DOCUMENT RESUME

ED 215 844 RC 013 350

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TITLE Analysis of the Patterns of Use of Community Mental Health Services by Mexican Americans.
INSTITUTION Intercultural Development Research Association, San Antonio, Tex.
SPONS AGENCY National Inst. of Mental Health (DHHS), Rockville, Md.
PUB DATE 82
GRANT MH-31212-02
NOTE 178p.; For related documents, see RC 013 347-351. Appendix C may not reproduce clearly.
AVAILABLE FROM Intercultural Development Research Assoc., 5835 Callaghan, Suite 350, San Antonio, TX 78228 ($9.95).

EDRS PRICE MF01/PC08 Plus Postage.
DESCRIPTORS *Age Differences; Community Services; Comparative Analysis; Cultural Influences; Delivery Systems; Evaluation Methods; Literature Reviews; *Mental Health Clinics; Mental Retardation; *Mexican Americans; Research Methodology; *Research Problems; *Use Studies
IDENTIFIERS Community Mental Health Centers; *Texas

ABSTRACT

The past 22 years of research on the underutilization of mental health services by Mexican Americans are critically analyzed from conceptual and technical perspectives. While basic assertions of previous investigators that underutilization exists are correct, research concepts and methods used have been inadequate in relation to the issue's complexity. An overemphasis on numerical equivalence of usage rates across ethnic groups as an evaluative measure ignores the critical impact of differences between groups on factors such as need, accessibility, and the service's compatibility with the client's needs. A conceptual restructuring of the issue of service utilization as an evaluative measure is suggested. Endeavoring to minimize the problems identified in past research, community mental health centers (CMHC) service use in Texas is examined, using the Texas Department of Mental Health and Mental Retardation records to obtain data by age, sex, ethnicity, and the major types of service used for the 28 CMHCs operational in 1978. While statistically significant numerical underutilization of services by Mexican Americans is not as widespread as past research might have claimed, substantial evidence exists that Mexican Americans continue to underutilize services in relation to their need, especially children and youth. The underutilization among Mexican American children and youth is explored in relation to their future mental health needs. (Author/NQA)

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ANALYSIS OF THE PATTERNS OF USE OF COMMUNITY MENTAL HEALTH SERVICES BY MEXICAN AMERICANS

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Front cover design by Sharon Sepúlveda-Hassell and David G. Ramirez

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This publication was produced with funds from a grant (MH 31212-02) made to the Intercultural Development Research Association (IDRA), by the National Institute of Mental Health (NIMH). However, the opinions expressed herein are solely those of IDRA and do not necessarily reflect the position or policies of NIMH, and no official endorsement should be inferred.

ANALYSIS OF THE PATTERNS OF USE OF COMMUNITY MENTAL HEALTH SERVICES BY MEXICAN AMERICANS

by David G. Ramirez

Abstract

Among the most researched issues in the area of Mexican American mental health is the paradox of this population's alleged underutilization of services. The underutilization paradox is the result of the conflicting findings found in two major bodies of research on Mexican Americans. Epidemiologists and social science researchers have proported a significant direct relationship between the stresses of poverty, acculturation and migration with mental illness which posits that these stress factors correlate with a higher incidence of mental illness. Given that many Mexican Americans have or are experiencing the stresses of poverty, acculturation and migration, and the relationship between these factors and mental illness, higher rates of mental illness and hence greater use of services would be expected to be evident in the Mexican American population. The paradox is that numerous studies have found an underutilization of mental health services by Mexican Americans relative to other populations.

This monograph constitutes a critical analysis from both a conceptual and a technical perspective of the past twenty-two years of research on the underutilization of mental health services by Mexican Americans. When the assumptions and methods employed in previous research are carefully examined, the underutilization phenomenon is found to receive only partial support in the literature. The author maintains that the basic assertions of previous investigators that underutilization exists are correct, but the research concepts and methods used have been inadequate in relation to the compelxity of the issue. The previous studies may have also contributed to the development of an overemphasis on numerical equivalence of usage rates across

ethnic groups as a criterion for whether particular groups are or are not being adequately served. Such an emphasis ignores the critical impact of differences between groups on factors such as need for service, service accessibility, and the compatibility of the service with the needs of the client. The effect of these variables are explored and a conceptual restructuring of the issue of service utilization as an evaluative measure is suggested.

The monograph describes a study of community mental health center (CMHC) service use in Texas that has endeavored to minimize the problems identified in past research. This study examines the Texas Department of Mental Health and Mental Retardation records, which despite some shortcomings, continues to be one of the most comprehensive data bases in the country on mental health service use. The analysis reports data by age, sex, ethnicity and the major types of service used for each of the 28 CMHCs operational in 1978. Thus, this study provides the most detailed assessment of service use by Mexican Americans currently available. Given the complexity of the data base, numerous findings are reported. Two of the primary findings are that: (1) while statistically significant numerical underutilization of services by Mexican Americans is not as widespread as past research might have claimed, there exists substantial evidence that Mexican Americans continue to underutilize services in relation to their need for these services; and (2) the underutilization phenomenon is greatest among Mexican American children and youth. The critical significance of finding underutilization to be most prevalent among Mexican American children and youth is explored in relation to the future mental health needs of this population.

PREFACE

Originally, this monograph began as simply an attempt to validate further what many consider to be the foregone conclusion that, for some as yet unexplained reason, Mexican Americans underutilize mental health services. Many of the primary concepts detailed herein were originally presented in the atuhor's doctoral dissertation. In addition the author has conducted a number of other studies pertaining to this issue. Interestingly, the more detailed the author's research in this area became, the less clear-cut the issue appeared. While the previous conclusions on the use of services by Mexican Americans appeared accurate, the conceptual and empirical foundations on which these conclusions were based were found to be inadequate. Of even greater concern were the possible future negative implications that the simplistic concepts contained in this body of research might have on social policy related to Mexican American mental health. Most notable is the issue that the achievement of numerical equivalence of rates between all community groups is the panacea for improving services for ethnic minorities.

As will be elaborated in this monograph, perpetuation of many of the concepts generated in past underutilization research may be counterproductive to future advocacy efforts aimed at improving services. As an example, the present researcher has received a number of phone calls from mental health planners and directors that have contained the following common theme: According to our utilization rate studies, our center is adequately serving minorities as their rates of service use are numerically equal to that of Anglos. Such a conclusion is woefully inaccurate, but unfortunately it does follow from many of the arguments contained in the underutilization literature.

This monograph will begin to offer an alternative conceptual foundation for understanding the issue of Mexican Americans' utilization of mental health service. Hopefully, the study

contained herein will be the last in the line of studies that has emerged from the general research paradigms of the past underutilization literature. The author has endeavored to take the previous paradigms of underutilization research to their logical limits, given the constraints of data access both to provide a better test of the underutilization contention and to illustrate the unfortunate limits of the old paradigm and a need for a new one. The new paradigm will demand that a group's service use be analyzed not only in relation to other groups but also in relation to its own need for services, its access to alternatives, and whether the services provided are compatible and effective. The previous obsession with the achievement of numerical parity between ethnic groups has kept both researchers and advocates from attending to the more pressing issue that only a small fraction of those in need are actually being served.

If decreased federal spending for mental health is to be the theme for the 1980s then we must begin to utilize the limited mental health resources we have in the most effective ways possible. This may involve some very difficult choices such as emphasizing services to children and youth rather than the elderly and focusing on prevention rather than treatment. Clearly, these are choices which policy makers and communities must make. The challenge for researchers is to provide these individuals and groups with useful information on the status of current services and group needs and to help clarify the issues involved. The measure of this monograph's success will be determined by how well it assists over time in this intricate process of change.

ACKNOWLEDGEMENTS

There are a number of individuals that the author is indebted to for their support and assistance. My deepest thanks are extended to my two closest colleagues, Ms. Sharon Sepulveda-Hassell, A.C.S.W. and Dr. Sally J. Andrade, who continually offered me ideas, constructive criticisms, invaluable editorial assistance, and moral support throughout the production of this monograph. I would also like to thank Dr. Ira Iscoe and Dr. Mark Lewis for encouraging me to challenge previous paradigms and look for novel solutions in unexpected places. I am indebted to Dr. Jose A. Cardenas for his confidence in me and for his continual support of the research of the Mental Health Research Project. My appreciation is extended to Dr. Fred Fiedler, Ms. Janice Pape and Mr. Jimmy E. Vasquez who assisted in various technical aspects of the research study described herein. Without the kind support of Dr. John J. Kavanagh, Commissioner of the Texas Department of Mental Health and Mental Retardation and the staff of the Division of Program Analysis and Statistical Research, the data for the study reported herein could not have been obtained. Finally, I wish to thank Ms. Rosario H. Trejo for her exemplary skills as a typist and as an administrative assistant; her efforts made the production of this manuscript possible.

MENTAL HEALTH RESEARCH PROJECT OF THE INTERCULTURAL DEVELOPMENT RESEARCH ASSOCIATION

The Intercultural Development Research Association's Mental Health Research Project (MHRP), funded by the National Institute of Mental Health, seeks to improve mental health delivery systems for Mexican Americans in the state of Texas.

The MHRP's major goals include: 1) a preliminary analysis of the effectiveness of the state mental health service delivery system and subsystems in providing services to Mexican Americans; 2) an assessment of the community mental health center concept as it relates to the Mexican American population; 3) the design of a bilingual/multicultural human service delivery model relevant to the mental health needs of Mexican Americans in Texas; and 4) the development of policy and programmatic alternatives to enhance the utilization of the state mental health service delivery system by Mexican Americans.

The MHRP has established a Texas Advisory Committee which consists of mental health service deliverers, professionals/academicians and consumer representatives from the five major geographical regions of Texas. The committee members serve as conduits for information dissemination and collection. To ensure maximum generalizability of the process and products of the MHRP, six nationally recognized professionals in the area of mental health and service delivery systems serve as consultants to the MHRP in the form of a National Advisory Committee.

The goal of the IDRA Mental Health Research Project is improved services for Mexican Americans in the state of Texas. Because a lack of agreement has existed in Census surveys and social science research as to the definition of a "Mexican American," potential problems emerge in attempting to compare data sources across regions or time frames. Terms encountered historically to identify this ethnic group include: Mexicans,

Mexican Americans, Spanish-surnamed, Spanish-speaking, Latin Americans, Spanish Americans, Hispanics, etc. The term "Mexican Americans" is used consistently by the Mental Health Research Project to refer to this population, indicating those residents who are of Mexican origin or descent. References to specific data sources may at times utilize the exact label cited therein (e.g., "Spanish Americans"); it is assumed by the project that the overwhelming majority of any such individuals in Texas are of Mexican origin.

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Among the most researched issues in the area of Mexican American mental health is the paradox of this population's alleged underutilization of mental health services. The paradox is the result of the conflicting findings found in two major bodies of research with regard to the Mexican American population. First, researchers in the area of mental health epidemiology, such as Dohrenwend and Dohrenwend (1969), Hollingshead and Redlich (1958), and Srole, Langer, Michael, Opler and Rennie (1962), have documented a significant direct relationship between poverty and mental illness which posits that higher levels of poverty correlate with a higher incidence of mental illness. Papajohn and Speigel (1976) have suggested that the experiences of acculturation and migration, two additional factors that have affected Mexican Americans, are also directly related to a higher incidence of mental illness. Given that many Mexican Americans have or are experiencing the stresses of poverty, acculturation and migration, and the relationship between these factors and mental illness, higher rates of mental illness would be expected to be evident in the Mexican American population. The higher incidence of mental illness would be expected to lead to greater use of mental health services by Mexican Americans. The paradox is that numerous studies conducted throughout the United States have found an underutilization of mental health services by Mexican Americans relative to other populations (Bachrach, 1975; Cuellar, 1977; Jaco, 1959; Karno & Edgerton, 1969; Keefe, Padilla & Carlos, 1979; Kline, 1969; Kruger, 1974; Padilla & Ruiz, 1973; Pokorny & Overall, 1970; Ramirez, 1980; Ramirez & Sepulveda-Hassell, 1980; Sue, 1977; Weaver, 1973).

Embedded in the studies generated to test the underutilization paradox are a wide range of explanations for its existence. The underutilization paradox and the explanations proposed for its existence are of critical importance, both as research questions and also because these issues have gradually been incorporated into the thinking, actions and plans of mental health policymakers, service providers and advocates. Despite a

considerable amount of research on the underutilization paradox, both unequivocal evidence in support of a lower rate of service use by Mexican Americans and an explanation for this paradox, where documented, are still lacking. Much of the previous research is too easily questioned on a methodological basis and does not provide sufficiently detailed data to direct researchers interested in explaining the paradox.

In addition, the concept of utilization as a theoretical construct has not been sufficiently explicated in the literature. A reformulation of the concept of utilization is necessary, as the present interpretations are simplistic and possibly even detrimental to efforts aimed at improving the mental health system's effectiveness in serving all community members in need.

Thus, the purpose of this research is to: (1) critically review the current literature and concepts pertaining to Mexican American utilization of mental health services, and (2) describe and conduct a series of studies with regard to the underutilization paradox which will provide a clearer and methodologically sounder understanding of Mexican Americans' use of the mental health system. The discussion will be divided into six major sections: (1) an elaboration of the theoretical basis of the epidemiological paradox of underutilization of mental health services by Mexican Americans; (2) a review and critical assessment of the research literature which either supports or fails to support the existence of the underutilization phenomenon; (3) an assessment of the major explanations proposed by numerous researchers for this paradox; (4) an evaluative assessment of underutilization as a concept in research; (5) a discussion of the methods and results of a study conducted both to evaluate and define further the patterns of mental health service use by Mexican Americans in Texas; and (6) a discussion of the implications of past research and the present study with regard to the effective delivery of mental health services to Mexican Americans.

I. THE EPIDEMIOLOGICAL PARADOX OF MEXICAN AMERICAN UNDERUTILIZATION OF MENTAL HEALTH FACILITIES

In order to understand the epidemiological basis of the underutilization paradox, an awareness of the demographic characteristics of the population in question is essential. Thus, a brief demographic profile of Mexican Americans in the United States and Texas will be presented.

The most recently published 1980 Census data indicates that there are more than 14 million persons of Spanish origin in the United States. Breakdowns of the Spanish origin population are not yet available but the most recent data published prior to the 1980 count indicated that of the 12 million Hispanics on which data was available, about 7.3 million (or 60 percent of all Hispanics) reported themselves as being of Mexican origin (U.S. Bureau of the Census, 1979). The 1970 Census documented that Texas had 2,254,000 persons of Spanish origin, the vast majority being of Mexican origin and making up 18.8 percent of the total state population (U.S. Bureau of the Census, 1973). Recent 1980 census figures indicate that Texas now has 2,985,643 persons of Spanish origin and that this figure represents 20% of the total 1980 Texas population (U.S. Bureau of the Census, 1981).

Nationally, Mexican American families exist in an economically disadvantaged condition in comparison to other groups. In 1979, the median income of Mexican Americans was $12,835, in contrast to that of $17,912. for persons not of Spanish origin. Almost three million persons of Mexican origin 16 years of age and over were in the civilian labor force in 1979, with an estimated unemployment rate of 8.4%, 2.5 percentage points higher than that of the total population. The majority of Mexican Americans are employed in low-wage positions in the areas of operatives, sales and clerical fields, and as laborers (U.S. Bureau of the Census, 1979).

Mexican Americans are a young population, presumably because of their higher fertility rate (Bradshaw & Bean, 1972). One governmental task force has estimated that the growth rate of Hispanics as a total group for 1980-1990 will be approximately 28% (The Vice President's Task Force on Youth Employment, 1980). Census surveys document that the median age of Mexican Americans is 21.1 years, in contrast to a median of 30.4 years for the population of non-Spanish origin. A figure of particular relevance is that 43% of Mexican origin individuals are 17 years of age or younger, in contrast to only 28.3% of the non-Spanish origin population. More than 80% of Mexican American families live in metropolitan areas, and 51% reside in the central cities (U.S. Bureau of the Census, 1979).

According to 1978 Census data, Mexican origin adults 25 years and over have very little education, with only 34% being high school graduates, and 23% having finished less than five years of school. Only 4.3% had completed four years of college or more. Approximately 19% of Mexican American families had incomes below the poverty level in 1977 (U.S. Bureau of the Census, 1978).

Texas reflects an intensified picture of this socioeconomically disadvantaged position in that 31.4% of all Mexican American families in the state are classified by 1970 Census data as below the poverty level (Texas Department of Community Affairs, 1975). Furthermore, Mexican Americans in Texas are the least formally educated ethnic group, with over one-third (34%) of the total Mexican American population and over one-half (53%) of the Mexican American poor having completed only four years or less of formal schooling. The median level of education completed by Mexican Americans in Texas was lower than that for Mexican Americans in any of the other southwestern states (U.S. Commission on Civil Rights, 1971).

An examination of specific regions of Texas where higher numbers and percentages of Mexican Americans live results in a

documentation of higher levels of poverty, nutritionally inadequate diets, low rates of educational attainment, substandard housing conditions and poor health conditions. Teller (1978) describes the border areas and the Rio Grande Valley in South Texas as primary examples of these deprived conditions. None of the border counties' populations, for example, have a median level of education completed higher than that of junior high. In 1969, from one-half to three-quarters of the Mexican Americans in the Rio Grande Valley border counties existed below the poverty level. Furthermore, the three poorest standard metropolitan statistical areas (SMSAs) in the United States are located along the Texas/Mexico border.

Thus, the living conditions of a large proportion of the Mexican American population can be characterized as basically those of abject poverty with all the adverse physical and psychological implications that such circumstances entail. Therein lies one reason why a lower rate of use of mental health services by Mexican Americans is paradoxical. As indicated earlier, numerous epidemiological researchers, such as Dohrenwend and Dohrenwend (1969), Hollingshead and Redlich (1958), and Srole, Langer, Micheal, Opler and Rennie (1962), have concluded that a direct relationship exists between lower socioeconomic status and a higher incidence of mental illness. According to Dohrenwend and Dohrenwend (1974), the relationship of low social class, to high rates of psychiatric disorder has been obtained in 28 out of 33 epidemiological studies. A higher incidence of mental disorder would be expected among Mexican Americans solely on the basis of their disporportionate representation in the lower socioeconomic class. This higher incidence of mental disorder would be expected to lead to greater need for and use of mental health services. Although the above argument is the most generally cited rationale in the literature as to why a lower rate of mental health service use by Mexican Americans constitutes a paradox, it is by no means the only one.

In a variation of the above argument, Windle (1980) points out that the economic constraints of poverty also limit the range of services one is able to obtain. This is probably most graphically demonstrated by the differentially greater access which the higher socioeconomic strata has to private providers, whereas the poor must generally rely on public services. Given their limited access to the sizable sphere of private mental health service providers, the Mexican American population in the lower socioeconomic class would need to turn to public mental health facilities. Such an argument again leads to the prediction of a higher rate of Mexican American representation in public mental health facilities, particularly in relation to Anglos. Nearly all the studies in support of the underutilization finding have nonetheless concentrated on utilization patterns in the public services sphere. As such, the Mexican Americans' limited access to private sector providers accentuates the paradox of finding a lower rate of service use in public facilities by this group.

It is of interest to note that both of the above arguments should be equally applicable to the Black population, as this group is also disproportionately represented in the lower social class. Yet, in a number of studies Blacks have not exhibited the underutilization phenomenon (Bachrach, 1975; Cuellar, 1977; Kruger, 1974; Ramirez, 1980; Ramirez & Sepulveda-Hassell, 1980).

An additional argument that predicts higher rates of illness and thus possibly more service use is related to the stress of acculturation. Several researchers have asserted that the psychological stress associated with the process of acculturation into a discriminatory society can cause psychological distress and hence a possible higher propensity for mental illness and need for services (Fabrega & Wallace, 1968; Papajohn and Speigel, 1976). Acosta (1979) notes that the Mexican American experience of acculturation is somewhat different from that experienced by a number of other ethnic groups which immigrated in the 19th Century and assimilated successfully into mainstream America.

First, two fairly recent heavy migrations to the United States from Mexico occurred in the 1920s and the 1950s. Hernandez, Estrada and Alvirez (1973) estimate that nearly two million of the five million Mexican Americans in the United States may be first or second generation Americans. Second, the geographic proximity of the mother country of Mexico may encourage the maintenance of Mexican culture and the Spanish language, thereby slowing the assimiliation of this group into mainstream society. A sizable percentage of the Mexican American population is thus currently experiencing the psychological stress of acculturation, again leading to a prediction of higher rates of mental illness and subsequent service use by this group in relation to the mainstream population.

Finally, Wignall and Koppin (1967) suggest an interesting argument that is rarely articulated in the literature on underutilization. The authors assert that the social function of a state hospital is to serve as an agency of social control. According to Wignall and Koppin, "Usage of the state hospital comes to mean the extent to which various community agents exercise commitment to the state hospital as a means of control of social deviation" (p. 137). In Wignall and Koppin's interpretation, the failure of the mainstream society to acculturate a Mexican American may result in the commitment of that individual to a state hospital as a means of social control. If the mainstream society maintains control of the social agencies and is more concerned with controlling "deviation" within minority groups than within its own group, a disproportionately higher representation of Mexican Americans in state hospitals would be expected.

In sum, at least four arguments exist to support the expectation of a higher incidence of mental health difficulties in the Mexican American population in relation to the general population and particularly in relation to the more socioeconomically advantaged Anglo population. A higher incidence of mental illness and a higher propensity to need and

to use public mental health services can be expected on the basis of: (1) the Mexican American population's disproportionately higher rate of representation in the lower socioeconomic class; (2) their limited access to private providers of mental health services; (3) the psychological stress of acculturation many members of this group face; and (4) the possibility that the mainstream society and its agencies of social control are more concerned with and prone to use its agencies to control deviations from "acceptable" behavior within this group.

Despite the four factors identified, the paradoxical finding of lower rates of mental health service use are often reported and cited in the literature. Even in those studies where equivalent rates of service use are found, i.e., failing to support the underutilization contention, the expected overutilization by this group is rarely obtained. The major difficulty is that the studies on the utilization of service are not as clearcut in their support of underutilization by Mexican Americans as many researchers have claimed. In fact, a careful review of the literature seriously calls into question whether underutilization by Mexican Americans exists as previously defined. The contention maintained herein is that the hypothesis of a lower rate of use of mental health services by Mexican Americans is sound, but the present conceptualizations and methodological approaches used to study service utilization in the literature do not provide an adequate empirical base of support. An alternative approach to the concept of utilization and its evaluation across groups will be presented. But first, a review of the present underutilization literature is necessary.

II. A CRITICAL ANALYSIS OF THE LITERATURE ON THE UNDERUTILIZATION OF MENTAL HEALTH SERVICES BY MEXICAN AMERICANS

Studies Which Have Found Support for Underutilization

The history of the paradox of underutilization begins with a

study by the sociologist Jaco (1959). He conducted a comprehensive study of all the individuals in Texas who sought psychiatric treatment for psychosis for the first time during the period of 1951-1952. Jaco's study is particularly significant in that his research includes information gathered from psychiatrists in private practice as well as from the range of public mental health services available at the time. Jaco's results indicate that only 6% of the 11,298 psychotic cases admitted during this period were Spanish-surnamed, compared to 84.6% Anglos and 9.4% Blacks. When standardized for age and sex, these results indicate an incidence rate per 100,000 of 42 for the Mexican American group, 80 for the Anglo population and 56 for Blacks. Jaco concludes that Mexican Americans utilize services to a lesser degree and that possibly this is due to the strong emotional support provided by the Mexican American extended family. It is notable that the rates of use for the Black population were also lower than the Anglo population. Jaco did not, however, accentuate or attempt to attach explanations to this finding.

An additional set of findings reported by Jaco, yet rarely mentioned in the literature, is the differential rates of use of public versus private facilities in his sample. For males across the three ethnic groups, the treated incidence rate per 100,000 in public vs. private facilities was 30 to 10 for Mexican Americans, 39 to 34 for Anglos and 57 to 3 for Blacks. For females, the rates were 32 to 13 for Mexican Americans, 25 to 62 for Anglos and 47 to 3 for Blacks. Thus, both minority populations indicate a substantially limited use of private facilities in relation to their Anglo counterparts. This finding is of particular significance to the concept of utilization to be elaborated further in this discussion. If only the public facility figures are compared across ethnic groups excluding the results for use of private practitioners, a lower rate of service use for either Mexican Americans or Blacks is found in only one case: Mexican American males used at a rate of 30/100,000 as opposed to 39/100,000 for Anglos. For both males and females,

the Black group used at a much higher rate than Anglos. In comparing the rates for females, the Mexican American to Anglo rates are 32 and 25 respectively, indicating a higher use of public services by Mexican American females. Nevertheless, when the data from both private and public providers is combined, in all cases the minority groups show a lower rate of overall service use than Anglos. The issue of differential access to private providers is thus of critical importance in the interpretation of utilization results.

Although Jaco's study is among the most methodologically sound in the underutilization literature, the conclusion he arrived at with his data is probably the least substantiable. Citing the contemporary anthropological and sociological literature of his time, Jaco characterized the Mexican Americans as:

> ... a modest but proud people oriented toward the present rather than the future, more dependent ... than competitive, (they) value individuality more than individualism and are likely to be content with existing circumstances of life, preferring to cope rather than control ... the environment. (Jaco, 1959, p. 468)

It should be noted that a contentment with existing circumstances has often been used to describe members of disadvantaged minorities by researchers of the mainstream society. On the basis of a stereotypic characterization of the Mexican American and this group's family structure, Jaco concludes that the lower rate of service use by Mexican Americans is a result of the strong, supportive family structure and patterns of living peculiar to this group.

Proceeding chronologically, the next study generally cited in support of the underutilization phenomenon was conducted by Karno and Edgerton (1969) in California. In a study of psychiatric patients in California public outpatient and

inpatient facilities during 1962-1963, they found that:

> ... Mexican Americans accounted for 2.2% of State Hospital admissions, 3.4% of State Mental Hygiene Clinic admissions, 0.9% of Neuropsychiatric Institute ... outpatient admissions and 2.3% of inpatient admissions ... (Karno & Edgerton, 1969, p. 233).

Based on the percentage representation of Mexican Americans in the general population of California, Karno and Edgerton propose that the expected figure should be 9 percent to 10 percent.

Although Karno and Edgerton's findings do appear to support the underutilization of mental health services by Mexican Americans, the study's design established a dangerously misleading precedent in the literature. The simplistic approach of comparing a group's percentage representation in the general population to their representation in the population of mental health service users can produce misleading and inaccurate conclusions. In such an approach implicit assumptions are made that all the groups under study have maintained relatively equal access and proximity to services and that demographic differences between populations are of little consequence to their use of services. Each of these assumptions is erroneous. For example, if the core of the Mexican American population is concentrated in one portion of the state, there is the possibility that they might overutilize a particular hospital located in that area and underutilize the remaining state hospital facilities located throughout the state. Research in this area is far more accurate if the state or community is divided into smaller segments which are studied individually as well as in relation to other segments. In addition, as will be later demonstrated, the effects of demographic variables on utilization of mental health services cannot be ignored.

Whether intentionally or not, Karno and Edgerton (1969) established a design paradigm that would continue to persist throughout much of the underutilization literature. For example,

a study conducted by Torrey (1972) is often cited as evidence in support of the underutilization finding and is based on the same methodological approach. Torrey found that only 11% of the clients in a San Jose, California clinic were Mexican Americans, whereas this group represented 25% of the surrounding census tract population. Likewise, a study by Pokorny and Overall (1970) reported a discrepancy between the percentage representation of Mexican Americans in the general population and their representation in state hospitals in Texas. Specifically, there were 14.8% Mexican Americans in the general population and 11.6% in the state hospital population. Continuing with this approach, a study conducted by Sue (1977) in Seattle, Washington found Mexican Americans to be underrepresented in the 17 community mental health centers in the area. Sue reported that while Mexican Americans accounted for 1.8% of the general population in the area, they represented only 0.6% of the mental health service clients in the centers.

The primary question to ask with regard to these studies becomes: How large must the discrepency in percentages be before it is regarded as significant rather than due to seasonal differences, random chance, key differences in the demographic structures of the population compared or any one of a number of uncontrolled factors?

Rarely would one expect to find a perfect numerical correspondence between the percentage size of the population in question and its representation in the population of mental health service users. The numerous fallacies of such a simplistic approach will be elaborated further in a discussion of utilization as a concept in research. For now suffice it to say that the critical issue is that underutilization and overutilization have been defined solely as a function of the deviation between two percentages. In addition, whatever deviation is observed is being attributed primarily to the factor of ethnicity, to the exclusion of a range of other equally viable alternative factors.

Some studies cited in the literature as supportive of the contention that there is a lower rate of service use among Mexican Americans contain neither an explanation of the methodology utilized nor the actual findings obtained. For example, a study conducted by Kline (1969) at a Denver, Colorado clinic, reported only that:

> ... at this clinic too, Spanish Americans are found to be underrepresented, somewhat as compared with Negroes, more so compared with Anglo-Americans. (Kline, 1969, p. 89)

It is probable that Kline used the percentage deviation design discussed earlier, but in this case one is not even provided with the magnitude of the deviation used to generate his conclusion. Nevertheless, this has not prevented this study from occasionally being listed in research reviews as supportive evidence of the underutilization finding.

A similar difficulty occurs when researchers cite publications which review the literature on utilization rather than present a new test of the hypothesis. Such is the case, for example, in the citation of Padilla and Ruiz (1973) by other researchers, when in actuality Padilla and Ruiz simply reviewed the studies available at the time rather than report new corroborating data supporting the underutilization phenomenon.

A slightly more sophisticated modification of the simplistic one-case percentage deviation study was adopted by Kruger (1974). Kruger's study is rarely cited in the underutilization literature, probably as a consequence of its being published only as a doctoral dissertation; nevertheless, it contains some interesting components. Kruger did not set out specifically to test the concept of underutilization of services by Mexican Americans. Rather, Kruger hypothesized that an overutilization of services by ethnic minorities relative to Anglos would probably result as a function of "cultural difficulties" and discrimination, as well as for economic reasons. Kruger obtained

possible. The third advantage in Kruger's study was that his research design enabled the use of a statistical test of significance (the chi-square). By using this test of statistical significance, Kruger was able to address the question previously posed of how large must the deviation between the user population and the general population be before it is considered meaningful.

Despite the conceptual and methodological advantages of Kruger's design over that of Karno & Edgerton's work, it also contained a significant flaw with regard to the analysis of service utilization. The chi-square test, while indicating significance between groups, does not pinpoint the source of the variance. Hence, between the three ethnic groups, statistical significance can be as easily achieved by a case of Mexican American underutilization as by a case of Blacks overutilizing services. Indeed, Kruger reports that of the fourteen service areas where a significant differential utilization of state hospital facilities by ethnicity was obtained, eleven were due to an overrepresentation of Blacks, nine of Whites and none of Mexican Americans. In addition, the results for community mental health centers (CMHCs) which indicated statistically significant differences between ethnic groups revealed an overrepresentation of Blacks in fourteen centers, of Whites in nine centers and of Mexican Americans in four centers. Thus, Kruger's results appear to be more supportive of racial differences in utilization than of ethnic differences between Whites and Mexican Americans.

Another investigation that utilized the Texas Department of Mental Health Mental Retardation data base is that of Cuellar (1977), who studied the differential patterns of service use across ethnic groups. Cuellar used 1976 client data broken down by ethnicity, age, sex and general service category used for individuals served in either state hospitals or community mental health centers. Cuellar reported an intention to control for the factors of age, sex and service type, but in fact his methods did not produce actual statistical controls for these variables. What Cuellar apparently meant by control was to break out and to

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analyze two separate age groups of service users, those less than 20 years of age and those 20 years of age or older. A control for sex meant only that the utilization across ethnic groups was studied for both the male and female populations combined and subsequently by each separate gender group. Cuellar's approach was to determine the percentage representation of each of the three primary ethnic groups in the appropriate service area and to generate a table of numbers of expected service users. The number of expected service users was computed by partitioning the total number of users by the percentage representation in the general population of the three ethnic groups.

For example, the total state population of Texas was defined as the service area of the state hospitals. The Texas population was, according to 1970 Census figures, 69% Anglo, 12.52% Black and 18.48% Mexican American. Data from the eight state hospitals in Texas combined indicated 28,709 clients for 1976. Cuellar assumed that the client population should be representative of the general population if equivalent use of services was in existence across ethnic groups. Thus, 18.48% of the clients, or 5,306, were asserted by Cuellar to be the expected number of users that should be Mexican American. In fact, the number of Mexican American users for that year was 3,740, or less than expected. By employing this method, observed and expected frequencies were generated across ethnic groups enabling Cuellar to employ the chi-square test of significance. In controlling for age, population percentage breakdowns changed, and only the appropriate set of client data was used. When comparing use of community mental health center facilities across ethnic groups, Cuellar used the population percentage breakdowns for only those individuals who resided in the combined CMHC service areas.

The number of comparisons across ethnic groups was numerous, as Cuellar also used this technique across service categories. For example, the state hospital utilization comparisons discussed above were further broken down into five separate comparisons for each of the major service categories of mental health, mental

retardation, alcoholism, drug abuse, and no diagnoses group. For each of these five service category breakdowns the expected number of users was based on the percentage population breakdown discussed earlier. Thus, Cuellar assumed that 18.48% of users of alcoholism services would be expected to be Mexican Americans and likewise for each of the other service categories.

