th and 8th graders who had returned parental consent forms (approximately half of the eligible students returned these forms). These students, all at one elementary school, participated in the family life education (FLE) intervention. The 28 comparison group participants were randomly selected from the entire 7th and 8th grade population at the comparison school; again, selection of participants was balanced for grade level and gender.

All participants in Study I were Black and ranged in age from 11 to 15 with a mean age of approximately 13 years. In terms of religion, 54.5% of the students were Baptist while slightly over one-fourth (27.3%) claimed no religious affiliation. Two-thirds (67.9%) of the comparison group lived with their mothers only compared to roughly one-third (35.7%) of the experimental group, a marginally significant difference ($p<.06$).

Data for Study II were obtained during the fall of the 1983-84 academic year from students attending the elementary school which, during the previous year, served as the comparison site for Study I. A total of 55 students from one 7th and one 8th grade classroom participated. (School administration selected these classrooms for the study because their course schedules included science and independent reading during the time slots to be set aside for the family life education curriculum.) Within each grade, students were randomly assigned to participate in either the first series of FLE classes or the second series; assignment was balanced for gender. Students in the first set of FLE classes served as the experimental group and those assigned to the second FLE series constituted the comparison group for Study II.

As in Study I, all participants in the second study were Black and approximately 13 years of age. Over two-fifths (44.2%) claimed no religious affiliation while one-fourth (25.6%) were Baptists, in contrast to Study I in which the reverse was observed. The majority of Study II participants (63.5%) lived with their mothers only; the remainder lived with both parents (26.9%) or other relatives (9.6%).

Data for Study III were also obtained in the fall of the 1983-84 academic year. A total of 61 students from a third elementary school, also located in the service area of the health care clinic which sponsored the FLE program,

participated in the study. Parental consent forms were sent home with all students in five 7th grade and four 8th grade classrooms. From the pool of 7th and 8th graders who returned signed consents (approximately one-fourth of the eligible students), random assignment to the experimental and comparison groups was performed. As in Study II, the experimental group was designated to participate in the first FLE series, whereas the comparison group was scheduled to receive the program approximately three months later.[1]

Like the two previously described studies, all participants in Study III were Black and 13 years old on the average. Almost two-thirds (62.8%) of the students were Baptist while one-fourth (27.9%) claimed no religious affiliation, as was the case in Study I, but not Study II. Nearly three-fourths (72.9%) of the participants lived in single-parent homes with their mothers, a trend also observed in the two previous studies.

Intervention

The major goals of the Family Life Education Program were to reduce the risk of pregnancy by helping young teens develop a positive self-image and to promote responsible sexual and contraceptive decision-making. Curriculum topics included: (a) personality development, (b) physical and emotional changes during puberty, (c) nutrition and hygiene, (d) male and female

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[1]As originally planned, the two experimental groups in Study II and III were to be collapsed and compared to students from a fourth elementary school in a separate neighborhood. Several circumstances prevented the utilization of this design. First, the interventions provided in the two experimental groups were not the same (see the text) and thus, participants could not be legitimately collapsed into a single treatment group. Second, analyses on the major dependent variables revealed that the two experimental and one comparison group(s) differed from each other on the pretest. In addition, some demographic differences (e.g., in terms of religion and current living situations) among the groups were also obtained. Thus, within-school comparisons were utilized instead, resulting in the quasi-experimental designs described in the text for Study II and III.

reproductive anatomy, (e) the processes of conception, contraception and pregnancy, (f) familial, platonic and romantic relationships, and (g) developing educational and career goals. In Study I, separate 7th and 8th grade FLE classes met during the school day, once a week for 40 minutes, over a total of 15 weeks. Attendance was almost 100% for all students. Two social workers, a nurse midwife, a pediatric nurse practitioner and a nutritionist co-taught the course. Teaching methods included showing films, role-playing and informal lectures with question and answer sessions.

Due to a lengthy public school teachers' strike during the 1983-84 academic year, a shortened version of the FLE program was offered to students in both Study II and III. The content of these programs was similar to the Study I curriculum except that sessions on nutrition, hygiene and educational/career goals were omitted. Study II experimental group participants had a 95% attendance rate. Separate 7th and 8th grade classes met during the school day, once a week for 40-minute sessions, over a ten week period. The course was primarily taught by one social worker with the assistance of a second social worker and two nurses. Less time was spent in role-playing activities and watching films than in Study I.

For Study III, the curriculum content, teachers and teaching methods were almost identical to Study II. However, in contrast to the two previous studies, the FLE program was held after school for experimental students in Study III. The school administrators did not wish to devote school time to a supplementary, non-required curriculum. Unlike the high attendance rates in Study I and II, the experimental students in Study III attended 5.1 of 11 sessions on the average.

The intervention offered in the three studies differed on several important dimensions. These included: (a) number of sessions scheduled (15

versus 10 versus 11), (b) curriculum content (Study I included some sessions on hygiene, nutrition and developing career/educational goals whereas Study II and III did not), (c) teachers (one Black female social worker was the primary instructor in all three studies; other co-teachers varied across each study), (d) teaching techniques (in Study I, films and role-playing were used to a greater extent than in either Study II or III), (e) the timing of classes (in Study I and II, sessions occurred during school hours, whereas in Study III, classes were conducted after school) and (f) attendance rates (high for Study I and II, but low for Study III). Overall, these interventions could not be considered to be close replications of one another. Instead, Study I offered the most comprehensive treatment, Study II a moderate level of treatment intensity, and Study III the least intensive program. Given the variations in service delivery described above, the intervention investigated in Study I was judged to be the one most likely to be successful (i.e., to produce observable changes in participants compared to controls), followed respectively, by the interventions examined in Study II and III.

Instrument Development and Procedures

Program impact was assessed on the basis of responses to a survey instrument. Survey items were drawn from or modified on the basis of previous sexuality and FLE research (Gilligan, et al., 1970; Kirby, Alter and Baxter, 1981; Morris and Udry, personal communication, 1982; Parcel, personal communication, 1982; Scales, personal communication, 1982, Zelnik and Kantner, personal communication, 1982). Special emphasis was given to developing items which measured sexual and contraceptive decision-making. Additional attitudinal items were included to assess: (a) clarity of and comfort with personal sexual values, (b) general decision-making styles, and (c) future

orientation. A series of knowledge questions were incorporated to measure didactic components of the program. Lastly, general course evaluation questions were developed to measure comfort with class discussions, and satisfaction with the teachers and course content.[2] Male and female versions of the survey were developed to accommodate gender-specific references to the opposite sex, where necessary. Otherwise, the surveys were identical.

