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Health of Hispanics in the southwestern United States :
an epidemiologic paradox

The Health of Hispanics in the Southwestern United States: an Epidemiologic Paradox

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Despite methodological limitations of much of the research, it can be concluded with some certainty that the health status of Hispanics in the Southwest is much more similar to the health status of other whites than that of blacks although socioeconomically, the status of Hispanics is closer to that of blacks. This observation is supported by evidence on such key health indicators as infant mortality, life-expectancy, mortality from cardiovascular diseases, mortality from major types of cancer, and measures of functional health. On other health indicators, such as diabetes and infectious and parasitic diseases, Hispanics appear to be clearly disadvantaged relative to other whites.

Synopsis.....

Recent reports in the literature on the health status of southwestern Hispanics, most of whom are Mexican Americans, are reviewed critically. The review is organized into the following sections: infant mortality, mortality at other ages, cardiovascular diseases, cancer, diabetes, other diseases, interview data on physical health, and mental health.

Factors explaining the relative advantages or disadvantages of Hispanics include cultural practices, family supports, selective migration, diet, and genetic heritage. The recently completed Hispanic Health and Nutrition Examination Survey will go a long way to provide answers to many questions regarding the health of Hispanics in the Southwest or elsewhere.

HISPANICS CONSTITUTE THE SECOND LARGEST and most rapidly growing ethnic group in the United States. The 1980 U.S. Census enumerated 14.6 million persons of Spanish origin, and this figure undoubtedly excludes large numbers of undocumented immigrants. According to some projections, Hispanics will outnumber blacks by 1990. Most of these persons are of Mexican origin, and most live in the southwestern United States. The majority of the remainder are Puerto Ricans who are concentrated in the Northeast, Cubans in Florida and the New York metropolitan area, and persons of other Spanish origin, the great majority of whom live in the Northeast.

Despite the rapid growth in the number of Hispanics and a growing interest in their health on the part of both policymakers and researchers, large gaps in our understanding of the health status of this group remain. Early studies going back to the 1940s were confined primarily to the more exotic folk medical beliefs and practices of Mexican Americans in the Southwest (1). More systematic epidemiologic studies appearing during

the 1950s and 1960s focused primarily on mental health (2, 3). This early research as well as later studies suggested the existence of an "epidemiologic paradox" (3); that is, unlike other socioeconomically disadvantaged minority groups, Mexican Americans were found to have very low rates of use of psychiatric services. Although early research strongly suggested that this paradox could be explained by strong family ties that protected the individual person against stress (2,4) and by other factors (3), some recent studies have suggested that the utilization gap has narrowed considerably (5). The extent to which Hispanics enjoy a mental health advantage is thus not clear. However, a number of recent studies—to be reviewed subsequently—have provided evidence suggesting that southwestern Hispanics may enjoy a relative advantage on a number of physical health indicators. Although many studies of Hispanics are methodologically weak, it is certainly important to attempt to review and evaluate in a comprehensive manner our limited knowledge of the Hispanic population's health status.

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In this review, we examine critically the relative advantage or disadvantage of southwestern Hispanics on a number of health status indicators including infant mortality, mortality at other ages, cardiovascular diseases, cancer, diabetes, other diseases, functional health, and mental health. Our aim is to ascertain in which areas an epidemiologic paradox does seem to exist according to the available data. We limit our discussion mostly to southwestern Hispanics (residing in Texas, New Mexico, Arizona, Colorado, and California) because most studies of Hispanics have been conducted in the Southwest and because of the greater diversity of other Hispanic populations in the United States. The recently completed Hispanic Health and Nutrition Examination Survey will surely add much needed evidence about the health of Hispanics in the Southwest and other areas. In this paper we review the epidemiologic evidence to date and suggest potential explanations for some apparent advantages and disadvantages of Hispanics relative to Anglos, blacks, and Native Americans.