It is of interest that in this study Cuellar did not analyze community mental health center data separately as did Kruger (1974), but rather combined the CMHC data and the populations in the service areas for purposes of his comparisons. By doing so, he forfeited the advantage of multiple sample data noted earlier in the discussion of Kruger's (1974) study. Before examining Cuellar's actual results, it is necessary to point out the methodological fallacies involved in the approach described above. First, as discussed earlier with regard to the one-case percentage deviation studies, the expectation of equivalent percentage representation of a group in the general and user populations assumes equivalent need and access to service. Second, in using the technique employed by Cuellar, a considerable amount of artificial variance is produced across ethnic groups which can produce statistical significance on the chi-square. This artificial variance is a result of the fact that a deviation in one ethnic group has a mathematical effect on the deviation in each of the other groups, i.e., the scores or data are interdependent. If Blacks were consistently to use services proportionately in higher numbers than their representation in the general population, a condition of underutilization by Mexican Americans can result simply as a mathematical anomaly. This problem is even more evident when comparisons are made across service categories where the probability is high that there is differential use of one service type over another by ethnic groups. These differences create considerable "noise" in the statistical design employed by Cuellar, which in and of itself might generate statistical significance, resulting in findings that are numerically significant but conceptually meaningless. It should also be

noted that 1970 Census figures were used to generate expected percentage breakdowns for users of services in 1976. Changes in the demographic composition of the population are, therefore, further confusing an already tenuous design.

Ignoring for the moment the methodological difficulties found in Cuellar's study, one must examine the actual conclusions he reached. Cuellar concluded that in comparisons across ethnic groups in state hospitals, Mexican Americans were: (1) underrepresented in a comparison of overall services in relation to Blacks and Anglos; (2) underrepresented in mental health and alcoholism services; and (3) overrepresented in mental retardation and drug abuse services. In an analysis of CMHC utilization patterns, Cuellar concluded that: (1) Mexican Americans utilized overall CMHC services in equivalent proportions to their representation in the general population (in this case Cuellar found Anglos to be underutilizing), and (2) Mexican Americans again, as was the case in the state hospital findings, appeared to underutilize mental health and alcoholism services and overutilize mental retardation and drug abuse services. Cuellar's study is thus only partially supportive of the underutilization phenomenon. Although Cuellar points out many of the limitations mentioned above and also qualifies the findings in his discussion, some researchers have asserted that this study provides considerable support for the alleged underutilization of mental health services by Mexican Americans.

Despite the difficulties involved, Cuellar's study establishes some important points. First, the factors of age, sex and service type should be controlled in future studies, as they are critical to an understanding of the utilization of services. Second, an ethnic, age or sex group may be found to underuse one form of service and overuse another form despite the fact that overall use is at an equivalent rate. Hence, there is a need to specify more clearly what services are or are not being used and by which group.

Possibly the most sound methodological design discussed in the underutilization literature is one employed by Bachrach (1975) in a national sample survey study of admissions to state and county mental hospitals. Along with the factor of ethnicity, Bachrach also examined differential utilization patterns as a function of age, sex, marital status, socioeconomic status, diagnostic category, legal status upon admission, and history of previous psychiatric care. Different from the majority of the studies in the underutilization literature, Bachrach reported her results in rates of use per 100,000 rather than the percentage deviations from some expected figure. The comparison of rates per 100,000 across ethnic groups, particularly age-adjusted rates, is a considerable improvement over the previous one-case percentage deviation methods. Nevertheless, at least two of the conceptual problems discussed earlier still remain in a modified form. First, comparing rates can be a valuable tool for planning and evaluation, so long as an excessive amount of inference is not drawn from the differences between rates. For example, in comparing two rates per 100,000 such as 155 and 181, some assumptions must be made about the two populations that generated these rates in order to be fairly confident of the implications of this 26 per 100,000 difference. For example, it is necessary to assume that both groups had a relatively equivalent need for services. If either group were to have a higher need than the other, the difference between groups in their rates would either be expanded or diminished by some factor which reflected this difference in need.

The second major difficulty found in Bachrach's design is that once again one is unable to test the differences between groups for statistical significance. One must instead resort to guessing as to whether or not a given difference between the rates of two groups is or is not large enough to have meaning.

The finding most typically quoted in the underutilization literature from Bachrach's study is that:

> The age-adjusted rate of admissions for Spanish Americans was 155 per 100,000 population, and this was lower than the rate for other whites (181 per 100,000 population) and substantially lower than the rate for nonwhites (334 per 100,000 population). (Bachrach, 1975, p. 1)

Less often cited are her findings that in certain age groups the rates for Spanish Americans are higher than those of other Whites. This is the case in her comparisons for the age groups 14-17, 18-24, and 65 and over. Nevertheless, in the age groups between 25-64 (in which the majority of state hospital population is concentrated) Spanish Americans were represented at lower rates. Bachrach's results do appear to support the contention that Mexican Americans use services at a lower rate than their Anglo and Black counterparts. But even this evidence remains questionable, as Bachrach was not specifically studying patterns of service use by Mexican Americans but rather by "Spanish Americans," only slightly over one half of which are Mexican Americans. Bachrach also reports, as did Cuellar (1977), differences across ethnic groups in primary diagnoses. Of particular interest are the low rates of alcohol disorders and high rates of drug disorders found in the Spanish American cases. This pair of findings are similar to those of Cuellar (1977) and again point out the critical need to study utilization patterns by general service type.

Studies Which Have Not Found Support for Underutilization

Having reviewed the evidence in support of the alleged underutilization of mental health services by Mexican Americans, it is necessary to examine the studies which have not found evidence of underutilization by this group. Similar to the studies in support of the underutilization contention, the following studies fall into a number of discernable groups with respect to their methods.

One of the first studies that reported findings inconsistent with the alleged underutilization of mental health services by Mexican Americans was that of Wignall and Koppin (1967). Wignall and Koppin compared public mental hospital admission rates per thousand for Mexican Americans and non-Mexican Americans, using Colorado facility records and the 1960 U.S. Census. Along with comparisons on the basis of ethnicity, Wignall & Koppin also studied utilization by age group, sex, diagnostic category and geographic regions. The authors report that the admission rate for Mexican Americans is higher than the rate for non-Mexican Americans but note that this difference is due entirely to a higher rate for Mexican American males. Wignall and Koppin report rates per thousand of: (1) 2.54 for Mexican American males and 1.37 for non-Mexican American males, and (2) .53 for Mexican American females and .70 for non-Mexican American females. In addition to providing contradictory evidence with regard to Mexican Americans' alleged lower use of mental health services, Wignall and Koppin's study contains two components, the implications of which were recognized neither by the authors nor later researchers. First, as one component of their study, Wignall and Koppin divided Colorado into five "ecological" regions and then recomputed their utilization rates for each of the separate regions. The authors found Mexican Americans showing a higher rate than non-Mexican Americans in four regions and a lower rate in one. Wignall and Koppin made various comparisons by age and ethnicity across the various regions which resulted in mixed findings. Of far greater importance is that Wignall and Koppin had demonstrated, despite their lack of elaboration of the issue, a method for dealing with one of the conceptual problems that has been discussed herein with regard to the utilization literature. By dividing the state of Colorado into five regions and generating a rate per thousand for each ethnic group by region, Wignall and Koppin created five data points (per ethnic group) rather than the usual one which could be compared. The importance of this fact is that multiple data points allow for the use of statistical procedures to determine whether differences between groups are due to more than just

random error.

Another critical concept alluded to by Wignall and Koppin is that the age configuration of the Mexican American population is different from that of the non-Mexican American population and that this difference might be important. Specifically, Wignall and Koppin noted that a substantially larger percentage of the Mexican American population was less than 20 years of age. The authors proceed to note that the chances for admission appear to vary across different age groups, and in a number of cases the chances are higher above the age of 20. The implications and importance of this fact will be explored in detail later. Suffice it to say that Wignall and Koppin established the critical importance of examining utilization by age and were among the first researchers in this area to begin to recognize the implications of the predominately young configuration of the Mexican American population and the utilization of services by this group. It is perplexing to try to understand how this study by Wignall and Koppin, which is clearly far more methodologically sound is mentioned less often in the underutilization literature than other studies, such as the work of Karno & Edgerton (1969).

Two additional studies reported in the literature which are inconsistent with the underutilization contention were conducted in Texas. Although the locations of the studies were different, there were numerous similarities in the conceptual design and interpretations of the authors of their findings, and hence the studies will be discussed together. The first study was conducted by Andrulis (1977) in San Antonio, Texas using a 50% random sample of the 1972 population of closed cases of a community mental health center. Andrulis studied a number of factors with regard to the kind of care provided which indicated, for example, that Mexican Americans tended to drop out of care prematurely and, as a consequence, also received less referrals. As will be discussed later, a critical issue often ignored by a number of the researchers in the underutilization literature is that the concept of utilization is not only a question of rates

but also of quality of services. For our present purposes the key conclusion reached by Andrulis was that Mexican Americans were represented at the center in numbers proportional to their representation in the general population. Andrulis reports that 47% of the catchment area population was White with Spanish-surname and 49% of the cases examined were Spanish-surnamed. Hence, Andrulis arrives at the conclusion that Mexican Americans were proportionately using services in the same manner as Karno and Edgerton arrived at underutilization, through the comparison of percentage in user group with percentage in general population.

Trevino, Bruhn and Bunce (1979) in their study of the Laredo Community Mental Health Center concluded that Mexican Americans are achieving their expected rate of utilization. These researchers studied the records of all outpatients seen at the CMHC between September 1971 and August 1972. Trevino et al. found that 88.2% of the clients were Mexican American in comparison to their 86.3% representation in the general Laredo population. Hence, these researchers also chose to employ the one-case percentage comparison approach. Trevino et al. attributed the achievement of equivalent rates of utilization by Mexican Americans at this center to the removal of many of the barriers to service access for Mexican Americans in the Laredo CMHC. The authors noted that the majority of the staff of the center was Mexican American as was the general population of the city, thus eliminating many cultural and language barriers which are purported in the literature to prevent Mexican Americans from gaining equitable access to services.

In addition to these studies, at least one case of overutilization was reported in the literature which employed the one-case percentage deviation paradigm. Karno and Morales (1971) reported that a study of the 1967 caseload of the East Los Angeles Mental Health Center indicated that 90% of the cases were Hispanic while only 76% of the general population in the service area was Hispanic.

Thus, after 22 years of intermittent research, the utilization of mental health services by Mexican Americans remains a paradox. The numerous studies which are proported to indicate a lower rate of service use by Mexican Americans and also those which contradict this finding are filled with methodological and conceptual flaws. It is thus possible to assert that the alleged underutilization of mental health services by Mexican Americans does not exist, as the findings in the literature reviewed above are mixed and, in many cases, questionable. Nevertheless, as will be discussed later in detail, the researchers cited above who alleged that Mexican Americans underutilize mental health services will be shown to have been correct in asserting the existence of the phenomenon. The only difficulty in their research is that they set about proving the phenomenon's existence in an inappropriate manner. What is required is both a different conceptual framework for the issue of utilization and a better set of methods for studying the phenomenon of service use across groups.

Before an elaboration of such a framework can be developed, an examination of the explanations offered in the literature for the underutilization phenomenon is required. The explanations that have been presented to explain the underutilization phenomenon contain the conceptual components which have directed many previous studies on utilization of services across ethnic groups. As in exploring any other scientific paradox, the explanations researchers propose to understand a phenomenon they observe will often dictate where they will direct their future research. For the moment we will assume that the paradoxical underutilization of mental health services by Mexican Americans exists and examine in detail the explanations that previous researchers have offered for this phenomenon.

III. EXPLANATIONS OFFERED IN THE LITERATURE FOR THE EXISTENCE OF THE UNDERUTILIZATION PARADOX

Numerous researchers have presented explanations for

underutilization. All too often, however, they have stressed only a narrow range of these possible explanations (that is, those they believed were most viable). For our purposes, it is preferable to review and evaluate the widest range of proposed explanations.

Karno and Edgerton (1969) comprehensively document the major explanations provided by researchers and practitioners for the existence of the Mexican American underutilization phenomenon. The present discussion will use their set of explanations to provide a conceptual background, with the three explanations being discussed and followed by a brief analysis of each. The first major explanation offered by Karno and Edgerton (1969) is that Mexican Americans suffer less mental illness, possibly due to the strong familial support found in the Mexican subculture. The second explanation is that Mexican Americans suffer as much or more psychiatric disorder than do Anglos, but that the disorder may be less visible because it is expressed in criminal behavior, chemical substance addiction, or alcoholism. The third explanation, and the one which they elaborate into seven subexplanations, is that psychiatric disorder among Mexican Americans is expressed in the way other ethnic groups express it, but is less visible due to the following reasons which are quoted directly from Karno & Edgerton:

> 1. Mexican Americans perceive and define psychiatric disorder differently than do Anglos. Specifically, they are more tolerant of idiosyncratic and deviant behavior and hence are less likely to seek professional help. A common variation of this viewpoint is expressed in the belief that Mexican Americans are simply ignorant about what more educated persons know, viz - the signs and symptoms of mental illness; they are also presumed to be ignorant about why or how to seek professional help. This is seen (by some who cite this view) as being largely a reflection of the very limited development of mental health resources and education in Mexico itself.

2. Mexican Americans are too proud and too sensitive to expose more personal problems to public view; they feel too much shame or stigma attached to an admission of need for professional mental health assistance. One variety of this view stresses the long prior history of humiliation experienced by Mexican Americans in their relationships with Anglo agencies and institutions. Another stresses the conservative, rural value system of the Mexican American.

3. Clinics and hospitals which offer psychiatric services do not operate in ways which fit the needs of Mexican Americans and hence are little used by them. For example, the cost is too high, the distance too far, the hours are inappropriate, and the staff do not demonstrate respect, promote self-dignity, nor evidence cultural sensitivity.

4. In place of formal mental health services Mexican Americans utilized the services of priests, family physicians, and other persons for psychiatric disorders.

5. Mexican Americans who develop psychiatric disorder frequently return to Mexico to re-establish kinship or other emotionally supportive ties or to seek folk or professional help in a familiar context.

6. Mexican Americans who are citizens of Mexico, or who are U.S. citizens but have family members in the United States (legally or illegally) who are Mexican citizens, avoid any contact with the "establishment" which may threaten the security of their (or their relatives') presence in the United States.

7. The majority of Mexican Americans speak only Spanish, or prefer to or can only communicate in Spanish concerning intimate or affectively charged matters; there are very few or no personnel in mental health facilities who speak Spanish. (Karno & Edgerton, 1969, pp. 234-235)

Mexican Americans Suffer Less Mental Illness

As discussed earlier, the first major explanation offered for the phenomenon of underutilization is that Mexican Americans suffer less mental illness, possibly due to the strong familial support system found in the Mexican subculture (Jaco, 1959; Madsen, 1964). These strong familial ties (which are often simplistically interpreted by some as not existing in Anglo and Black cultures) presumably insulate the Mexican American against the onset of mental illness. In the event that a member of the family is afflicted with mental illness, the Mexican American family tends to protect the individual from contact with Anglo service institutions. In some ways, this explanation for underutilization has relied upon a stereotypic portrait of both Anglo and Mexican American cultures that has conceptualized the Anglo family as cold, yet aggressively achievement-oriented and the Mexican American family as warm, yet passive and fatalistic. In recent reviews of the sociological and anthropological literature of the past thirty years, researchers have begun to question the basis and persistence of these stereotypes in the literature (Baca Zinn, 1979; Baca Zinn, 1980; Candelaria, 1980; Padilla & Ruiz, 1973; Staton, 1972). The majority of the studies on which these generalizations are based were rural studies, even though the majority of Mexican Americans today are urban dwellers. A recent study by Keefe, Padilla, and Carlos (1979) compared the Mexican American family support system to that of Anglos and concluded:

> In sum, although our research shows that Mexican Americans rely greatly on familial support there is no indication that this is a uniquely Mexican American trait. In fact, the portrait of the isolated Anglo seems dubious at best...
>
> Therefore there is little reason to believe that the presence of the extended family can be the reason for an alleged lower incidence of mental illness among Mexican Americans.

> ... rather than accentuating the strength of the Mexican American extended family, ... we might better emphasize the intensified isolation and stress experienced by those Mexican Americans who lack supportive families and the implications this has for treatment. (Keefe, Padilla, & Carlos, 1979, p. 151)

Keefe et al.'s final conclusion questioning the validity of the Mexican American family as a bastion of strength is of particular importance in view of recent census and epidemiological data. At least two major demographic factors place the concept of the Mexican American extended family as a bastion of strength in serious question. First, while the question remains open as to whether the Mexican American family exists in a nuclear or extended form, there is little question that a very large proportion of these families exist in poverty. As discussed earlier, the factor of poverty appears to have a negative impact on family life on a pan-cultural basis. The high unemployment rate among Mexican American males with its concurrent negative effects on the economic and psychological well-being of the family does not appear to support the idea that these families are stronger than their more advantaged Anglo counterparts.

The Report to the President of the United States Commission on the International Year of the Child (1980) indicated that the greatest obstacle faced by Mexican American and other minority children is the poverty of their families. The social and economic environment in which the child is reared is considered to be the most important predictor of later overall well-being in terms of health, education, employment, and wage earning potential (Calhoun, Grotberg, & Rackley, 1980). Mental health experts suggest that children of poverty are at a particularly high risk for mental health problems. Mexican American children and youth are overrepresented among the poverty population in the nation and as such experience higher morbidity and mortality rates, a greater likelihood of being raised in a one-parent

female-headed family, as well as higher rates of school failure, runaway, substance abuse, unemployment and underemployment (Florez, 1978). Census estimates of the population living below the poverty level indicate that 29% of Spanish-origin children in all types of families and 69% of Spanish-origin children in female-headed families exist within poverty conditions (Calhoun, Grotberg & Rackley, 1980).

Second, the belief that the majority of Mexican American families are fortunate to have access to an extended family system is contradicted by the increasing number of female single-head of household families among Hispanics. From 1970-79 a 72.3% increase in the number of female-headed households of Spanish origin occurred (Calhoun, Grotberg & Rackley, 1980). Many of these families thus have reduced economic and emotional familial resources rather than benefiting from a large supportive extended family. In addition, the families maintained by Mexican American women tend to be generally larger than families in the total population with over 23% consisting of five or more persons (U.S. Bureau of the Census, 1980). It should be noted that this reference to large families does not mean an extended family, but rather more hungry young mouths to feed. Despite the Mexican American culture's emphasis--in theory--on a strong family structure and the need for maintaining interfamily support systems, the contemporary Mexican American's family life in reality is often filled with negative environmental influences.

The other variation of the explanation being discussed is that Mexican Americans simply have a lower incidence of mental disorders for some as yet undiscovered reason. The assertion of a lower incidence of mental disorder among a group that is disproportionately poor, uneducated and underemployed directly contradicts the fundamental findings of contemporary mental health epidemiologists which essentially predict a higher incidence in such groups (Hollingshead & Redlich, 1958; Srole, Langer, Michael, Opler & Rennie, 1962; Dohrenwend & Dohrenwend, 1969; Dohrenwend, Gould, Link, Neugebauer & Wunsch-Hitzig, 1980).

Nevertheless, periodically the totally unsubstantiated conclusion emerges that the lower rate of mental health services use among Mexican Americans is indicative of the fact that they do not need the services.

Two additional topics of interest arise from this explanation for underutilization. First, the current socioeconomic and psychological status of most Mexican American families indicates that a higher rate of disorder should be evident among Mexican Americans rather than providing an explanation for a lower incidence of disorder. Second, there appears to exist in the literature the inaccurate conclusion that need and use are directly related or that there is a one-to-one correspondence between these concepts. Hence, if a group does not use a service, then it is assumed that it did not need the service. Such an argument assumes equitable access or permeability of the mental health system across all groups. As will be detailed later, the evidence in the literature on mental health services does not support the contention that all groups have equal access to services.

Mexican Americans Manifest Disorder Differently

The second major explanation discussed by Karno and Edgerton for the underutilization phenomenon is that Mexican Americans manifest psychiatric disorder differently than do Anglos. This explanation is generally elaborated in one of two forms. One form adopts a narrow definition of mental health which essentially places psychiatric problems, such as psychosis, neuroses and personality disorders, in the arena of mental health disorders and substance abuse in a different arena. Thus, this form of the explanation holds that while Mexican Americans are not proportionately represented in mental health services (again adopting the narrow definition), they are overrepresented among substance abusers. This variance is generally attributed to a differential manifestation of dysfunction by one cultural group in contrast with another. Only occasionally does this same line

of reasoning lead to the possibility of a differential response in terms of labeling and treatment of one ethnic group as opposed to another.

Fortunately, the current mental health delivery system is not as narrow in its definition and thus generally encompasses substance abuse as a mental health problem. While some evidence exists in support of the contention that Mexican Americans do numerically overutilize drug abuse services in relation to Anglos (Bachrach, 1975; Cuellar, 1977), there is still considerable controversy as to whether a situation of underutilization might still exist due to a high need for services. For example, a study by Padilla et al. (1977) documented an incidence of fourteen times the rate of inhalant abuse and double the rate of marijuana use among Hispanic youth than was reported for the general population. Research has also indicated that in the 1960s heroin addiction began to grow faster among Mexican Americans than in any other major ethnic group (Chambers, Cuskey & Moffett, 1970). The explanation for underutilization presently being considered is probably correct in its assertion of a high rate of substance abuse by Mexican Americans. The contention that this high rate of substance abuse accounts for the underutilization of mental health services is where the explanation becomes dubious. When studying overall services provided, researchers have often categorized substance abuse problems under the broad definition of mental health problems. Thus, the explanation under consideration becomes contradictory, rather than explanatory, of a lower rate of mental health service use by Mexican Americans since the underutilization is manifested despite the high rates of substance abuse statistics generated by Mexican Americans.

Another version of the differential manifestation is that Mexican Americans may disproportionately manifest psychological difficulties in criminal behavior. Morales (1971) describes both the viability of differential manifestation in criminal behavior and discusses the conceptual difficulties in such an explanation:

> While Mexican Americans are underrepresented in California State Hospitals (3.3%), they are vastly overrepresented in prison. Of 40,000 adult parolees and prisoners in California, 20% or 8,000 are Mexican American, primarily for offenses related to narcotics. Does this suggest that Mexican Americans utilize narcotics more than other groups? It has been known for several years that physicians and nurses comprise the largest single group of narcotic addicts in the country but the record shows this group to be grossly underrepresented in the arrest and conviction columns. (Morales, 1971, p. 214)

Concern must be expressed with regard to this version of the explanation for lower service use. For either: (1) the assertion is being made that Mexican Americans are differentially predisposed to express their psychological problems in criminal behavior, an argument which contains hints of racism, or (2) the explanation proposes that some Mexican Americans who become mentally ill disproportionately come into contact with or are channeled to correctional facilities, whereas their Anglo counterparts are generally seen by the mental health system. The idea that a considerable number of Mexican Americans who are mentally ill are in prisons rather than in the caseloads of the community mental health centers is hardly an encouraging explanation for the underutilization paradox.

The third major explanation discussed by Karno and Edgerton is that psychiatric disorder among Mexican Americans is expressed in the same way other ethnic groups express it, but is less visible due to a variety of reasons. The authors divided this general explanation into the seven subexplanations previously listed.

Variation 1: Mexican Americans Perceive and Define Mental Illness Differently

The initial variation of the third major explanation posits

that Mexican Americans perceive and define mental illness differently than Anglos. "Specifically, they are more tolerant of idiosyncratic and deviant behavior and hence are less likely to seek professional help" (Karno & Edgerton, 1969, p. 234). A study reported by Karno and Edgerton (1969), however, appears to contradict the contention that Mexican Americans perceive and define mental illness differently. In two East Los Angeles communities, Karno and Edgerton conducted a survey which was administered in Spanish as well as English, depending upon the language preference of the subject. During one phase of the interview, the respondents read a series of vignettes describing imaginary individuals, in everyday language, who were suffering from some form of mental disorder. Karno and Edgerton reported that both groups recognized the severity of the problems of the individuals depicted in the vignettes and the need to seek professional help. Surprisingly, the researchers also found Mexican Americans to have more confidence in the ability of the professional to help in such cases as is indicated in the following quotation:

> When asked, "As far as you know does a psychiatrist really help the people who go to him?", Mexican Americans somewhat more than Anglos said yes. Mexican American respondents were also somewhat more optimistic than Anglos about the curability of mental illness. (Karno & Edgerton, 1969, p. 237)

These findings led the authors to the conclusion that underutilization of psychiatric facilities by Mexican Americans "is not to be accounted for by the fact that they share a cultural tradition which causes them to perceive and define mental illness in significantly different ways than do Anglos" (Karno & Edgerton, 1969, p. 237).

An additional comment should be made about the following variation of the explanation of an alternative perception of mental illness, that is:

> ... the belief that Mexican Americans are simply ignorant about what more educated persons know - viz - the signs and symptoms of mental illness; they are also presumed to be ignorant about why or how to seek professional help. This is seen (by some who cite this view) as being largely a reflection of the very limited development of mental health resources and education in Mexico itself. (Karno & Edgerton, 1969, p. 234)

The implication that Mexican Americans come from a heritage which is unaware or unskilled in the area of mental health is ludicrous, as Morales (1971) indicates:

> The first hospital for the mentally ill was founded in Mexico City in 1567. The first hospital for the mentally ill was not founded in the United States until 1732 in Philadelphia one hundred and sixty-five years later!...
>
> The Aztecs had an amazing grasp of psychology and translations of their documents show that they developed concepts about ego formation and psychic structure similar to those advanced by Sigmund Freud almost five hundred years later! (Morales, 1971, p. 212-213)

Variation 2: Mexican Americans are too Proud to Expose Problems Publicly

The second variation discussed by Karno and Edgerton is that "Mexican Americans are too proud and too sensitive to expose more personal problems to public view..." This explanation suggests that pride and sensitivity and the issue of stigma with reference to mental illness are less significant in Anglo and Black communities, which is highly dubious. In addition, the stereotypic image of the Mexican American as fatalistic, macho and rural is again invoked to explain non-participation in mental health services. As the studies cited earlier by Karno and Edgerton (1969) and Keefe, Padilla and Carlos (1979) pointed out, Mexican Americans are no more or no less perceptually predisposed

than Anglos to recognize and disclose mental illness. Advocates of this explanation seem to prefer to place the blame for underutilization on some highly exaggerated and empirically questionable characteristics of Mexican American culture which simply do not appear to be justified.

The third variation that follows on Karno and Edgerton's list will be bypassed for the moment, as its analysis is best joined with the seventh.

Variation 4: Mexican Americans Prefer Priests and Physicians

The fourth variation on Karno and Edgerton's (1969) list is that Mexican Americans prefer the services of priests and physicians to those of formal mental health service providers. Actually, this explanation when cited in the literature generally focuses more on the contention of a greater use of physicians than on the use of the clergy. A study conducted by Keefe, Padilla and Carlos (1979) is one of the few to test preferences for both of these service systems across Mexican Americans and Anglos. Although Keefe's survey of three communities in California reported a slightly higher utilization by Mexican Americans of physicians and clergymen in dealing with mental health difficulties as compared to Anglos, they found that Anglos also utilized these resources to a significant extent. In addition, Keefe et al. reported a higher utilization of friends for emotional support by Anglos than by Mexican Americans. These findings led the authors to conclude that both Anglos and Mexican Americans tend to utilize informal support systems much more than formal mental health facilities.

With regard to the possible overreliance by Mexican Americans on physicians for the treatment of mental health difficulties as an explanation for limited use of mental health centers, the evidence in the literature is nonsupportive. As Barrera (1978) indicates, the fact that Mexican Americans utilize physicians for emotional problems is not necessarily an important

factor in their underutilization of mental health services. Barrera states that it is "...necessary to show that Mexican Americans substantially overutilize physicians." As indicated in a survey study by Gurin, Veroff & Feld (1960), the majority, or 88% of Americans who sought help for feelings of impending nervous breakdowns went to see a physician. It is of interest to review the research basis which is generally cited in support of the overutilization of physicians by Mexican Americans as well as the contradictory evidence.

The study most often cited in connection with the explanation of overutilization of physicians by Mexican Americans as the cause for lower mental health service use is a study by Karno, Ross and Caper (1969). Generally, their survey is cited as having found that the majority of physicians in an East Los Angeles community (a primarily Mexican American community) indicated that they were treating many of their Mexican American patients for emotional distress. As indicated above from Gurin, Veroff and Feld's study (1960), it would not be surprising to find that any group of physicians surveyed anywhere in the United States would indicate that they are treating a number of their patients for emotional disorders. The key issue is one of comparisons between ethnic groups; such a comparison was lacking in Karno, Ross and Caper's survey. A careful review of their methods and results causes one to question how this study can be held as the cornerstone of the explanation that posits overreliance on physicians as the reason for lower mental health service use by Mexican Americans.

A brief review of the literature on access to health care by ethnicity presents a far more definitive argument. It does not, however, support the explanation for the Mexican American underutilization phenomenon. The health care literature also contains some evidence of underutilization of services by Mexican Americans. Many of the studies in the area of use of health care facilities by Mexican Americans indicate either equivalent or less access and use of these facilities by this population

(Roberts & Lee, 1980; Weaver, 1969). There is little evidence found in this literature to support the contention that Mexican Americans do not use the mental health care system because they prefer to use or overutilize the health care system for these difficulties.

Variation 5: Mexican Americans Return to Mexico or Use Folk Healers

The fifth variation listed by Karno and Edgerton will be discussed in two sections: (1) the suggestion that Mexican Americans who develop psychiatric disorder return to Mexico for treatment, and (2) Mexican Americans' utilization of folk healers. The notion that mentally ill Mexican Americans return to Mexico is of particular interest when it is juxtaposed with the earlier discussion that Mexican Americans are less capable of perceiving their own illnesses and are also reluctant to seek assistance. The present explanation asserts that not only do mentally ill Mexican Americans recognize their illness, but they even make a journey a considerable distance back to Mexico for treatment. Given the lack of empirical data to support this hypothesis, this explanation must be regarded as doubtful. It is possible that along the border of the southwestern United States this may be a factor, but without supportive data it remains mere speculation. It is interesting to note that this explanation, as have a number of the others discussed above, views the cause of underutilization as an attribute of the Mexican American population. In this case a hypothesized preference for Mexican facilities is attributed to Mexican Americans rather than the recognition of their perhaps negative, yet accurate, assessment of United States facilities.

The second component of this explanation involves the issue of Mexican American utilization of folk healers or curanderos. Kiev's study (1968) of the San Antonio, Texas Mexican American population's use of curanderos is one of the most extensive studies currently available, but this study is replete with

methodological and conceptual problems. A subsequent study by Torrey (1970) asserting the importance of curanderismo in the mental health care of Mexican Americans also notes that curanderos are widely used, particularly by older Mexican Americans. Torrey points out that these indigenous folk healers are often forced to hide from the police and tax agents, thus making research on their activity particularly difficult. Ayala (1975) conducted research on the extent of utilization of curanderos in the Pilsen community of Chicago. The residents of the Pilsen community are predominantly Mexican American with a number of them being recent arrivals from Mexico. Ayala reports that between 60 to 80% of the residents of the Pilsen barrio utilized curanderos for some form of illness. The nature of the population of the Pilsen community should be stressed as it is possible that utilization of curanderos is more widespread among recent arrivals from Mexico.

Martinez and Martin (1966) provide an excellent summary of the etiology, symptoms and treatment of the commonly cited Mexican folk illnesses: mal ojo (evil eye), susto (fright), empacho (food-blocked intestine) and mal puesto (hex). Martinez and Martin also report a field study of 75 Mexican American housewives in which the respondents revealed considerable knowledge of these illnesses and their treatment. The authors concluded on the basis of their findings that although belief in these folk illnesses remains widespread, their respondents manifested a compartmentalized form of participation in services, such that treatment for folk illnesses is sought from curanderos while other medical or emotional problems are taken to physicians. The data confirming the importance of curanderismo as an explanation for the underutilization phenomenon are meager. There do exist some data that curanderismo as an explanation for the underutilization phenomenon may be overemphasized, particularly in this decade (Edgerton, Karno & Fernandez, 1970; Keefe, Padilla, & Carlos, 1979). In two studies conducted in California, the following results were obtained:

> ... curanderos do not appear to be used with any frequency even for physical problems; in comparison to other sources of emotional support, they are of negligible importance for the Mexican Americans in our sample. Our data thus confirm the work of Edgerton, Karno, and Fernandez (1970) who find a decline in curanderismo in Los Angeles. (Keefe, Padilla & Carlos, 1979, p. 150)

The key issue here is not to prove or disprove the existence of the Mexican American's belief in folk illness, but rather to determine the impact of these beliefs on the utilization of traditional mental health services. As Acosta (1979) points out the key issue is that the majority of support for this explanation for underutilization has "been generalized on the basis of impressions, and not on empirical findings" (p. 511). It is possible that the impact of curanderismo is a regional issue, with differences tied to local norms and the availability of formal health/mental health facilities and of locally based healers. Nevertheless, without further data, the viability of curanderismo as an explanation for underutiliation remains doubtful.

Variation 6: Mexican Americans Fear Contact with the Mental Health Establishment

The sixth variation on Karno and Edgerton's list proposes that Mexican Americans avoid the mental health establishment for fear of their own or their loved ones' deportation. This explanation does not have any substantial data to support it. Since most undocumented residents are also asserted to avoid census counts and since the majority of utilization studies have used census data to calculate the base population for utilization rates, undocumented residents' presence or absence should have a negligible influence on the existence of the underutilization phenomenon cited in the literature. In fact, this particular explanation tends to smack of racism since the vast majority of Mexican Americans residing in the United States are legal

citizens. Once again, the point must be made that this explanation places the onus for underutilization on a stereotypically ascribed characteristic of Mexican Americans (in this case, their supposed illegal status).