In Study I, surveys were administered to 7th and 8th grade experimental group participants during class time at the first and next to last sessions. Similarly, the comparison group from a separate school completed the survey in two group sessions (7th and 8th graders separately) within one week of data collection at the experimental school. All surveys were completed on a self-administered basis.

In Study II and III, surveys were administered to all 7th and 8th grade participants (experimental and comparison groups simultaneously) during the first and last sessions of the program. There was some concern among the researchers about the general reading ability of students, thus, during test administrations only, males and females were separated and the survey was read aloud by a research assistant of the same gender as the students.

RESULTS AND DISCUSSION

Reliability analyses. Internal consistency analyses were performed on the pretest data for each study sample on several sets of items intended to

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[2]Self-reported behaviors with respect to sexual activity, contraceptive usage and pregnancy outcomes were not obtained; the service providers believed that such questions were not only largely inapplicable to their students but were very personal in nature and may have led to community controversy, thus resulting in discontinuation of the program.

measure specific concepts.[3] Table 1 presents Cronbach's alpha levels for four major dependent variables of interest across the three studies. A set of 13 multiple-choice questions were developed to measure knowledge of contraception, pregnancy, reproductive anatomy, and outcomes for teenage parents and their children. Each item was recoded into a dichotomous variable (correct versus incorrect) and a reliability analysis was performed. Across the three studies, Cronbach's alpha ranged from .53 to .62. Correct responses were summed to yield a total knowledge score for each participant with a possible score range of 0 to 13. On the average, participants in Study I had a score of 5.0 on the knowledge questions (SD = 2.3, n = 56) compared to a mean of 5.4 for Study II participants (SD = 4.5, n = 52) and 4.7 for Study III (SD = 4.9, n = 60).

A second type of knowledge assessed in all three studies was awareness that specific contraceptives exist. Respondents were asked if they had ever heard of 8 birth control methods (i.e., withdrawal, rhythm, douche, birth control pills, spermicides, IUD, diaphragm and condoms). Cronbach's alpha ranged from a low of .20 in Study I to a high of .62 for Study II. Apparently, there was not a great deal of consistency in the contraceptive awareness at the pretest across the three studies. On the average, participants in Study I had heard of 4.4 contraceptives (SD = 1.77, n = 52) compared to a mean of 4.1 for Study II (SD = 1.79, n = 51) and 4.3 for Study III (SD = 1.56, n = 58). A total awareness score was computed for each respondent by summing the number of methods with which they were familiar; scores could range from 0 to 8.

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[3]For the sake of brevity, only the analyses of those scales which showed fairly consistent levels of reliability across studies will be included in this paper.

A substantial proportion of the survey was devoted to obtaining indices of students' sexual and contraceptive decision-making. In one section, respondents were asked to read a short story describing a situation in which they were alone with a boy/girlfriend and "petting" was initiated. Then participants were asked to indicate under what additional circumstances it would be acceptable for them to have sexual intercourse. Eleven such conditions were presented, specifying relationship factors (e.g., "if we cared a lot about each other"), significant other considerations (e.g., "if I knew my parents would not find out"), and birth control concerns (e.g., "if I/she were taking birth control pills"). Response categories for each statement were yes, maybe and no, scored from 3 to 1. Reliability analyses were performed on these eleven items. With one statement eliminated, Cronbach's alpha was uniformly high across the three studies, ranging from .80 to .87. Responses to the ten items were summed to yield an additive scale with a potential score range of 10 to 30.

Lastly, an index of future orientation was created by summing responses to three 3-point items (3=very important, 2=a little important, 1=not at all important) assessing the perceived personal importance of going to high school, attending college and having a good job in the future. (A similar question about getting married and raising a family did not scale with these items). Cronbach's alpha ranged from .59 to .90 across the three studies.

Pretest differences between experimental and comparison groups. Given the quasi-experimental nature of the three studies, equivalence between experimental and comparison groups at the pretest on the four major dependent variables was empirically examined. For each study sample, two 2-by-2 ANOVAs were performed on each dependent variable: treatment (experimental versus comparison) by gender and treatment by grade level. (Treatment by grade by

gender analyses could not be performed due to inadequate cell sizes in each study.) Table 2 presents the significant pretest differences across the three studies. Regarding the question of initial experimental-comparison group equivalence, treatment main effects and treatment by grade or gender interactions are of particular interest. However, no treatment main effects or treatment by gender interactions were obtained in any of the analyses. Only one treatment by grade interaction was found ($p < .04$): in Study III, the experimental 7th graders had the highest level of future orientation followed by the comparison 8th graders, the experimental 8th graders and finally, the comparison 7th graders (means equal 9.3, 8.8, 8.4, and 8.1, respectively). This finding however is not meaningful for two reasons: (1) all scores were highly skewed to the upper end of the scale, and (2) the 7th grade experimental group had zero variance on this scale. In general, it was concluded that the experimental and comparison groups for each study were initially equivalent at the pretest on the major dependent variables of interest.

The gender and grade level main effects shown in Table 2 reveal some interesting patterns across the three studies. In general, 8th graders scored higher on the knowledge scale and were aware of more contraceptives than the 7th graders in both Study I and III. The same grade level pattern of results was obtained in Study II on the awareness of birth control methods scale. Also in Study II, females had heard of more contraceptives than had males, but the opposite trend was observed in Study III. Males were more likely to view sexual intercourse as personally acceptable under various circumstances than were females in both Study I and III. Likewise, 8th graders expressed more liberal attitudes toward coitus than 7th graders in Study III. Overall, these pretest findings suggest, as expected, that knowledge increases with age,

attitudes toward sexuality may become more liberal with age, and that young males tend to express greater acceptance of premarital sexual intercourse than do young females.

Overview of impact analysis procedures

The principle statistical procedure used to analyze program impact was repeated measures analysis of variance (exceptions are noted in the text). For each dependent variable, two analyses were performed: in the first analysis, treatment group and grade level served as the between-subjects factors, while in the second analysis treatment group and gender were similarly examined. In all analyses, there was one within-subject factor (pretest versus posttest). Treatment group by grade level by gender effects were not examined given inadequate sample sizes per cell.

Knowledge. As previously described, didactic components of the FLE Program were assessed through a set of 13 multiple-choice questions. In general, these items focused primarily upon contraception, reproductive anatomy and outcomes for teenage parents and their children. Correct responses were summed to yield a total knowledge score for each respondent.

In Study I, a significant treatment main effect was obtained in the treatment by grade level repeated measures ANOVA, as shown in the top portion of Table 3. The experimental group displayed an average two-point gain in mean knowledge scores from pretest to posttest, whereas the comparison group basically did not change. Somewhat similar trends were observed in Study II and III, but these findings did not reach statistical significance.