Infant Mortality

Infant mortality is considered one of the most sensitive indicators of socioeconomic development (6,7) and health status of populations (8). Over the years researchers have repeatedly documented an inverse relationship between infant mortality and socioeconomic status (8-12). Similarly, disadvantaged ethnic minority populations have traditionally had high infant death rates. Black Americans, for example, have an infant mortality rate almost twice that of whites (13), and an excess remains even when socioeconomic status differences between blacks and whites are controlled (10-14). Likewise, infant death rates for Native Americans have been very high in the past but have declined to a level below that of blacks in recent years (13). Mexican American infant death rates have also been high traditionally (15,16), but recent evidence has documented relatively low infant death rates for Mexican Americans in the Southwest, particularly during the neonatal period (first 27 days of life).

Using data for 1970-72 for Texas State Economic Areas (SEAs), Teller and Clyburn (17) found the lowest infant death rates in the SEAs along the Mexican border which are most heavily populated by Mexican Americans. They suggested that these low rates may be artificial in that they partly result from Mexican mothers who cross the

border to give birth in the United States, presumably to assure American citizenship for their children. Because many of these births are registered as occurring to United States citizens, there is an artificial inflation of births on the U.S. side of the border. Similarly, since any deaths of these infants after they return to Mexico go unregistered in the United States, there is a deflation of infant deaths on the U.S. side.

While underregistration of infant deaths may explain the low infant death rates in the border region, this argument is less tenable for areas far from the border region. Bradshaw and Fonner (18) maintained that the situation outside the border region is unlikely to be any different than for other groups. However, it has been suggested that artificially low infant death rates resulting from failure to register deaths may also be found outside the border area (19,20). In any case, the low neonatal mortality rates of Hispanics in Texas are consistent with similar rates for California (21).

Powell-Griner and Streck (22) examined linked birth and neonatal death certificates for Texas and found indirect evidence of underreporting of deaths of persons with Spanish surnames. This practice was associated with the presence of large concentrations of Mexican nationals (and presumably illegal aliens). They suggested that underreporting of neonatal deaths by Mexican nationals may occur because of fear of contact with government authorities. This failure to register is not likely to take place with births which are perceived as a way of assuring residence and citizenship rights for the infant and his or her parents. Indirect evidence that the infant death rates in the Texas-Mexico border region are artificially low was provided by a county-level analysis by Markides and Hazuda (23). These authors, however, found evidence of a Hispanic advantage in neonatal mortality even outside the border region. Another ecological analysis of Texas counties reached similar conclusions (24). These findings were also corroborated by individual level analyses in Houston (25) and in El Paso (26).

In reviewing findings from their El Paso study, Hedderson and Daustidel (26) concluded that Spanish surname neonatal deaths are not significantly under-reported. They argue that since two-thirds of neonatal deaths occur during the first 3 days of life and since 99 percent of Spanish surname registered births in El Paso are attended by a physician, it seems unlikely that physicians would release large numbers of high-risk infants

within the first 3 days of their life. It is unlikely that a large number of infants would be taken to Mexico immediately after birth and then die so that they are not registered in the United States or that their deaths in the United States would not be reported because of avoidance of health authorities. "A family that goes to a hospital for a birth obviously dares, however reluctantly, to have contact with health authorities," these researchers noted (26). Moreover, they point out that if the Spanish surname population has high neonatal mortality, it should also have a high proportion of premature, underweight infants, a situation not supported by the available statistics.

Gee and co-authors (25) found that low Hispanic neonatal death rates in Houston were related to favorable birth weights and full-term gestation periods. They concluded that "certain socio-cultural factors associated with the Mexican American family system . . . might encourage better care of mothers and children" (25a), but they did not specify what these factors might be. Hedderson and Daustidel (26) also found favorable birth weight distributions for Spanish surname infants in El Paso and concluded that these may be related to "genetics, low rates of smoking and alcohol consumption [by] pregnant women, or salience of parental roles" (26). Markides and Hazuda (23) suggested a migration selection explanation for the low neonatal mortality among those with Spanish surnames. They noted that women born in Mexico (as well as other foreign-born women) have more favorable birth weight distributions than native-born white women, especially among those with less than 12 years of school (27). If migration is selective of mothers with high reproductive efficiency, the fact that many Mexican American women are foreign-born may partly account for the neonatal advantage. It also seems reasonable that daughters of foreign-born mothers would inherit some of this reproductive efficiency, making for the overall Spanish surname advantage in neonatal mortality in the Southwest.