Variation 3 and 7: There Exists an Incompatibility Between the Mental Health System and Mexican Americans

The final undiscussed variations offered by Karno and Edgerton (3 and 7 in the list quoted earlier) are in many ways so similar that they will be discussed together. These explanations propose that there exists an incompatibility between the mental health needs of Mexican Americans and the methods of service delivery utilized by mental health facilities. The seventh explanation described in Karno & Edgerton's list is essentially a narrow version of this generic explanation, in that it places the primary incompatibility on the lack of bilingual caregivers. The third explanation in Karno and Edgerton's list, on the other hand, cites examples of high costs, inaccessible location of services, inappropriate hours of operation, and a general lack of respect for the client on the part of the caregivers as the reasons for underutilization of services.

Of all the explanations in the literature for the underutilization paradox, the concept of incompatibilities has received the most widespread support. Numerous researchers have concluded that some form of incompatibility between the Mexican American client and the service delivery system is the cause of underutilization (Acosta, 1979; Karno & Edgerton, 1969; Morales, 1978; Padilla & Ruiz, 1973; Ramirez, 1980; Torrey, 1972). The difficulty with this conclusion is that researchers vary considerably as to what they emphasize as the key components of the incompatibilities. The possible factors in the incompatibility concept are generally termed barriers that the client faces in attempting to acquire access to appropriate, acceptable, and effective care. Despite the seemingly variable interpretations of the incompatibility concept found in the

literature, it appears that two basic areas of incompatibility are proposed. The two areas of incompatibility are: (1) availability and accessibility, and (2) acceptability and appropriateness.

The first barriers to service, availability and accessibility, are concerned with whether or not a client can gain entry to a mental health service delivery system. Availability, at a minimum, connotes that the service system exists in the area and that it is functioning at a capacity level that will allow the entry of additional clients. All too often the assumption is made that if a service exists in the area then services are available. The concept of system capacity is rarely explored in the mental health literature despite its pivotal importance to the concept of service availability. Thus, if the Mexican American population were to reside disproportionately in areas where either limited services are available or where services are functioning at maximum capacity, a resultant "underuse" of mental health services might occur, lower use being a function of less available services for use. This explanation requires that one assume, for example, that Mexican Americans live in geographical areas where less mental health services are available. Evidence does indeed exist that, at least in Texas, the Anglo population resides in geographical areas that contain substantially larger quantities of mental health services than do Mexican Americans (Valdez, 1980). The factor of system capacity as a barrier to service use can be explored indirectly through the analysis of waiting time until entry. The length of waiting time between a request for service and the actual point of service intervention by the system is directly related to the present capacity of the system, lower capacity thus being directly related to longer waiting lists. Wolken, Moriwaki, Mandel Archuleta, Bunje and Zimmerman (1974) conducted a study of the waiting period by ethnicity in gaining entry into a child guidance clinic. Wolken et al. found the median waiting period to be 4.5 weeks for Anglos (not of Mexican origin) and 5.5 weeks for Mexican Americans.

Some evidence does exist then to support the contention that the mental health system may be less permeable to Mexican Americans, either due to inaccessible locations of services or the limited capacity of the system. If the mental health systems are less permeable to entry of Mexican Americans, then it would be expected that they would be underrepresented.

The second major form of the incompatibility argument asserts that the locus of the incompatibility is between the Mexican American client and the service provider. Essentially, the service provided is either not acceptable or inappropriate to the Mexican American client. Factors generally cited for the incompatibility between client and therapist are: (1) language, (2) class, (3) culture, (4) needs of the client, (5) therapeutic paradigms and the therapist's style of treatment.

In view of the fact that the core technology of the current mental health delivery system is based on the interaction between a client and a counselor, minimally both parties must be capable of communicating with each other. Thus, the incompatibility between a monolingual Spanish-speaking client and a monolingual English-speaking therapist is often cited as a barrier to services for Mexican Americans. This factor is of particular relevance as an explanation for underutilization by that segment of the Mexican American population that is monolingual Spanish. Although the percentage of Mexican Americans which are monolingual in Spanish is probably decreasing over time, there are still a large number of Mexican Americans who either do not speak English or prefer to communicate in Spanish (Arce, 1981). A number of solutions have been offered and tested to deal with this incompatibility of language. The simplest approach appears to be to hire therapists who can speak Spanish fluently. Another approach is to use interpreters in the interaction between therapist and client. Although, the research remains mixed in regard to conclusions, there does exist evidence that interpreters, unless well trained, can detrimentally distort the exchange of communication (Levine & Padilla, 1980).

In addition to the incompatibility of language, there are often also incompatibilities of class between therapists and Mexican American clients. The ability to speak the Spanish-language is a necessary but not sufficient condition to insure proper communication between a monolingual Mexican American client and a non-Mexican American therapist. Far too often with regard to low income Mexican American clients the therapist is of a clearly different socioeconomic class. Lorion (1973, 1974) documents the feelings of frustration and resentment often felt by therapists in working with clients with low-income backgrounds. Many forms of therapeutic intervention hold as a key premise the necessity that the therapist gain at least a crude understanding of the client's life experiences and environment. Class differences between client and therapist hamper the ability of the therapist to gain this understanding and can alienate the client.

Even if the therapist has the ability to speak Spanish fluently and has through experience gained an understanding of how to work with low-income clients, the factor of differences in culture emerges as a third obstacle. A number of classic examples of the possible manifestation of this cultural incompatibility appear in the literature. For example, Torrey (1972) noted that 90% of Anglo residents in psychiatry associated the phrase "hears voices" with the word crazy whereas only 16% of Mexican American high school students made such an association. The common denominator in all the examples of cultural incompatibility often cited is that behavior viewed in the context of one culture may be more or less understandable and acceptable than the same behavior viewed from the perspective of a different culture. To the degree that therapists do not have knowledge of or do not acknowledge the cultural differences between themselves and the client, their therapeutic exchange is hampered.

Often due to the differences in social class and culture the client has needs that the therapist and service delivery system

either cannot understand or do not acknowledge. Burruel and Chavez (1974), in their discussion of the success of the La Frontera Clinic in working with Mexican American clients in Tucson, note that often the needs of the client carry the staff into areas not traditionally viewed as mental health services. For example, the client may have a need for assistance with food stamps, welfare, child care, health care and housing, in addition to their intrapsychic or mental health problems. Often it is difficult for a client to sit and chat introspectively for 50 minutes with a Rogerian therapist, while the above mentioned basic needs of food, shelter and health care go unmet. For low-income client groups, problems are as likely to be rooted in an environmental stress as in a psychological dysfunction. The refusal of the mental health system to address the client's environmental stress can lead not only to an ineffective intervention but also to a highly dissatisfied client, as well as a frustrated therapist.

There continues to exist uncertainty as to whether or not different forms of therapeutic intervention need to be developed for individuals of different cultures. At present, the mental health system often operates on the assumption that what is an effective therapeutic paradigm with the mainstream Anglo population is probably equally effective with other groups such as Mexican Americans. A study conducted by Brusco (1980) indicated that of the 693 programs offered by the twenty-eight community mental health centers in Texas, only 15 or 2.2% of the programs contained any hint of a stated ethnic component. The contention that a differential form of therapeutic intervention is needed is clearly interrelated with the factors of language, class, and cultural compatibility previously discussed. Essentially, the differential treatment argument is merely a conceptual extension which emphasizes the need to develop appropriate treatment modalities based on a theoretical foundation that is appropriate to the specific needs of each client. Thus, if Freudian therapy is conceptually grounded in Western philosophical and sociohistorical experiences then

possibly it may be inappropriate as a therapeutic intervention with a Hispanic, Asian or Black American whose interpersonal background is grounded in a somewhat different philosophy and history. The key issue is that even if a therapist is bilingual, class sensitive, and culturally sensitive, his or her primary tool (the therapeutic modality) may still be inappropriate to some clients. Research in this area will undoubtedly continue. For our present purpose we merely need to note that for some Mexican American clients the lack of appropriate treatment may continue to exist even if it is being delivered by a bilingual Mexican American of a similar class background if the primary theoretical tools used are themselves inappropriate for these clients.

All of the above incompatibility factors discussed, whether they work independently or concurrently, can lead to three outcomes with regard to Mexican Americans which are each directly related to the issue of service use. First, less Mexican Americans enter the system either because they are indirectly dissuaded or prevented from coming due to long waiting lists, inaccessible locations or information from others that the mental health system is unresponsive or ineffective. Second, of the Mexican Americans that do enter the system, many encounter treatment approaches which are inappropriate and thus leave treatment sooner (Sue, Allen & Conaway, 1978) and are dissatisfied with what they received. Finally, client dissatisfaction with services can directly contribute to less Mexican Americans attempting to enter the systems by acting as a negative publicity campaign.

The viability of the underutilization explanation regarding incompatibility of services is supported by two bodies of literature. First, as was stated earlier there are studies which have documented the inaccessibility of services to Mexican Americans either as a function of long waiting lists (Wolken et al., 1974) or poorly located service sites (Valdez, 1980). In addition, researchers have asserted that Mexican Americans drop

out of therapy sooner and are often less satisfied with the services they received (Andrulis, 1977; Karno, 1966; Sue, Allen & Conaway, 1978). The strongest support emerges indirectly from another body of research. This group of studies has documented the enhanced utilization of service and increased Mexican American client satisfaction when various organizational changes designed specifically to minimize the incompatibility between the Mexican American client and the mental health delivery system were instituted (Burruel & Chavez, 1974; Florez, 1978; Phillippus, 1971; and Trevino, Bruhn & Bunce, 1979). It is difficult to determine the magnitude of the effect of incompatibility of services on utilization data. Trevino et al. point out that in some areas the level of incompatibility of services may be all but insignificant whereas in other areas the incompatibilities in the system may be almost totally responsible for a lower rate of use by one group over another. It is possible, as some researchers (Kruger, 1974; Cuellar, 1977) have alluded, that the level of incompatibilities found in a service delivery system with regard to a particular minority group may be a function of the actual numerical percentage size of the minority group in the community. Thus, in geographic areas such as Laredo, Texas where Trevino et al. (1979) conducted their utilization study and where 86.3% of the population is Mexican American, it is possible that the incompatibility argument is less significant as in this case the minority is actually in the majority. Longitudinal research conducted by Staples, Yamamoto, Wolken, Kline, Burgoyue, Hattern and Rice (1980) appears to indicate that in some areas the mental health system has implemented changes which have led to a minimization of incompatibilities. Whereas the incompatibility argument may have been a very powerful predictor of service use in the past, its importance may be gradually diminishing as selected components of our national mental health system begin to implement changes designed to minimize the service incompatibilities faced by Mexican American clients. For now, it need only be noted that the incompatibility of services argument is the only explanation for the underutilization paradox which is substantiated by a

reasonable amount of supportive research. The actual levels of incompatibility, its measurement, and its specific effects on the use of services by Mexican Americans remain an issue to be explored further.

Demographic Differences in Age: An Ignored Explanation for Underutilization

A partial explanation for the underutilization paradox which has been almost totally ignored in previous research conceptualizations is related to the variable of age. A relationship between age and incidence of treated cases of mental illness has been found in a number of studies on patient caseloads in state hospitals and community mental health facilities (Milazzo-Sayre, 1978; Redlick, 1975). Of particular importance in these studies is the low representation of individuals 18 years of age or younger in these facilities. The highest representation in these studies is generally found in the age range between 20 and 54 years of age. This finding of a higher representation of users of mental health services between the ages of 20 and 54 is also supported by data obtained in two of the utilization studies cited earlier. Wignall and Koppin (1967) found admission rates to be higher between the ages of 20 and 64. Jaco (1959) found admission rates to increase with age but also found a high concentration of users between the ages of 25 and 64. More importantly, each of the above studies found a very low rate of admissions or representation from members of the low age ranges of birth to 18.

The relationship between age and service use is no doubt partially a function of differential risk of illness across groups, the nature of society's response to deviant behavior (i.e., inappropriate behavior may be differentially acceptable in different age groups), and the emphasis on treating certain age groups found in the policies of the current mental health system. Which of the above explanations is the least or most important is of little significance. The fact remains that not all age groups

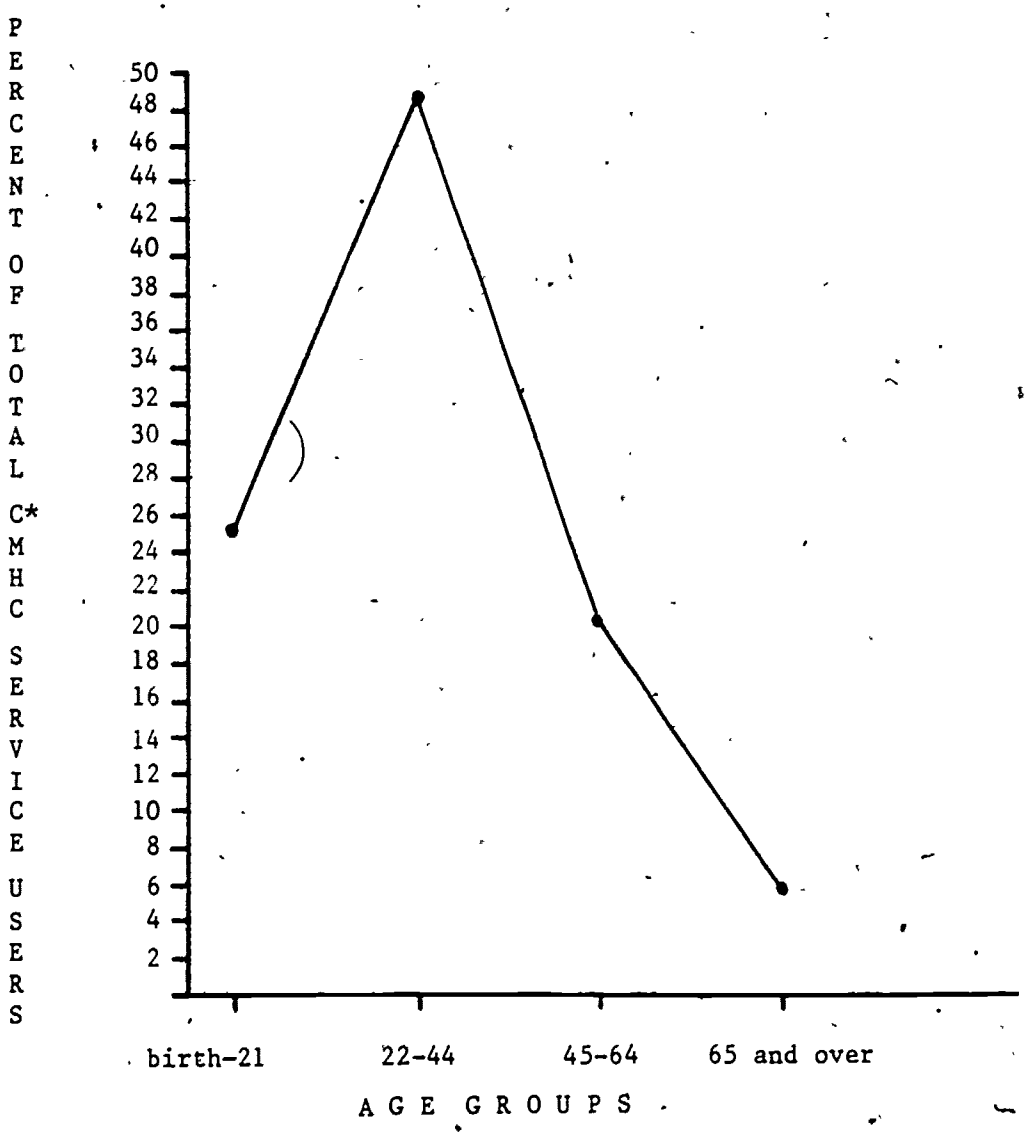
are proportionately represented in mental health facilities, with the younger age groups in particular being underrepresented. Researchers have alluded to the existence of a higher risk of mental illness in the 25 to 44 age range with some variation on the actual parameters of this range (President's Commission on Mental Health, 1978).

The existence of a high risk age group and the low representation of individuals from the younger age range does not imply that younger people do not have mental health problems. Rather, the current system of mental health care may not be designed to find or service such individuals due to its policies and procedures. Let us assume that some age groups are differentially eligible for membership on the caseload of a community mental health center or state hospital. Let us further assume that there is a definable graphic curve which can be generated when one plots age against percentage of representation on facility caseloads. Such a curve would theoretically be expected to contain a peak of higher percentage representation in the high risk age ranges of 25 to 44 (President's Commission on Mental Health, 1978) and lower percentages in relation to the low and high age ranges. Such a theoretical inverted V-shaped curve is in concordance with the survey studies on patient caseloads cited earlier (Milazzo-Sayre, 1978; Redlick, 1975). Data graphed from TDMHMR records indicates that the inverted V-shaped curve is also evidenced in the use of Texas mental health facilities. Figure 1 depicts the percentage representation of each of four age groups as a function of the total number of individuals served in Texas CMHCs in 1980. The age groups are divided into roughly 20 year intervals. As is apparent the percentage representation of the 22 to 44 age group is nearly double that of the two age groups on either side (birth to 21 and 45 to 64).

Assuming that the argument is valid to this point, then an interesting conclusion emerges with regard to utilization of services. If a particular ethnic group were disproportionately represented in age groups that are by and large "ineligible" for

FIGURE 1

PERCENTAGE DISTRIBUTION BY AGE OF USERS OF MENTAL HEALTH SERVICES IN TEXAS CMHCs IN 1980



*Data only pertains to users of mental health services narrowly defined.

Data obtained from Data Book 1980, Vol. B. Community MHMR Centers Hospital Outreach/Outpatient School Outreach State Human Development Centers. Published by the Division of Program Analysis and Statistical Research, Texas Department of Mental Health and Mental Retardation.

services under the current delivery system of care, then we would expect to find less members of this ethnic group in the population of service users. As noted in the introduction, the Mexican American population is a disproportionately young population in comparison to the general population of the United States. In Texas, the actual percentages of Mexican Americans less than 20 years residing in CMHC service areas is 53% in comparison to 35% for Anglos (Ramirez and Sepulveda-Hassell, 1980). There is then a substantial number of Mexican Americans who are largely "ineligible" or unlikely to be found in the caseloads of mental health facilities as a function of their young age. The percentage differences between groups indicate that approximately 18% more of the Mexican American population than the Anglo population is concentrated in this "ineligible" group. Thus, due to the younger age configuration of the Mexican American population it would be expected that this group would be represented at a lower rate than the Anglo group in services, assuming that need for service, accessibility and many of the other factors discussed earlier were held relatively constant.

If correct, this argument holds two significant implications for understanding the utilization of services by Mexican Americans. First, a partial explanation for the underutilization paradox may be the simple fact that a large proportion of this group is too young to use services as currently designed. The emphasis on the fact that this is only a partial explanation is maintained because at least two of the utilization studies attempted to address the issue of age and still obtained the underutilization result (Bachrach, 1975; Jaco, 1959). A substantial portion of the underutilization paradox may possibly be explained by this argument, and its importance must not be minimized. If this explanation for the underutilization phenomenon is partially correct, a substantial amount of the underutilization effect may disappear if age is controlled. Thus, the study described herein attempts to control partially the factor of age in order to determine the effects of this

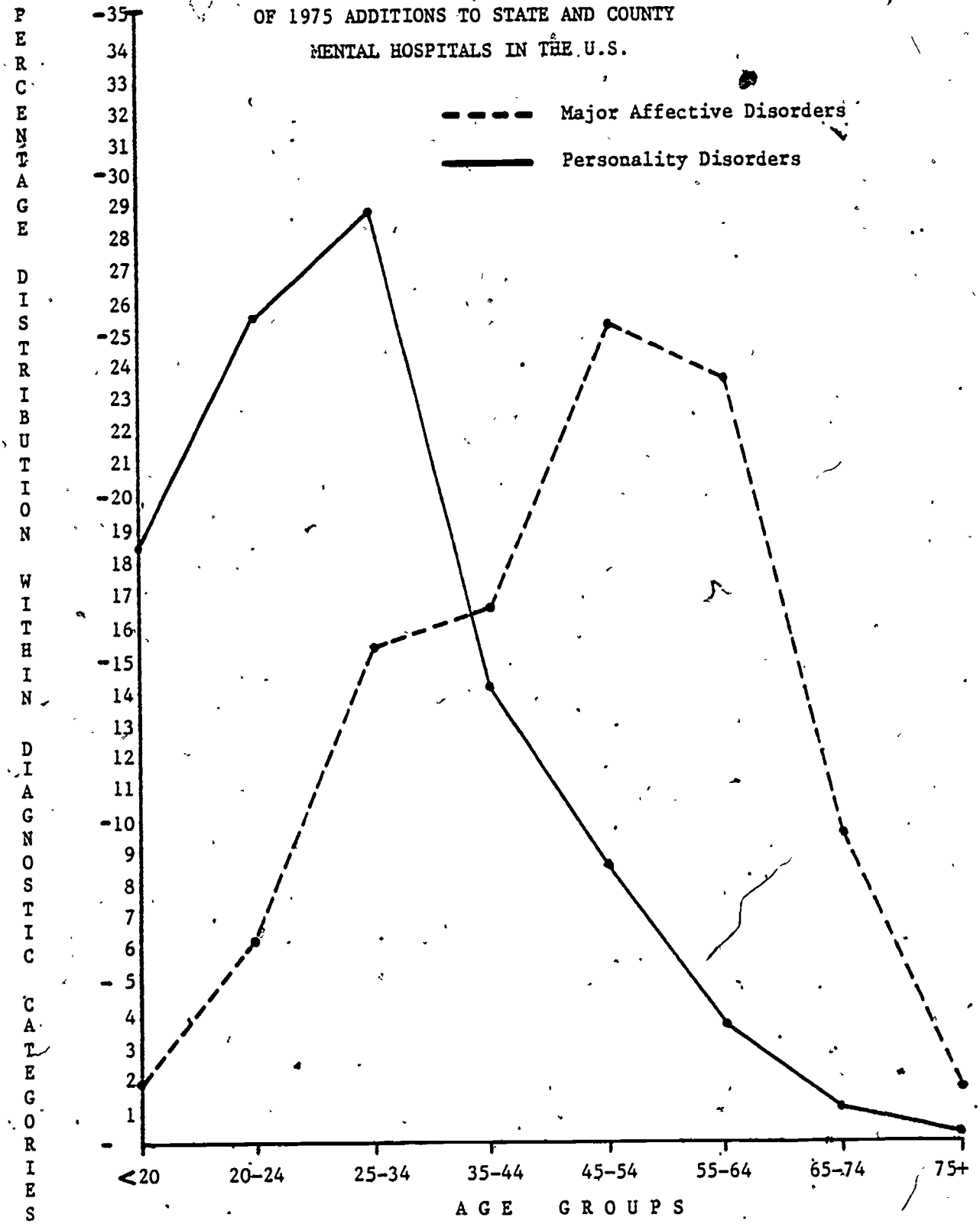
variable on service use. As reported earlier, the vast majority of the underutilization researchers in no way attempted to control for age in their studies (Karno & Edgerton, 1969; Keefe, Padilla & Carlos, 1978; Kline, 1969; Kruger, 1974; Sue, 1977; Weaver, 1973).

It is of interest to note that the factor of age is also related to the issue of diagnoses. Different diagnostic categories display markedly distinct age distributions. As Figure 2 demonstrates, personality disorders are concentrated in the younger age ranges whereas major affective disorders are concentrated in the higher age groups. If one ethnic group is differentially concentrated in the younger age ranges then it might be expected that they could also be disproportionately labeled as sociopathic (personality disordered).

The second implication of this argument is that as the Mexican American population grows older and the population's age configuration begins to gravitate toward the higher range, a substantially higher proportion of Mexican Americans will enter the high risk age range of 25 to 44. Although this possibility has been totally ignored by the researchers in the area of the underutilization literature, it has not gone unnoticed by epidemiologists. The Committee on the Nature and Scope of the Problem of the President's Commission on Mental Health proposes a somewhat similar argument in relation to the non-White population. The committee predicts that the rate of admissions would increase for Whites between 1970 and 1985 by 19.6% in contrast to an increase of 45.0% for non-Whites (Task Panel on the Nature and Scope of the Problem, 1978). By comparing recent 1980 census data on the Mexican American population to that obtained in the 1970 census it is clear that this population is in fact growing older (see Figure 3). As can be seen in Figure 3, the Mexican American population distribution in 1970 is skewed further to the left (i.e., the younger age ranges) than is the case in the 1980 data. If the argument posed earlier is correct, then the decade of the 1980s will see substantial increases in

FIGURE 2

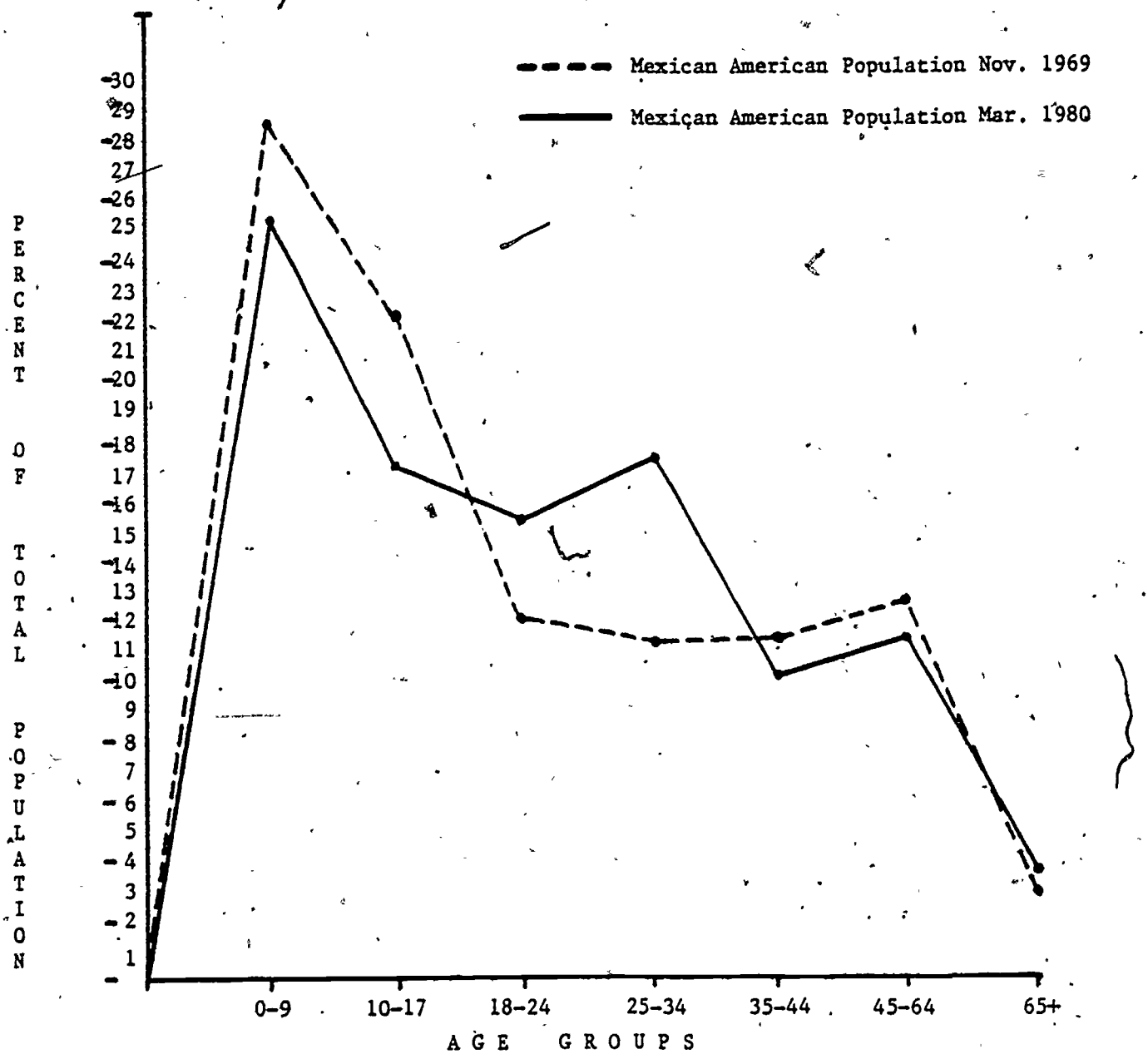
PERCENTAGE AGE DISTRIBUTION IN DIAGNOSTIC CATEGORIES OF 1975 ADDITIONS TO STATE AND COUNTY MENTAL HOSPITALS IN THE U.S.



Data obtained from Laura Milazzo-Sayre, Mental Health Statistical Note No. 148, NIMH, 1978.

FIGURE 3

PERCENTAGE DISTRIBUTION OF THE MEXICAN AMERICAN POPULATION IN THE U.S. BY AGE



Data obtained from U.S. Dept. of Census Publications P-20, No. 213, Pg. 6 (1971) and P-20, No. 361, pg. 5 (1981).

the representation of Mexican Americans in mental health facilities as a function of more members of this ethnic group falling into the high risk age group.

IV. THE CONCEPT OF UNDERUTILIZATION IN RESEARCH

The phenomenon of underutilization of mental health services by Mexican Americans as discussed in the literature has been related to this point without critically assessing some of the conceptual problems associated with the construct of utilization per se. The majority of researchers who have studied the utilization of mental health services have failed theoretically to defend or to explore some of the major assumptions inherent in their studies. Three of these assumptions generate considerable theoretical and methodological problems which significantly affect the understanding of service use. The following assumptions and the conceptual problems they create, which will be discussed in this section, include: (1) the assumption that need for services is being assessed or that need is randomly distributed in the population and thus is relatively equal across groups, (2) the assumption that all groups, particularly in this case ethnic groups, possess relatively equal access to services and (3) the assumption that equivalent rates of use connotes equivalent provision of appropriate care. Many of the conceptual problems created by these assumptions are not easily solved and can at best be minimized through the use of sophisticated research designs. Maintaining a clear understanding of the implications of these assumptions can expand one's ability to measure and interpret differences in service use across groups.

An implicit assumption made in much of the research on the underutilization phenomenon is that the need for services is relatively equivalent across ethnic groups. It is difficult to understand how one could reliably interpret the meaning of the numerical differences between groups on service use found in most utilization studies if one does not assume a relatively equivalent need for service across groups. When 10% of the

population in an area is Mexican American and 90% is Anglo, researchers expect equivalent percentages in the client population of whatever facility is being studied. The assumption of equivalent need across groups is however inconsistent with the majority of findings in the area of mental health epidemiology. Epidemiologists have documented a set of fairly consistent relationships between various forms of psychiatric disorder and a number of sociocultural variables, most notably sex, social class and age (Dohrenwend, 1969; Report of the Task Panel on the Nature and Scope of the Problem, 1978). Bloom (1975) found that communities that exhibited a high degree of social disorganization and low socio-economic affluence had a higher proportion of psychiatric admissions. Rabkin and Struening (1976), in their review of the literature pertaining to the influence of ethnicity in relation to the prevalence and incidence of mental illness, concluded that:

> It is generally acknowledged that psychiatric disorders are not distributed throughout populations, but tend to be concentrated within definable sub-groups. The major dimensions historically associated with such variations are those of ethnicity, social class and immigration... (Rabkin & Struening, 1976)

To use social class as an example, Hollingshead and Redlich (1958), noted that low income groups (income being one of the major factors in the construct of social class) use and need services in greater amounts than their higher income counterparts. Census data and other research findings have consistently documented that Mexican Americans have a lower per capita income than Anglos (U.S. Bureau of the Census, 1976; Montiel, 1978). Data on the incidence of poverty in Texas provides a better understanding of the magnitude of economic differences that exist between Anglos and Mexican Americans. As can be seen in Table 1, Mexican Americans have an incidence of poverty nearly four times higher than Anglos in urban areas (32.9% for Mexican Americans as opposed to 8.8% for Anglos) and

over three times higher in rural areas (50% for Mexican Americans as opposed to 16.1% for Anglos).

TABLE 1

INCIDENCE OF POVERTY IN TEXAS BY URBAN AND RURAL RESIDENCE FOR ETHNIC GROUPS

Residence	Black	Mexican American	Anglo	Total Population
Urban	35.8%	32.9%	8.8%	17.1%
Rural	53.5%	50.0%	16.1%	24.5%
All Residences	38.6%	35.5%	10.4%	18.6%

Source: Data are from count census tapes and presented in Texas Dept. of Community Affairs, O.E.O., Poverty in Texas, 1973, p. 168.

Due to their higher representation in low income groups and the higher need for services found in these groups, one would expect to find a greater need for mental health service among Mexican Americans. Although direct confirmation of a higher incidence of mental illness and a higher need for services among Mexican Americans has not been conclusively documented in the epidemiological literature, the current status of that literature does not negate the possibility of a significantly higher need for service among Mexican Americans. A recent comprehensive review of the major studies in the current mental health epidemiological literature compiled by Dohrenwend, Dohrenwend, Gould, Link, Neugebauer and Wunsch-Hitzig (1980) clearly indicates the lack of a sufficient knowledge base on the incidence and prevalence of mental illness in the United States. With regard to Hispanics and Mexican Americans, in particular, the problem of insufficient data is even greater. Of the twenty-two epidemiological studies cited by Dohrenwend et al. (1980), only two obtained data on Hipanics. In the Midtown Manhattan Study (Srole, Langer, Michael, Opler & Rennie, 1962), 27 of the

1600 respondents were Puerto Rican, and a study by Gaitz and Scott (1972) included a sample of Mexican Americans in Houston. Utilizing a less stringent methodological criterion for inclusion than was used by Dohrenwend et al., a review by Roberts (1980) identified three additional studies of an epidemiological type which contained a sample of Mexican American respondents (Antunes, Gordon, Gaitz & Scott, 1974; Quesada, Spears & Ramos, 1978; Roberts, 1980).