A significant treatment by gender interaction effect on the knowledge scale scores was also found in Study I, as shown at the top of Table 4. Mean knowledge scores remained the same from pretest to posttest for experimental

and comparison group males; in contrast, the experimental group females showed improvements while the control group females did slightly worse on the posttest. Individual item analyses suggested that most of the gains in knowledge for the experimental group females were achieved on questions about contraception (e.g., with respect to identifying the most ineffective method in a list, being aware of prescription and parental permission requirements for obtaining birth control, and understanding that knowledge of all methods is important prior to choice).

The treatment by gender interaction effect on knowledge was not significant in Study II and III. The trends across all three studies showed consistent gains in knowledge for experimental group females, little change among comparison group females, and mixed results for the experimental and comparison group males. In general, it appears that the possible interaction of treatment and gender requires further study. As previously hypothesized, the more intensive treatment examined in Study I appeared to produce a stronger and more clearly interpretable finding than was obtained in Study II or III.

Another domain of knowledge relevant to the FLE Program included changes in awareness of the existence of certain forms of birth control. As previously described, respondents were asked to indicate which of 8 contraceptive methods they had ever heard of; scores ranging from 0 to 8 were computed representing the total number of methods checked. A significant treatment main effect was obtained in the treatment by gender repeated measures ANOVA in both Study I and II, as shown in Table 5. In each case, the comparison group showed basically no change in their mean awareness level, having heard of 4 to 5 birth control methods at both testing sessions. The experimental groups in each study had also heard of 4 to 5 methods at the

pretest, but became aware of two additional methods on the average at the posttest. A similar trend was observed in Study III, but the results were nonsignificant. Individual item analyses suggested that increased awareness of the IUD and diaphragm among the experimental group in Study I primarily accounted for this finding; in Study II experimental participants displayed increased awareness of the IUD and spermicides.

Sexual and contraceptive decision-making. As previously described, responses to ten items indicating the circumstances under which sexual intercourse would be personally acceptable were summed to yield an additive scale with a potential score range of 10 to 30. High scores represented a greater degree of personal acceptance. A significant treatment by grade level interaction was obtained in Study I on the personal acceptance of intercourse scale as shown in the top part of Table 6. The 7th grade treatment group displayed a decrease of roughly one scale unit in mean scores from pretest to posttest, the 8th grade treatment group showed an increase of approximately the equivalent magnitude. The reverse pattern was found for each grade level in the control group; also the degree of change among the 8th grade controls was a decrease of almost two scale units. Pretest means for all four groups did not significantly differ from each other. The significant repeated measures interaction effect was probably in large part due to the posttest differences between the experimental 7th versus 8th graders.

This finding was not replicated in Study II and III. In fact, there are no clear trends on sexual and contraceptive decision-making across the three studies. Given variations in treatment delivery, it is difficult to assess the reliability of the finding obtained in Study I. Further examination of this issue may be required to address this question.

In addition to indicating the circumstances under which coitus would be acceptable, respondents were asked to specify who should use a birth control method in the previously described sexual intercourse scenario. Table 7 presents the percentage of participants in each study, broken into eight groupings, who selected the "both of us" response. (Other reponses included "me" "my girl/boyfriend," or "neither one of us".) In Study I, the treatment group by gender percentages reveal that a greater proportion of experimental group males and females chose "both of us" at the posttest than did so at the pretest; this trend was more pronounced among the experimental group males. Little change was observed among the control group males and females. In terms of grade level, proportionally more of the Study I 7th and 8th grade experimental groups at the posttest than at the pretest felt "both of us" are responsible for using some kind of birth control; this tendency was stronger among the 8th grade experimental students. Again, few pretest versus posttest differences were displayed within the 7th and 8th grade control groups.

In terms of perceived mutual responsibility for contraception, the findings from Study I were not replicated in Study II and III (see Table 7). As previously noted, it is difficult to assess the reliability of the Study I results given variations in treatment intensity across all three studies. Additional research may be needed to clarify this point. In general, it appears that the greater the treatment intensity, the greater the acceptance of mutual responsibility for contraception among program participants (especially males and 8th graders) in contrast to comparison groups.

Three additional multiple choice questions were included on the survey to assess contraceptive preferences, perceived responsibility for a hypothetical pregnancy and perceptions concerning responsibility for decisions about how to cope with an unexpected pregnancy (not shown in tables). Few changes over

time were observed among experimental and comparison group participants in all three studies on contraceptive preferences. In general, the majority of respondents preferred birth control pills, condoms or condoms and foam regardless of treatment, grade level or gender status. Across the three studies, results were mixed with respect to perceptions of who is responsible for a hypothetical pregnancy occurring. Few changes were observed from the pretest to posttest and the patterns of change were inconsistent across studies. In general, approximately half of the respondents in each study assigned responsibility to "both of us" as opposed to themselves only, their partners only or someone else (e.g., parents). Inconsistent results were also obtained for the item assessing perceptions of who is responsible for deciding what to do about a hypothetical pregnancy and few consistent changes over time were obtained. No clear pattern of response emerged from the three studies; it may have been very difficult for young teens to imagine who would or could make such decisions.

Future orientation. As previously described, two repeated measures ANOVAs were performed on the future orientation scale in each study. The treatment by grade level interaction was the only significant effect obtained in Study I ($p < .03$). All means across groups at both pretest and posttest were highly skewed to the upper end of the scale, resulting in an overall "ceiling effect". Thus, the observed interaction effect was probably spurious. No significant findings were obtained on the future orientation scale in Study II or III.

CONCLUSIONS

This paper documents the impact of three variations of a family life education curriculum for inner city, junior high level students. These

variations in service delivery provided the opportunity to examine differences in treatment impact: Study I evaluated the most comprehensive and intensive program, Study II examined the moderately intensive intervention and Study III assessed the lowest level educational service. As expected, the strongest and most easily interpreted findings were obtained in Study I, followed by Study II; no significant results on the major dependent variables of interest were found in Study III. In general, the findings indicated that, the more intensive the program: (a) the greater the gains in knowledge about contraception, reproductive physiology and adolescent pregnancy outcomes (especially for females) and (b) the more birth control methods participants became familar with over time. These results on knowledge improvements support those of previous research on a variety of FLE programs for older teens (Kirby, 1984). Two additional findings were obtained only in Study I: (a) among 7th grade experimental students, more conservative attitudes toward circumstances under which it would be personally acceptable to have sexual intercourse were observed over time, whereas the opposite trend was found among the 8th grade experimental students, and (b) program participants displayed a greater tendency to acknowledge mutual responsibility for contraception at the posttest (especially males and 8th graders as a whole).