Mortality at Other Ages

For a long time, scholars relied on the work of Ellis who used 1949-51 data from Houston and San Antonio for estimates of the life expectancy and general mortality situation of Mexican Americans (15,28). This early research showed that Mexican Americans (Spanish-surname whites) had considerably lower life expectancy than Anglos, particularly the women (29). Roberts and Askew

(30) also studied 1949-51 data from Houston and found that the mortality situation of Mexican Americans was even less favorable than that of blacks. Their 1960 data showed a narrowing of mortality differentials between Mexican Americans and Anglos in Houston; Mexican Americans were in a clearly favorable situation when compared with blacks and at a clear disadvantage when compared with Anglos.

More recently mortality statistics for Mexican Americans became available to scholars in published form in the late 1970s. Bradshaw and Fonner (18) presented age-adjusted mortality rates for Spanish surname persons in Texas for 1969-71. The rates for males were very similar to those for other white males, though the rates for women were somewhat higher among Spanish surname persons. Very similar results were published a year later (31), also for Texas. These data showed that in 1970, people with Spanish surnames had a life expectancy only slightly below that of Anglos (other whites), but substantially higher than that of blacks. Among men, Spanish surname persons had a life expectancy of 67.2 years compared with 68.1 years for other whites and 61.5 years for blacks. Spanish surname women had life expectancy of 73.4, compared with 76.5 for other white and 69.5 for black women.

The data for Texas around 1970 thus show that Spanish surname persons had moved clearly ahead of blacks and were only minimally disadvantaged relative to Anglos. Since the socioeconomic conditions of Mexican Americans in Texas (and elsewhere) were (and still are) more similar to those of blacks than whites, scholars began speculating that the relatively advantageous mortality situation of Mexican Americans may be an artifact of incomplete or inaccurate statistics. However, as Bradshaw and Fonner (18) suggested, since death registration data (numerator) tend to be more complete than census enumerations (denominator), the Mexican American death rates they computed may have even been slightly biased upwards. Conversely, as Siegel and Passel (31) have observed, the fact that death rates for Spanish surname persons were lower than expected from their disadvantaged socioeconomic situation may indicate that the Hispanic population of Texas may not be as greatly underenumerated as is commonly thought (32,33).

Additional evidence of the similarity in the mortality situations of Mexican Americans and Anglos was presented by Schoen and Nelson (34) who computed life tables for 1969-71 for Califor-

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nia. They showed that the life expectancy at birth of Spanish surname males was 68.3 years compared with 68.7 for other white and 63.5 for black males. Spanish surname women had a life expectancy of 75.2 compared with 76.0 for other white and 71.5 for black women.

Data for 1980 have recently become available and show that Mexican Americans may have narrowed the mortality gap even further. For Texas, one set of estimates suggests that the life expectancy of Hispanics in Texas may even be greater than the life expectancy of all others (35). As Gillespie and Sullivan (36) note, however, these figures may be inflated, since they are based on Spanish surname numerators (deaths) and Spanish origin denominators (population). The Spanish origin denominator tends to contain approximately 10 percent more people than the Spanish surname numerator and may understate Hispanic death rates on which life expectancy figures are based. At a minimum, however, the 1980 data suggest that Hispanics in Texas are not greatly disadvantaged (if at all) relative to Anglos in overall mortality. Data from California, however, also suggest that life expectancy of Spanish surname persons may exceed that for other whites (21).

The favorable mortality situation of Mexican Americans in the Southwest is reflected in low death rates from major causes of death, particularly among men. In the sections that follow we take a close look at cardiovascular diseases, cancer, diabetes, and selected other diseases.

Cardiovascular Diseases

In an early study, Ellis (28) found significantly lower mortality rates from diseases of the heart

among Spanish surname males than among other white males in San Antonio in 1950, whereas Spanish surname females had slightly higher rates than other white females. Similarly, 1970 data for Texas showed that age-adjusted death rates from all cardiovascular diseases for Spanish surname men were lower than rates for other white men, whereas rates for Spanish surname women were slightly higher than rates for other white women. A similar pattern was observed for ischemic heart disease mortality. In both cases the Spanish surname rates were lower than rates for nonwhites (36).