The studies employed different designs and instruments and obtained quite diverse results. Using a sample of Mexican American and Black females, Quesada, Spears and Ramos (1978) found the Blacks showing slightly higher scores on the Zung depression scale than did their Mexican American counterparts. The lack of an Anglo sample unfortunately limits the utility of this study for purposes of the present discussion. Antunes, Gordon, Gaitz and Scott (1974) did employ samples of Anglos as well as Mexican Americans and Blacks. Antunes et al. found Anglos reporting more symptoms of psychological distress than either Blacks or Mexican Americans. This study thus alludes to the possibility that Anglos might have a higher prevalence of mental disorder, assuming, of course, that the reporting of psychological distress is directly related to the actual prevalence of disorder, which is questionable. Antunes et al.'s results are also difficult to reconcile with the epidemiological findings of past studies discussed earlier which have related lower socioeconomic status with more mental illness. Roberts (1980) reached a very different conclusion from that of Antunes et al. in a study conducted in California. As a result of his study on a large sample of Anglos, Blacks and Mexican Americans, Roberts concluded that "the prevalence of psychological distress among Chicanos is at least as high as in the overall population and, in some respects higher" (Roberts, 1980, p. 141).

It is of interest to note that Roberts (1980) reports that his general findings appear to persist despite controls for age, sex, education, income, marital status and physical health. The

concept of statistical controls for key factors has too often been taken to an extreme in its interpretation. The Mexican American population contains some primary differences in relation to the general population. Most notably it is poorer, younger, less educated and is, in many cases, culturally and linguistically different. As a fairly definable or identifiable ethnic group, this population can be studied on a number of issues such as their use of mental health services. As is clear from the statements above, this group is not only distinguished by its ethnic status but also by its age, educational level, and income differences. Statistical controls on these factors of age and socioeconomic status are of immense utility to the researcher who wishes to understand the effect of ethnicity alone on service use. Researchers must not assume, however, that the statistical controls in their designs have obliterated the massive socioeconomic differences that continue to distinguish the Mexican American population from the mainstream American population. The finding of no significant differences for the factor of ethnicity does not negate the possibility of massive differences existing between two ethnic groups.

For example, an area of concern with regard to the prevalence estimates generated from the mainstream epidemiological literature is the disproportionate number of children found in the Mexican American population. If the state of the art in the production of prevalence estimates for mental illness among adults is not well developed, the situation is far worse with regard to children. Nonetheless, the data that does exist points to the need for special attention to the mental health needs of Mexican American children as is noted in the following quotation:

> ...Rutter et al. (1975) found twice as much childhood disorder in an inner city as in a rural setting. Within such settings, moreover, there may be sharp differences according to ethnic background and social class. Langer and his colleaugues (Langner,

> Gersten, & Eisenberg, 1974) have data indicating that proportionately about twice as many blacks and Spanish-speaking white children in a section of Manhattan show severe psychiatric impairment. (Dohrenwend et al., 1980, p. 17)

Numerical age adjustment techniques can be used to control for the fact that there are more children in the Mexican American population then are found in the general population, but this process in no way alters the actual configuration of the populations in question. It is of limited utility to conclude that if the Mexican American population had similar age, educational and wealth characteristics as the mainstream population, then no differences between groups would exist. The fact remains that the Mexican American population is younger, poorer and less educated and we must strive to understand whether this population as it currently exists is being properly served.

A second assumption in the underutilization research is that all groups, in this case ethnic groups, possess relatively similar accessibility to mental health services. The validity of this assumption is questionable for a number of reasons. Simply on the basis of social class, with Mexican Americans being disproportionately represented in the lower income strata relative to the Anglo population, they are less capable of affording the fees charged by private sector practitioners, assuming that such practitioners were available in the Mexican American community, which is also questionable, as these practitioners generally locate in areas more accessible to their primary clientele (the middle and upper income groups). As discussed earlier, Jaco (1959) documented the importance of understanding the differential use of public and private providers when comparing overall service use across ethnic groups. Jaco's study also provided support for the contention that Mexican Americans use private facilities and practitioners far less than the Anglo population. The majority of the current utilization studies on Mexican Americans' use of mental health

services have focused only on their use of public sector facilities. Since a larger proportion of the Mexican American population is restricted by economics to using public facilities than is the case for the Anglo population, one would again assume that a higher proportion of Mexican Americans would be found in public facilities. More importantly, when attempting to compare and interpret differences in use of public facilities across ethnic groups, one must be cognizant of the fact that for Mexican Americans these facilities may be their only recourse for obtaining professional care, whereas this is less often the case for Anglos. This concern becomes particularly apparent when researchers compare rates of service use for public facilities between ethnic groups, find equivalent numerical rates and then erroneously conclude that equivalent utilization of services exists. Equality for unequal populations has in a number of instances proven not to represent actual equality (Lau v. Nichols, 1974).

The proximity to services and the influence of this factor on the utilization of services has also been discussed by a number of researchers in the underutilization literature. The basic argument is that Mexican Americans may have less access to services because these services are located in areas which are a considerable distance from this population. This argument is in fact supported by some recent archival research conducted by Valdez (1980) in Texas. Valdez studied the distribution of community mental health facilities in Texas in relation to the concentration of Mexican Americans and concluded:

> Regarding ... whether or not CMHC services are accessible to SL/SS (Spanish Language/Spanish Surnamed) folk within the same region the center is located the answer is an overwhelming no. The regions of the state that are predominantly Anglo have more CMHCs in smaller regions than those regions that are predominantly SL/SS. (Valdez, 1980, p. 32)

Equity of access is a major cornerstone of much of the underutilization literature, as this research often is attempting to determine whether equity exists by examining service use. Yet a simplistic understanding of the concept of access which focuses only on realized access or utilization is inadequate. Aday, Anderson & Fleming (1980) in their research on access to health services presented a theoretical framework for defining and understanding the concept of access which is applicable to mental health services. Aday et al. (1980) define access as "those dimensions which describe the potential and actual entry of a given population to the system." Potential access is a function of the structural characteristics of the system (its capacity, resources, policies, etc.) and the needs of the population. Realized or actual access is a composite of the indicators of service utilization and the consumer's subjecive assessment of what was recieved from the service system. Before realized access can be achieved the individual must gain entry to the system. As indicated earlier, economics is a factor which tends differentially to drive the Mexican American population to enter public mental health facilities. On the other hand, the inaccessible location of services and/or the lack of cultural sensitivity displayed by these providers to the needs of the Mexican American population act to repel the Mexican American from transcending the barriers necessary to enter the system. These factors among others do not simply cancel each other out but rather directly influence the rates of service use; yet their influence is rarely acknowledged in the utilization research literature.

Indeed, there does not as yet exist a consensus as to what equity of access actually means. There is the egalitarian view that, in the absence of accurate estimates of need, all groups should be provided with an equal amount of services. This view permeates many of the policies of the current mental health delivery system. The inadequacy of this view is that while it is true that consistent, accurate measures of need are not yet available, research has provided at least a crude understanding

of the differences between groups on this dimension. Numerous useful methods for predicting utilization and estimating needs for mental health services have been developed and are available (Lobb, Young & Ciarlo, 1977; Stewart & Poaster, 1977). Aday et al. (1980) propose that the "greatest equity of access is said to exist when need rather than structural or individual factors determine who gains entry to the system." At present, it is doubtful that the country's system of mental health care resources are distributed on the basis of human need.

A detailed study by Brusco (1980) of the budgetary resource allocations for community mental health center facilities in Texas indicated that although a complex series of need for service estimates are described in Texas mental health plans, funds are distributed solely on the basis of the sheer size of the population in the area. The greater the number of people in an area, the more dollars allocated.

Thus, it appears that the assumption that all ethnic groups have equal access to services is quite inaccurate, and probably the opposite of this statement is closer to reality. This conclusion has a significant impact on the interpretation of the findings of utilization of services studies.

Finally, the third assumption made in most underutilization studies is that the numerical indication of a client in services is roughly equivalent across clients in type and length of service provided. As an example, if we have ten Mexican American first admissions to a center for services that logged an average of only two visits, they are numerically equivalent (ten cases) to ten Anglos that may have logged an average of seven visits (also ten cases). Clearly, the extent or length of care was not equivalent, and yet utilization rate data would not indicate any difference between these two groups. This situation, of course, would only present a problem to researchers, if in fact, there were differential forms or use of services by Mexican Americans, which according to some studies could be the case.

Yamamoto, James & Palley (1968) studied the mental health services delivered to 594 men and women, 53 of whom were Mexican American. Their findings indicated that, compared to their Anglo counterparts, the Mexican American clients were referred for individual and group therapy less often and received less lengthy and intensive treatment. Karno (1966) reviewed the case records of the Neuropsychiatric Institute at UCLA for Negro, Mexican American and Anglo patients and confirmed the findings of Yamamoto, James & Palley (1968). Karno concluded that "ethnic patients who are accepted for treatment receive less and shorter psychotherapy than do non-ethnic patients."

Sue, Allen & Conaway (1978) utilized data from 17 community mental health facilities in the state of Washington to review the type of care provided to 13,450 clients, of whom 83 were Mexican American. The researchers reported similar types of care rendered to Mexican American clients as compared with Anglos, but again pointed out that the former seem to terminate services sooner: "...Chicanos, were less likely to return than Anglos. Chicanos also averaged fewer sessions." (Sue, Allen & Conaway, 1978, p. 143)

A study by Andrulis (1977) of a fifty percent sample of terminated cases in a Texas community mental health center also found ethnicity to be a key factor in the delivery and use of services. Andrulis reports that "between their diagnoses and discharge, certain factors caused Mexican Americans ... to drop out prematurely ... these clients consequently obtained fewer referrals back into the community ..."

Hence, there does exist research to support the contention that minority group clients receive less intensive or poorer quality treatment and drop out of treatment sooner. The evidence, is not, however, homogeneous as a recent follow-up, at the same site of the original Yamamoto et al. (1968) study, was conducted by Staples, Yamamoto, Wolken, Kline, Burgoyne, Hattem & Rice (1978) with very different results. Staples et al. found

that nine years after Yamamoto et al.'s study, the services provided by the psychiatric clinic were no longer different as a function of client ethnicity. Specifically, the previous differences Yamamoto et al. (1968) had documented regarding dropout prevalence and types of treatment provided did not emerge in their sample of 1973 clients. Even in Sue, Allen & Conaway (1978) which was mentioned above, the results were mixed. Sue et al. found that when demographic variables were controlled, Chicanos were no more likely to fail to return or to average fewer sessions than Anglos.

As the issue of length of stay is of importance to an assessment of service use across groups, the present author conducted preliminary studies on the TDMHMR database to determine whether differences existed between groups on this factor. This preliminary study did not reveal significant differences between ethnic groups on length of stay, which corresponds to the findings of Staples et al. (1980). The present author's findings and those of Staples et al. should not necessarily be taken as evidence that appropriate treatment is being provided to Mexican American clientele. Instead these findings only indicated that: (1) the gross differences between groups in length of stay in treatment observed in previous research appears to either have narrowed or simply not emerged in these samples, and (2) making modifications in the service delivery system (as was the case in the clinic Staples et al. studied) can result in the provision of more equitable services for minority group members. As to whether or not treatment services delivered at most mental health centers are compatible with the needs of the Mexican American population, the majority of research evidence still contends that these services are generally incompatible (Sepulveda-Hassell, 1980).

For purposes of the current discussion, the key point is that whether or not services are appropriate and whether a client remains in treatment or not are issues that the current paradigms of utilization research almost totally ignore. Recall that the

Karno and Edgerton (1969) one case percentage deviation design considered only how many came to the center and not what services the clients received or for how long. These issues of quality of services and length of stay are very difficult to control methodologically but should be kept in mind when utilization figures are being interpreted.

The implications of each of the three major assumptions discussed above have been almost totally ignored in the designs and conclusions found in the mainsteam utilization studies. Equally important is the fact that all too often policy makers and program planners have also approached and interpreted the utilization of services issue from a simplistic perspective that compares only the differences between ethnic groups on a pair of numbers (utilization rates) and totally ignores the effects of the assumptions discussed in this section. This mentality has led many researchers, policy makers and program planners to view two numerically equivalent utilization rates of service use between Mexican Americans and Anglos and to interpret their result as a case of equal access and use of services by Mexican Americans.

A Summary of the Current Status of the Research on the Underutilization Paradox

After thirty years of intermittent research on the underutilization paradox, there continues to exist considerable uncertainty about the existence of this phenomenon and, if it does exist, the dimensions of the phenomenon. In addition, the explanation of this phenomenon has eluded previous researchers. This confusion persists because the literature contains numerous studies which are methodologically and/or theoretically inadequate. Indeed, many of the research paradigms in this area are flawed in a number of areas. While it is true that many of the difficulties encountered in this area of scientific inquiry are inherent in the very questions being asked, researchers have made only minimal efforts to neutralize these difficulties. The

general conclusion reached by previous researchers with regard to the existence of the underutilization phenomenon is basically correct. It is the methods by which the researchers in this area set out to support their conclusions which are inadequate. It is further asserted that at this point only the explanations of an incompatibility of services and demographic differences in the age structure of the Mexican American population appear to be viable explanations for the underutilization phenomenon.

Previous research has clearly indicated the need for future studies to contain a number of methodological improvements over the previous designs. First, the major demographic variables of age and sex must be controlled as much as possible when comparing ethnic groups on service use. Second, service use must be studied across a range of ecological areas, with areas as large as a state being broken down and examined by specific regions. In this manner it will also be possible to study differences in rates of service use as a function of regional differences or facilitative policy differences. Third, a statistical measure of differences in service use across ethnic groups must be employed that is capable of determining whether differences are due to ethnicity or random error. Fourth, service use must be studied both on an overall basis and as a function of the various major subcategories of services (mental health, alcoholism, drug abuse, and mental retardation). Fifth, as accurate an estimate of the size of the general population as is possible will be required. Finally, future studies will need to consider in the interpretation of their results the implications of the assumptions inherent in the underutilizaton research paradigm. The study proposed herein will attempt to respond to each of these concerns.

V. STATEMENT OF HYPOTHESES AND METHODS

Hypothesis

Based on the literature reviewed above, a series of

hypotheses emerge to be tested. The general issue involved in each of these hypotheses is whether or not significant differences exist between ethnic groups with regard to their use of public mental health services. The necessity for a series of hypotheses, as opposed to a single general hypothesis, results from the need to determine specifically under what conditions differences in service use exist. As noted in the review of the literature, considerable complexity is inherent in the interrelationships of the primary independent variables: age, sex, ethnicity and type of service used. As Cuellar (1977) concluded, the underutilization of mental health services is not a homogeneous finding across all service sites and types of service. In some cases Mexican Americans were found to be overutilizing certain services in Cuellar's study.

The present researcher contends that much of the difficulty encountered in previous research explanations of the underutilization paradox resulted from an insufficently detailed analysis of the phenomenon. The present series of analyses rectify this difficulty by determining more precisely under what conditions the underutilization phenomenon does or does not exist. An analysis of the use of community mental health center services is particularly well suited to a test of the underutilization concept for two primary reasons. First, the service boundaries of community mental health centers are well defined and are much smaller geographically than the service boundaries of state hospital facilities. Second, the consumers of CMHC services are more frequently using services by choice than are individuals who have been hospitalized. As much of the literature on the underutilization of mental health services has suggested that underuse by Mexican Americans is due to a conscious choice by this group not to use such services, then the analysis of use of CMHC services is well suited to test the concept of underuse by this group. The following hypotheses will each be tested using data on CMHCs:

1. Mexican Americans use overall community mental health center services at a significantly lower rate in relation to Anglos and Blacks and this lower rate is evident in both sex groups and across various age groups.

2. Mexican Americans use mental health* services in community mental health centers at a significantly lower rate in relation to Anglos and Blacks and this lower rate is evident in both sex groups and across various age groups.

**3. Mexican Americans use drug abuse services in community mental health centers at a significantly higher rate in relation to Anglos and Blacks and this higher rate is evident in both sex groups and across various age groups.

***4. Mexican Americans use mental retardation services in community mental health centers at a significantly higher rate than Anglos and Blacks and this higher rate is evident in both sex groups and across various age groups.

**5. Mexican Americans use alcoholism services in community mental health centers at a significantly lower rate than Anglos and Blacks and this lower rate is evident in both sex groups and across various age groups.

DATA AND METHODS TO BE USED

Before discussing in detail the total methodological design proposed it would be useful to restate the primary difficulties in past research which must be minimized.

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*The Texas Department of MHMR data base on clients maintains a general category of service labeled "mental health service" which defines mental health in a narrow sense. Specifically, this category includes individuals served for psychosis, neurosis, and personality disorders but excludes individuals served for drug abuse, alcoholism, or mental retardation.

**This hypothesis is consistent with findings found in Bachrach (1975) and Cuellar (1977).

***This hypothesis is consistent with findings from Cuellar (1977).

Ecological Differences in Service Use

Service use must be studied across a range of ecological areas as opposed to the one case percentage deviation design discussed earlier. These areas must be broken down by size sufficently to insure that the differences obtained between groups cannot be explained by factors such as population concentrations as was discussed (see page 11) in relation to Karno and Edgerton's study (1969).

The study to be proposed will minimize this difficulty by studying use of community mental health centers by individual service areas. Twenty-eight separate service areas were operational in Texas at the time the data was compiled in 1978.

Design Must Provide for Reliable Statistical Comparisons of Service Use Across Ethnic Groups

As discussed earlier, in the one-case percentage deviation design (examples: Karno and Edgerton, 1969; Sue, 1977) and in studies generating only one set of rates per thousand for comparison (Bachrach, 1975), it is not possible to statistically determine whether the deviation or differences in rates are significantly different. Studies such as Cuellar's (1977) and Kruger's (1974), which employed the chi square statistic by stating what they thought should be the expected values and compared these to the observed, also contain considerable difficulties as was discussed earlier. The variance in observed versus expected scores could be due to a wide array of external factors which were in no way controlled in their designs. Each comparison in Cuellar (1977) and Kruger's (1974) studies was conducted independently (site by site) thus making it impossible to determine how much service use rates vary by chance alone or as a function of a myriad of factors which were not controlled.

The study to be proposed will minimize this difficulty by studying the differences in rates of use between ethnic groups

across centers rather than within individual centers. Multiple data points will be available on service use with 28 points (28 centers) per ethnic group in all comparisons which will enable the use of non-parametric tests of statistical significance. Regarding the primary research issue, the question will be whether Mexican Americans show consistently lower (or higher) rates of service use across the 28 centers to be studied, or whether the overall differences between groups is in fact larger than the variance of differences within groups.

The Effect on Service Use by the Factors of Age and Sex Must be Controlled in the Design

The effect of sex differences in service use has been clearly documented in a number of the service utilization studies, such as Bachrach (1975), Cuellar (1977), Jaco (1959) and Wignall and Koppin (1967). In some cases, the differential utilization of services found in these studies could be accounted for entirely by the differential utilization of services within one sex group. For example, in Wignall and Koppin's (1967) study, the higher use of services by Mexican Americans was due entirely to a higher rate of use by Mexican American males. The key issue is to determine precisely where differential utilization between ethnic groups exists so that one can begin to try to explain why these differences might be occuring.

The factor of age has also been shown in past research to effect the use of mental health services (Bachrach, 1975; Cuellar, 1977; Jaco, 1959; and Wignall and Koppin, 1967). Age is of even more importance in the present discussion as it is being proposed by the present author as a partial explanation for the underutilization phenomenon which has been observed in past research. The proposed argument is: as mental health systems are primarily designed to identify and serve individuals in the middle to higher age groups and since proportionately fewer Mexican Americans are in these age groups, one tends to find proportionately lower rates of Mexican American service

utilization.

The study to be proposed will partially control for the variables of age and sex through the use of separate analyses of utilization rates for both sex groups and four age groups (birth to 12 years, 13 to 20 years, 21 to 64 years, and 65 years plus).

Differential Use of Certain Services

Cuellar (1977) effectively pointed out the need to analyze service use for the various subtypes of service such as mental health, drug abuse, alcoholism, and mental retardation. Cuellar found Mexican Americans to be overutilizing some types of services (drug abuse) and underutilizing other types (mental health services). Again, the primary issue is to determine precisely which services are or are not being utilized by Mexican Americans.

The study to be proposed will analyze use of CMHC services by age, sex and ethnic groups for five separate service catagories: (1) users of mental health services only (mental health defined in the narrow sense such as treatment for psychoses, neuroses and personality disorders), (2) users of drug abuse services, (3) users of alcoholism services, (4) users of mental retardation services, and (5) users of all services combined.

Data Required

In order to obtain partial controls for the variables of age, sex, service type used, and ecological differences, utilization rates for three ethnic groups (Mexican American, Anglo and Black) were generated for each community mental health center service area by:

1. sex (male and female);

2. age (birth to 12, 13 to 20, 21 to 64, and 65 plus);

3. five general types of services used (mental health only (narrow definition), drug abuse, alcoholism, mental retardation and all services combined).

As such, a matrix of utilization rates per thousand similar to the one shown in Figure 4 was generated for each of the twenty-eight community mental health center service areas. The matrix shown in Figure 4 contains 180 data points on service use for the center service area.

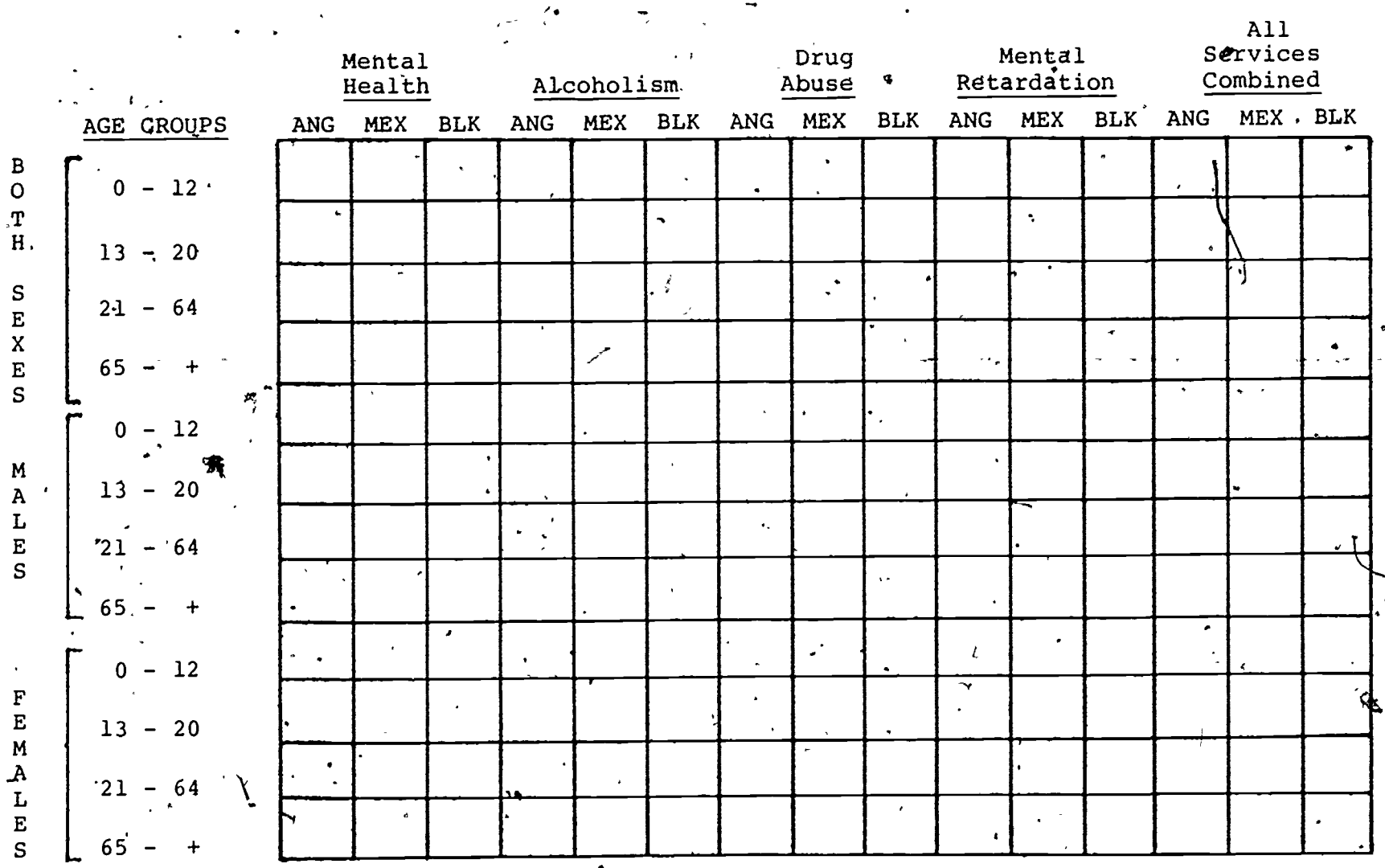
In order to generate rates of use per thousand, two primary pieces of data are required. An estimate of the number of the type of people in question that live in the service area (for example, the number of Mexican American males, ages 13 to 20, that live in the service area) is needed. The corresponding number of people with these same characteristics that used services at a CMHC during a specific time period (for example, an unduplicated count of the number of Mexican American males, ages 13 to 20, that used CMHC services of a particular type in fiscal year 1978) must also be generated. The latter number becomes the numerator (the individuals who used the service) and the former number becomes the denominator (the total number of individuals of a certain type living in the service area).

Obtaining information of the type described above for Texas involved a fairly complicated process. First, service areas are often made up of an aggregation of counties and census information on the subpopulations of interest is available for the individual counties but not by the arbitrary boundaries established for each service area. Hence, the populations of each of the counties in the service area must be combined to form population figures for the service area as a whole. This population information must be further delineated by each of the twenty-four subpopulations of interest herein, which result from the breakdown of the general population by ethnicity (Mexican American, Anglo and Black), sex (male and female) and four age

FIGURE 4

CENTER NAME

SERVICE TYPE



groups (birth to 12, 13 to 20, 21 to 64, and 65 plus). It should be noted that these four age groups were chosen because:

1) data for these groups is readily obtained from census data tables and from Texas Department of Mental Health Mental Retardation records (much of the TDMHMR data is reported by precisely these four age groups), and

2) these four groups roughly correspond with the general catagories of children (birth to 12), youth (13-20), adults (21-64) and elderly (65 plus) which are of particular interest to mental health researchers.

Population statistics from the 1970 census for the number of Anglos, Blacks and Mexican Americans in Texas were obtained for each of the 28 CMHC service areas operational at the time of the study. This data was obtained from both published census documents and from census computer tapes available from the Texas Department of Natural Resources. It was necessary to generate a series of population projections due to the lack of current population data and the need for accurate estimates of the number of persons in each age and ethnic group for the year 1978. Through the use of two formulas discussed by Skyrock and Siegel (1976) and census data for 1960, 1970 and 1975, population estimates were generated for the age and ethnic groups required.

This process involved the computation and generation of population estimates for 336 subgroups (28 service areas x 3 ethnic groups x 4 age categories). An outline of the method used to generate these population projections is discussed in more detail in Appendix B.

Subsequently, corresponding numbers of users of services for each of the subgroups were acquired from the computer files of the Texas Department of Mental Health and Mental Retardation.* These figures formed the numerators in the generation of the utilization rates.

*This data was acquired through the cooperation and assistance of the Division of Program Analysis and Statistical Research of the Texas Department of Mental Health and Mental Retardation.

To analyze the data found in the tables in Appendix C, the statistics chosen were the Kruskal-Wallis one-way analysis of variance and the Mann-Whitney U test. Both of these tests are nonparametric and hence do not require the data to exhibit homogeneity of variance (although homogeneity of variance does exist in portions of the data) and random selection as do their parametric counterparts, the F and T tests. In addition, the power of the Kruskal-Wallis and Mann-Whitney U tests is fairly comparable to that of the F and T tests. For purposes of both the Kruskal-Wallis and Mann-Whitney U tests, the data were converted to ranks for analysis. Essentially, the Kruskal-Wallis test determines whether the differences between the sum of the ranks of the groups (in this study, ethnic groups) is sufficiently large to approach statistical significance, and thus rejects the null hypothesis that each set of scores was drawn from the same basic population. The null hypothesis would assert that no differences exist between ethnic groups; thus, the sum of the ranks should be relatively equal. Again, across centers and within ethnic groups, considerable variance in rates is expected, but the Kruskal-Wallis test will determine (as does the F test) whether the differences between ethnic groups is larger than the differences within each group. Significance on the Kruskal-Wallis test (as with the F test) will only indicate that at least one of the three group rates is significantly different from one of the other groups. In order to determine where those key differences lie, a series of Mann-Whitney U tests were performed (which compare two groups at a time using the same basic logic involved in the Kruskal-Wallis test). In some cases where the analysis required a large number of Mann Whitney U tests the Kruskal-Wallis test was not performed. In most cases where three groups are compared, if one of the three possible Mann Whitney U comparisons is significant, then the Kruskal-Wallis test would also be significant. One additional caution that must be mentioned is that when a large number of Mann Whitney U tests are performed (as with multiple t tests), the probability increases that some of the comparisons will be significant by chance alone. The greater the number of tests performed the greater the

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probability of obtaining significant differences by chance alone. For purposes of all statistical comparisons the standard .05 level of significance was used.

RESULTS

I. Findings in the Area of Mental Health Service Use

Study 1: Analysis of Crude Utilization Rates on Mental Health Service Use

The first analysis in this series involves a comparison of the rates of specific mental health service use for each of the three ethnic groups.** Crude utilization rates were compared indicating that all age and sex groups are combined in the calculation of these rates and that no adjustment for differences between ethnic groups on these factors has been made.

As indicated earlier, the Kruskal-Wallis and Mann-Whitney U tests of statistical significance were used. In this analysis, the ethnic group with the smaller sum of ranks will be the group whose rates of use were lower numerically. From analysis of the crude utilization rate data from the columns ANG, MEX A, BLK for ALL AGES (Table 2), the following pattern is obtained for the sum of the ranks: Anglo = 1181, Mexican American = 861, Black = 1528. Thus, the highest rate of use of mental health services was exhibited by Blacks, followed by Anglos, followed by Mexican Americans. The Kruskal-Wallis test indicated that a significant difference(s) exists between one or more of these groups ($H = 13.36$, $p < .01$). In order to determine which group(s) differed, a Mann-Whitney U test was run with the following results: 1) between the Anglo and Mexican American groups ($U_{\alpha} = 271.5$, p

**These findings were previously reported in: Ramirez, D.G. A Preliminary Analysis of the Patterns of Use of Community Mental Health Services in Texas. Mental Health Research Project Newsletter, Intercultural Development Research Association, San Antonio 2(4), 1980.

TABLE 2

UTILIZATION RATES PER THOUSAND FOR USERS OF MENTAL HEALTH SERVICES AT CMHCs IN 1978

CENTER	ALL AGES ANG	MEX A	BLK
Abilene Regional MHMR Center	7.6	6.3	10.1
Amarillo MHMR Regional Center	5.7	6.6	5.3
MHMR Center-Austin-Travis County	9.0	8.1	13.6
Bexar County MHMR Center	3.6	6.8	8.5
Brazos Valley MHMR Center	8.1	4.0	7.5
Central Counties Center for MHMR Services	7.0	4.9	6.6
Central Plains Comprehensive CMHMR Center	12.9	10.7	13.7
Central Texas MHMR Center	7.1	5.6	11.1
Dallas County MHMR	6.9	5.5	12.5
Deep East Texas Regional MHMR Services	9.9	5.9	8.2
MHMR Regional Center of East Texas	8.3	4.3	7.8
El Paso Center for MHMR Services	5.8	6.8	7.4
Concho Valley Center for Human Advancement	7.9	8.7	12.5
Gulf Bend MHMR Center	13.4	13.7	13.7
Gulf Coast Regional MHMR Center	3.4	2.6	6.2
MHMR Authority of Harris County	2.1	2.5	4.9
Heart of Texas Region MHMR Center	9.7	9.0	12.9
Lubbock Regional MHMR Center	5.9	4.0	5.7
Northeast Texas MHMR Center	6.7	6.7	6.3
Nueces County MHMR Community Center	6.1	6.8	7.6
Pecan Valley MHMR Region	6.0	1.2	2.5
Permian Basin Community Centers for MH & MR	15.8	16.1	20.6
Sabine Valley Regional MHMR Center	8.4	0.0	7.6
MHMR of Southeast Texas	5.2	2.2	8.7
Texoma Regional MHMR Center	7.1	5.1	11.1
Tarrant County Community MHMR Center	5.3	4.8	10.1
Tropical Texas Center for MHMR	4.5	3.8	7.7
Wichita Falls Community MHMR Center	8.4	6.7	10.2

= .0241; indicating a significant difference, with Mexican Americans using less than Anglos); 2) between the Mexican American and Black groups (U = 183.5, $p < .0003$; indicating a significant difference, with Mexican Americans using less than Blacks); and 3) between the Anglo and Black groups (U = 262.5, p .0169; indicating a significant difference, with Anglos using less than Blacks). Thus, this series of comparisons support the predicted underutilization of services by Mexican Americans in relation to Anglos and Blacks.

The same analysis was run on comparable figures for males only and females only with fairly similar results (see Figures 5 and 6 for results).

Each of these findings essentially supports the existence of underutilization of mental health services by Mexican Americans, which has been discussed in the literature. Therefore hypothesis number two is supported by this data. In addition, the methods utilized in this study provide a stronger basis of support for this finding.

Study 2: Analysis of Age Specific Rates of Use of Mental Health Services

This analysis involved a comparison of mental health service use for each of the three ethnic groups by various age groups (four groups were delineated for use in this analysis). These age-specific utilization rates were tested for differences between ethnic groups on service use again using the Kruskal-Wallis and Mann-Whitney U tests. The findings will be reported separately for each age group. Again in each case the ethnic group with the smaller sum of ranks will be the group whose rates of use were lower numerically. The data and group means are shown on Table 9 in Appendix C.