These Study I findings address two salient concerns of program planners designing interventions aimed at reducing unwanted teenage pregnancy: adolescents' perceptions of the acceptability of sexual activity for themselves and personal responsibility for behavior. Teens, over time, generally exhibit more liberal attitudes toward premarital sexual intercourse. This developmental trend may be somewhat curbed by comprehensive sex education programs (Kirby, 1984). In Study I, increased cautiousness over time was observed in the seventh but not eighth grade experimental groups,

suggesting that the curriculum components on this issue should be strengthened for the older age group.

Counterbalancing the general propensity to be more accepting of sexual activity is the Study I finding that after participation in the most intensive family life education program, more experimental group males acknowledged mutual responsibility for contraception. This positive change in the males' perception of shared responsibility may bode well for the potential effectiveness of campaigns now underway to convince young men that they are equal partners in sexual activity and should either use birth control themselves or be supportive of a partner's decision to use contraception.

One note of caution must be added at this point. No consistent patterns of change on the personal acceptance of intercourse scale or perceived responsibility for contraception measure were observed in Study II and III. In addition, the magnitude of the effects observed in Study I were small. It is difficult to assess the reliability of these findings given variations in the treatment intensity investigated across the three studies. More research with younger teens is needed to address this issue.

In general there are several possible explanations, in addition to possible treatment impact, for the pattern of findings (and lack thereof) observed across the three studies. Recall that a greater number of significant results were obtained in Study I followed by Study II; no significant findings were observed on the major dependent variables in Study III. One possible explanation for the lack of results in Study II and III, other than no intervention effect, is treatment diffusion (Cook and Campbell, 1979); in each case, experimental and comparison group participants could communicate with one another during the course of the program, thus, the latter groups may have indirectly benefited from the program. This potential

problem was especially likely in Study II given that all experimental and comparison group participants came from the same classrooms at the time of the intervention. (This situation was most unlikely to occur in Study I due to the fact that experimental and comparison students attended nearby, but different schools.) The plausibility of this explanation for the relative lack of findings diminishes in light of informal information from the main instructor of the FLE program. After initiation of the second series of FLE sessions for the Study II comparison group, this teacher noted that the students were asking the same questions as the experimental group had asked. It appears that little communication took place between the two groups of students. From a research standpoint, this information was welcome, however in a broader sense, it is discouraging that FLE programs apparently do not indirectly affect the peers of participants.

A more plausible explanation for the relative lack of findings in Study II and III centers on the intensity and content of the treatment. Not only was less in-class time spent with the experimental students in both cases but an important teaching technique, role-playing, was less utilized than in Study I. An extensive evaluation of sex education programs by Kirby (1984) suggests that primarily didactic interventions are likely to impact only upon knowledge, whereas programs which focus more directly upon the behavior of interest are more likely to produce desired changes in that behavior. For example, a parent-child communication program which facilitated discussions between family members in the classroom was found to increase communication in the home; likewise, a school-based clinic program which facilitated the acquisition of birth control devices was shown to increase contraceptive use among participants (Kirby, 1984). In a similar fashion, extensive and creative role-playing may be more likely to produce desired changes in

attitudes and values and, to a lesser extent behavior, than strictly didactic teaching. In Study I, for which more role-playing activities were utilized, changes in perceptions of the acceptability of premarital intercourse and responsibility for contraception were observed; such findings were not obtained in Study II and III in which there was less reliance on role-playing.

What implications can be drawn from these studies? The overall impact of the programs described here in changing knowledge and, to a lesser extent attitudes, assumes added significance if considered in the context of the broader environment which provides so many incentives for sexually irresponsible behavior. The short term impact of these family life education programs may, from some perspectives, appear to be modest. It is important to recognize, however, that these interventions attempted to achieve complex change within inner city, young adolescents who undoubtedly perceive many competing messages about acceptable sexual behavior. The goals of many family life education programs include producing observable changes in students' attitudes, knowledge, self perceptions, perceived personal responsibility for actions, communication and decision-making skills, and behavior. These objectives are not only difficult to achieve but evaluations which define success or failure only in terms of whether such programs meet all these short and long term goals may be too demanding (Kirby, 1980). A more reasonable way to view sex education courses like the ones investigated here is to conceptualize them as "small dose" interventions stacked up against an environment which glamorizes nonmarital sexual activity.

In terms of future sex education programs and evaluation, we see a need for more research with junior high level teens, utilizing the same or comparable research designs with appropriate control groups and larger sample sizes; more of our findings may have reached statistical significance if the

number of participants in each group had been larger. Follow-up data assessing sexual and contraceptive behavior as well as pregnancy outcomes are also needed. The results based on the more comprehensive intervention are indicative of the direction of programmatic impact which might be realized with intensive, sustained health education initiatives which capitalize on the lessons learned in this and other related studies. If a commitment to such programs were made, the results of this study suggest that even very young adolescents can be taught the value of personal responsibility and the specifics of family planning methods.

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TABLE 1

RELIABILITY ANALYSES FOR SELECTED SCALES

SCALES	STUDY I	STUDY II	STUDY III
KNOWLEDGE (13 ITEMS)	.62 (N = 56)	.53 (N = 52)	.59 (N = 60)
AWARENESS OF CONTRACEPTIVES (8 ITEMS)	.20 (N = 52)	.62* (N = 51)	.44 (N = 58)
PERSONAL ACCEPTANCE OF SEXUAL INTERCOURSE (10 ITEMS)	.80 (N = 50)	.87 (N = 52)	.84 (N = 59)
FUTURE ORIENTATION (3 ITEMS)	.90 (N = 56)	.59 (N = 52)	.87 (N = 60)

*THE ITEM MEASURING AWARENESS OF BIRTH CONTROL PILLS WAS EXCLUDED FROM THE CALCULATION OF ALPHA BECAUSE ALL PARTICIPANTS IN STUDY II HAD HEARD OF THEM AT THE PRETEST.