For cerebrovascular disease mortality, 1970 data for Texas showed slightly lower age-adjusted death rates for both Spanish surname men and women than for white men and women (36). The Spanish surname rates were considerably lower than the rates for nonwhites. Kautz (37) suggested that the white-nonwhite differentials in total cardiovascular mortality can be attributed to differences in cerebrovascular mortality, while the white-Spanish surname differences are due more to differences in ischemic heart disease mortality and among males only.

Data from New Mexico also show that Hispanics are advantaged in mortality from the diseases of the heart. Buechley and co-workers (38) found that ischemic heart disease mortality rates were considerably lower among New Mexico Hispanic men during 1969-75 than among Anglo men.

More recently, Frerichs and his colleagues (39) found age- and sex-adjusted death rates from diseases of the heart and from cerebrovascular diseases in Los Angeles County, CA, in 1980 were somewhat lower among Hispanics than among whites and considerably lower than among blacks. Unfortunately, these rates were not computed separately for men and women, and we are thus unable to examine whether the pattern by sex observed elsewhere also holds in Los Angeles County.

Researchers have recently turned their attention to declines in cardiovascular disease mortality during the 1970s in the general population to examine whether Hispanics have shared in the decline. Kautz and co-workers (40) found, on one hand, that mortality rates from ischemic heart disease and acute myocardial infarction showed smaller declines among Spanish surname persons in Texas between 1970 and 1975 than among other whites and blacks of both sexes. On the other hand, chronic ischemic heart disease mortality increased in importance for all sex-ethnic groups

with the exception of Spanish surname females. No significant declines in cerebrovascular disease mortality were observed for any group.

Stern and Gaskill (41) found that ischemic heart disease mortality rates showed declines for both Spanish surname men and women and for other white men in San Antonio from 1970 to 1976. Acute myocardial infarction mortality rates declined in all ethnic and sex groups, while chronic ischemic heart disease mortality declined only among Spanish surname women. No significant declines in cerebrovascular mortality were observed in any group. The greater decline in overall cardiovascular mortality among blacks, and the relatively smaller decline among Hispanics than among the other two ethnic groups, are bringing the rates for the three ethnic groups closer. However, Hispanic rates remain the lowest (37).

Possible clues to the apparent advantage of southwestern Hispanics in cardiovascular disease mortality may be found in risk factors such as hypertension, serum cholesterol, smoking, and alcohol consumption. National data show that Mexican Americans have the lowest systolic and diastolic blood pressure, while blacks have the highest (37). However, a study by Friis and co-workers (42) in Orange County, CA, found no differences between Hispanics and non-Hispanics in either systolic or diastolic blood pressure. Christensen and co-workers (43) found no differences in blood pressure levels between Mexican American and other white men in Houston. The levels of Mexican American women, however, were higher than those of other white women but lower than those of black women. A study of a California sample found that Mexican Americans aged 35-59 had lower serum cholesterol than whites, although the difference was very small (44). In contrast, Friis and co-workers (42) found higher levels of serum cholesterol among Hispanic men than among non-Hispanic men, but the levels of Hispanic women were lower than those of non-Hispanic women. Christensen and co-workers (43) found higher total cholesterol levels among Hispanic men than among other white men in Houston. The levels of Hispanic women were again lower than those of other white women.

Among other risk factors, national data show that Hispanics smoke less than whites and blacks (45), though the situation may be changing (46). On the other hand, Hispanics appear to be more obese and less physically active than whites. Finally, although Hispanics appear to consume slightly smaller quantities of alcohol than whites

(45), there is a higher proportion of heavy drinkers among Hispanic men than among Anglo men (47).

Cancer

At present, we do not have epidemiologic data on cancer for the overall Hispanic population in the United States. State level data must be used to discern trends in cancer rates for this ethnic group. The best incidence data are those compiled by the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program for the Hispanic populations of New Mexico and Puerto Rico (48). This discussion will examine data for New Mexico (49) and Texas (50). Although not truly population-based, the Texas data are considered reliable for ethnic patterns.

For the most common sites, cancer incidence among Hispanics is consistently lower than among Anglos and blacks, yet higher than among American Indians with whom they share some genetic heritage. On one hand, the Hispanic-Anglo differential is most pronounced for malignancies of the lung, colon, breast, and prostate, for which Hispanics have incidence rates one-half to two-thirds as high as Anglos. Higher rates for Hispanics, on the other hand, are found for cancers of the stomach, liver, gall bladder, and cervix. For these sites, incidence for blacks and American Indians is about equal or higher than for Hispanics. The patterns just described are consistent for both New Mexico and Texas (comparisons are not possible for blacks in New Mexico and American Indians in Texas).