For the birth-12 year-old age groups, the highest rate of use was exhibited by Blacks, followed by Anglos, and lastly,

FIGURE 5

MALES ONLY - Mental Health

	ANGLO	MEXICAN AMERICAN	BLACK
Sum of Ranks	1079.5	897.5	1593

Kruskal-Wallis test is significant ($H = 15.62$, $p < .001$)

U tests
1) Anglo-Mexican American comparison ($U = 309.5$, $p = .0881$; only slightly approaching significance with Mexican Americans showing lower use than Anglos)

2) Black-Mexican American comparison ($U = 182.0$, $p < .0003$; significant with Mexican Americans showing lower use than Blacks)

3) Anglo-Black comparison ($U = 199.9$, $p < .008$; significant with Anglos showing lower use than Blacks)

FIGURE 6

FEMALES ONLY - Mental Health

	ANGLO	MEXICAN AMERICAN	BLACK
Sum of Ranks:	1254	870.5	1445

Kruskal-Wallis test is significant ($H = 10.2$, $p < .01$)

U tests
1) Anglo-Mexican American comparison ($U = 259.0$, $p < .0146$; with Mexican Americans showing lower rates of use than Anglos)

2) Black-Mexican American comparison ($U = 205.5$, $p < .0011$; with Mexican Americans showing lower rates of use than Blacks)

3) Anglo-Black comparison ($U = 323.5$, $p = .1308$ non-significant difference)

Mexican Americans. The Kruskal-Wallis test indicated a definite difference between these groups ($H = 13.6$, $p < .005$). In order to determine specifically which groups differed, a Mann-Whitney U was run across the three combinations with the following results: 1) between the Anglo and Mexican American groups ($U = 223$, p .003), indicating a significant difference with Mexican Americans using less than Anglos; 2) between the Mexican American and Black groups ($U = 293.5$, $p = .053$), indicating a relationship bordering on significance with Mexican Americans using less services than Blacks; and 3) between the Anglo and Black groups ($U = 302$, $p =$ .07), indicating no significant difference between the Anglo and Black groups.

The same form of analysis was performed on comparable figures for the 13-20 year-old age groups with somewhat similar results. In this case Anglos showed the highest rate of use followed by Blacks and again lastly Mexican Americans. The Kruskal-Wallis test only bordered on significance ($H = 5.62$, p .08). When each of the separate ethnic groups were compared the following results were obtained: 1) between the Anglo and Mexican American groups ($U = 258$, $p < .014$), indicating a significant difference with Mexican American using less than Anglos; 2) between the Mexican American and Black groups ($U =$ 294.5, $p = .055$), bordering on significance with Mexican Americans using less than Blacks, and 3) between the Anglo and Black groups ($U = 336.5$, $p = .182$), indicating no significant difference in use between these two groups.

Analysis of the figures for the 21-64 year-old age group yielded results that were different from those of the previous groups described. In this case Blacks showed a substantially higher rate of use than Anglos and Mexican Americans. Comparisons between groups produced the following results: 1) between the Anglo and Mexican American groups ($U = 345$, $p = .22$), indicating no significant difference between groups; 2) between the Mexican American and Black groups ($U = 166$, $p < .0001$), indicating a significant difference with Mexican Americans using

substantially less than Blacks; and 3) between the Anglo and Black groups ($U = 178$, $p < .0002$), indicating a significant difference with Anglos also using substantially less than Blacks. Hence in this particular age group the numerical underutilization of services by Mexican Americans is not obtained as this group was found to use services at approximately the same rate as the Anglo group. As was mentioned earlier the issues of differential need and access must be considered before the lack of numerical underutilization is interpreted as equity in access and use of services.

The final age group to be considered in this series was the 65+ groups. Once again the results were different from those found in the three prior comparisons. When ethnic groups were compared the following results emerged: 1) between the Anglo and Mexican American groups ($U = 380$, $p = .42$) indicating no significant difference between groups (it should be noted that in this comparison Mexican Americans showed a slightly higher rate of use then Anglos; see means, Table 9); 2) between the Mexican American and Black groups ($U = 310$, $p = .09$), again indicating no significant difference between groups; and 3) between the Anglo and Black groups ($U = 218$, $p < .0022$), indicating a clearly significant difference between these groups with Anglos showing a lower rate of service use.

Overall then Mexican Americans were found to exhibit statistically significant numerical underutilization only in the age groups of birth to 12 years and 13 to 20 years. Recall though that slightly over half the Mexican American population is 20 years of age or younger. Given the age structure of the Mexican American population, the research finding that underutilization is most prevalent among younger age groups is of particular significance to estimates of this population's need for and use of services in the future, as will be later discussed. Before describing the findings of the next series of analysis it is important to also take note of the general magnitude of use by each age group irrespective of ethnicity. The mean utilization

rates for each age group (ethnic and sex groups combined) across centers were: 1) 3.35/1000 for the birth to 12 group; 2) 6.82/1000 for the 13 to 20 group; 3) 10.81/1000 for the 21 to 64 group; and 4) 3.62/1000 for the 65+ group. It is of interest to note that the birth to 12 group uses services at approximately half the rate of the 13 to 20 age group and at one-third the rate of the 21 to 64 group. The 21 to 64 age group was found to use services at a far higher rate than any of the other three age groups under comparison. The possible significance of this finding to future predictions of Mexican American service use will be elaborated later in this monograph.

Study 3: Analysis of Age Specific Rates by Sex for Use of Mental Health Services

The final level of analysis performed on the data on mental health service use involves the factor of sex. Essentially the same pattern of analysis discussed in the previous section was replicated on data for males only and females only. Although the results were again mixed, the underutilization hypothesis did receive some support. Table 3 summarizes the results of the twenty-four comparisons between groups which were conducted. For our present purposes, the sixteen comparisons of most interest are shown in the two outer columns: 1) between Anglos and Mexican Americans, and 2) between Mexican Americans and Blacks. Recall that if underutilization of services by Mexican Americans exists, the pattern of means across centers should result in a lower mean of use for Mexican Americans in relation to both Anglos and Blacks. Thus, the far left column in Table 3 which compares Anglos and Mexican Americans should show higher means for Anglos and the differences in means should be significant. In fact the results are not that clear cut. Of the eight comparisons six show mean differences in the expected direction (i.e. Anglo mean greater than Mexican American mean) but only three of these six differences are significant at the .05 level. Although two of the eight mean differences are not in the expected direction, neither of the two is significant and both occurred in the 65+ age

TABLE 3

RESULTS OF ANALYSIS OF AGE SPECIFIC RATES BY SEX FOR USE OF MENTAL HEALTH SERVICES

Sex Groups	Age Groups	COMPARISONS		
		Between ANG & MEX AM	Between ANG & BLK	Between MEX AM & BLK
MALES	birth-12	$A_{\bar{x}} > M_{\bar{x}}$, p = .0333(s)	$A_{\bar{x}} > B_{\bar{x}}$, p = .0734(ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0867(ns)
	13-20	$A_{\bar{x}} > M_{\bar{x}}$, p = .0882(ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .4156(ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .1190(ns)
	21-64	$A_{\bar{x}} > M_{\bar{x}}$, p = .3143(ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0000(s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0000(s)
	65+	$A_{\bar{x}} < M_{\bar{x}}$, p = .2324(ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0880(ns)	$M_{\bar{x}} > B_{\bar{x}}$, p = .4704(ns)
FEMALES	birth-12	$A_{\bar{x}} > M_{\bar{x}}$, p = .0017(s)	$A_{\bar{x}} > B_{\bar{x}}$, p = .0363(s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .1660(ns)
	13-20	$A_{\bar{x}} > M_{\bar{x}}$, p = .0014(s)	$A_{\bar{x}} > B_{\bar{x}}$, p = .0963(ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0314(s)
	21-64	$A_{\bar{x}} > M_{\bar{x}}$, p = .2039(ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0111(s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0015(s)
	65+	$A_{\bar{x}} < M_{\bar{x}}$, p = .2743(ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0053(s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0210(s)

(s) = Denotes that the comparison was statistically significant
(ns) = Denotes that the comparison was statistically non-significant
$\bar{x}$ = Mean

groups (a demographic group in which few Mexican Americans exist). These results are thus similar to those obtained for the comparison of both sexes combined. Partial support for the underutilization hypothesis is obtained but again the statistical significance is most prevalent in the younger age groups. The eight comparisons between Mexican Americans and Blacks depicted in the right hand column of Table 3 also provide some support for the underutilization hypothesis. In seven of the eight comparisons, the means are in the expected direction (i.e., Mexican Americans using less than Blacks) and three of these seven are statistically significant. The one case where the Mexican American mean was higher than that of the Blacks (again in the 65+ age group of males) was found to be statistically non-significant.

The graphs shown in Figures 7 and 8 depict the rates of use across the various age, sex and ethnic groups under comparison. As can be noted in both graphs the Mexican American means are lower than that of Anglos and Blacks in all cases except the 65+ age groups. It should also be noted that in the 21-64 age group (the group containing the largest percentage of clients), the mean rates of use for females are substantially higher than those of males across all three ethnic groups.

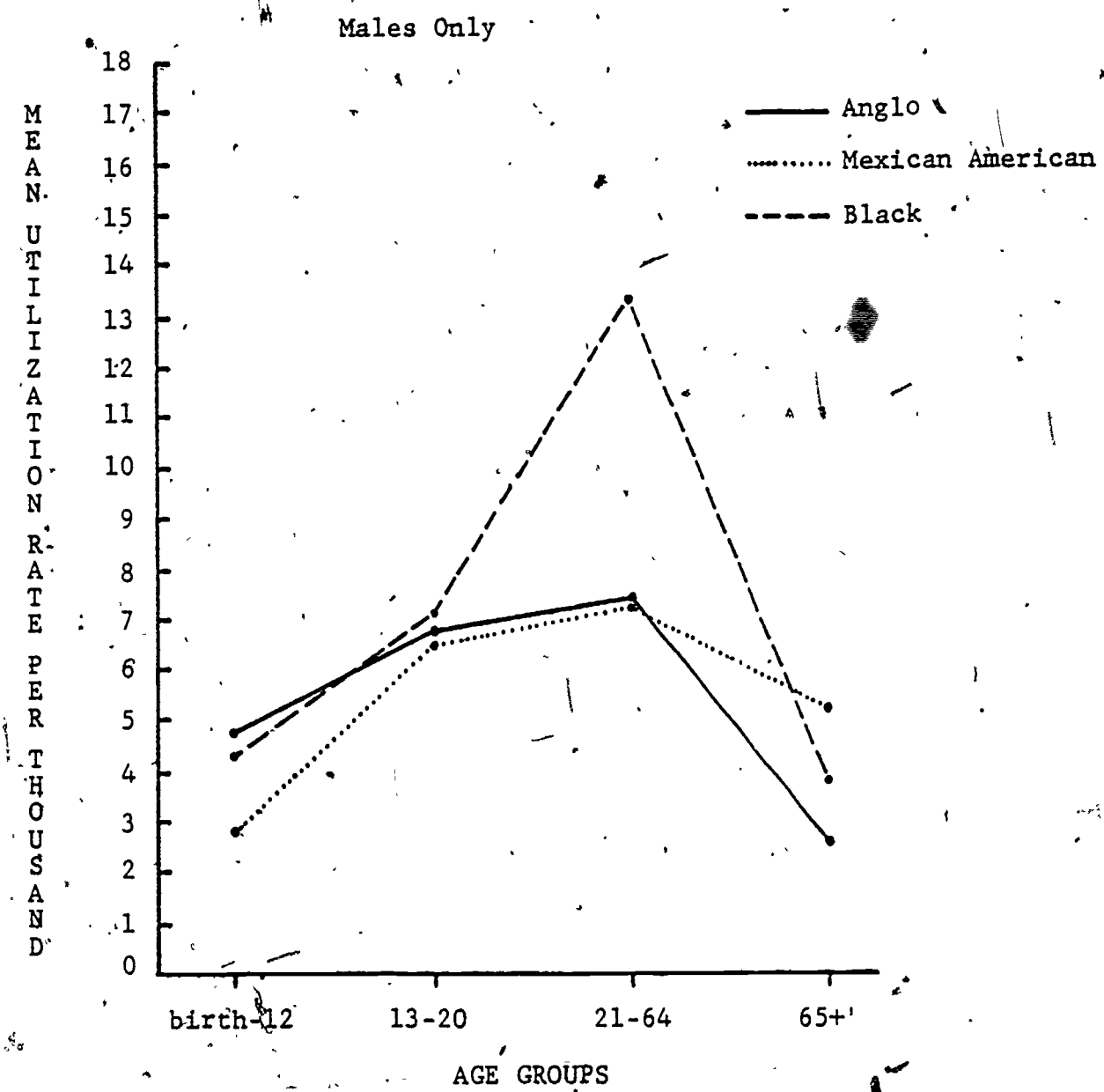
II. Findings in the Area of Alcoholism Services

Study 4: Analysis of Crude Utilization Rates of Alcoholism Service Use

This series of analysis again begins by examining the crude rates of service use between ethnic groups. Analysis of the data on the use of alcoholism services at Texas CMHCs across ethnic groups for all ages combined indicated no statistically significant differences between groups on the use of this service. The Kruskal-Wallis test resulted in the following sums of ranks 1323.5, 1130.5 and 1116 for Anglos, Mexican Americans and Blacks respectively. The differences between ranks is non-

FIGURE 7

MEAN RATES OF UTILIZATION PER THOUSAND FOR USE OF MENTAL HEALTH* SERVICES ACROSS THE 28 CMHCs BY AGE AND ETHNICITY



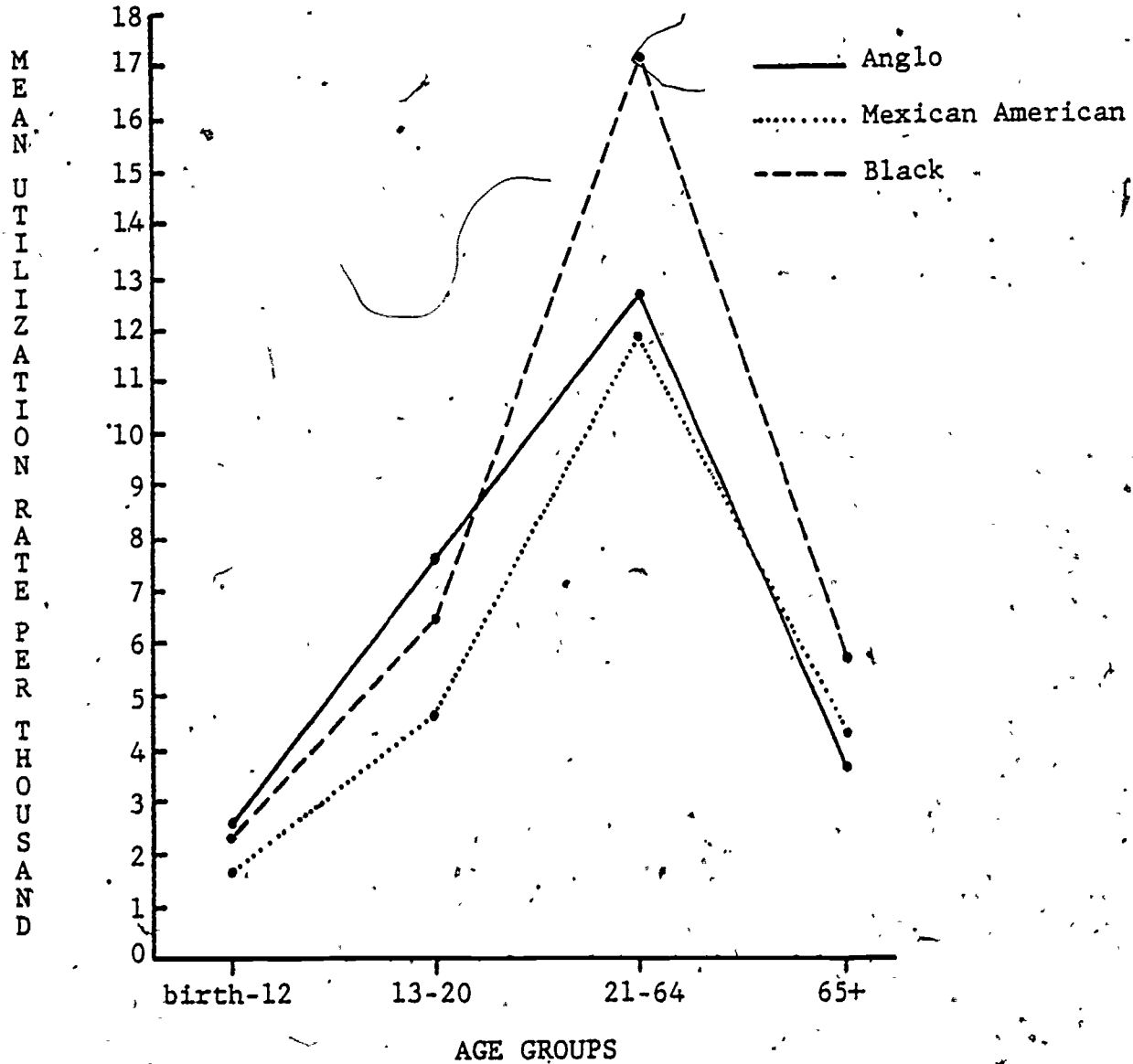
Data obtained from utilization tables in Appendix C.

*Mental Health is again being used in the narrow sense.

FIGURE 8

MEAN RATES OF UTILIZATION PER THOUSAND FOR USE OF MENTAL HEALTH* SERVICES ACROSS THE 28 CMHCs BY AGE AND ETHNICITY

Females Only



Data obtained from utilization tables in Appendix C.

*Mental Health is again being used in the narrow sense.

significant (H = 1.61, p = .250). Table 4 summarizes the findings and indicates that each of the three separate comparisons between ethnic groups yielded non-significant differences. The means of the rates for the groups are 1.26, 1.06, and .96 for Anglos, Mexican Americans and Blacks respectively (see Table 12). It should be noted that alcoholism services as a whole represented only 10.4% of the patient additions to CMHCs in Texas in 1978. The figures compared are thus based on small numbers which make it difficult to reach firm conclusions on their significance. A visual scan of Table 12 will provide the reader with yet another reason these data are difficult to interpret as the proportion of zeros in Table 12 is quite high (indicative of centers where these services are not available). Age-specific analysis did not provide much additional information as will be discussed in the following section.

Study 5: Analysis of Age Specific Rates for Use of Alcoholism Services

Although rates were generated for each of the four primary age groups, statistical analyses were performed on only two of these groups: 13-20 and 21-64. The age groups of birth-12 and 65+ produced rates of zero in so many cases that the tests would have resulted in meaningless results (see Table 4). The finding of zeros or extremely low rates in these two age groups is not surprising for a number of reasons: 1) alcoholism is not as prevalent below the age of 13 (this is not to say drinking problems in young people do not exist or should be minimal in concern, but only that the prevalence of this problem in this age group is lower); 2) the lifespan of individuals with alcoholism problems is shorter, thus allowing less of these individuals to reach the 65+ age group, and 3) the fact that CMHCs serve only a small proportion of the individuals in need of alcoholism services make them less likely to be serving these two special age groups - the very young and the very old problem drinker.

TABLE 4

RESULTS OF ANALYSIS OF AGE SPECIFIC RATES FOR USE OF ALCOHOLISM SERVICES

Age Groups	COMPARISONS		
	Between ANG & MEX AM	Between ANG & BLK	Between MEX AM & BLK
All Ages	$\bar{A}_x > \bar{M}_x$, p = .1467 (ns)	$\bar{A}_x > \bar{B}_x$, p = .1269 (ns)	$\bar{M}_x > \bar{B}_x$, p = .4705 (ns)
13-20	$\bar{A}_x < \bar{M}_x$, p = .1837 (ns)	$\bar{A}_x > \bar{B}_x$, p = .0004 (s)	$\bar{M}_x > \bar{B}_x$, p = .0244 (s)
21-64	$\bar{A}_x < \bar{M}_x$, p = .2506 (ns)	$\bar{A}_x > \bar{B}_x$, p = .2857 (ns)	$\bar{M}_x > \bar{B}_x$, p = .4836 (ns)

(s) = Denotes that the comparison was statistically significant
(ns) = Denotes that the comparison was statistically non-siginficant

Taken as a whole, the results of studies 4 and 5 do not reveal significant differences in use of alcoholism services across ethnic groups as was found in the Bachrach (1975) and Cuellar (1977) studies. It must be noted though that the CMHCs are clearly not the only or even the primary providers of alcoholism services in Texas and that the above conclusion is thus based on very incomplete data on the users of such services. Thus, although Hypothesis number five was not supported with this data, further research must be conducted before this Hypothesis can be reliably unconfirmed.

III. Findings in the Area of Drug Abuse Services

Study 6: Analysis of Crude and Age Specific Utilization Rates of Drug Abuse Service Use

Table 15 contains the rates of use by individuals served for drug-related difficulties in Texas CMHCs. Statistical analysis of the crude rates (all ages column) revealed no significant differences between groups. The Kruskal-Wallis test resulted in the following sums of ranks 1146, 1215.5 and 1208.5 for Anglos, Mexican Americans and Blacks respectively. The difference between ranks is non-significant ($H = .176$, $p = .250$). Each of the individual Mann-Whitney U tests yielded non-significant results (see Table 5). As the reader can note from scanning the data and the means shown in Table 15, the numbers of users of this service are relatively small, hence making it difficult to draw far reaching conclusions. Only 5.4 percent of the people seen at CMHCs in 1978 were treated for drug problems.

Analysis of the age specific rates also reveal little in the way of differences between groups (see Table 5). Again analysis were performed on only the data for the age groups 13-20 and 21-64. Only one of the six comparisons yielded a statistically significant result (Anglos showing significantly greater use than Blacks in the 13-20 age group). Mexican Americans indicated a slightly greater use than Anglos but the results were

TABLE 5

RESULTS OF ANALYSIS OF AGE SPECIFIC
RATES FOR USE OF
DRUG ABUSE SERVICES

Age Group	COMPARISONS		
	Between ANG & MEX AM	Between ANG & BLK	Between MEX AM & BLK
All Ages	$A_{\bar{x}} < M_{\bar{x}}$, p = .3434 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .3740 (ns)	$M_{\bar{x}} > B_{\bar{x}}$, p = .4934 (ns)
13-20	$A_{\bar{x}} < M_{\bar{x}}$, p = .3339 (ns)	$A_{\bar{x}} > B_{\bar{x}}$, p = .0146 (s)	$M_{\bar{x}} > B_{\bar{x}}$, p = .0674 (ns)
21-64	$A_{\bar{x}} < M_{\bar{x}}$, p = .2604 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .1184 (ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .3218 (ns)

(s) = Denotes that the comparison was statistically significant
(ns) = Denotes that the comparison was statistically non-significant

statistically non-significant. Nevertheless, the lack of statistical differences in rates between groups in this area may be of immense significance. Recall that research evidence exists which indicates a substantially higher incidence of drug abuse problems in Mexican American youth (Padilla et al., 1977). While the need for services may thus be higher in this group, this has not translated into the expected higher rate of service use. Mexican American youth are not utilizing center services in numbers proportional to their need for services. Caution must again be expressed in the interpretation of the data on drug abuse services (as was the case in the area of alcoholism services), as very small numbers of individuals were actually provided such services by CMHCs. More definitive statements on service use could be made if these data were compared to use figures from other public and private service providers in the areas of alcoholism and drug abuse. For now, suffice it to say that underutilization as it has been generally described in the literature was not found in this comparison of drug abuse service use and thus Hypothesis three is also unconfirmed.

IV. Findings in the Area of Mental Retardation Services

Study 7: Analysis of Crude and Age Specific Utilization Rates of Mental Retardation Service Use

Once again the data set under comparison (Table 18) indicates that CMHCs are clearly not the primary providers of mental retardation services, as the rates of use per thousand are fairly low. Mean rates equal .82, 1.08 and 1.79 for Anglos, Mexican Americans and Blacks respectively. Hence, definitive conclusions on differences between ethnic groups in the use of mental retardation services must also await comparable data on services received from other providers of mental retardation services, such as state hospitals and particularly state schools. Analysis of the crude rates of service use indicates that significant differences do exist between the three groups but they basically revolve around a higher rate of service use by

Blacks in relation to Mexican Americans and Anglos. The Kruskal-Wallis test resulted in the following sums of ranks 903, 1123 and 1544 for Anglos, Mexican Americans and Blacks respectively. The Black sum of ranks is substantially larger than that of the other two groups and this difference causes the Kruskal-Wallis test to indicate that a significant difference does exist ($H = 12.7$, $p < .005$). Comparison through the Mann-Whitney U test of the Anglo and Mexican American groups indicated no significant difference between these groups ($U = 318$, $p = .112$). Both the Anglo and Mexican American groups differed significantly from the Black group with the Black group showing a higher rate of service use (Anglo - Black comparison, $U = 178$, $p < .0002$; Mexican American - Black comparison, $U = 251$, $p < .0104$).

Analysis of the separate age groups yielded virtually the same pattern of results found for the crude rates comparison. Anglos and Mexican Americans did not differ significantly on service use (see Table 6) in three of the four age group comparisons, whereas both these groups differed significantly from Blacks with Blacks showing higher rates of use in all cases. Statistical analysis was not conducted on the 65+ age group as this group shows virtually no representation in this service category. This is indicated by the predominance of zeros in the columns (see Table 18). Although the results of these analyses must be interpreted with caution, the alleged underutilization of CMHC mental retardation services by Mexican Americans is not supported. Hypothesis four is, therefore, also disconfirmed.

V. Findings of the Analysis on the Use of Total CMHC Services Combined

Study 8: Analysis of Crude and Age Specific Utilization Rates on the Use of Total CMHC Services

The following series conducted were designed to determine whether significant differences exist between ethnic groups when all CMHC services are combined. As was noted earlier no

TABLE 6

RESULTS OF ANALYSIS OF AGE SPECIFIC
RATES FOR USE OF
MENTAL RETARDATION SERVICES

Age Groups	COMPARISONS		
	Between ANG & MEX AM	Between ANG & BLK	Between MEX AM & BLK
All Ages	$A_{\bar{x}} < M_{\bar{x}}$, p = .1121 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0002 (s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0104 (s)
birth-12	$A_{\bar{x}} < M_{\bar{x}}$, p = .1922 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0044 (s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0576 (ns)
13-20	$A_{\bar{x}} < M_{\bar{x}}$, p = .2910 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0019 (s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0119 (s)
21-64	$A_{\bar{x}} < M_{\bar{x}}$, p = .4445 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0118 (s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0239 (s)
65+	$A_{\bar{x}} > M_{\bar{x}}$, p = .0109 (s)	$A_{\bar{x}} < B_{\bar{x}}$, p = .3142 (ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0545 (ns)

(s) = Denotes that the comparison was statistically significant
(ns) = Denotes that the comparison was statistically non-significant

significant differences emerged between ethnic groups on their use of alcoholism, drug abuse or mental retardation services. Hence, it would be expected that if the data for these three service groups were combined (which constitutes 25% of the total services rendered) again no significant differences would be the result. However, significant differences on mental health service use were obtained in the younger age groups. Even in the mental health only service category, the underutilization effect was only partially displayed. With these observations in mind one can fairly accurately predict that the outcome of the statistical analyses on the data for total services* combined will largely result in nonsignificant differences between groups.

Statistical comparisons between ethnic groups using crude utilization rate figures did result, however, in significant group differences. The Kruskal-Wallis test resulted in the following sum of ranks 1070, 982.5 and 1517.5 for Anglos, Mexican Americans and Blacks respectively. Statistical significance on the Kruskal-Wallis test ($H = 9.89$, $p < .01$) was the result of the substantially higher Black rank relative to the other two groups. The following three findings from the Mann-Whitney U tests indicate that the primary differences between groups were attributed to the higher Black rate of use: 1) the comparison between Anglos and Mexican Americans was nonsignificant ($U = 353.5$, $p = .2640$); 2) the comparison between Mexican Americans and Blacks was significant with Mexican Americans showing less use than Blacks ($U = 233.5$, $p = .0047$), and 3) the comparison between Anglos and Blacks was also significant with Anglos showing less use than Blacks ($U = 223$, $p = .0028$). In relation to the underutilization contention the results are nonsupportive as Mexican Americans only showed significantly less use in relation to Blacks and not in relation to the mainstream Anglo population.

*The total services category also contains data for all those individuals served at CMHCs who did not receive a diagnoses (These individuals represent 12% of the total number served).

Results of the subsequent analysis of the age specific data (summarized in Table 7) also yielded statistically significant differences but again only minimal support for the underutilization contention.

Of the twelve individual tests between groups performed and summarized in Table 7, the eight comparisons in the outer two columns (comparisons between Anglos and Mexican Americans and between Mexican Americans and Blacks) are of most importance in relation to our primary question of whether or not Mexican Americans are underutilizing services. Of the four comparisons between Anglos and Mexican Americans the expected directionality of the means (Anglo mean higher that Mexican American mean) was obtained in only two cases and only one was statistically significant. Of the four comparisons between Mexican Americans and Blacks the expected directionality of the means (Mexican Americans lower than Black mean) was obtained in all four cases but again only the birth to 12 comparison was statistically significant (although the 13-20 and 21-64 group comparisons bordered on significance). These results thus complement the findings from the crude rates analysis which indicated that numerical underutilization of total services by Mexican Americans is evidenced only in relation to Blacks.

Study 9: Analysis of Age Specific Rates by Sex for Use of Total CMHC Services

The data on total services used was further analysed by the factor of sex but again the results were not substantially different. Referring to Table 8 and again concentrating on the two outer columns the following findings emerge: 1) in four of the eight comparisons between Anglos and Mexican Americans the expected directionality of the means is achieved (i.e. Anglo mean larger) and three of these four are significant, 2) in seven of the eight comparisons between Mexican Americans and Blacks the expected directionality of the means is obtained (i.e. Black mean larger) and four of the seven are statistically significant.

TABLE 7

RESULTS OF ANALYSIS OF AGE SPECIFIC
RATES FOR USE OF
TOTAL SERVICES

Age Groups	COMPARISONS		
	Between ANG & MEX AM	Between ANG & BLK	Between MEX AM & BLK
birth-12	$\bar{A}_x > \bar{M}_x$, p = .0363 (s)	$\bar{A}_x < \bar{B}_x$, p = .4029 (ns)	$\bar{M}_x < \bar{B}_x$, p = .0297 (s)
13-20	$\bar{A}_x > \bar{M}_x$, p = .1587 (ns)	$\bar{A}_x < \bar{B}_x$, p = .3470 (ns)	$\bar{M}_x < \bar{B}_x$, p = .0856 (ns)
21-64	$\bar{A}_x < \bar{M}_x$, p = .3410 (ns)	$\bar{A}_x < \bar{B}_x$, p = .0004 (s)	$\bar{M}_x < \bar{B}_x$, p = .0053 (s)
65+	$\bar{A}_x < \bar{M}_x$, p = .2746 (ns)	$\bar{A}_x < \bar{B}_x$, p = .0021 (s)	$\bar{M}_x < \bar{B}_x$, p = .1124 (ns)

(s) = Denotes that the comparison was statistically significant
(ns) = Denotes that the comparison was statistically non-significant

TABLE 8

RESULTS OF ANALYSIS OF AGE SPECIFIC RATES BY SEX FOR USE OF TOTAL SERVICES

Sex Groups	Age Groups	COMPARISONS: Between ANG & MEX AM	Between ANG & BLK	Between MEX AM & BLK
MALES	birth-12	$A_{\bar{x}} > M_{\bar{x}}$, p = .0426 (s)	$A_{\bar{x}} < B_{\bar{x}}$, p = .4543 (ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0377 (s)
	13-20	$A_{\bar{x}} < M_{\bar{x}}$, p = .4125 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .1627 (ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .1223 (ns)
	21-64	$A_{\bar{x}} < M_{\bar{x}}$, p = .2749 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0004 (s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0162 (s)
	65+	$A_{\bar{x}} \leq M_{\bar{x}}$, p = .4059 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0383 (s)	$M_{\bar{x}} > B_{\bar{x}}$, p = .2821 (ns)
FEMALES	birth-12	$A_{\bar{x}} > M_{\bar{x}}$, p = .0404 (s)	$A_{\bar{x}} < B_{\bar{x}}$, p = .4641 (ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0779 (ns)
	13-20	$A_{\bar{x}} > M_{\bar{x}}$, p = .0111 (s)	$A_{\bar{x}} > B_{\bar{x}}$, p = .4381 (ns)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0173 (s)
	21-64	$A_{\bar{x}} > M_{\bar{x}}$, p = .2887 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0010 (s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .0014 (s)
	65+	$A_{\bar{x}} < M_{\bar{x}}$, p = .3258 (ns)	$A_{\bar{x}} < B_{\bar{x}}$, p = .0019 (s)	$M_{\bar{x}} < B_{\bar{x}}$, p = .09 (ns)

(s) = Denotes that the comparison was statistically signifioant
(ns) = Denotes that the comparison was statistically non-significant

Again the primary area of concern in relation to the underutilization literature has been the comparison between Mexican Americans and Anglos on service use. In this series of comparisons by sex and age, as was the case with the crude and age specific figures, the hypothesized difference between Anglos and Mexican Americans does not emerge except in the younger age groups. Hypothesis number one is thus also disconfirmed.

