

## **Is Acculturation in Hispanic Health Research a Flawed Concept?**

*Carlos Ponce MPA*

*Department of Family and Community Medicine  
University of Texas Health Science Center, San Antonio  
and*

*Brendon Comer, MSW*

*Julian Samora Research Institute, Michigan State University*

**Working Paper No. 60**

*January 2003*

### **Julian Samora Research Institute**

MICHIGAN STATE UNIVERSITY

301 Nisbet Building  
1407 S. Harrison Road  
East Lansing, MI 48823-5286

**Phone:** (517) 432-1317

**Fax:** (517) 432-2221

**E-mail:** [jsamorai@msu.edu](mailto:jsamorai@msu.edu)

**Web:** [www.jsri.msu.edu](http://www.jsri.msu.edu)

The Midwest's premier Hispanic center undertaking research on issues of relevance to the Hispanic community in the social sciences and economic and community development.

JSRI is a unit of the College of Social Science and is affiliated with various units on the Michigan State University campus.

# **Is Acculturation in Hispanic Health Research a Flawed Concept?**

*by Carlos Ponce MPA*

*Department of Family and Community Medicine  
University of Texas Health Science Center, San Antonio  
and*

*Brendon Comer, MSW*

*Julian Samora Research Institute, Michigan State University*

## **Working Paper No. 60**

*January 2003*

### **About the Authors:**

#### *Carlos Ponce*

Carlos Ponce has been a research associate at the University of Texas Health Science Center at San Antonio for 10 years. He holds a Master's Degree in Sociology from the Universidad Nacional Autonoma de Mexico and a Masters Degree in Public Administration from the University of Texas-San Antonio. His research has focused on elders and health, with a special emphasis on the process of aging with wisdom.

#### *Brendon Comer*

Brendon Comer is a research assistant with the Department of Anthropology at Michigan State and the Julian Samora Research Institute. He holds a Master's Degree in Social Work from the University of Michigan. His research has focused on issues of Latino health, the use of technology in international collaborative research on youth, and family caregiving in late life. He is currently living in central Mexico assisting with a research project investigating the distribution of health care among low-income populations.

### SUGGESTED CITATION

Ponce, Carlos (MPA) and Brendon Comer. "Is Acculturation in Hispanic Health Research a Flawed Concept?" *JSRI Working Paper #60*, The Julian Samora Research Institute, Michigan State University, East Lansing, Michigan, 2003.

The **Julian Samora Research Institute** is committed to the generation, transmission, and application of knowledge to serve the needs of Latino communities in the Midwest. To this end, it has organized a number of publication initiatives to facilitate the timely dissemination of current research and information relevant to Latinos.

- *Research Reports*: **JSRI**'s flagship publications for scholars who want a quality publication with more detail than usually allowed in mainstream journals. These are produced in-house. Research Reports are selected for their significant contribution to the knowledge base of Latinos.
- *Working Papers*: for scholars who want to share their preliminary findings and obtain feedback from others in Latino studies.
- *Statistical Briefs/CIFRAS*: for the Institute's dissemination of "facts and figures" on Latino issues and conditions. Also designed to address policy questions and to highlight important topics.
- *Occasional Papers*: for the dissemination of speeches, papers, and practices of value to the Latino community which are not necessarily based on a research project. Examples include historical accounts of people or events, "oral histories," motivational talks, poetry, speeches, technical reports, and related presentations.

# Is Acculturation in Hispanic Health Research a Flawed Concept

## Introduction

Some health researchers use the concept of acculturation to try to explain health behaviors or illnesses prevalent among Hispanic people. In this research “Hispanic culture” has often been represented as being associated with inadequate health beliefs and behaviors and poor health. In much of this research, Hispanic culture is viewed as hindering healthy practices. At the same time, other acculturation studies find that Hispanic culture provides health-enhancing elements, such as less permissive sexual behavior, better birth outcomes, or less smoking and substance use. The effect of Hispanic culture on individual health could prove to be an important social element to scrutinize. But we believe that acculturation studies are seriously limited by several basic conceptual and methodological problems that need to be addressed before such knowledge can be achieved.

It is beyond the scope of this article to talk about the complexity of defining what a culture is, but it is important to point out the breadth of this concept. Cushman (1990) defined it in the following terms: “Culture is not indigenous clothing that covers the universal human. It infuses individuals, fundamentally shaping and forming them and how they conceive of themselves and the world, how they see others, how they make choices in the everyday world” (p. 601). Can this process be captured with a few closed-ended questions, as acculturation measures attempt to do? Cultures are dynamic, changing with the circumstances around them. A culture is taught, formally and informally, to each generation with all the traditions of the group, its vision of the world and explanation of their universe. However, each generation processes this knowledge in a different way. Modern technology, changing socioeconomic factors and experiences mold each generation of a particular society. Can acculturation measurements be expected to capture such factors? Many acculturation scales classify people primarily in terms of language preference or self-defined ethnicity. Can language and ethnic group preferences reasonably be assumed to be indicators of the complexity of culture?