The epidemiologic pattern poses the question of the relative contribution of genetic and environmental factors on cancer among southwestern Hispanics. A genetic influence, for example, is suggested by the fact that populations with partial Indian ancestry, including Hispanics, have rates for most cancers that are intermediate between those for Anglos and tribes with generally full Indian heritage (51). Interpreting the New Mexico data, Black and Key (52) note that a kind of "dose-response" relationship seems to exist for cancer in the State's triethnic population, but the dose could involve cultural as well as hereditary factors. The case for a genetic explanation, however, is strengthened by epidemiologic studies of gall bladder cancer in New Mexico's tricultural population (53,54).

Although ethnic differences in lung cancer might be associated with differences in cigarette smoking habits (55), diet and reproductive behavior are

implicated for cancers of the breast, colon, stomach, and cervix. Newell and Boutwell (56) hypothesize a nutritional link to explain the lower incidence of breast and colon cancer among Mexican Americans in Texas. The combination of lower breast and higher cervical cancer incidence, however, also suggests the possible influence of fertility (57). There is evidence that early and high fertility lowers the risk for breast cancer (58,59), and that early onset of sexual relations increases the risk for cervical cancer (60,61). Mexican American females have earlier and higher fertility rates than other U.S. ethnic groups (62).

The relative advantage regarding cancer incidence for Mexican Americans, however, is not reflected in comparably lower cancer mortality rates among females of this group. Overall cancer incidence for Mexican American women in Texas is lower than that of Anglo and black females, but mortality from cancer of all sites is slightly higher for Mexican American women (18). High cancer mortality among ethnic minorities usually is assumed to reflect the effects of delay in seeking treatment. In a study of breast cancer patients at M. D. Anderson Hospital in Houston, however, no differences were found among blacks, Anglos, and Mexican Americans regarding delay in seeking treatment or survival rates (63).

Diabetes

With regard to diabetes, the Mexican American population is clearly disadvantaged. Prevalence and mortality rates for noninsulin-dependent (type II) diabetes mellitus are two to five times greater than those found in the general U.S. population (64-68). Since the risk factors for diabetes, other than obesity, are not well established, it is difficult to identify which subset of possible determinants might account for the elevated rate in this ethnic group. Higher rates of diabetes and obesity are characteristic of low-income groups generally (69), a pattern which suggests the importance of socio-cultural factors in diabetes epidemiology.

Stern and coworkers (66) found elevated rates of both obesity and diabetes among Mexican Americans in Laredo, TX; however, data from the San Antonio Heart Study indicate that obesity alone cannot account for the entire excess prevalence rate among Mexican Americans (70). After controlling for social class and obesity, Mexican Americans still were at a greater risk for type II diabetes mellitus. Within each weight category (lean, average, obese), Mexican Americans of both

sexes had a higher prevalence of diabetes than Anglos and, in fact, an even greater excess was noted in Mexican Americans after controlling for obesity (70a).

Both genetic and environmental factors may account for the elevated risk of diabetes not attributable to obesity alone. Acculturation to a "western lifestyle," including increased consumption of fat and simple carbohydrates and sedentaryness, has been offered as an explanation for increasing rates of diabetes in other populations (69); however, this reasoning would not explain the excess rates of Mexican Americans compared with Anglos, who presumably represent the Western norm. Rather, a genetic predisposition to diabetes shared with Native Americans appears to be the more compelling explanation. Very high rates of diabetes are found among American Indians, particularly among members of the Pima tribe who have close to 100 percent Native American genes (71).

Using skin color as an index of Native American admixture, the San Antonio investigators demonstrated that type II diabetes prevalence parallels the degree of Native American heritage (70,72,73). In that study, the percent of Native American admixture of Mexican Americans was 46 percent of persons in a low-income barrio, 27 percent in a middle-income transitional neighborhood, and 18 percent in a high-income suburb. The rates of diabetes for barrio, transitional neighborhood, and suburb corresponded closely to the above proportion of Native American admixture, leading the authors to suggest that the epidemic of type II diabetes among Mexican Americans is confined largely to that part of the population with significant Native American genetic heritage (72). This conclusion is supported by similar findings for proportionate admixture and diabetes for the Three Affiliated Indian Tribes (74).