Findings of the Analysis on Selected Age Standardized Utilization Rates

Study 10: Analysis of Age Standardized Rates for Mental Health Service Use and Total CMHC Service Use

The final series of comparisons conducted were designed to study further the effects of the factor of age on service use rates. As was discussed earlier, the disproportionately youthful demographic composition of the Mexican American population may be contributing substantially to the underutilization phenomenon observed by previous researchers. This is because not all age groups are served at equal rates, and the young are served at significantly lower rates than their middle-age counterparts. If a greater proportion of Mexican Americans are concentrated in the younger age ranges, then one would expect to find less Mexican Americans being served at mental health facilities. If this argument is valid, then controlling for the differences between ethnic groups on the factor of age should result in diminished differences between groups on service use and possibly the erradication of the underutilization effect.

Age standardized rates express utilization in terms of utilization which would be expected if the age structure of a population were that of a standard population. The choice of what that standard population is can be somewhat arbitrary as long as the same standard is applied to all the ethnic groups to be compared. The 1970 population of Texas was chosen as the standard. An age standardized rate of utilization was computed

for each center service area and ethnic group through the four stage process depicted below. Data for Mexican Americans served at Bexar County MHMR in 1978 are used as an example of the process used (see Figure 9 below).

As can be noted, this process resulted in an age standardized rate of use of total CMHC services of 16.01 per thousand as opposed to the non-age standardized figure of 15.2 per thousand. Thus, the age standardization process is having the expected effect of elevating the utilization rate for the Mexican American population by controlling for their differentially younger demographic character. Because age standardized utilization rates were generated for each of the twenty-eight service areas and by the two categories** of total services provided and mental health services only, statistical comparisons between ethnic groups were again possible.

Mann-Whitney U tests between ethnic groups on the use of total services combined resulted in the following three findings: 1) the comparison between Anglos and Mexican Americans was non-significant (U = 381.5, p = .4317); 2) the comparison between Mexican Americans and Blacks was statistically significant (U = 232.5, p = .0045) with Mexican Americans showing lower rates of use; and 3) the comparison between Anglos and Blacks was also statistically significant (U = 202.5, p = .0009) with Anglos showing a lower rate of use than Blacks. The pattern of findings is thus no different from that obtained with the non-age standardized data reported earlier in Study 8. Nevertheless, an interesting finding emerges when one examines the means under

**As was noted earlier the data on those served for drug abuse, alcoholism and mental retardation services was difficult to interpret reliably given the small proportion of individuals that used these services. Because the total services category also encompasses the data for these three service groups it was decided that individual age standardized rates of use for these services would not be generated, as again interpretation of such rates would be difficult and more than likely highly speculative.

FIGURE 9

EXAMPLE OF THE AGE STANDARDIZATION PROCESS, USED EMPLOYING DATA ON MEXICAN AMERICAN'S USE OF BEXAR CO. MHMR SERVICES IN 1978

Age Group	1 Age Specific Utilization of Total CMHC Services Rate per 1000	2 Standard Population	3 Expected Users from Standard Population	4 Age Standardized Rate 3/2
0 - 12	.006615	2,861,253	18,927	
13 - 20	.013369	1,766,029	23,610	
21 - 64	.023080	5,577,389	128,726	
65+	.008063	992,059	7,999	
TOTAL	-	11,196,730	179,262	16.010

comparison in each of the two methods. In Study 8 the non-age standardized means for the three groups are 11.37, 10.62 and 15.01 for Anglos, Mexican Americans and Blacks respectively. However, the age standardized means are 11.35, 11.46 and 16.15 for Anglos, Mexican Americans, and Blacks respectively. While the figure for the Anglo population remained virtually the same (a decrease of only .02), the data for Mexican Americans and Blacks changed substantially (an increase of .84 for Mexican Americans and 1.14 for Blacks).

Similarly, Mann-Whitney U tests utilizing age standardized data and comparing ethnic groups on their use of mental health services also resulted in slightly different findings. Specifically, the comparisons yielded the following results: 1) between Anglos and Mexican Americans the difference was non-significant ($U = 309.5$, $p = .0881$) which was not the case when non-age standardized data was compared (see results Study one); 2) between Mexican Americans and Blacks the difference was significant ($U = 183.0$, $p = .0003$) with Mexican Americans showing lower rates of use; and 3) between Anglos and Blacks the difference was also significant ($U = 219.5$, $p = .0023$) with Anglos showing lower rates of use. Again the changes in the means is of considerable interest. The non-age standardized means of use of mental health sevices for each of the three groups are 7.42, 6.05 and 9.31 for Anglos, Mexican Americans, and Blacks respectively. The age standardized means however are 7.37, 6.57 and 10.04 for Anglos, Mexican Americans, and Blacks respectively. While the figure for the Anglo population remained virtually the same (a decrease of only .05), the data for Mexican Americans and Blacks changed substantially (an increase of .52 for Mexican Americans and .73 for Blacks). It must also be noted that when age standardized data were employed, the difference between Anglos and Mexican Americans on mental health service use was not found to be significant.

Each of these findings lend support to the contention that the disproportionately youthful demographic structure of the

Mexican American population may have substantially contributed to the observed underutilizaton paradox. In addition, this data provide planners and policy makers with a foreshadowing of the substantial increases in the number of Mexican Americans that will be in need of services in the future as this population matures.

VII. CONCLUSION

Taken as a whole, the findings of the ten studies reported do not support the contention that there exists a statistically significant numerical underutilization of CMHC services by Mexican Americans in relation to the mainstream Anglo population. Although both Anglos and Mexican Americans were found to use services substantially less than Blacks, the literature on underutilization has generally concerned itself with the Anglo-Mexican American comparison. Only in the studies on the use of mental health services (narrowly defined) was even partial support for underutilization obtained (i.e. Mexican Americans use mental health services at a lower rate than Anglos and Blacks). The question then becomes does underutilization of mental health services by Mexican Americans actually exist? Before addressing this question two concepts must be further explored.

Throughout this monograph the potential impact of differential need has been alluded to; it is now necessary to illustrate this concept in greater detail through the use of two examples. The first example discusses the issue of relative risk of service use as a function of poverty. The second will provide a hypothetical example of the impact of minor changes in percentage in need on the interpretation of service use figures. Both examples are provided to illustrate that: (1) finding equivalent rates of service use between two groups (or no significant numerical underutilization) does not necessarily indicate that both groups' needs were equally met by the service system; (2) underutilization of services relative to need is highly prevalent in the Mexican American population; and (3)

future studies should be conceptually based on an assessment of a group's use of service relative to its need for the service rather than relative to another group's use.

Relative Risk

Despite the relatively crude status of mental health epidemiology, it is generally acknowledged that mental illness is not randomly distributed in the population and that some groups of individuals have a higher relative risk of experiencing mental health problems (Rabkin & Struening, 1976). Rabkin & Struening (1976) indicate that some of the major variables which have been historically linked with variations in the incidence of mental disorders include ethnicity, social class, and immigration. Ethnicity and immigration are probably key factors because of their historical association with poverty rather than because of their independent effect on incidence of illness. Beyond the fact that lower income groups have a higher incidence of mental illness, they also maintain less access to private practitioners. Hence both the stress of poverty and the limited access to alternative providers should result in lower income groups showing a higher relative risk of using public mental health facilities. Whether or not this statement is valid can in fact be tested through a series of formulas. Because this was a preliminary test, certain assumptions needed to be made through the computing process. Each assumption will be pointed out so that the reader can judge the limitations of the test to be described. Many of the assumptions made could be remedied through the use of more specific data than was available to the author. It will be argued that while this test may only provide an estimate of the differential relative risk of being found in public mental health facilities as a function of poverty, the magnitude and direction of the findings would not be substantially altered.

The risk of developing a condition or problem (becoming a client in a public mental health facility) given exposure to a

specific variable (poverty) is defined as:[1]

$$\frac{\text{incidence of condition in the exposed group}}{\text{incidence of condition in the non-exposed group}}$$

Using only the factors of use and poverty, four categories of individuals are established: (1) those who live in poverty and used services; (2) those who live in poverty but did not use services; (3) those who do not live in poverty but did use services; and (4) those who do not live in poverty and did not use services. This two by two matrix is shown below (see Figure 10) with corresponding value estimates based on 1970 population figures and 1973 use figures.

FIGURE 10

MATRIX OF USERS AND NON-USERS OF BEXAR CO. CMHC SERVICES IN 1973 IN RELATION TO POVERTY

	USED	DID NOT USE	
Below Poverty Level	2728 (a)	179,286 (b)	182,014 (e)
Above Poverty Level	1594 (c)	774,360 (d)	775,954 (f)
	4322	953,646	957,968 (g)

Individuals Residing in Bexar Co. in 1970 Census

[1]Using the matrix for reference the formula would be a/(a+b) = incidence in the exposed group and c/(c+d) = incidence in the nonexposed group. Although this formula is correct, the more common formula of relative risk = ad/bc will be used. This second formula is the same as the first under the assumption that the affected group is small compared to the general population.

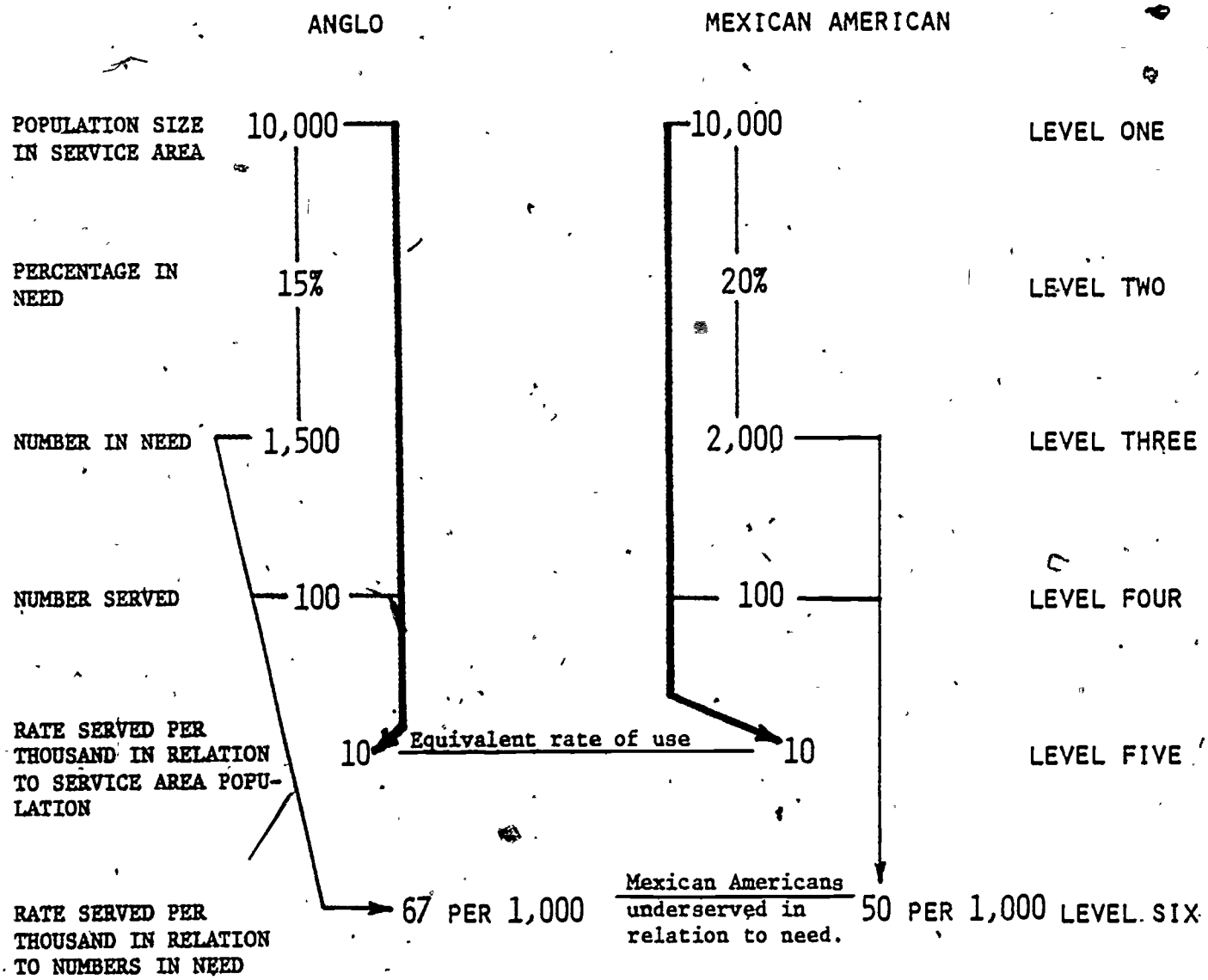
The procedures and assumptions involved in the computation of these estimate values is shown in Appendix A. Using the formula of relative risk (ad/bc), we obtain a figure of 7.39 for the corrected relative risk. If the assumptions made thus far have produced reasonably accurate estimates, then we find that individuals that exist at or below the poverty level have a relative risk of using community mental health center services approximately seven times greater than the population that exists above the poverty line. This higher relative risk of being found on the caseload of a CMHC is no doubt a function of differentially higher incidence of disorder in low income groups and their lack of access to alternative providers (most notably private practitioners). Clearly then, the effects of factors such as poverty do not have a minor effect, but rather a substantial impact on the probability of service use. The magnitude of this effect is so large that it is unlikely that the general conclusion would vary much with the introduction of more accurate figures in the formula.

This brings us back to the original paradox of Mexican American underuse of services. Given the higher rate of poverty in the Mexican American population, a higher rate of service use would be expected than is found in the Anglo population. Hence, finding equivalent rates of service use between Mexican Americans and Anglos may not necessarily, and in all probability does not, connote that both groups were equally served relative to their need for service and access to alternative providers.

Hypothetical Example of the Impact of Need on Service Use Figures

Figure 11 provides a hypothetical numerical example of the impact of differences in need for service on the interpretation of use of service figures. Beginning with level one of the example, both hypothetical populations are exactly the same size (10,000 persons). Level two is the point where the key change will be made in the estimate of need. For the Anglo population the fairly common epidemiological estimate of 15% of mental

FIGURE 11
HYPOTHETICAL EXAMPLE OF IMPACT OF NEED ON SERVICE USE FIGURES



health disorders in the population will be used. For the Mexican American population a slightly higher rate of 20% will be used due to: (1) the higher incidence of poverty in this group, (2) the stresses of discrimination, acculturation and immigration experienced by this group, and (3) the substantially lower access to alternative providers (given their economic limitations). Consequently, level three figures are different for the two groups, which reflects the differences in need. It will be assumed that both groups were served in equivalent numbers as shown in level four (100 per group). The original paradigm of comparing rates per thousand in relation to service area population would yield the result that both groups were served equally (see level five). On the other hand if rates served per thousand are compared in relation to need (see level six), we find Mexican Americans being served at a substantially lower rate (50 per 1000) than their Anglo counterparts (67 per 1000). Hence, relatively minor differences in need can result in substantial differences in the interpretation of utilization figures.

The answer to our previous question of whether underutilization of mental health services by Mexican Americans actually exist then must come in two parts. First, under the definition of underutilization which has been employed in the literature in the past the response is no, although Mexican Americans often show a numerically lower rate of service use, a substantial statistically significant underutilization of mental health services by Mexican Americans does not exist. This definition essentially compares one ethnic group's numerical representation in services to that of another group's and then labels the group with the lowest rate as underutilizers. To this point the issue of the definition of underutilization has been only minimally discussed, but before conclusions about this and previous studies can be made, it is necessary to examine it in greater detail. In every study cited earlier which studied the issue of Mexican American underutilization, the key premise is that Mexican Americans should be using services at the same rate

as the mainstream (i.e., Anglo) population and more likely at a higher rate. If Mexican Americans do not achieve at minimum the same numerical rate of use as Anglos they are said to be underutilizing services. By this definition then if Anglos in Bexar County are found to use total CMHC services at a rate of 8.7 per thousand and Mexican Americans use at a rate of 15.2 per thousand, then either Anglos are underutilizing or Mexican Americans are over-utilizing. The question is what will be the reference point to use to determine which version of the above sentence is correct. To this point the literature has used the Anglo population as the reference point with deviations above and below being labeled either underutilization or overutilization. Clearly such a definition has inherent conceptual difficulties. If the Anglo population has substantially greater access to the private sector's mental health service delivery system than does the Mexican American population, why use the Anglo rate of use of public services as the reference point? In fact there is little reason for using any population as the reference point. As the literature cited earlier indicated, the evidence favors the conclusion that not all ethnic groups have equivalent access to or need for services. Why then have so many researchers chosen to define underutilization as a condition that exists when an ethnic group uses less than the mainstream population. The answer may lie in either the sociopolitical drive to achieve equality between groups or in the simplicity of analysis this definition entails; one simply determines the rate of use of the mainstream population and those groups who use less than this are termed underutilizers. The fallacy inherent in such a simplistic interpretation is that if Mexican Americans have a greater need for services and less access to alternative providers, their numerical parity does not connote equivalent use. Although numerical parity in service representation may have been achieved the Mexican American population is still served at a lower rate in relation to their need for services.

The definition of underutilization is thus modified to connote the condition that exists when one group's use of

services in relation to it's need for services is significantly lower than another group's use relative to it's need. Under this definition the answer to our earlier question of whether or not underutilization of mental health services by Mexican Americans exists the answer becomes yes, it does exist. As the literature cited earlier indicated, the majority of the evidence supports the contention that Mexican Americans, due to economics and other factors, have a higher need for services and substantially less access to the sphere of private sector service providers than is the case for the Anglo population. Nevertheless, the findings reported herein nearly always found Mexican Americans to be using at a slightly lower rate and in some cases a significantly lower rate than Anglos. In relation to need for services, the Mexican American population continues to be underserved. In addition, demographic data would indicate that increasing numbers of Mexican Americans are begining to enter the high risk age range of 21 to 54, which signals even greater need for services by this group. This change in the population will have critical research and policy ramifications. If the old definition of underutilization is maintained, researchers will probably find it increasingly difficult to find any support for the contention that lower rates of service use are shown by Mexican Americans in relation to Anglos. In fact increasing cases of numerical overutilization may be found. In many cases this may lead these researchers to the erroneous conclusion that Mexican Americans are no longer being underserved and that policy initiatives designed to make mental health services more responsive to the needs of Mexican Americans are no longer necessary.

If on the other hand the alternative definition of underutilization is accepted, it too could have widespread research and policy ramifications. For researchers it will require the development of improved epidemiological measurement techniques that can more accurately determine the differential levels of service needs of various ethnic, age and economically distinct groups. Utilization will be measured in relation to a group's need for services and this will focus attention away from

the drive to achieve an artificial numerical parity to the more productive goal of providing appropriate services to those most in need. This new definition may cause mental health service consumers of all ethnic groups to question not why their group uses services at a rate of .50 per thousand less than another group, but rather why only a very small fraction of those in need are being served in either group.

APPENDIX A

Process for Generation of Estimates of Number of Individuals Above and Below Poverty Level

In 1969 the poverty threshold for a non-farm family of four was set at $3,743. Data from the 1970 Census of Population and Housing for the San Antonio, Texas standard metropolitan statistical area provides a breakdown of the annual income of families (p. 52) by a series of incremental categories. Using the cutoff point of $3,999 (which approximates the established poverty level of $3,743), we find that 36,428 families or 19% of the total (194,103) families) lived with incomes roughly at or below the poverty level. Given the lack of more specific census data, it is then assumed that if 19% of families lived at or below the poverty level, then roughly 19% of all individuals lived at or below the poverty threshold. Given the large proportion of the minority population in Bexar County and the prevalence of poverty in these groups, it is possible that 19% is a conservative figure. Working with 19% as an estimate then 182,014 (see (e) Figure 10) of the individuals in Bexar County (or 19% of 957,968, which is the total population for the county) according to the 1970 Census existed near or below the poverty threshold. Likewise, 775,954 individuals or 81% of the total population of Bexar County existed above the poverty threshold.

Process for Generation of Service Utilization Estimates Relative to Poverty

In attempting to generate these estimates two factors must be surmounted. First, the Texas Department of MHMR collects client income data on the users of community mental health centers by seven very broad categories. The coding of data is done by using one of seven categories shown below in Figure 12.

Because we are using figures on utilization of Bexar County Community Mental Health Center for the fiscal period of 1972-73,

the incomes of individuals with less than $99/week, or less than $5148 annually, roughly correspond to the poverty threshold. Recall that the poverty level in 1969 was set at $3,743; when the effects of inflation are considered, a figure of $5148 for 1972-73 is probably more accurate.

Using TDMHMR client information for Bexar County during the fiscal year 1972-73, the following breakdown of clients by income data emerges (see Figure 13). The second problem with the data emerges as the reader notes that for 26.7% (or 1154) of the clients no income data was available. Consequently it is assumed that the individuals for whom no data is available are distributed by income in approximately the same pattern as was found among the individuals for whom data is available. If this assumption is partially accurate, we can proceed to note that roughly 2728 of the clients had incomes of $99/week or less (i.e., existed in poverty) and 1594 of the clients had incomes greater that $99/week (i.e., not below the poverty level). These figures are illustrated in the matrix discussed in the text (see Figure 10).

FIGURE 12

Client Income Groups on Which Data is Collected by TDMHMR

Client's Weekly Income	Roughly Corresponds To An Annual Income Of:
Less than $50	Less than $2599
$50 - $99	$2600 - $5148
$100 - $149	$5200 - $7748
$150 - $199	$7800 - $10,348
$200 - $299	$10,400 - $15,548
$300 +	$15,600 +
Unknown	-

*Approximate poverty threshold line

FIGURE 13

Clients Served by Bexar County MHMR in Fiscal Year 1972-73 by Income

		Reallocation of Clients with NO DATA	Assuming Reallocation
Less than $50 (weekly)	806	294	1100
$50 - 99	1139	435	1628
$100 - 149	705	257	962
$150 - 199	212	77	289
$200 - 299	158	57	215
$300 / ABOVE	94	34	128
Unknown	1154	= 1154	
TOTAL	4322		4322

APPENDIX B

For the rates of service use generated to be meaningful it is critical that both the numerator (users of service) and the denominator (population in service area) be as accurate as possible. In relation to the numerator accuracy is a function of the thoroughness of each center's reporting of data. But in relation to the denominator the problem is slightly more complicated. In order to obtain accurate population estimates of the number of persons in each age, sex and ethnic group for each of the 28 service areas in the year 1978 (the year for which user data was available) it is necessary to generate a series of population projections. This is critical as the population of Texas is known to have grown considerably between 1970 and 1978. In addition, data for 1980 was not available at the time this publication was being produced. This section outlines the basic methods that were used to generate the appropriate population projections.

Using standard demographic techniques the projection of a population size to a point in time (e.g., 1978) can be done if a rate of growth and a starting population size can be established.

Two formulae are required:

1. $Pn = Poe^{rn}$

Where Pn is the population at time n (1978 in this case)

Po is the starting population (time 0. or 1970 in this case)

e is the constant 2.7182818 (the base of the system of natural logarithms)

r is the annual equivalent rate of growth (see below)

n is the number of years between the starting population measurement and the year to which the population is being projected (8 in this case).

2. $$r = \frac{\log \left(\frac{Pn}{Po}\right)}{n \log e}$$

Where Pn is the population at time n
Po is the starting population
n is the number of years between the starting and final population measurement
e is 2.7182818

The reference for both formulae is Shyrock & Siegel, "Methods and Materials of Demography," page 379.

The 1970 census was chosen as the most accessible and accurate source of data for the starting population size.

1. Data from the 1960 census can be used to calculate the rate of growth from 1960 to 1970 for each age group. These data are not completely satisfactory for two reasons.

   a. The 1970 census did not distinguish Hispanics from the remainder of the "White" population. Yet the Hispanic population is known to be growing at a faster rate than the remainder of the population. Demographers find that this is largely the result of the generally younger age structure of the Hispanic population.

   b. The rate of growth of the populations from 1960 to 1970 is known to be different from the rate of growth to the total population from 1970 to 1975.

Despite these limitations, the 1960 data are useful in that they are detailed enough to permit us to compute a growth rate for each age group. Even if these are not ethnicity specific, the age specific rates will provide us with more accuracy than would an average or overall rate.

2. Data from a 1976 census bureau publication provide an estimate of the growth rate of the total population, but without detail regarding age and ethnicity. These data are useful in that they can be used to correct for some of the error resulting from the use of the relatively old (1960) data.

The following fifteen steps outline the process for generating the population projections.

STEP 1. Obtain the number of persons in each of the four age groups who lived in the service area in 1960. (Census publication General Population Characteristics - Texas, Table 16).

STEP 2. Obtain the number of persons in each of the four age groups who lived in the service area in 1970. (Census population General Population Characteristics - Texas, Table 19).

STEP 3. Obtain the age specific annual equivalent rates of growth from application of formula 2 above.

STEP 4. Obtain the age and ethnicity specific populations for 1970. (Source General Population Characteristics - Texas, Table 35 gives figures for Total, White and Black). The figures for Anglo were calculated by subtracting Spanish Language/Spanish Surname persons from the White population in the Table. Spanish Language/Spanish Surname persons were obtained from computer runs made by the Texas Department of Natural Resources on the fourth count census tapes.

STEP 5. Apply the age specific rates of growth (from STEP 3 to the age and ethnicity specific population (STEP 4) and total (STEP 2) to yield.

STEP 6. Projected populations (age and ethnicity specific and total) for 1975.

STEP 7. Obtain 1975 census bureau estimate of total population size (source is current Population Reports, Series P-25, No. 717).

STEP 8. Determine the proportion which each age group comprises of the total projected population (from STEP 6) in 1975.

STEP 9. Determine the proportion each ethnic group comprises of the total projected population (from STEP 6) in 1975.

STEP 10. Multiply the proportions from STEP 9 by the total from STEP 7 to obtain estimates of the ethnic group totals which fun to the STEP 7 Total.

STEP 11. Determine the proportion which each age group comprises of the ethnic group total in the projection to 1975 (from STEP 6).

STEP 12. Multiply the proportions from STEP 11 by the adjusted ethnic group totals from STEP 10 to obtain the 1975 adjusted population by ethnicity and age. Also multiply proportions from STEP 8 by total from STEP 7.

STEP 13. Obtain adjusted area specific annual equivalent rates of growth using 1970 census as Po and STEP 12 output as Pn.

STEP 14. Apply the age specific rates of growth (from STEP 13) to the age and ethnicity specific populations (STEP 4) and total (STEP 2) to yield (with N = 8).

STEP 15. Projected population (age and ethnicity specific and total) for 1978.

APPENDIX C

TABLE 9

MENTAL HEALTH RESEARCH PROJECT, 1981

MENTAL HEALTH TOTAL

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	7.6	6.3	10.1	2.0	1.0	1.6	5.2	2.9	2.2	12.2	12.8	20.1	2.5	0.0	8.5
AMARILLO MHMR	5.7	6.6	5.3	1.9	2.9	1.0	7.8	9.6	5.4	7.6	8.8	9.1	1.6	2.8	.9
AUSTIN-TRAVIS COUNTY MHMR	9.0	8.1	13.6	4.8	2.5	7.1	6.4	7.6	10.7	11.9	12.0	19.2	4.9	10.6	9.2
BEXAR COUNTY MHMR	3.6	6.8	8.5	1.5	2.4	3.1	2.4	6.1	5.3	5.1	10.4	13.5	1.9	6.4	5.2
BRAZOS VALLEY MHMR	8.1	4.0	7.5	3.2	1.1	1.9	5.9	3.5	2.6	12.0	6.8	16.1	3.1	0.0	3.2
CENTRAL COUNTIES MHMR	7.0	4.9	6.6	4.2	1.1	2.2	7.0	5.3	6.3	7.9	6.2	8.5	6.1	9.9	5.6
CENTRAL PLAINS MHMR	12.9	10.7	13.7	7.4	6.2	13.5	14.8	9.8	10.0	14.6	15.4	16.7	12.5	23.1	10.8
CENTRAL TEXAS MHMR	7.1	5.6	11.1	3.5	1.7	0.0	7.7	2.4	15.8	10.9	11.7	18.5	2.4	1.9	3.0
DALLAS COUNTY MHMR	6.9	5.5	12.5	1.7	1.0	1.8	5.3	4.4	7.6	9.8	9.4	21.9	5.0	4.9	12.5
DEEP EAST TEXAS MHMR	9.9	5.9	8.2	4.1	0.0	1.4	9.2	6.9	7.1	13.4	7.4	14.2	6.5	13.5	6.2
MHMR OF EAST TEXAS	8.3	4.3	7.8	2.9	.9	1.4	7.0	1.4	3.5	12.6	8.9	15.6	2.7	0.0	2.7
EL PASO MHMR	5.8	6.8	7.4	5.7	4.5	5.1	4.9	5.2	4.3	6.8	9.8	10.7	2.0	3.4	2.0
CONCHO VALLEY CENTER	7.9	8.7	12.5	2.8	2.1	6.3	7.6	6.7	14.7	11.0	14.8	17.8	3.0	5.6	2.3
GULF BEND MHMR	13.4	13.7	13.7	10.9	7.6	6.2	11.5	9.5	11.8	17.6	20.9	21.4	4.7	11.2	6.4
GULF COAST MHMR	3.4	2.6	6.2	1.9	1.0	1.5	3.1	2.0	4.4	4.5	4.1	9.8	1.3	2.0	4.6
MHMR OF HARRIS COUNTY	2.1	2.5	4.9	.7	.3	.7	1.7	1.8	2.5	3.0	4.3	8.7	1.5	3.5	3.7
HEART OF TEXAS MHMR	9.7	9.0	12.9	4.3	1.3	2.9	8.8	7.6	5.8	13.8	15.7	24.3	4.0	6.1	6.2
LUBBOCK MHMR	5.9	4.0	5.7	2.4	1.2	1.2	4.2	3.2	3.1	8.6	7.6	11.2	1.4	1.4	2.7
NORTHEAST TEXAS MHMR	6.7	6.7	6.3	5.0	0.0	2.7	10.0	16.6	5.4	7.8	6.3	10.8	1.7	0.0	1.2
NUECES COUNTY MHMR	6.1	6.8	7.6	4.9	5.0	6.8	6.3	6.9	6.8	7.4	8.6	9.4	1.1	2.0	2.0
PECAN VALLEY MHMR	6.0	1.2	2.5	3.2	1.9	0.0	12.1	0.0	3.2	6.7	1.4	2.8	.8	0.0	5.6
PERMIAN BASIN MHMR	15.8	16.1	20.6	8.6	5.1	8.5	15.0	13.6	18.1	20.5	27.2	32.3	5.5	13.3	7.3
SABINE VALLEY MHMR	8.4	0.0	7.6	4.1	0.0	1.0	8.4	0.0	4.3	11.8	0.0	15.0	2.6	0.0	2.9
MHMR OF SOUTHEAST TEXAS	5.2	2.2	8.7	2.0	.3	1.9	5.6	3.0	7.0	7.0	2.9	14.2	1.9	1.3	5.6
TEXOMA MHMR	7.1	5.1	11.1	3.1	3.3	3.7	7.8	1.8	5.1	9.9	8.7	21.9	2.7	0.0	3.8
TARRANT MHMR CENTER	5.3	4.8	10.1	.8	.4	1.0	3.0	2.4	5.0	8.3	9.2	18.8	2.9	6.6	6.4
TROPICAL TEXAS MHMR	4.5	3.8	7.7	2.6	1.3	6.3	5.0	2.6	6.3	6.4	6.7	9.9	1.7	3.5	5.1
WICHITA FALLS MHMR	8.4	6.7	10.2	3.2	5.5	2.2	5.9	4.6	6.6	12.9	9.1	18.7	2.5	0.0	3.1
Mean =	7.42	6.05	9.31	3.69	2.20	3.32	7.13	5.27	6.82	10.07	9.54	15.4	3.23	4.75	4.15