TABLE 2

EXPERIMENTAL VS. COMPARISON GROUP PRETEST DIFFERENCES ON MAJOR DEPENDENT VARIABLES*

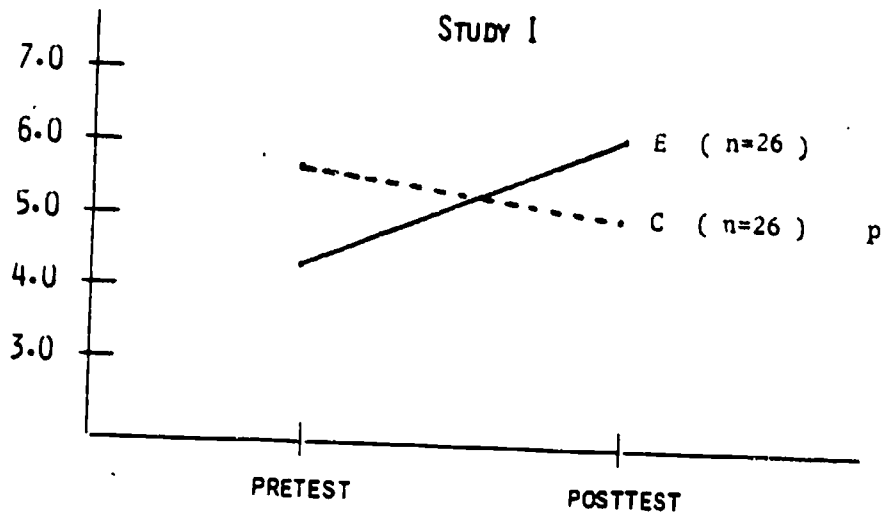
DEPENDENT VARIABLES	STUDY I	STUDY II	STUDY III
KNOWLEDGE	GRADE MAIN EFFECT ($p < .003$)	ALL TERMS N.S.	GRADE MAIN EFFECT ($p < .03$)
AWARENESS OF CONTRACEPTIVES	GRADE MAIN EFFECT ($p < .02$)	GENDER MAIN EFFECT ($p < .03$) GRADE MAIN EFFECT ($p < .01$)	GENDER MAIN EFFECT ($p < .007$) GRADE MAIN EFFECT ($p .04$)
PERSONAL ACCEPTANCE OF INTERCOURSE	GENDER MAN EFFECT ($p < .001$)	ALL TERMS N.S.	GENDER MAIN EFFECT ($p < .001$) GRADE MAIN EFFECT ($p < .02$)
FUTURE ORIENTATION	ALL TERMS N.S.	ALL TERMS N.S.	TREATMENT BY GRADE INTERACTION EFFECT ($p < .04$)

*WITHIN EACH STUDY, A TREATMENT BY GRADE AND A TREATMENT BY GENDER ANOVA WERE PERFORMED ON EACH DEPENDENT VARIABLE. GIVEN NO SIGNIFICANT TREATMENT MAIN EFFECTS AND ONLY ONE TREATMENT BY GRADE INTERACTION, IT WAS CONCLUDED THAT THE EXPERIMENTAL AND COMPARISON GROUPS FOR EACH STUDY WERE INITIALLY EQUIVALENT AT THE PRETEST ON THE MAJOR DEPENDENT VARIABLES OF INTEREST.

TABLE 3

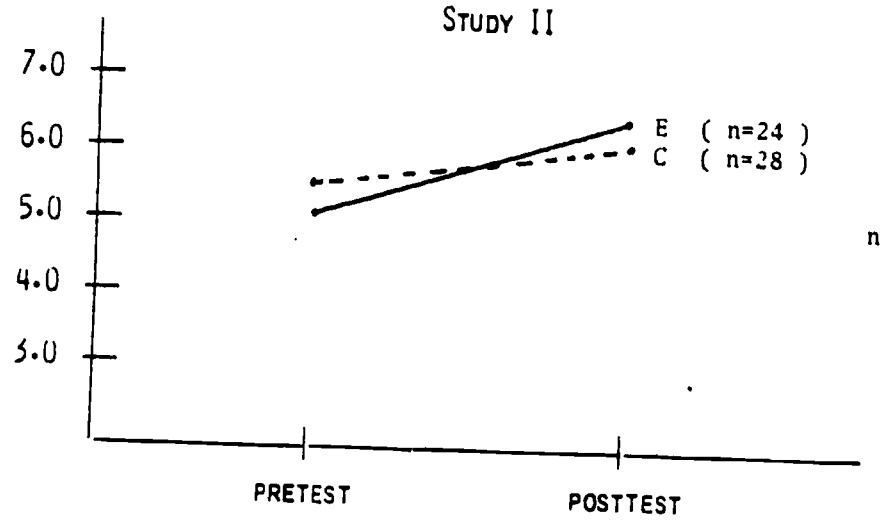
MARGINAL MEAN KNOWLEDGE SCORES FOR THE TREATMENT MAIN EFFECT IN THE TREATMENT BY GRADE LEVEL REPEATED MEASURES ANOVA*

STUDY I



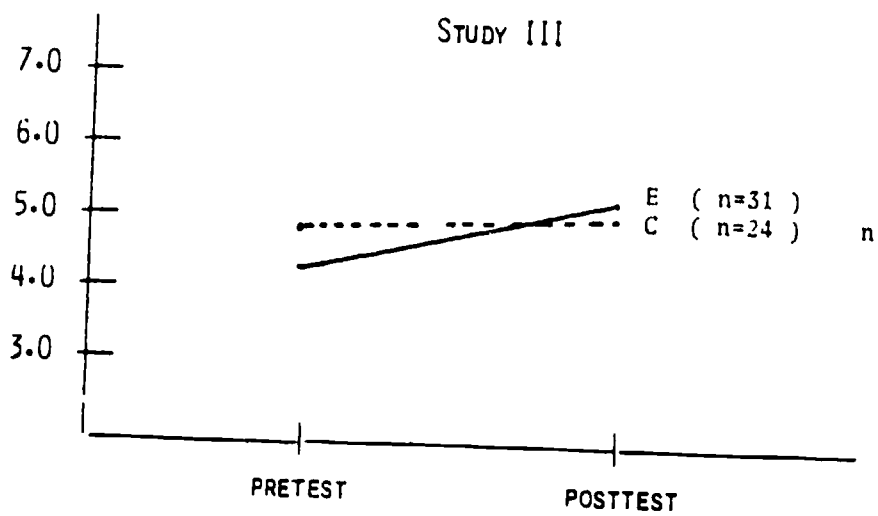
$p < .003$

STUDY II



n.s.

STUDY III



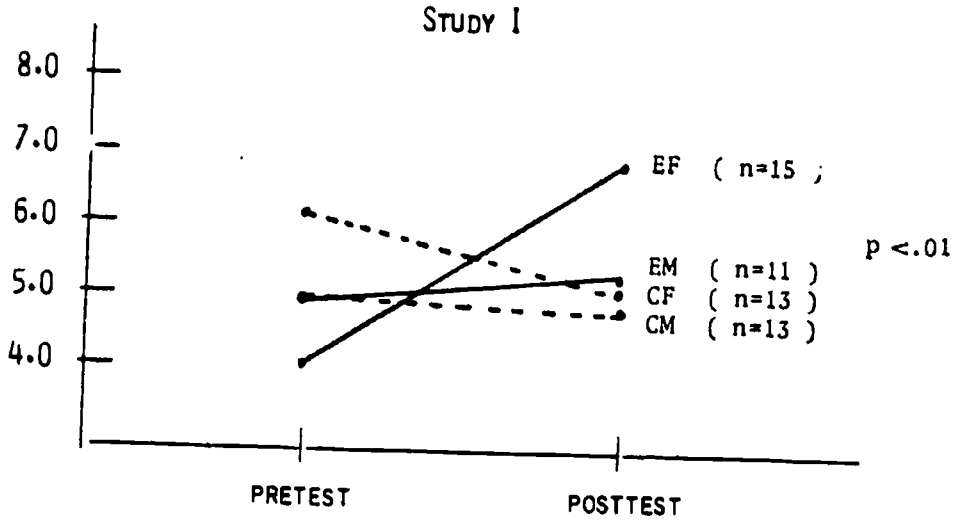
n.s.