Other Diseases

Hispanics appear to be disadvantaged in other diseases in addition to diabetes. Data from 1969-71 for Texas suggest that, overall, Hispanics are considerably disadvantaged relative to other whites in mortality from infectious and parasitic diseases, influenza and pneumonia, and from accidents and all deaths involving violence, that is, homicides and suicides (18). The Hispanic disadvantage in influenza and pneumonia mortality is very slight among men, but quite pronounced among women. The disadvantage in mortality

from accidents and other violent causes among Hispanic males is pronounced at ages 30-44, but minimal among those aged 45 and older. Hispanic women, on the other hand, have lower death rates from accidents and violence than other white women. Data from the same period for California reveal similar patterns (34). Unpublished data from the New Mexico Health and Environment Department for 1976-78 show lower mortality from influenza and pneumonia for males at ages 35-64 among Hispanics than for other whites. However, the Hispanic rates are higher at ages 65-74 but lower again after age 75. Rates for females are lower among Hispanics at ages 35-64 and slightly higher at age 65 and over than for other white females. The data also show that New Mexico Hispanic men have higher death rates from accidents and violence until age 54 and lower rates at ages 55 and older. As in Texas and California, however, Hispanic women have lower death rates than other white women for accidents and violence.

Survey Data on Physical Health

Most of the information we have presented is based on relatively objective data obtained from death certificates or clinical assessments. Such data are useful in that they provide disease models of the health of populations, but say little about how populations perceive and cope with illness and disability. Illness or functional models of health are based on self-ratings of health, bed disability days, activity limitation due to poor health or disability, and other similar self-reported measures.

Although limited, the available survey data on functional health corroborate the patterns suggested by disease indicators; Hispanics fare as well as Anglos and considerably better than blacks. National data from the 1976 Health Interview Survey showed that Spanish origin persons reported less limitation of activity due to chronic conditions and fewer days lost from work per currently employed person than the total and the black population (75). These figures were adjusted for differences in age between groups. In contrast, persons of Spanish origin had slightly more restricted activity days and bed disability days than the total population, although it is not clear whether the last two variables are indicators of health or use of services.

More recent data are also available from the National Health Interview Survey for 1978-80 (76). These data are given by type of Spanish origin,

and thus allow us to compare persons of Mexican origin (most of whom reside in the Southwest) with other whites and blacks. These data show again that, with the exception of dental health, persons of Mexican origin are generally advantaged relative to blacks, but are quite similar to other whites on most indicators.

The Mexican origin-other white comparisons, however, reveal some interesting patterns by age group. Persons of Mexican origin have fewer restricted activity and bed disability days under age 45 but more at ages 45 and older and relatively wide differences in the 65 years and older group. A similar pattern is noted for days lost from work per currently employed person, except that these figures are based on too few older persons of Mexican origin. The percentage of those with activity limitation due to chronic conditions is lower among persons of Mexican origin than for other whites up to age 44, is similar at ages 45-64, and higher among elderly Mexican origin persons than elderly other white persons. The comparable percentages in the 45- to 64-year group result from a lower percentage among Mexican origin men and a higher percentage among Mexican origin women than among other white women.

The overall age-adjusted percentages of persons with activity limitations due to chronic conditions are similar in Mexican origin and other white persons. Unfortunately, no overall age-adjusted measures are given for the other health indicators. However, the patterns by age noted in the previous paragraph suggest that age-adjusted measures would be comparable in the two groups. Nevertheless, researchers must pay attention to the different patterns of findings by age group.

In contrast to disability indicators, the National Health Interview Survey data show that persons of Mexican origin fare poorly on dental health compared with all other groups (76). Only 34 percent of Mexican origin persons aged 4 years and older reported having visited a dentist within the year compared with almost one-half of all other Hispanic persons, 37 percent of blacks, and 56 percent of whites. Across all age groups, use of dental services by Mexican Americans more closely resembled the pattern for blacks than for whites and other Hispanics. Furthermore, the 17.4 percent of persons of Mexican origin who have never received dental care was almost seven times greater than the proportion for whites and twice that of blacks. The magnitude of these differences for ever receiving dental care was considerably less among children and adolescents.