TABLE 10

MENTAL HEALTH RESEARCH PROJECT, 1981

MENTAL HEALTH MALES

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	6.3	4.6	6.5	2.3	1.0	3.3	4.8	1.6	2.9	9.6	9.6	11.0	1.9	0.0	3.8
AMARILLO MHMR	5.0	5.8	5.3	2.3	2.4	1.4	7.4	10.3	5.2	6.1	6.8	9.5	1.4	2.7	0.0
AUSTIN-TRAVIS COUNTY MHMR	7.7	7.6	12.2	6.5	3.5	10.3	6.3	9.7	12.1	9.0	9.2	14.3	3.7	8.7	6.5
BEXAR COUNTY MHMR	2.9	5.9	7.2	1.7	3.5	2.9	2.2	6.6	5.0	4.0	7.4	11.6	1.3	5.6	3.7
BRAZOS VALLEY MHMR	6.5	3.4	7.7	3.4	1.2	1.9	5.0	1.1	1.9	9.2	6.8	18.6	2.4	0.0	3.0
CENTRAL COUNTIES MHMR	5.3	4.1	5.4	5.6	1.1	3.7	6.5	5.2	7.6	4.9	4.5	5.0	5.5	9.0	5.1
CENTRAL PLAINS MHMR	10.8	10.4	14.2	10.1	7.8	15.9	13.0	8.1	9.4	10.5	13.7	14.4	10.4	24.3	20.7
CENTRAL TEXAS MHMR	5.2	3.6	10.8	4.9	1.8	0.0	6.0	2.2	17.3	6.9	6.6	13.5	1.7	0.0	7.5
DALLAS COUNTY MHMR	5.9	4.7	10.7	2.2	1.3	2.4	5.6	4.7	8.4	7.8	7.4	18.3	4.4	5.3	8.9
DEEP EAST TEXAS MHMR	8.0	4.4	7.7	4.9	0.0	2.2	9.4	6.1	5.8	9.7	5.2	14.0	4.7	12.0	4.4
MHMR OF EAST TEXAS	6.5	3.1	7.1	3.1	2.1	2.0	5.9	3.2	3.4	9.4	4.3	14.1	2.3	0.0	2.2
EL PASO MHMR	5.5	7.3	8.4	7.8	6.4	8.9	4.6	5.7	5.3	5.6	9.4	10.1	1.4	3.0	0.0
CONCHO VALLEY CENTER	5.5	7.2	11.8	3.4	3.1	5.0	6.2	9.5	18.7	6.8	9.4	15.5	1.8	5.4	0.0
GULF BEND MHMR	10.8	10.9	12.6	14.8	9.1	7.8	9.9	9.9	11.4	11.5	12.2	19.1	3.2	15.7	4.6
GULF COAST MHMR	3.2	2.3	6.9	2.2	1.2	1.9	3.5	1.5	6.0	3.9	3.4	10.9	1.2	2.6	1.9
MHMR OF HARRIS COUNTY	2.0	2.2	5.2	.7	.4	1.0	1.9	2.2	3.8	2.6	3.6	9.1	1.4	2.8	2.8
HEART OF TEXAS MHMR	7.9	7.6	10.9	5.3	2.0	3.4	9.3	7.3	6.8	9.6	11.7	19.4	3.1	8.4	6.0
LUBBOCK MHMR	4.8	3.3	4.4	3.2	1.7	1.4	3.6	2.3	3.4	6.5	5.8	8.2	1.1	1.1	1.8
NORTHEAST TEXAS MHMR	5.9	7.9	6.6	8.1	0.0	4.3	8.8	41.7	4.7	5.3	5.1	11.2	1.4	0.0	.9
NUECES COUNTY MHMR	5.9	7.0	7.2	6.5	6.4	9.3	7.5	7.8	7.2	5.9	7.6	7.0	1.6	1.9	2.2
PECAN VALLEY MHMR	5.4	1.1	2.5	4.4	3.9	0.0	12.8	0.0	0.0	4.4	0.0	5.4	.9	0.0	0.0
PERMIAN BASIN MHMR	13.6	16.9	21.3	11.4	7.6	11.0	15.2	17.9	18.1	15.1	23.8	33.8	5.1	17.8	4.4
SABINE VALLEY MHMR	6.3	0.0	7.1	4.0	0.0	1.2	7.1	0.0	4.2	8.3	0.0	15.2	2.0	0.0	1.4
MHMR OF SOUTHEAST TEXAS	4.2	2.5	7.2	2.4	.6	2.4	5.3	5.8	8.7	5.0	1.9	10.4	1.7	2.4	2.8
TEXOMA MHMR	3.9	3.9	6.7	3.7	3.4	2.2	7.4	0.0	2.1	7.4	6.7	13.7	1.7	0.0	3.6
TARRANT MHMR CENTER	4.9	4.9	8.9	1.0	.4	1.2	3.1	2.6	4.4	2.5	8.1	16.8	2.5	13.4	7.4
TROPICAL TEXAS MHMR	3.4	3.8	7.4	2.7	1.6	13.9	4.6	2.9	6.5	4.2	6.3	7.1	1.3	3.2	0.0
WICHITA FALLS MHMR	6.9	6.4	9.0	4.1	6.1	.9	5.1	5.8	7.7	9.9	7.3	16.8	1.9	0.0	2.3
Mean	6.15	5.46	8.53	4.74	2.84	4.35	6.71	6.49	7.07	7.38	7.30	13.36	2.61	5.19	3.85

TABLE 11

MENTAL HEALTH RESEARCH PROJECT, 1981

MENTAL HEALTH FEMALES

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	8.8	8.0	13.6	1.7	1.0	0.0	5 7	4.3	1.5	14.6	15.8	28.7	2.9	0.0	12.3
AMARILLO MHMR	6.4	7.6	5.3	1.5	3.5	.7	8.2	8.9	5.6	9.0	10.8	8.7	1.7	2.9	1.8
AUSTIN-TRAVIS COUNTY MHMR	10.4	8.7	14.8	2.9	1.5	3.8	6.5	5.5	9.3	14.8	14.8	23.3	5.7	12.1	11.0
BEXAR COUNTY MHMR	4.2	7.7	9.6	1.4	1.3	3.2	2.6	5 6	5 8	6.2	13.1	15.1	2.2	6.9	6.2
BRAZOS VALLEY MHMR	9.9	4.8	7.3	3.0	1.1	1.8	7.5	6.8	3.4	15.2	6.9	14.1	3.6	0.0	3.3
CENTRAL COUNTIES MHMR	9.0	5.9	8.4	2.7	1.2	.7	7.8	5.5	4.0	11.9	8.8	14.4	6.5	10.9	6.1
CENTRAL PLAINS MHMR	14.9	11.1	13.2	4.5	4.7	11.1	16.7	11.6	10.6	18.5	17.1	18.7	14.2	21.7	0.0
CENTRAL TEXAS MHMR	8.9	7.6	11.3	2.0	1.7	0.0	9.6	2.5	13.8	14.4	16.7	22.1	2.9	3.4	0.0
DALLAS COUNTY MHMR	7.8	6.2	14.0	1.1	.8	1.2	5.1	4.1	7.0	11.7	11.4	24.8	5.3	4.6	15.5
DEEP EAST TEXAS MHMR	11.7	7.6	8.7	3.1	0.0	.7	9.1	7.6	8.3	16.9	10.2	17.3	8.0	14.3	7.9
MHMR OF EAST TEXAS	10.0	5.3	8.5	2.7	0.0	.8	8.2	0.0	3.5	15.5	13.2	16.9	3.0	0.0	3.0
EL PASO MHMR	6.0	6.3	6.2	3.4	2.5	1.2	5.3	4.7	3.1	8.1	10.1	11.5	2.4	3.8	3.6
CONCHO VALLEY CENTER	10.1	10.2	13.2	2.1	1.0	7.6	9 2	4.2	10,2	15.0	20.1	19.7	3.8	5.7	4.0
GULF BEND MHMR	15.8	16.4	14.7	7.1	6.1	4.4	13.1	9.1	12.3	23.4	29.0	23.3	5.7	6.1	7.7
GULF COAST MHMR	3.6	3.0	5.5	1.5	.8	1.1	2.6	2.6	2.9	5.2	4.7	8.7	1.5	1.4	7.0
MHMR OF HARRIS COUNTY	2.3	2.7	4.6	.6	.2	.4	1.5	1.4	1.4	3.3	5.0	8.4	1.6	4.1	4.6
HEART OF TEXAS MHMR	11.4	10.4	14.6	3.2	.5	2.3	8.2	7.9	4.8	17.7	19.6	28.3	4.7	4.3	6.4
LUBBOCK MHMR	6.9	4.8	6.9	1.7	.7	1.1	4.9	4.0	2.9	10.7	9.2	13.7	1.5	1.7	3.6
NORTHEAST TEXAS MHMR	7.4	5.4	6.0	1.9	0.0	1.2	11.2	7.5	6.1	10.2	8.4	10.5	1.9	0.0	1.5
NUECES COUNTY MHMR	6.3	6.7	8.0	3.2	3.5	4.3	5.1	6.1	6.3	8.8	9.6	11.5	.8	2.1	1.8
PECAN VALLEY MHMR	6.6	1.3	2.5	2,0	0.0	0.0	11.2	0.0	4.5	9.1	3.0	0.0	.7	0.0	8.8
PERMIAN BASIN MHMR	17.8	15.4	20.0	5.6	2.6	6.1	14.9	9.5	18.2	25.6	30.7	31.0	5.8	10.2	9.9
SABINE VALLEY MHMR	10.3	0.0	7.9	4.1	0.0	.9	9.8	0.0	4.5	15.1	0.0	14.9	3.0	0.0	4.2
MHMR OF SOUTHEAST TEXAS	6.1	1.9	10.1	1.7	0.0	1.5	5.9	.6	5.4	8.9	3.9	17.5	2.1	0.0	8.0
TEXOMA MHMR	8.2	6.0	14.9	2.6	3.3	5.2	8.1	3.0	7.9	12.2	10.5	28.7	3.3	0.0	3.9
TARRANT MHMR CENTER	5.8	4.8	11.1	.6	.4	.8	2.9	2.2	5.5	9.2	9.7	20.6	3.2	0.0	5.6
TROPICAL TEXAS MHMR	5.6	3.9	7.9	2.3	1.0	0.0	5.4	2.2	6.2	8.3	7.1	12.3	2.0	3.7	9.6
WICHITA FALLS MHMR	9.9	6.9	11.4	2.2	4.9	3.6	7.1	2.9	5.1	15.8	11.0	20.4	3.0	0.0	3.8
Mean =	8.65	6.66	10.01	2.59	1.58	2,33	7.62	4.65	6.52	12.69	11.8	17.22	3.68	4.28	5.75

TABLE 12

MENTAL HEALTH RESEARCH PROJECT, 1981

ALCOHOL TOTAL

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	2.0	.8	1.5	0.0	0.0	0.0	.3	0.0	.7	3.6	1.8	2.9	1.0	0.0	1.7
AMARILLO MHMR	2.9	1.5	.6	0.0	0.0	0.0	.4	.2	0.0	5.2	3.6	1.4	1.5	1.4	0.0
AUSTIN-TRAVIS COUNTY MHMR	1.2	1.2	2.3	0.0	0.0	0.0	.1	.7	0.0	2.1	2.2	4.8	.8	1.3	.9
BEXAR COUNTY MHMR	3.0	3.7	2.7	0.0	.0	0.0	1.0	1 2	.2	5.1	7.9	5.7	1.3	1.1	.7
BRAZOS VALLEY MHMR	2.5	4 0	2.8	0.0	0.0	0.0	2.1	2.2	.7	4.1	8.4	6.7	.6	0.0	1.2
CENTRAL COUNTIES MHMR	1.2	2.6	1.0	.0	0.0	.2	.6	9	0.0	1 9	4.8	1.8	.4	1.6	.6
CENTRAL PLAINS MHMR	1.9	1.3	.7	0.0	0.0	0.0	.2	.5	0.0	3.5	2.9	1.5	1.1	3.9	2.7
CENTRAL TEXAS MHMR	1.1	.7	1.0	0.0	0.0	0.0	.1	.6	0.0	1.9	1.5	2.8	.6	0.0	0.0
DALLAS COUNTY MHMR	.3	.1	.4	0.0	0.0	0.0	.0	.1	.1	.6	.3	.8	.2	0.0	.3
DEEP EAST TEXAS MHMR	1.6	1.0	1.3	0.0	0.0	0.0	.6	0.0	0.0	2.9	1.8	3.2	.6	0.0	.6
MHMR OF EAST TEXAS	1.0	0.0	.7	0.0	0.0	0.0	.1	0.0	0.0	1.8	0.0	1.7	.5	0.0	.4
EL PASO MHMR	.2	.4	.2	0.0	0.0	0.0	.1	.0	0.0	.3	.8	.5	.2	.5	0.0
CONCHO VALLEY CENTER	.1	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.2	0.0	.1	0.0	0.0
GULF BEND MHMR	1.0	1.1	1.9	0.0	.1	0.0	.1	.4	0.0	1.8	2.3	4.4	.6	.5	0.0
GULF COAST MHMR	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	.1	0.0	0.0	0.0
MHMR OF HARRIS COUNTY	.0	.0	.1	0.0	0.0	0.0	0.0	0.0	.0	.1	.0	.1	.0	.1	.1
HEART OF TEXAS MHMR	1.7	2.9	2.2	0.0	0.0	0.0	.3	.9	0.0	3.1	6.5	5.3	.4	0.0	0.0
LUBBOCK MHMR	1.0	.5	1.0	0.0	0.0	0.0	.1	.3	.2	1.8	1.1	2.4	.8	0.0	.0
NORTHEAST TEXAS MHMR	.3	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	.5	0.0	.1	.1	0.0	0.0
NUECES COUNTY MHMR	1.4	.6	.8	0.0	0.0	0.0	.1	.1	0.0	2.4	1.1	1.8	.7	.9	0.0
PECAN VALLEY MHMR	.3	.6	0.0	0.0	0.0	0.0	.2	0.0	0.0	.5	1.4	0.0	0.0	0.0	0.0
PERMIAN BASIN MHMR	5.1	2.9	3.1	.1	0.0	0.0	.4	0.0	0.0	9.2	7.3	6.8	2.8	2.4	3.1
SABINE VALLEY MHMR	1.9	.6	.6	.0	0.0	0.0	.1	0.0	.2	3.5	1.4	1.3	.7	0.0	.1
MHMR OF SOUTHEAST TEXAS	.2	.1	.3	0.0	0.0	0.0	0.0	0.0	.1	.3	.2	.8	0.0	0.0	0.0
TEXOMA MHMR	.6	.5	.7	0.0	0.0	0.0	.1	0.0	0.0	1.0	1.1	1.8	.4	0.0	0.0
TARRANT MHMR CENTER	1.5	1.5	.7	.0	0.0	0.0	.4	.3	0.0	2.6	3.2	1.5	.3	1.7	.2
TROPICAL TEXAS MHMR	.8	.4	0.0	0.0	0.0	0.0	0.0	.0	0.0	1.5	.9	0.0	.3	.2	0.0
WICHITA FALLS MHMR	.6	.7	.3	0.0	0.0	0.0	.1	0.0	0.0	1.1	1.7	.8	.2	0.0	0.0
Mean =	1.26	1.06	.96	0.0	0.0	0.1	.27	.30	.08	2.24	2.30	2.18	.58	.56	.48

TABLE 13

MENTAL HEALTH RESEARCH PROJECT, 1981

ALCOHOL MALES

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	3.4	1 4	2.2	0.0	0.0	0.0	.4	0.0	1.5	6,2	3.3	3.7	2.0	0.0	3.8
AMARILLO MHMR	5.0	2.8	1.2	0.0	0.0	0.0	.7	.4	0.0	8.8	6.6	3.0	2.9	2.7	0.0
AUSTIN-TRAVIS COUNTY MHMR	1.8	2.0	4.3	0.0	0.0	0.0	.1	1.4	0.0	3.0	3.7	9.3	1.7	1.9	2.2
BEXAR COUNTY MHMR	5.0	7.2	4.9	0.0	.0	0.0	1.5	2.3	.4	8.6	15.9	10.9	2,8	2,4	1,9
BRAZOS VALLEY MHMR	4,2	7.1	5.4	0.0	0.0	0.0	3.2	3.8	1.2	6.7	14.7	14.1	1,1	0.0	2,7
CENTRAL COUNTIES MHMR	1.9	4.2	41.5	.1	0.0	3	1.1	1 5	0.0	2.8	7.4	2.6	,9	3.0	1,3
CENTRAL PLAINS MHMR	2,8	2,2	.7	0,0	0,0	0,0	.3	.7	0,0	5,2	5,2	1,0	1,6	6,9	5,2
CENTRAL TEXAS MHMR	1.6	1.4	2.2	0 0	0.0	0.0	0 0	1.1	0.0	2,8	2.9	6,7	1,2	0,0	0,0
DALLAS COUNTY MHMR	.5	.2	.6	0.0	0.0	0.0	.0	.1	.1	.9	.5	1.4	.4	0.0	.5
DEEP EAST TEXAS MHMR	3.0	1 8	2.6	0.0	0.0	0.0	1.1	0.0	0.0	5,4	3,2	6,5	1.2	0.0	1.2
MHMR OF EAST TEXAS	1.7	0.0	1.3	0 0	0.0	0 0	.2	0.0	0.0	3.1	0.0	3.3	.8	0.0	.4
EL PASO MHMR	.3	.7	.4	0,0	0,0	0,0	1	.0	0.0	.5	1.6	.9	.5	1.0	0.0
CONCHO VALLEY CENTER	,2	,1	0,0	0.0	0.0	0.0	0.0	0.0	0.0	,3	.3	0,0	.3	0.0	0.0
GULF BEND MHMR	1.9	2,0	3.7	0.0	.2	0.0	.3	.7	0.0	3.3	4.3	9.1	1,4	.9	0.0
GULF COAST MHMR	.1	0 0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	.1	0.0	0.0	0,0
MHMR OF HARRIS COUNTY	.0	.0	.1	0,0	0,0	0,0	0,0	0,0	0,0	,1	.1	.2	,0	.3	.2
HEART OF TEXAS MHMR	2.8	4.9	4.1	0.0	0.0	0.0	.5	1.8	0.0	5.1	10.9	10.3	1.0	0.0	0.0
LUBBOCK MHMR	1.8	.9	1.8	0,0	0,0	0,0	,2	,3	,5	3,0	2,2	4,2	1.7	0.0	1.8
NORTHEAST TEXAS MHMR	.4	0.0	.1	0.0	0.0	0.0	0.0	0.0	0.0	.7	0.0	.3	0.0	0.0	0.0
NUECES COUNTY MHMR	2,2	1,1	1,6	0.0	0.0	0.0	.1	,2	0,0	3.9	2.3	3.5	1.1	1.5	0.0
PECAN VALLEY MHMR	,4	,5	0,0	0.0	0.0	0.0	,4	0.0	0.0	.7	1.3	0.0	0,0	0.0	0,0
PERMIAN BASIN MHMR	8.9	5.3	4.5	.1	0.0	0.0	.5	0.0	0.0	16.2	13.1	10.0	5.3	5.9	6.6
SABINE VALLEY MHMR	2.9	1 3	1.0	.1	0.0	0.0	.1	0.0	.2	5.5	2.8	2.3	1.1	0.0	.2
MHMR OF SOUTHEAST TEXAS	.2	.1	.7	0.0	0.0	0.0	0.0	0.0	.1	.5	.3	1.6	0.0	0.0	0.0
TEXOMA MHMR	1.0	1.0	1.1	0.0	0.0	0.0	.2	0.0	0.0	1.8	2.2	2.9	.8	0.0	0.0
TARRANT MHMR CENTER	2.4	2.9	1.1	.0	0.0	0.0	.7	.5	0.0	4.2	6.0	2.5	.9	3.3	.4
TROPICAL TEXAS MHMR	1,3	.7	0.0	0.0	0.0	0.0	0.0	.1	0.0	2.6	1.9	0.0	.3	.3	0.0
WICHITA FALLS MHMR	.9	1 5	.4	0,0	0,0	0,0	,2	0,0	0,0	1,7	3,3	1,1	.4	0,0	0,0
Mean =	2,09	1.90	1.70	.01	.01	.01	.43	.53	.14	3.70	4.14	3.98	1.12	1.08	1.00

TABLE 14

MENTAL HEALTH RESEARCH PROJECT, 1981

ALCOHOL FEMALES

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	.7	.2	.9	0.0	0.0	0.0	.3	0.0	0.0	1.2	.4	2.1	.3	0.0	0.0
AMARILLO MHMR	1.0	.2	0.0	0.0	0.0	0.0	.2	0.0	0.0	1.7	.4	0.0	.3	0.0	0.0
AUSTIN-TRAVIS COUNTY MHMR	.7	.3	.4	0.0	0.0	0.0	.1	0.0	0.0	1.1	.6	.9	.2	.8	0.0
BEXAR COUNTY MHMR	1.0	.4	.6	0.0	0.0	0.0	3	.1	0.0	1.7	1.0	1.2	.4	0.0	0.0
BRAZOS VALLEY MHMR	.7	.7	.4	0.0	0.0	0.0	.1	0 0	.3	1.2	1.6	.9	.2	0.0	0.0
CENTRAL COUNTIES MHMR	.4	.3	.2	0.0	0.0	0.0	0.0	0.0	0.0	.7	.7	.5	0.0	0.0	0.0
CENTRAL PLAINS MHMR	1.0	.3	.7	0.0	0.0	0.0	0.0	.4	0.0	1.9	.7	1.9	.6	0.0	0.0
CENTRAL TEXAS MHMR	.6	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	1.1	0.0	0.0	.2	0.0	0.0
DALLAS COUNTY MHMR	.2	0.0	.2	0.0	0.0	0.0	.0	0.0	.0	.4	0.0	.3	.1	0.0	.1
DEEP EAST TEXAS MHMR	.3	0.0	.2	0.0	0.0	0.0	.2	0.0	0.0	.6	0.0	.4	.1	0.0	0.0
MHMR OF EAST TEXAS	.3	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.6	0.0	.3	.2	0.0	.4
EL PASO MHMR	.1	.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	.1	0.0	0.0	.1	0.0
CONCHO VALLEY CENTER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GULF BEND MHMR	.2	.2	.3	0.0	0.0	0.0	0.0	0.0	0.0	.4	.4	.7	0.0	0.0	0.0
GULF COAST MHMR	.0	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	.1	0.0	0.0	0.0
MHMR OF HARRIS COUNTY	.1	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	.0	.1	.0	0.0	.1
HEART OF TEXAS MHMR	.6	.9	.5	0.0	0.0	0.0	.1	0.0	0.0	1.2	2.1	1.2	.1	0.0	0.0
LUBBOCK MHMR	.3	.1	.3	0.0	0.0	0.0	.0	.2	0.0	.6	.1	.8	.2	0.0	0.0
NORTHEAST TEXAS MHMR	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.3	0.0	0.0	.2	0.0	0.0
NUECES COUNTY MHMR	.6	.1	.2	0.0	0.0	0.0	.2	.1	0.0	.9	.1	.3	.5	.3	0.0
PECAN VALLEY MHMR	.1	.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.3	1.5	0.0	0.0	0.0	0.0
PERMIAN BASIN MHMR	1.5	.5	1.9	0.0	0.0	0.0	.4	0.0	0.0	2.5	1.4	4.3	.9	0.0	0.0
SABINE VALLEY MHMR	.9	0.0	.2	0.0	0.0	0.0	.1	0.0	.2	1.6	0.0	.4	.3	0.0	0.0
MHMR OF SOUTHEAST TEXAS	.1	0.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	.2	0.0	.1	0.0	0.0	0.0
TEXOMA MHMR	.2	0.0	.4	0.0	0.0	0.0	0.0	0.0	0.0	.3	0.0	1.0	.1	0.0	0.0
TARRANT MHMR CENTER	.5	.1	.3	0.0	0.0	0.0	.1	.2	0.0	1.0	.2	.7	0.0	0.0	0.0
TROPICAL TEXAS MHMR	.3	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.5	.1	0.0	.2	0.0	0.0
WICHITA FALLS MHMR	.3	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.5	0.0	.5	.1	0.0	0.0
Mean =	.46	.18	.29	0.0	0.0	0.0	.08	.03	.01	.81	.41	.67	.19	.04	.02

TABLE 15

MENTAL HEALTH RESEARCH PROJECT, 1981

DRUG TOTAL

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	1.5	2.6	1.4	0.0	0.0	0.0	4.0	7.9	3.0	1.5	2.8	1.8	0.0	0.0	0.0
AMARILLO MHMR	.6	1.4	.4	.0	0.0	0.0	1.3	2.5	.5	.8	2.3	.7	.0	0.0	0.0
AUSTIN-TRAVIS COUNTY MHMR	1.4	4.4	3.8	0.0	.1	.1	.6	6.7	2.0	2.3	6.6	7.4	.1	0.0	0.0
BEXAR COUNTY MHMR	.4	1.2	.9	0.0	.1	0.0	.3	.9	0.0	.7	2.4	2.0	.0	.0	0.0
BRAZOS VALLEY MHMR	.4	1.3	.4	0.0	0.0	0.0	.7	1.9	.5	.5	1.9	.9	0.0	0.0	0.0
CENTRAL COUNTIES MHMR	.5	.7	.9	0.0	0.0	0.0	1.2	1.6	.9	.5	.6	1.3	.1	0.0	0.0
CENTRAL PLAINS MHMR	.5	.4	.5	0.0	0.0	0.0	.3	.7	1.7	.9	.4	.5	.3	1.9	0.0
CENTRAL TEXAS MHMR	.1	.1	.5	0.0	0.0	0.0	.1	0.0	0.0	.2	.4	1.4	.0	0.0	0.0
DALLAS COUNTY MHMR	.5	.7	1.3	.0	0.0	.0	.6	.5	.3	.7	1.4	2.9	.0	0.0	0.0
DEEP EAST TEXAS MHMR	.2	0.0	.1	0.0	0.0	0.0	.3	0.0	0.0	.2	0.0	.2	.0	0.0	0.0
MHMR OF EAST TEXAS	.5	0.0	.5	0.0	0.0	0.0	.7	0.0	.2	.7	0.0	1.1	.2	0.0	.2
EL PASO MHMR	.6	1.0	2.1	0.0	0.0	0.0	.2	.1	0.0	1.1	2.4	4.5	0.0	.1	0.0
CONCHO VALLEY CENTER	.1	.1	0.0	0.0	0.0	0.0	.3	.3	0.0	.2	0.0	0.0	0.0	0.0	0.0
GULF BEND MHMR	.3	.4	.3	.1	0.0	0.0	.6	.1	0.0	.4	.9	.8	0.0	0.0	0.0
GULF COAST MHMR	.3	.3	.4	0.0	0.0	0.0	.0	0.0	0.0	.5	.6	.9	.1	0.0	0.0
MHMR OF HARRIS COUNTY	.0	.0	.0	.0	0.0	0.0	.0	.0	.0	.0	.0	.0	0.0	0.0	0.0
HEART OF TEXAS MHMR	.7	1.1	1.5	0.0	0.0	0.0	1.2	2.4	.6	1.1	1.3	3.2	0.0	0.0	0.0
LUBBOCK MHMR	.5	1.9	2.1	0.0	0.0	0.0	.1	.3	.2	.8	4.7	5.1	.1	.7	0.0
NORTHEAST TEXAS MHMR	.2	0.0	.1	0.0	0.0	0.0	.4	0.0	0.0	.2	0.0	.1	0.0	0.0	0.0
NUECES COUNTY MHMR	1.2	1.3	.8	.0	0.0	0.0	2.3	3.3	1.7	1.5	1.2	.9	0.0	0.0	0.0
PECAN VALLEY MHMR	.1	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	.1	0.0	0.0	0.0	0.0	0.0
PERMIAN BASIN MHMR	.7	1.6	1.1	0.0	0.0	0.0	.7	1.2	.3	1.0	3.2	2.3	.1	1.2	0.0
SABINE VALLEY MHMR	.4	0.0	.1	0.0	0.0	0.0	.5	0.0	0.0	.6	0.0	.3	0.0	0.0	0.0
MHMR OF SOUTHEAST TEXAS	.5	.1	1.0	.0	0.0	0.0	.8	.3	1.1	.8	0.0	1.7	0.0	0.0	0.0
TEXOMA MHMR	.2	.5	.1	0.0	0.0	0.0	.4	0.0	.5	.3	1.1	0.0	0.0	0.0	0.0
TARRANT MHMR CENTER	.0	.0	.0	0.0	0.0	0.0	.0	.1	0.0	.0	0.0	.1	0.0	0.0	0.0
TROPICAL TEXAS MHMR	.9	1.1	0.0	0.0	.0	0.0	2.5	1.8	0.0	1.2	1.6	0.0	0.0	0.0	0.0
WICHITA FALLS MHMR	.2	.3	.2	0.0	0.0	0.0	.3	.7	0.0	.2	.3	.5	.1	0.0	0.0
Mean =	.48	.81	.73	0.0	0.0	0.0	.73	1.19	.48	.68	1.29	1.45	.04	.14	.01

TABLE 16

MENTAL HEALTH RESEARCH PROJECT, 1981

DRUG MALE

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	2.4	5.0	2.5	0.0	0.0	0.0	6.1	12.2	5.8	2.6	5.8	2.9	0.0	0.0	0.0
AMARILLO MHMR	.9	1.7	.6	.0	0.0	0.0	1.9	3.4	1.0	1.1	2.6	1.0	0.0	0.0	0.0
AUSTIN-TRAVIS COUNTY MHMR	2.0	6.3	5.7	0.0	.1	.2	.8	8.1	2.7	3.3	10.1	11.3	.2	0.0	0.0
BEXAR COUNTY MHMR	.5	2.1	1.5	0.0	.2	0.0	1	1.4	0.0	.9	4.3	3.4	.1	.1	0.0
BRAZOS VALLEY MHMR	.6	2.5	.6	0.0	0.0	0 0	.6	3.2	0.0	.9	3.8	1.7	0.0	0.0	0.0
CENTRAL COUNTIES MHMR	.7	1.1	1.1	0 0	0.0	0.0	1 6	2 3	1.1	.7	.9	1.5	0.0	0.0	0.0
CENTRAL PLAINS MHMR	.5	.5	.7	0.0	0.0	0 0	.2	.7	3.1	1.0	.7	0.0	0 0	3 5	0 0
CENTRAL TEXAS MHMR	.1	.3	1.1	0.0	0.0	0 0	0 0	0.0	0.0	.2	.7	3.4	0.0	0.0	0.0
DALLAS COUNTY MHMR	.7	1.1	1.7	0.0	0.0	0.0	.9	.7	.5	1.0	2.1	3.8	.0	0.0	0.0
DEEP EAST TEXAS MHMR	.2	0.0	.1	0.0	0.0	0.0	.4	0.0	0.0	.2	0.0	.2	.1	0.0	0.0
MHMR OF EAST TEXAS	.7	0.0	.5	0.0	0.0	0.0	1.2	0.0	.2	1.0	0.0	1.2	.2	0.0	0.0
EL PASO MHMR	.7	1.9	2.6	0.0	0.0	0.0	.1	.2	0.0	1.3	4.6	5.5	0.0	.2	0.0
CONCHO VALLEY CENTER	.2	.1	0 0	0.0	0.0	0.0	.5	.7	0.0	.2	0.0	0.0	0.0	0.0	0.0
GULF BEND MHMR	.5	.7	.7	.1	0.0	0.0	.7	0 0	0.0	.7	1.7	1.7	0.0	0.0	0.0
GULF COAST MHMR	.4	.5	.5	0.0	0 0	0.0	.0	0.0	0.0	.7	1.1	1.0	.1	0.0	0.0
MHMR OF HARRIS COUNTY	.0	.0	.0	.0	0.0	0.0	0 0	.0	.0	0	.0	.0	0.0	0.0	0.0
HEART OF TEXAS MHMR	1.2	1.9	2.0	0.0	0.0	0.0	1.7	4.3	1.1	1.7	2.2	4.3	0.0	0.0	0.0
LUBBOCK MHMR	.6	2.7	2.5	0.0	0.0	0.0	.1	.2	0.0	1.0	7.4	6.7	.2	0.0	0.0
NORTHEAST TEXAS MHMR	.2	0.0	.1	0.0	0.0	0.0	.2	0.0	0.0	.3	0.0	.3	0.0	0.0	0.0
NUECES COUNTY MHMR	1.7	2.0	.7	0.0	0.0	0.0	2.7	5.2	1.6	2.1	2.0	.8	0.0	0.0	0.0
PECAN VALLEY MHMR	.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	0.0	.1	0.0	0.0	0.0	0.0	0.0
PERMIAN BASIN MHMR	1.0	2.9	1.2	0.0	0.0	0.0	1.1	2.2	0.0	1.5	5.7	3.0	0.0	3.0	0.0
SABINE VALLEY MHMR	.3	0.0	.1	0.0	0.0	0.0	.6	0.0	0.0	.3	0.0	.3	0.0	0.0	0.0
[redacted]MR OF SOUTHEAST TEXAS	.8	.1	1.3	.0	0.0	0.0	1.1	.6	1.4	1.1	0.0	2.4	0.0	0.0	0.0
TEXOMA MHMR	.3	1.0	.2	0.0	0.0	0.0	.6	0.0	1.1	.3	2.2	0.0	0.0	0.0	0.0
TARRANT MHMR CENTER	.0	0.0	.0	0.0	0.0	0.0	.1	0.0	0.0	.0	0.0	.1	0.0	0.0	0.0
TROPICAL TEXAS MHMR	1.3	2.1	0.0	0.0	0.0	0.0	3.1	3.2	0.0	1.9	3.4	0.0	0.0	0.0	0.0
WICHITA FALLS MHMR	.4	.6	.2	0.0	0.0	0.0	.6	1.2	0.0	.5	.7	.6	.2	0.0	0.0
Mean =	.68	1.33	1.01	0.0	0.1	0.0	.97	1.78	.70	.95	2.21	2.04	.04	.24	0.0