*IN STUDY I, THE EXPERIMENTAL GROUP DISPLAYED AN AVERAGE TWO-POINT GAIN IN MEAN KNOWLEDGE SCORES, WHEREAS THE COMPARISON GROUP BASICALLY DID NOT CHANGE. SIMILAR TRENDS WERE OBSERVED IN STUDY II AND III, BUT THESE FINDINGS WERE NONSIGNIFICANT.

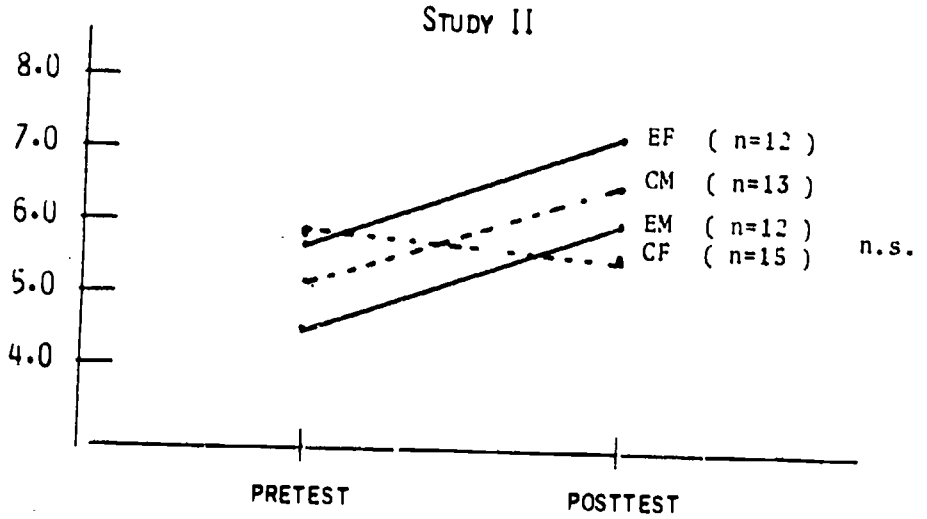
TABLE 4

MEAN KNOWLEDGE SCORES ON THE TREATMENT BY GENDER INTERACTION EFFECT (REPEATED MEASURES ANOVA)*

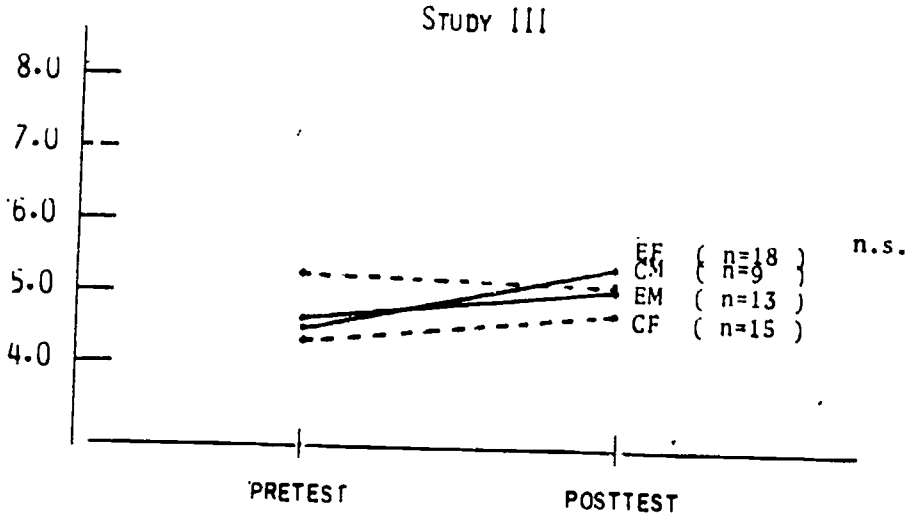
STUDY I



STUDY II



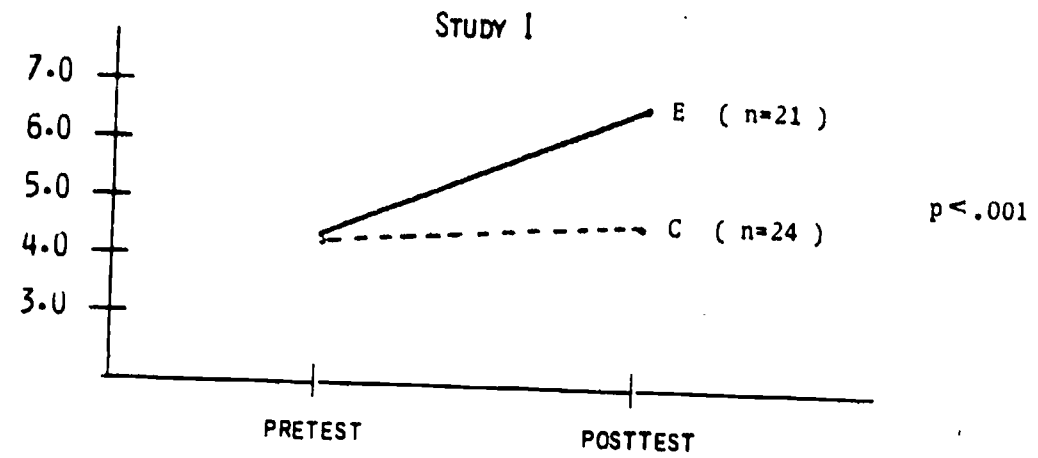
STUDY III

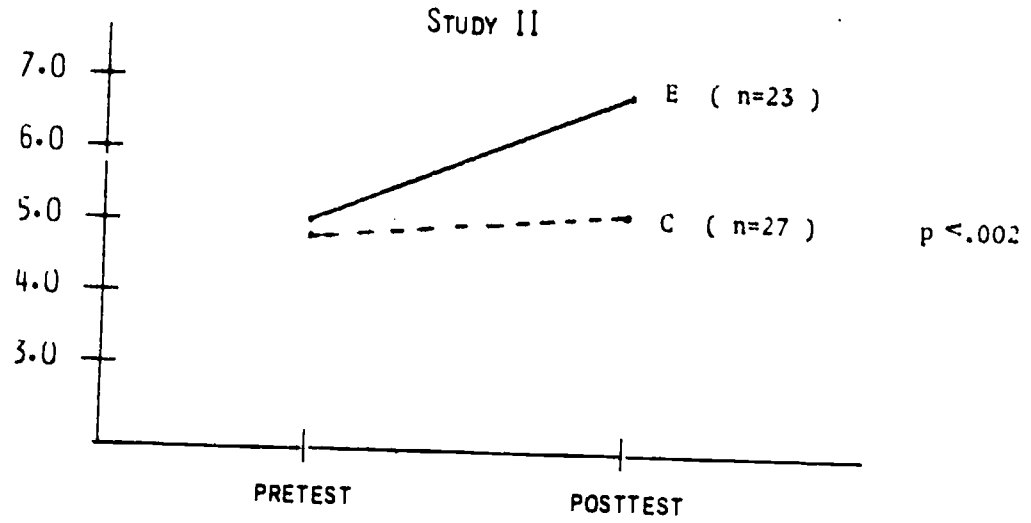


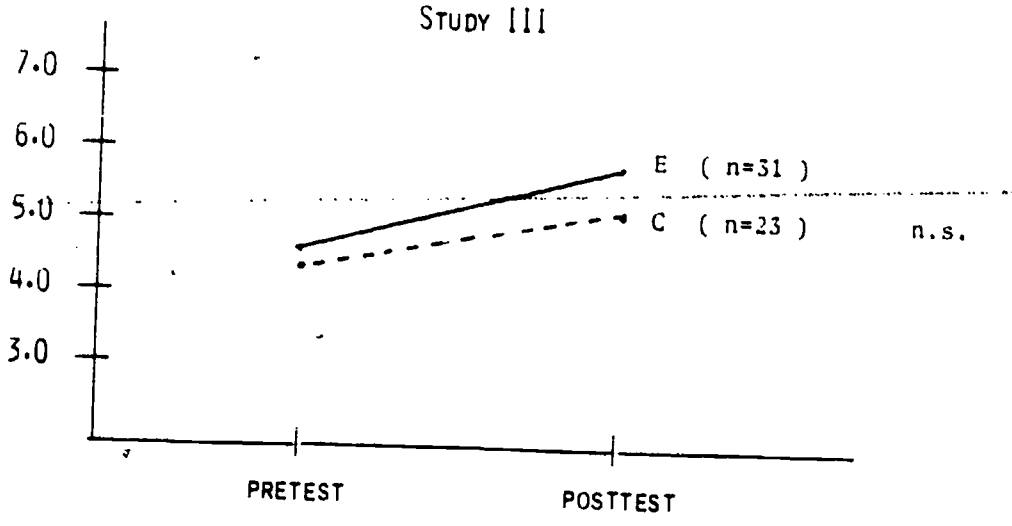
*THE TRENDS ACROSS ALL THREE STUDIES SHOWED CONSISTENT GAINS IN KNOWLEDGE FOR EXPERIMENTAL GROUP FEMALES, LITTLE CHANGE AMONG COMPARISON GROUP FEMALES, AND MIXED RESULTS FOR THE EXPERIMENTAL AND COMPARISON GROUP MALES. ONLY THE STUDY I FINDING, ASSESSING THE MOST INTENSIVE TREATMENT, WAS SIGNIFICANT.

TABLE 5

MARGINAL MEAN AWARENESS OF CONTRACEPTIVES SCORES FOR THE TREATMENT MAIN EFFECT IN THE TREATMENT BY GENDER REPEATED MEASURES ANOVA*