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Data specifically comparing the self-reported health of Mexican Americans with that of Anglos and blacks were reported by Roberts and Lee (77) from the Alameda County, CA, study. They found that Mexican Americans were more likely to perceive their health as fair or poor than were Anglos, but less so than blacks. However, a greater proportion of Mexican Americans reported having no health problems compared with either Anglos or blacks, and fewer reported a disability, a chronic condition, or physical symptoms. Mexican Americans also scored lower than the other ethnic groups on a composite index of physical health problems. More importantly, this apparent advantage of Mexican Americans remained after the effects of age, sex, education, family income, marital status, and perceived health were controlled. This advantage of Mexican Americans was more notable among men than among women, an observation which is consistent with epidemiologic patterns on cancer and cardiovascular diseases discussed earlier.

Mental Health

A large body of literature has accumulated on issues related to mental health among Mexican Americans. Most of these researchers attempt to explain what Karno and Edgerton (3) called an "epidemiologic paradox" of underuse of mental health services by members of this ethnic group, whose social and economic disadvantages would be expected to elevate risk for psychiatric disorders. Several reviews of this topic are available (1,5, 78-82). Therefore, this section addresses selected facets of the issue of possible mental health advantages for Mexican Americans.

Since the 1950s numerous researchers have concluded that Mexican Americans underuse mental health services. However, a recent review by Lopez (5) calls into question the generalizability of this conclusion, both for the past as well as for the present. Lopez (5) demonstrated that usage rates have not been consistently low across time periods, geographic areas, or types of care facilities. A sizeable number of single institution studies report usage rates at parity with Mexican American representation in the community. Given the potential sample bias of single facility studies, however, it is impossible to make generalizations about use patterns for all Mexican American groups.

To the extent that underuse *has* been documented for certain settings and populations, three possible explanations have been suggested for it. These may be summarized in terms of three general hypotheses.

1. The incidence of mental illness among Mexican Americans is actually lower than in other groups.
2. Types and rates of psychopathology are no different for Mexican Americans, but the concomitant symptomatology is either perceived differently by members of this minority group or is manifested through alternative patterns of social deviance such as alcoholism and criminal behavior.
3. Patterns of treatment among Mexican Americans are distinct in several respects, including avoidance of Anglo facilities, greater reliance on family support, and recourse to alternative sources of care.

Recent arguments have emphasized differential perception of mental illness (79,83,84) and ineffective organization of mental health services for Mexican Americans (80,81,85).

A recurrent factor in most discussions of the mental health of Mexican Americans is the protective function of the close-knit, extended family. Studies support the general conclusion that Mexican American families are characterized by a strong familistic orientation, a highly integrated extended kinship system, and reliance on family members as the primary means of coping with emotional stress (86). The distinctiveness of these attributes may be more a matter of degree than indicative of a qualitative difference in family organization, stemming largely from greater accessibility of nearby kin in ethnic neighborhoods (87,88).

The process by which the Mexican American family is thought to protect or promote mental

health has not been clearly articulated. Some authors contend that strong family supports lower the incidence of mental disorders and provide therapeutic functions such as anxiety reduction so that the need to seek outside help is considerably lessened (2,4,89-91). Another view suggests that Mexican American families are more tolerant of deviant behavior and do not seek professional help except in cases of severe psychosis. For example, there is evidence that hospitalized Mexican American schizophrenics are more chronic and disorganized than comparison groups (92) and that pride in self-reliance discourages seeking professional help for less severe mental problems (84).

Research on Mexican American family integration indicates that patterns of interaction are similar to those found among Anglo families, but are more intense due to greater accessibility of kinfolk (87). In a comparative study of social support among Anglo and Mexican American families in southern California (88), it was found that despite the larger size of Mexican American families, no clear differences were observed in the tendency to seek emotional support from relatives. The main difference between the two ethnic groups was the tendency for Anglos to turn to informal helpers outside the family, such as friends, neighbors, and coworkers, while Mexican Americans rarely seek support from these sources. The authors concluded that "there is little reason to believe that the presence of the extended family can be the reason for any alleged lower incidence of mental illness among Mexican Americans" (88).