TABLE 17

MENTAL HEALTH RESEARCH PROJECT, 1981

DRUG FEMALE

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	.6	.7	.3	0.0	0.0	0.0	1.8	3.4	0.0	.6	0.0	.7	0.0	0.0	0.0
AMARILLO MHMR	.4	1.1	.2	.0	0.0	0.0	.7	1.4	0.0	.5	2.0	.4	.0	0.0	0.0
AUSTIN-TRAVIS COUNTY MHMR	.8	2.5	2.2	0.0	0.0	0.0	.5	5.2	1.2	1.4	3.1	4.1	0.0	0.0	0.0
BEXAR COUNTY MHMR	.3	.4	.4	0.0	.0	0.0	.2	.4	0.0	.5	.8	.9	0 0	0 0	0.0
BRAZOS VALLEY MHMR	.2	0.0	.3	0.0	0.0	0.0	.8	0.0	1.0	.1	0.0	.3	0.0	0.0	0.0
CENTRAL COUNTIES MHMR	.3	.2	.6	0.0	0.0	0.0	.5	.5	.4	.4	.2	1.0	.2	0.0	0.0
CENTRAL PLAINS MHMR	.6	.2	.4	0 0	0 0	0 0	.4	.7	0.0	.9	.2	.9	.6	0.0	0.0
CENTRAL TEXAS MHMR	.1	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	.2	0.0	0.0	.1	0.0	0.0
DALLAS COUNTY MHMR	.3	.4	1.0	.0	0.0	0.0	.3	.2	.1	.5	.7	2.0	.0	0.0	0.0
DEEP EAST TEXAS MHMR	.1	0.0	.1	0.0	0.0	0.0	.2	0.0	0.0	.2	0.0	.1	0.0	0.0	0.0
MHMR OF EAST TEXAS	.3	0.0	.5	0.0	0.0	0.0	.2	0.0	.2	.4	0.0	.9	.3	0.0	.4
EL PASO MHMR	.6	.3	1.4	0.0	0.0	0.0	.3	.1	0.0	1.0	.6	3.2	0.0	0.0	0.0
CONCHO VALLEY CENTER	.1	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	.1	0.0	0.0	0.0	0.0	0.0
GULF BEND MHMR	.1	.2	0 0	0.0	0.0	0.0	.5	.2	0.0	1	3	0.0	0.0	0.0	0.0
GULF COAST MHMR	.2	.1	.3	0.0	0.0	0.0	.1	0.0	0.0	.3	.1	.7	0 0	0.0	0.0
MHMR OF HARRIS COUNTY	.0	.0	.0	0.0	0.0	0.0	.0	0.0	.0	.0	.0	.0	0.0	0.0	0.0
HEART OF TEXAS MHMR	.3	.3	1.0	0.0	0.0	0.0	.7	.6	0.0	.5	.4	2.3	0.0	0.0	0.0
LUBBOCK MHMR	.3	1.0	1.7	0.0	0 0	0 0	.1	.3	.5	.6	2.2	3.8	0.0	1.7	0.0
NORTHEAST TEXAS MHMR	.2	0.0	0.0	0 0	0.0	0.0	.6	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0
NUECES COUNTY MHMR	.8	.6	.8	.1	0.0	0.0	1.9	1.5	1.8	.9	.5	1.0	0.0	0.0	0.0
PECAN VALLEY MHMR	.1	0.0	0.0	0.0	0.0	0.0	.2	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0
PERMIAN BASIN MHMR	.4	.4	.9	0.0	0.0	0.0	.3	.3	.7	.6	.7	1.8	.1	0.0	0.0
SABINE VALLEY MHMR	.5	0.0	.1	0.0	0.0	0.0	.4	0.0	0.0	.8	0.0	.2	0.0	0.0	0.0
MHMR OF SOUTHEAST TEXAS	.3	0.0	.6	0.0	0.0	0.0	.4	0.0	.8	.5	0.0	1.0	0.0	0.0	0.0
TEXOMA MHMR	.1	.0	.0	0.0	0.0	0.0	.1	0.0	0.0	.2	0.0	0.0	0.0	0.0	0.0
TARRANT MHMR CENTER	.0	.0	.0	0.0	0.0	0.0	0.0	.2	0.0	.0	0.0	.1	0.0	0.0	0.0
TROPICAL TEXAS MHMR	.5	.2	0.0	0.0	0.0	0.0	1.9	.5	0.0	.5	.2	0.0	0.0	0.0	0.0
WICHITA FALLS MHMR	.0	0.0	.2	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0	.5	0.0	0.0	0.0
Mean =	.30	.31	.46	0.0	0.0	0.0	.48	.55	.24	.45	.43	.93	.05	.06	.01

TABLE 18

MENTAL HEALTH RESEARCH PROJECT, 1981

MENTAL RETARDATION TOTAL

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	1.7	2.6	2.9	.7	1.2	.5	.4	1.3	3.7	3.0	4.5	4.3	.3	0.0	1.7
AMARILLO MHMR	.1	.3	.1	.1	.4	.3	.1	.7	0.0	.1	0.0	0.0	0.0	0.0	0.0
AUSTIN-TRAVIS COUNTY MHMR	1.1	2.4	3.0	1.2	2.8	3.7	.6	1.3	3.0	1.4	2.9	3.0	.2	.4	0.0
BEXAR COUNTY MHMR	.7	1.2	1.1	1.4	1.7	1.5	.7	1.0	1.0	.6	1.1	1.2	0.0	.1	0.0
BRAZOS VALLEY MHMR	.5	.4	1.6	1.8	1.1	3.0	.2	0.0	1.2	.4	.2	1.8	0.0	0.0	0.0
CENTRAL COUNTIES MHMR	.3	.5	.6	.6	.4	.5	.2	.7	1.0	2	.5	.5	.0	0.0	0.0
CENTRAL PLAINS MHMR	.6	1.2	1.2	.3	1.0	1.5	1.1	1.8	.8	.8	1.1	1.5	.2	0.0	0.0
CENTRAL TEXAS MHMR	1.5	1.8	4.0	1.4	2.2	2.3	1 6	1.8	4 0	2.4	1.8	7.1	.1	0.0	0.0
DALLAS COUNTY MHMR	.7	.8	1.4	.8	1.1	1.5	1.0	1.3	2.3	.6	.5	1.2	.0	0.0	.2
DEEP EAST TEXAS MHMR	1.4	.8	3.9	2.1	1.7	6.4	2.1	1.0	4.7	1.3	.4	2.9	.1	0.0	0.0
MHMR OF EAST TEXAS	.9	.9	1.1	1.3	1.8	1.6	1.0	1.4	.2	1.0	0.0	1.6	.1	0.0	0.0
EL PASO MHMR	.3	.7	1.1	.5	.7	.9	.2	.4	.4	.3	.9	1.7	0.0	0.0	0.0
CONCHO VALLEY CENTER	1.1	1.9	3.6	.4	1.6	10.1	1.6	3.8	3.3	1.3	1.3	.7	.6	0.0	2.3
GULF BEND MHMR	.8	1 7	1.5	.2	1.4	1.8	1.5	1.7	3.8	1.0	2.1	1.0	0.0	0.0	0.0
GULF COAST MHMR	.8	.8	1.2	8	1.0	.7	.5	.8	1.4	1.0	.7	1.5	.2	0.0	0.0
MHMR OF HARRIS COUNTY	.6	1.1	.9	8	1.6	1.1	.9	1.5	1.5	.5	.5	.5	.0	0.0	0.0
HEART OF TEXAS MHMR	1.8	2.7	4.7	3.6	4.1	6.7	1.7	3.4	6.8	2.0	1.8	4.0	.1	0.0	.4
LUBBOCK MHMR	.3	.3	.6	.2	.1	0.0	.3	.3	1.2	.4	.7	.7	0.0	0.0	0.0
NORTHEAST TEXAS MHMR	1.5	1.3	3.8	2.8	5.5	4.6	3.0	0.0	7.7	1.0	0.0	2.6	0.0	0.0	0.0
NUECES COUNTY MHMR	.6	1.5	1.4	.5	1.2	2.1	1.0	1.3	1.3	.7	1.9	1.4	0.0	0.0	0.0
PECAN VALLEY MHMR	.5	.6	.6	.3	0.0	2.4	.8	1.3	0.0	.6	.7	0.0	0.0	0.0	0.0
PERMIAN BASIN MHMR	1.0	2.0	1.7	1.9	2.3	1.2	1.1	2.6	1.0	.7	1.4	2.7	0.0	0.0	0.0
SABINE VALLEY MHMR	.8	0.0	1.6	.5	0.0	.5	1.0	0.0	2.6	1.1	0.0	2.4	.0	0.0	.2
MHMR OF SOUTHEAST TEXAS	.1	0 0	.4	.0	0.0	.6	.2	0.0	.6	.2	0.0	.3	0.0	0.0	0.0
TEXOMA MHMR	1.3	.9	1.9	1.6	0.0	2.6	2.1	0.0	4.1	1.3	2.2	1.0	0.0	0.0	0.0
TARRANT MHMR CENTER	.7	.7	1.0	.5	.7	.7	.7	1.1	1.4	.8	.6	1.1	.0	0.0	0.0
TROPICAL TEXAS MHMR	.2	.8	1.4	.3	.9	3.2	.5	1.3	3.2	.3	.6	0.0	0.0	0.0	0.0
WICHITA FALLS MHMR	1.0	.4	1.9	.5	0.0	.4	1.0	0.0	2.2	1.5	1.0	2.8	0.0	0.0	1.0
Mean =	.82	1.08	1.79	.97	1.30	2.23	.97	1.14	2.30	.95	1.05	1.77	.07	.02	.21

TABLE 19

MENTAL HEALTH RESEARCH PROJECT, 1981

MENTAL RETARDATION MALES

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	1.5	2.1	3.4	.7	0 0	1.1	.5	2.4	5.8	2.6	3.8	3.7	.3	0.0	3.8
AMARILLO MHMR	.1	.4	.2	.1	5	.7	.2	1.3	0.0	.1	0.0	0.0	0.0	0.0	0.0
AUSTIN-TRAVIS COUNTY MHMR	1.1	3.0	3.6	1.2	4.0	3.5	.6	1.1	2.7	1.3	3.4	4.7	.2	0.0	0.0
BEXAR COUNTY MHMR	.9	1.5	1.0	1 7	2.0	1.6	.7	1.2	.8	.8	1.3	.9	0 0	.1	0.0
BRAZOS VALLEY MHMR	.5	.5	2.2	2.2	1.2	3 9	.2	0.0	1.6	.3	.4	2.5	0.0	0.0	0.0
CENTRAL COUNTIES MHMR	.3	.3	.5	9	0 0	.7	2	6	.4	.2	.3	.6	.1	0.0	0.0
CENTRAL PLAINS MHMR	.8	1.2	1.8	5	.8	3 0	1.0	2.1	1.6	9	1 1	1.0	.4	0.0	0.0
CENTRAL TEXAS MHMR	1.7	1.9	4 3	1 6	9	4.8	2 2	2.2	6.9	2 4	2.9	3.4	.2	0.0	0.0
DALLAS COUNTY MHMR	.8	.9	1.8	1.0	1.0	2.0	1.2	1.7	3.1	7	.5	1.2	0.0	0.0	.2
DEEP EAST TEXAS MHMR	1.7	.7	4.7	2.4	3.2	6.6	2.5	0.0	6.7	1.6	0.0	3.8	.3	0.0	0.0
MHMR OF EAST TEXAS	1.1	1.2	1.7	1.5	4.2	2.6	.9	0 0	.5	1 3	0.0	2.3	0.0	0.0	0.0
EL PASO MHMR	.3	.8	1.2	.4	.8	1.1	.3	.4	0.0	.4	1.2	1.8	0.0	0.0	0.0
CONCHO VALLEY CENTER	1.4	2.4	3.1	.4	1.8	7.5	2.0	5.4	3.1	1.7	1.7	0.0	.6	0.0	5.3
GULF BEND MHMR	.8	2 0	2.3	2	1 1	2 8	1.3	2.9	4.4	1.1	2.5	1.7	0.0	0.0	0.0
GULF COAST MHMR	8	.8	1.2	.9	3	.9	.5	1.3	1.9	1.0	.9	1.3	.3	0.0	0.0
MHMR OF HARRIS COUNTY	.7	1.2	1.0	1.0	1.9	1.1	1.1	1.9	2.1	.5	.4	.6	0.0	0.0	0.0
HEART OF TEXAS MHMR	2.0	3.0	5.6	3 9	5.0	8.5	2.0	3.0	7.1	2.0	1.8	4.5	.2	0.0	1.0
LUBBOCK MHMR	.4	.3	.7	.3	.1	0.0	.3	.3	1.9	.5	.5	.6	0.0	0.0	0.0
NORTHEAST TEXAS MHMR	1.7	2.6	4.3	3.5	9.2	5.4	2.9	0.0	10.6	1.2	0.0	1.8	0.0	0.0	0.0
NUECES COUNTY MHMR	.8	2.0	1.9	.6	1.6	2.1	1.3	1.7	1.6	.8	2.6	2.3	0.0	0.0	0.0
PECAN VALLEY MHMR	.6	.5	0 0	.1	0.0	0.0	1.0	2.2	0.0	.8	0.0	0.0	0.0	0.0	0.0
PERMIAN BASIN MHMR	1.1	2.1	2.4	2.4	2.9	1.2	1.0	2.6	1.4	.8	1.2	4.3	0.0	0.0	0.0
SABINE VALLEY MHMR	1 0	0 0	1.6	.6	0.0	.9	1.3	0.0	2.8	1.3	0.0	2.0	0.0	0.0	.2
MHMR OF SOUTHEAST TEXAS	2	0 0	.7	.0	0.0	.9	.3	0.0	1.1	.3	0.0	.4	0.0	0.0	0.0
TEXOMA MHMR	1.6	1.0	1.7	1.5	0 0	1.5	2.6	0.0	3.2	1.6	2.2	1.7	0.0	0.0	0.0
TARRANT MHMR CENTER	.7	.9	1.3	.6	1.0	1.0	.9	1.9	1.7	.8	.4	1.4	0.0	0.0	0.0
TROPICAL TEXAS MHMR	.4	1.0	3.0	.3	1.0	6.9	.6	1.6	6.5	.6	.9	0.0	0.0	[illegible]	0.0
WICHITA FALLS MHMR	1.3	.3	2.4	.8	0 0	.9	1.1	0.0	1.5	1.8	.7	3.9	0.0	[illegible]	2.3
Mean =	.94	1.24	2.13	1.12	1.59	2.61	1.09	1.35	2.89	1.05	1.10	1.87	.09	[illegible]	.46

TABLE 20

MENTAL HEALTH RESEARCH PROJECT, 1981

MENTAL RETARDATION FEMALES

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	1.8	3.1	2.4	.7	2.5	0.0	.4	0.0	1.5	3.3	5.1	4.9	.3	0.0	0.0
AMARILLO MHMR	.1	.1	0.0	.0	.3	0.0	0.0	0.0	0.0	.1	0.0	0.0	0.0	0.0	0.0
AUSTIN-TRAVIS COUNTY MHMR	1.2	1.9	2.4	1.3	1.6	4.0	.7	1.4	3.3	1.5	2.5	1.6	.2	.8	0.0
BEXAR COUNTY MHMR	.6	.9	1.3	1.1	1.3	1.5	.6	.8	1.2	.5	.8	1.4	0.0	.1	0.0
BRAZOS VALLEY MHMR	.5	.3	1.1	1.4	1.1	2.0	.3	0.0	.8	.5	0.0	1.3	0.0	0.0	0.0
CENTRAL COUNTIES MHMR	.2	.8	.7	.3	.8	.3	.2	.9	2.0	.3	.7	.3	0.0	0.0	0.0
CENTRAL PLAINS MHMR	.5	1.2	[illegible]	0.0	1.2	0.0	1.1	1.4	0.0	.6	1.1	1.9	0.0	0.0	0.0
CENTRAL TEXAS MHMR	1.3	1.6	3.8	1.1	3.3	0.0	1.0	1.3	0.0	2.3	.7	9.8	0.0	0.0	0.0
DALLAS COUNTY MHMR	.6	.7	1.1	.6	1.1	.9	.8	.8	1.6	.5	.5	1.2	.0	0.0	.1
DEEP EAST TEXAS MHMR	1.1	.8	3.0	1.8	0.0	6.3	1.7	1.9	2.6	1.0	.9	2.1	0.0	0.0	0.0
MHMR OF EAST TEXAS	.7	.5	.6	1.2	0.0	.6	1.1	2.6	0.0	.7	0.0	1.0	.2	0.0	0.0
EL PASO MHMR	.3	.6	1.0	.7	.6	.6	.1	.4	.8	.3	.7	1.6	0.0	0.0	0.0
CONCHO VALLEY CENTER	.8	1.4	4.0	4	1.5	12 7	1.2	2.4	3.4	1.0	1.0	1.2	.6	0.0	0.0
GULF BEND MHMR	.7	1.3	.9	2	1.7	.7	1.6	.5	3.3	.9	1.7	.3	0.0	0.0	0.0
GULF COAST MHMR	.8	.8	1.1	.6	1.7	.5	.5	.3	1.0	1.0	.5	1.8	.2	0.0	0.0
MHMR OF HARRIS COUNTY	.5	.9	.7	.7	1.4	1.1	.7	1.1	1.0	.5	.6	.4	.0	0.0	0.0
HEART OF TEXAS MHMR	1.7	2.5	3.9	3.3	3.1	5.0	1.3	3.7	6.4	2.0	1.8	3.5	.1	0.0	0.0
LUBBOCK MHMR	.3	.4	.4	0.0	.1	0.0	.4	.2	.5	.4	.8	.8	0.0	0.0	0.0
NORTHEAST TEXAS MHMR	1.3	0.0	3.3	2.2	0.0	3.8	3.1	0.0	5.0	.9	0.0	3.3	0.0	0.0	0.0
NUECES COUNTY MHMR	.5	1.0	1.0	.3	.8	2.1	.6	1.0	.9	.7	1.3	.7	0.0	0.0	0.0
PECAN VALLEY MHMR	.4	.6	1.2	.4	0.0	4 8	.7	0.0	0.0	.5	1.5	0.0	0.0	0.0	0.0
PERMIAN BASIN MHMR	.8	1.9	1.1	1.4	1.7	1.2	1.1	2.7	.7	.7	1.7	1.4	0.0	0.0	0.0
SABINE VALLEY MHMR	.6	0.0	1.7	.4	0.0	1	.7	0.0	2.3	.9	0.0	2.8	.1	0.0	.2
MHMR OF SOUTHEAST TEXAS	.1	0.0	.2	0.0	0.0	.3	0.0	0.0	.1	.1	0.0	.2	0.0	0.0	0.0
TEXOMA MHMR	1.0	.9	2.1	1.6	0.0	3.7	1.5	0.0	4.9	1.0	2.1	.5	0.0	0.0	0.0
TARRANT MHMR CENTER	.6	.5	.7	.4	.3	.4	.6	.4	1.1	.8	.7	.8	.1	0.0	0.0
TROPICAL TEXAS MHMR	.1	.6	0.0	.3	.7	0.0	.4	.9	0.0	.0	.3	0.0	0.0	0.0	0.0
WICHITA FALLS MHMR	.8	.6	1.5	.2	0.0	0.0	.8	0.0	3.1	1.3	1.4	1.9	0.0	0.0	0.0
Mean =	.71	.93	1.50	.81	.96	1.88	.83	.88	1.70	.87	1.01	1.67	.06	.03	.01

TABLE 21

MENTAL HEALTH RESEARCH PROJECT, 1981

TOTAL SERVED TOTAL

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	13.5	13.3	17.3	3.0	2.5	2.6	11.3	13.8	9.7	21.3	22.9	31.5	3.8	0.0	13.7
AMARILLO MHMR	14.7	18.3	21.2	5.2	4.3	3.8	16.4	21.2	11.8	20.2	27.6	30.8	5.1	40.1	46.9
AUSTIN-TRAVIS COUNTY MHMR	13.5	17.3	24.3	7.0	6.2	12.2	8.4	17.3	18.1	18.4	25.3	36.0	6.6	12.3	10.9
BEXAR COUNTY MHMR	8.7	15.2	16.3	4.7	6.6	9.4	5.6	13.4	10.9	12.3	23.1	24.2	3.4	8.1	6.9
BRAZOS VALLEY MHMR	14.0	13.8	15.1	7.2	3.7	6.0	11.0	9.4	7.2	20.2	24.9	30.8	4.3	0.0	4.7
CENTRAL COUNTIES MHMR	10.2	9.8	10.2	6.1	2.3	3.6	10.7	10.3	10.5	11.7	13.1	13.0	7.0	13.2	6.8
CENTRAL PLAINS MHMR	18.2	16.1	19.2	9.8	9.8	18.0	18.5	15.3	13.3	22.6	22.5	25.0	14.8	32.8	13.5
CENTRAL TEXAS MHMR	14.0	12.0	25.7	7.4	6.5	2.3	13.4	4.7	29.6	22.0	23.0	48.3	4.0	1.9	3.0
DALLAS COUNTY MHMR	9.5	8.1	17.4	3.3	2.7	4.2	7.9	6.9	11.9	13.1	13.0	29.1	5.8	4.9	14.6
DEEP EAST TEXAS MHMR	14.6	9.2	14.7	7.5	2.6	8.6	13.9	10.9	13.8	19.7	11.0	21.9	7.8	13.5	7.5
MHMR OF EAST TEXAS	11.2	6.0	11.0	4.9	3.6	4.3	9.4	2.9	4.2	16.4	9.6	20.3	4.3	3.9	5.5
EL PASO MHMR	7.7	10.0	12.3	6.9	6.1	7.7	5.8	6.1	6.0	9.8	15.8	19.0	2.3	4.6	2.0
CONCHO VALLEY CENTER	11.1	12.7	17.8	5.2	6.3	16.4	12.0	13.0	22.8	14.8	17.8	20.4	3.9	5.6	4.6
GULF BEND MHMR	16.4	17.9	18.6	12.0	9.8	8.7	14.6	12.9	17.7	21.9	27.5	29.0	5.6	12.1	6.8
GULF COAST MHMR	5.2	4.4	8.6	3.1	2.3	2.8	4.1	3.4	6.6	7.0	6.5	13.4	1.8	3.4	4.8
MHMR OF HARRIS COUNTY	3.3	4.2	6.8	2.2	2.8	3.1	3.0	4.0	4.7	4.0	5.4	10.4	1.8	4.1	4.1
HEART OF TEXAS MHMR	15.2	16.8	23.0	9.7	7.1	12.5	13.3	14.6	13.9	21.2	26.3	38.6	5.1	7.3	8.2
LUBBOCK MHMR	10.8	11.0	12.8	4.0	2.2	2.1	6.1	6.2	6.8	16.7	22.8	25.6	2.5	6.8	6.2
NORTHEAST TEXAS MHMR	10.5	10.7	13.0	9.5	5.5	9.8	16.5	22.1	17.1	11.6	9.5	16.5	2.1	0.0	3.2
NUECES COUNTY MHMR	9.6	10.4	11.5	5.7	6.2	10.0	10.0	12.0	9.8	12.3	13.3	14.8	1.9	2.9	2.0
PECAN VALLEY MHMR	7.3	2.4	3.1	3.8	1.9	2.4	13.6	1.3	3.2	8.6	3.5	2.8	.9	0.0	5.6
PERMIAN BASIN MHMR	22.9	23.5	27.3	11.4	8.1	10.7	17.9	19.8	20.2	31.7	39.4	45.0	8.6	16.9	10.4
SABINE VALLEY MHMR	12.3	.6	10.9	5.6	0.0	2.2	11.2	0.0	8.6	17.9	1.4	20.4	3.4	0.0	3.4
MHMR OF SOUTHEAST TEXAS	6.4	2.8	11.4	2.2	1.5	4.6	6.9	3.3	8.8	8.7	3.4	17.8	1.9	1.3	6.4
TEXOMA MHMR	10.8	8.3	15.3	6.4	5.0	8.4	12.0	3.5	12.3	14.6	14.1	25.5	3.2	0.0	3.8
TARRANT MHMR CENTER	8.0	7.6	12.4	1.9	1.4	2.0	4.9	4.8	7.3	12.2	13.6	22.3	3.4	8.3	7.0
TROPICAL TEXAS MHMR	7.4	6.7	9.7	4.3	2.8	9.5	9.4	6.3	12.7	10.2	10.5	9.9	2.4	4.2	5.1
WICHITA FALLS MHMR	11.3	8.4	13.4	5.1	5.9	3.1	8.3	5.9	9.2	17.2	12.2	24.1	3.1	0.0	4.1
Mean =	11.92	11.37	10.62	5.9	4.49	6.82	10.57	9.47	11.74	15.65	16.39	23.8	4.31	7.44	7.92

TABLE 22

MENTAL HEALTH RESEARCH PROJECT, 1981

TOTAL SERVED MALES

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	14.5	13.6	16.4	3.4	1.5	5.5	13.5	17.1	16.0	21.9	22.9	24.9	4.1	0	11.5
AMARILLO MHMR	15.9	17.4	14.2	6.0	4.3	4.1	17.0	23.5	11.5	21.8	25.4	21.5	6.3	29.3	19.4
AUSTIN-TRAVIS COUNTY MHMR	13.3	20.0	27.5	9.0	8.9	15.5	8.4	21.3	20.6	17.1	27.7	40.8	6.6	10.7	9.4
BEXAR COUNTY MHMR	10.4	19.3	17.8	5.7	8.5	9.9	5.8	16.8	9.9	14.9	30.3	28.8	4.4	8.5	6.1
BRAZOS VALLEY MHMR	14.8	19.6	19.3	8.2	2.9	6.6	11.5	10.8	7.4	21.0	38.8	44.3	4.6	0.0	6.0
CENTRAL COUNTIES MHMR	9.4	11.2	9.8	8.1	2.2	5.1	11.3	11.9	12.0	9.5	14.5	10.4	6.6	12.0	6.4
CENTRAL PLAINS MHMR	16.8	16.6	19.2	13.4	11.6	21.8	17.2	14.4	15.7	19.3	21.8	17.5	13.1	38.2	25.9
CENTRAL TEXAS MHMR	13.1	10.8	27.0	10.4	5.5	4.8	11.6	5.5	34.6	19.2	20.5	43.8	4.1	0.0	7.5
DALLAS COUNTY MHMR	8.9	8.0	16.9	4.2	3.1	5.8	8.6	7.9	14.0	11.6	12.0	27.2	5.2	5.3	10.7
DEEP EAST TEXAS MHMR	14.3	8.0	16.2	8.7	4.7	9.7	14.8	8.2	14.2	18.4	9.1	25.6	7.1	12.0	6.4
MHMR OF EAST TEXAS	10.5	5.0	11.5	5.3	6.2	5.9	8.5	3.2	4.2	15.2	5.7	21.3	4.0	0.0	4.9
EL PASO MHMR	7.7	12.0	14.2	8.8	8.3	12.2	5.5	6.8	7.3	9.0	18.9	19.6	2.0	5.3	0.0
CONCHO VALLEY CENTER	9.2	11.7	16.7	7.1	6.6	12.5	11.2	19.6	28.1	10.6	12.6	16.9	2.9	5.4	5.3
GULF BEND MHMR	14.8	16.4	20.2	16.0	11.2	11.3	13.2	15.0	19.2	17.4	21.2	32.2	5.1	16.5	4.6
GULF COAST MHMR	4.9	4.0	9.6	3.4	1.9	3.6	4.4	3.0	8.9	6.1	6.1	14.6	1.8	2.6	1.9
MHMR OF HARRIS COUNTY	3.2	4.2	7.6	2.5	3.4	3.7	3.4	4.9	6.7	3.6	4.5	11.1	1.6	3.1	3.0
HEART OF TEXAS MHMR	15.1	18.6	24.9	11.3	8.6	15.1	15.1	17.1	15.6	19.7	28.1	41.6	4.6	8.4	8.0
LUBBOCK MHMR	10.8	13.0	13.3	5.1	3.1	2.4	5.7	6.2	8.2	16.0	28.5	27.3	3.6	3.4	5.3
NORTHEAST TEXAS MHMR	9.8	15.9	14.8	14.0	9.2	13.2	16.0	62.5	20.6	8.3	10.2	17.1	1.7	0.0	3.4
NUECES COUNTY MHMR	10.9	12.3	12.5	7.4	8.1	12.9	11.8	15.2	10.5	13.1	14.9	15.2	2.7	3.5	2.2
PECAN VALLEY MHMR	6.9	2.2	2.5	4.9	3.9	0.0	14.8	2.2	0.0	6.4	1.3	5.4	1.1	0.0	0.0
PERMIAN BASIN MHMR	25.0	28.4	30.5	15.0	11.7	14.1	18.4	25.2	21.0	33.7	44.0	51.6	10.8	26.7	11.0
SABINE VALLEY MHMR	11.5	1.3	10.9	5.7	0.0	2.6	10.6	0.0	8.9	16.4	2.8	21.1	3.2	0.0	1.9
MHMR OF SOUTHEAST TEXAS	5.7	2.9	10.8	2.7	1.1	5.4	7.0	6.4	11.4	7.1	2.2	15.5	1.7	2.4	3.5
TEXOMA MHMR	10.5	7.9	10.9	7.3	6.7	5.1	12.5	0.0	8.5	10.4	13.9	18.9	2.5	0.0	3.6
TARRANT MHMR CENTER	8.6	9.1	11.7	2.2	1.8	2.4	5.4	6.0	7.0	12.9	15.5	21.2	3.5	16.7	8.2
TROPICAL TEXAS MHMR	7.4	8.4	10.4	4.7	3.4	20.8	9.8	8.6	13.0	10.4	13.4	7.1	1.8	4.3	0.0
WICHITA FALLS MHMR	10.3	8.7	12.9	6.6	6.1	1.7	7.5	7.0	9.3	14.9	12.0	24.6	2.5	0.0	4.6
Mean =	11.22	11.66	15.36	7.4	5.52	8.34	10.73	12.37	13.01	14.6	17.08	23.8	4.62	7.65	6.45

TABLE 23

MENTAL HEALTH RESEARCH PROJECT, 1981

TOTAL SERVED FEMALES

	ALL AGES			AGES 0-12			AGES 13-20			AGES 21-64			AGES 65+		
	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK	ANG	MEX A	BLK
ABILENE MHMR	12.6	13.1	18.1	2.7	3.5	0.0	9.1	10.3	3.1	20.7	22.9	37.8	3.6	0.0	15.4
AMARILLO MHMR	13.5	19.3	27.4	4.5	4.3	3.4	15.9	18.7	12.0	18.7	29.8	38.5	4.2	51.6	72.5
AUSTIN-TRAVIS COUNTY MHMR	13.8	14.6	21.4	4.9	3.5	8.9	8.5	13.2	15.6	19.6	22.8	31.9	6.6	13.7	11.9
BEXAR COUNTY MHMR	7.0	11.3	14.8	3.6	4.7	9.0	5.3	10.1	12.1	9.8	16.7	20.3	2.8	7.7	7.5
BRAZOS VALLEY MHMR	13.0	7.3	11.3	6.0	4.5	5.4	10.1	7.6	7.0	19.3	10.1	20.3	4.1	0.0	3.6
CENTRAL COUNTIES MHMR	11.1	7.9	11.0	3.9	2.3	2.0	9.8	7.7	7.7	14.5	10.9	17.5	7.2	14.6	7.1
CENTRAL PLAINS MHMR	19.6	15.7	19.2	5.8	8.0	14.1	19.9	16.3	10.6	25.7	23.2	31.8	16.1	26.1	0.0
CENTRAL TEXAS MHMR	14.8	13.1	24.6	4.1	7.5	0.0	15.2	3.8	23.0	24.5	25.4	51.6	4.0	3.4	0.0
DALLAS COUNTY MHMR	10.0	8.2	17.8	2.4	2.3	2.6	7.2	5.9	9.9	14.5	13.9	30.7	6.1	4.6	17.8
DEEP EAST TEXAS MHMR	14.9	10.6	13.4	6.1	0.0	7.6	13.0	13.4	13.3	20.9	13.6	18.7	8.4	14.3	8.5
MHMR OF EAST TEXAS	11.9	6.8	10.5	4.5	1.6	2.6	10.3	2.6	4.2	17.5	13.2	19.5	4.5	7.4	6.0
EL PASO MHMR	7.8	8.2	10.0	4.8	3.8	2.9	6.0	5.6	4.6	10.6	13.2	18.3	2.5	4.0	3.6
CONCHO VALLEY CENTER	12.9	13.6	18.9	3.4	5.9	20.3	12.8	7.2	17.0	18.7	23.1	23.4	4.6	5.7	4.0
GULF BEND MHMR	17.8	19.4	17.2	8.0	8.3	5.9	16.1	10.8	16.4	26.1	33.5	26.4	6.0	7.1	8.5
GULF COAST MHMR	5.5	4.8	7.6	2.8	2.7	2.0	3.8	3.9	4.4	7.8	6.8	12.1	1.8	4.2	7.4
MHMR OF HARRIS COUNTY	3.3	4.2	6.1	1.8	2.3	2.5	2.6	3.1	2.8	4.4	6.2	9.8	1.9	4.9	5.0
HEART OF TEXAS MHMR	15.2	15.1	21.4	8.1	5.7	9.9	11.5	12.2	12.3	22.6	24.7	36.2	5.4	6.4	8.3
LUBBOCK MHMR	10.8	9.0	12.3	2.8	1.2	1.8	6.5	6.2	5.3	17.3	17.5	24.2	1.8	12.0	7.2
NORTHEAST TEXAS MHMR	11.2	5.4	11.4	4.9	0.0	6.5	16.9	7.5	13.8	14.7	8.4	16.0	2.4	0.0	3.0
NUECES COUNTY MHMR	8.4	8.6	10.7	3.8	4.4	7.2	8.0	8.9	9.0	11.6	11.8	14.4	1.3	2.4	1.8
PECAN VALLEY MHMR	7.7	2.6	3.7	2.6	0.0	4.8	12.2	0.0	6.5	10.9	6.0	0.0	.7	0.0	8.8
PERMIAN BASIN MHMR	20.9	18.9	24.4	7.7	4.6	7.3	17.4	14.7	19.5	29.7	34.8	39.6	7.0	10.2	9.9
SABINE VALLEY MHMR	13.1	0.0	10.9	5.4	0.0	1.8	11.8	0.0	8.2	19.4	0.0	19.8	3.5	0.0	4.5
MHMR OF SOUTHEAST TEXAS	7.0	2.7	12.0	1.7	1.9	13.8	6.8	.6	6.3	10.3	4.5	19.9	2.1	0.0	8.9
TEXOMA MHMR	11.0	8.6	19.1	5.4	3.3	11.8	11.5	6.1	15.8	15.7	14.8	31.1	3.7	0.0	3.9
TARRANT MHMR CENTER	7.4	6.0	13.0	1.6	.9	1.5	4.3	3.7	7.6	11.4	11.6	23.2	3.3	0.0	6.2
TROPICAL TEXAS MHMR	7.4	5.2	9.2	3.9	2.1	0.0	9.0	4.0	12.3	10.1	8.2	12.3	3.0	4.2	9.6
WICHITA FALLS MHMR	12.4	8.1	14.0	3.6	5.8	4.5	9.4	4.4	9.2	19.3	12.4	23.7	3.5	0.0	3.8
Mean =	11.50	9.58	14.69	4.31	3.40	5.36	10.39	7.41	10.34	16.3	15.71	23.9	4.36	7.30	9.10

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