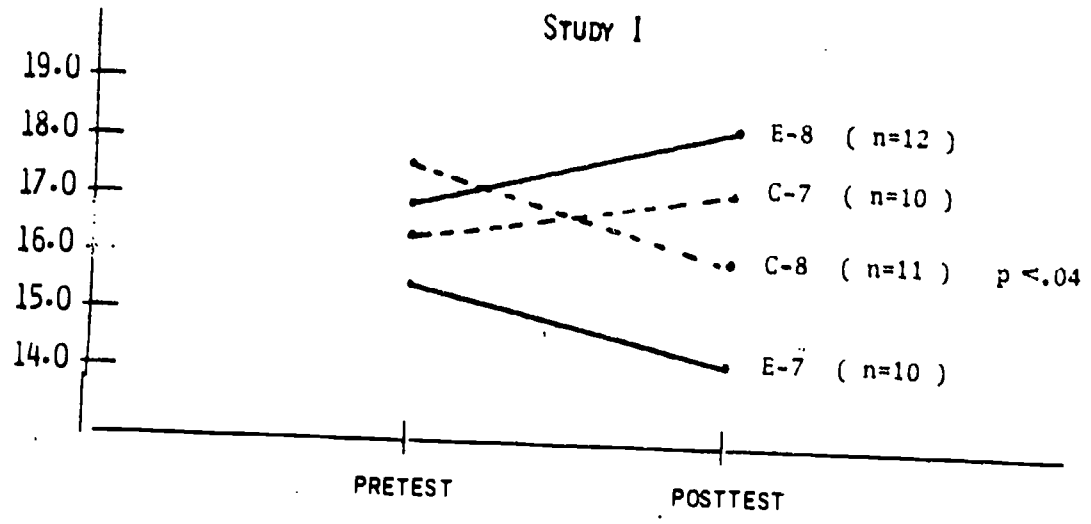


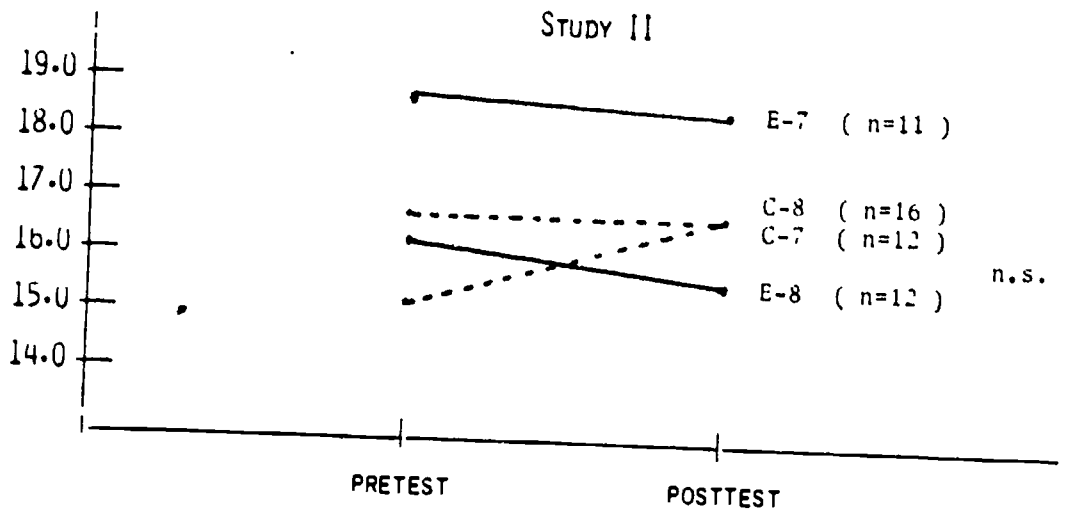


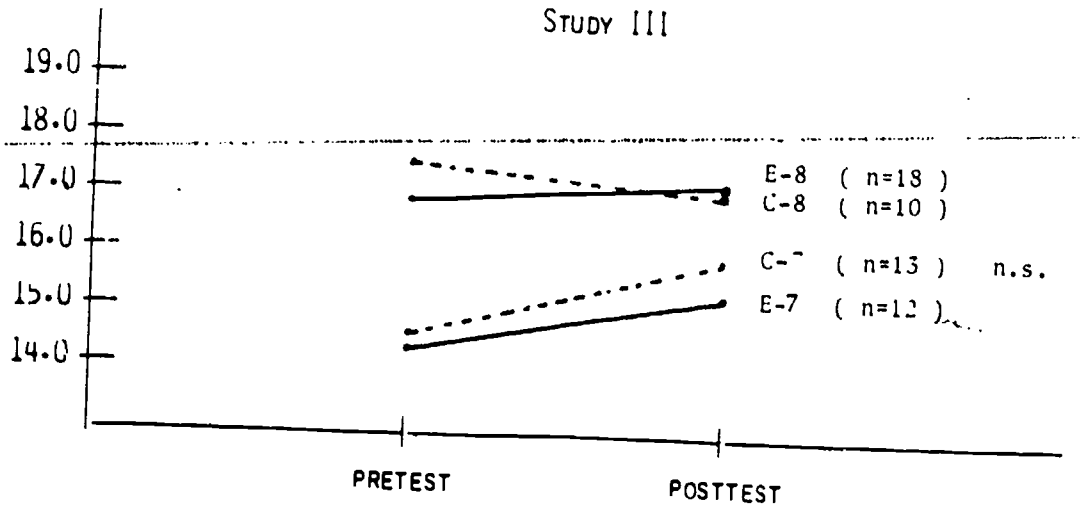
*IN STUDY I AND II, THE EXPERIMENTAL GROUPS BECAME AWARE OF TWO ADDITIONAL BIRTH CONTROL METHODS OVER TIME, WHEREAS THE COMPARISON GROUPS SHOWED BASICALLY NO CHANGE IN THEIR MEAN AWARENESS LEVEL. A SIMILAR TREND WAS OBSERVED IN STUDY III, BUT THE RESULT WAS NONSIGNFICANT.

TABLE 6

MEAN SCORES ON THE PERSONAL ACCEPTANCE OF INTERCOURSE SCALE FOR THE TREATMENT BY GRADE LEVEL INTERACTION EFFECT (REPEATED MEASURES ANOVA)*







*IN STUDY I, THE 7TH GRADE TREATMENT GROUP BECAME SLIGHTLY MORE CONSERVATIVE OVER TIME, WHILE THE EXPERIMENTAL 8TH GRADERS BECAME LESS CONSERVATIVE. THE REVERSE PATTERN WAS FOUND BETWEEN GRADE LEVELS IN THE COMPARISON GROUP. NO CONSISTENT TRENDS WERE OBSERVED ACROSS THE THREE STUDIES. GIVEN VARIATIONS IN TREATMENT DELIVERY, ADDITIONAL RESEARCH MUST BE CONDUCTED TO ASSESS THE RELIABILITY OF THE STUDY I FINDINGS.

TABLE 7

WHO SHOULD BE USING SOME KIND OF BIRTH CONTROL IN THE CONTRACEPTIVE DECISIONS SCENARIO: PERCENTAGE RESPONDING "BOTH OF US"*

STUDY I

	EXPERIMENTAL		CONTROL		EXPERIMENTAL		CONTROL	
	MALE	FEMALE	MALE	FEMALE	7TH GRADE	8TH GRADE	7TH GRADE	8TH GRADE
PRETEST	10.0	40.0	15.4	23.1	30.8	25.0	15.4	23.1