Because data on use of services are difficult to interpret, researchers have resorted to community surveys of psychiatric symptomatology and psychological distress for further understanding of the mental health of Mexican Americans (93). Researchers in a Houston study found lower levels of psychological distress among Mexican Americans than Anglos of similar socioeconomic status (94-96). Similar findings were obtained by Mirowski and Ross (97) in El Paso. Using data from the Alameda County study, however, Roberts found no evidence that Mexican Americans experience lower levels of psychological distress than Anglos (98,99). A study of older Mexican Americans and Anglos in San Antonio found that Mexican Americans reported more psychological distress than Anglos, but this difference disappeared when socioeconomic status differences were held constant (100,101). Similar results were obtained for depressive symptoms by Roberts (99) and by Frerichs and co-workers (102). Finally,

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Vega and co-workers (103) found no differences in depressive symptoms between English-speaking Mexican Americans and Anglos, but a greater prevalence of symptoms among Spanish-speaking Mexican Americans than among the other two groups.

In sum, early studies of use of mental health facilities and early community surveys provide some support for the notion of an epidemiologic paradox. However, recent studies provide little evidence suggesting a mental health advantage for Mexican Americans. Whether this reflects a decline in extended family supports with increasing acculturation, or the effect of more systematic research procedures, or some other factors, is not clear.

Conclusion

From the studies reviewed in this paper, it is clear that much research is needed to understand fully the health status of Hispanics in the Southwest or elsewhere. Much of the material presented came from vital statistics and census enumerations. Problems in linking these two sources of data for studying the health of Hispanics have been well documented (32,104-106). New community surveys that can avoid these limitations have appeared, yet they too have problems in defining and identifying Hispanics (107,108).

Despite these limitations we can draw the general conclusion that the health status of southwestern Hispanics falls somewhere between the health status of blacks and that of other whites. However, accumulating evidence suggests that the health of Hispanics is much closer to that of other whites than to the health of blacks, with whom Hispanics share socioeconomic conditions. This

positioning is shown on key health indicators including infant mortality, life expectancy, mortality from cardiovascular diseases, cancer, and measures of functional health. On other health indicators such as diabetes and infectious and parasitic diseases, however, Hispanics are clearly at a disadvantage relative to Anglos.

Possible explanations for these relative advantages and disadvantages in health status may involve several factors.

1. Cultural practices that favor reproductive success may contribute to favorable birth weights and low neonatal mortality.
2. Selective migration may confer some reproductive advantage as well as contribute to general health.
3. Early and high fertility in Hispanic women may contribute to lower breast and higher cervical cancer rates.
4. Dietary factors may be linked to low cancer rates and high prevalence of obesity and diabetes.
5. Genetic heritage, particularly Native American admixture, may partly account for certain cancer patterns and excess diabetes.
6. Extended family support may reduce need for psychiatric treatment and protect from stress-related morbidity.
7. Low socioeconomic status and associated environmental risks probably contribute to high rates of infectious and parasitic diseases.
8. Other, as yet unknown causes, may contribute to a favorable life expectancy and other positive health indicators.

More research on the relative importance of these contributing factors is needed. Current evidence at least warrants further investigation of the apparent epidemiologic paradox. The recently completed Hispanic HANES is expected to make a significant contribution in addressing this paradox. Of particular importance is further investigation of cultural factors. In much of the literature it is implied that strong family ties and a less acculturated life style might afford some protection to the health of southwestern Hispanics, but more specific identification of which factors account for the differences is needed.

For example, as the population becomes more acculturated, we might anticipate increases in certain risk factors including higher rates of smoking, drinking, and the adoption of a diet more conducive to cardiovascular diseases and certain cancers. These changes are likely to happen at a time when a growing proportion of the population will fall in

the older age groups and therefore will be at greater risk of developing chronic diseases. In addition, to the extent that strong family ties are protective of health, it is important for researchers to study changes taking place in the Hispanic family and how these might influence the health of the population in the foreseeable future. Finally, special attention must be given to distinguishing socioeconomic, cultural, and genetic factors influencing the health of Hispanics.

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