POSTTEST	60.0	66.7	7.7	30.8	53.8	75.0	7.7	30.8
(N)	(10)	(15)	(13)	(13)	(13)	(12)	(13)	(13)

STUDY II

	EXPERIMENTAL		CONTROL		EXPERIMENTAL		CONTROL	
	MALE	FEMALE	MALE	FEMALE	7TH GRADE	8TH GRADE	7TH GRADE	8TH GRADE
PRETEST	25.0	41.7	15.4	33.3	18.2	46.2	33.3	18.8
POSTTEST	33.3	58.3	23.1	60.0	36.4	53.8	33.3	50.0
(N)	(12)	(12)	(13)	(15)	(11)	(13)	(12)	(16)

STUDY III

	EXPERIMENTAL		CONTROL		EXPERIMENTAL		CONTROL	
	MALE	FEMALE	MALE	FEMALE	7TH GRADE	8TH GRADE	7TH GRADE	8TH GRADE
PRETEST	7.7	11.1	22.2	26.7	8.3	10.5	14.3	40.0
POSTTEST	7.7	22.2	11.1	60.0	8.3	21.1	42.9	40.0
(N)	(13)	(18)	(9)	(15)	(12)	(19)	(14)	(10)

*NO STATISTICS (E.G., CHI-SQUARE ANALYSES) WERE CALCULATED ON THESE PERCENTAGES DUE TO THE FACT THAT, WITHIN A GIVEN TREATMENT GROUP BY GENDER OR TREATMENT GROUP BY GRADE LEVEL COMBINATION, CROSSTABULATIONS PRODUCED A NUMBER OF EMPTY CELLS. THUS, ONLY PROPORTIONS AND TRENDS ARE DISCUSSED. AMONG THE STUDY I EXPERIMENTAL GROUP PARTICIPANTS (ESPECIALLY MALES AND 8TH GRADERS AS A WHOLE), THERE WAS A GREATER TENDENCY TO ACCEPT MUTUAL RESPONSIBILITY FOR CONTRACEPTION OVER TIME IN CONTRAST TO THE COMPARISON GROUPS WHICH SHOWED LITTLE CHANGE. THESE FINDINGS WERE NOT REPLICATED IN STUDY II AND III WHICH ASSESSED LESS INTENSIVE TREATMENTS.