Creating a definition of culture, in and of itself, is an extremely convoluted and subjective undertaking, yet studies of Hispanics’ health have proliferated in the last two decades that purport to not only understand and measure key elements of “Hispanic culture,” but also to use the results of these cultural measurements to draw conclusions about a wide range of health behaviors. We contend that the concept of acculturation suffers from several serious flaws, which will be considered in this paper. These flaws include: The presumption of distinct, homogenous “Hispanic” and “American” cultures; failure to adequately consider socioeconomic differences; and a legacy of discrimination.

## The Presumption of a Distinct “Hispanic” Culture

Researchers who set out to measure the concept of acculturation face the enormous problem of defining a “Hispanic culture.” If the source of such a culture is presumed to be Latin America and Spain, this would include an area of more than 7.8 million square miles, 22 countries and more than 400 million people (Haub, 2002). This group of people includes many diverse ethnic groups (from Mayans to blacks) and dozens of spoken languages. Many acculturation studies ignore these facts and instead classify all descendants of Spanish-speaking people who have immigrated to the U.S. as Hispanics. However, acculturation researchers generally neglect the fact that a vast range of cultures fit under the term Hispanic, and fail to deal with the enormous variety of languages, religions, customs, economic status, social organizations that they represent.

Many studies attempt to address this problem by defining smaller groups of Hispanics for study. But this approach suffers from the same issues of arbitrarily combining diverse groups of people, only on a smaller scale. For example, Mexicans-Americans may be recent immigrants or can be people native to Texas, California, New Mexico or Arizona. They may include whites, blacks, Indians, Mestizos, Asians, etc. They may be from Navajo groups from Chihuahua or Lacandones, from Chiapas, or from any of the 56 officially recognized

Indian ethnic groups living in Mexico (Instituto Nacional Indigenista, 1984). Other Mexicans may be from rural or urban areas, from lower or upper socioeconomic class, and they may have legal or illegal status within the United States. Immigrants can also be legal residents, intermittent immigrants or may live in Mexico and work in the U.S.

Another important consideration in attempting to characterize Mexicans as a group is generational, between the wave of Mexican workers who came to the U.S. in the 1940's and 1950's and those who came in more recent years. The earlier group of immigrants came out of a Mexico embedded in the nationalistic fervor of the post revolution years, while the new generations of Mexicans have grown in an epoch of disillusion with the nationalistic zeal, where a desire to take part in the American life style is prevalent (Egan, 2001). Carlos Monsivais has sarcastically called this a generation of Americans born in Mexico. The Mexican immigrants of today are very different than their parents and grandparents. Even those of low socioeconomic position come to the U.S. already semi-acclimated through the power of the American media. For the most part they know some English, have eaten American food, know American music and have seen the "American dream" in television and movies. But, in our reading of the literature, we find that acculturation studies are not designed to address these basic generational differences, and instead treat all immigrants as equivalent, regardless of generation.

To further illustrate our concerns about the methodological problems of classifying people as Hispanics, consider these facts. In the 1990 census, more than 40% of self-identified Hispanics did not respond to the race question (Hahn and Stroup, 1994). Marin and Marin (1991) reports 12% misclassification of individuals when language is used as a proxy for acculturation. He indicates that 6% of self-identified Hispanics in the 1980 census were probably non-Hispanics and another group of non-self identified Hispanics could be classified as such (p. 29). Hahn et al (1992) report 8.9% of Hispanic infants are classified inconsistently at birth and at

death. These error rates could jeopardize any conclusions about Hispanics and non-Hispanics, especially when the results are scarcely significant (cf.: Leon, 1993; Phillips and Smith, 1991; Savitz and Baron, 1989; Weinberg, 1993).

Beyond these questions of appropriate classification of Hispanics, there are important questions about the group to whom they are being compared. The comparison group in acculturation research is generally "non-Hispanic whites." However, the classification of non-Hispanic whites is also extremely problematic. We contend that non-Hispanic whites are by no means a homogenous group to which the acculturating individual can be contrasted. Non-Hispanic whites are a notably diverse group in many ways. For example, there are important cultural differences between people from the West and East coasts as well as people from the North and South. There are also significant cultural differences between suburban and inner-city dwellers, between urban and rural people, as well as the numerous cultural differences that exist between ethnic and religious subgroups. Perhaps the most notable differences within non-Hispanic whites' culture in America is between the wealthy and the working class. Landrine and Klonoff (1992) have stated, "we need to be mindful of the fact that 'whites' are not and never have been a culturally homogenous group. Instead, they represent different cultural traditions. Requiring 'white' subjects to detail their culture and ethnicity (e.g., Italian, Greek, Jewish, English, Irish) may lead to better predictions and to surprising results, may assist our discipline in transcending its tendency to equate race with culture" (p. 272).

Furthermore, it is not clear to us that these groups are culturally distinct from Hispanics. For example, while use of alternative medicine is commonly thought to be a Hispanic cultural preference, Ni, Simile and Hardy (2002), in a study examining the use of complementary and alternative medicine (CAM) in the U.S. found that an estimated 29% of U.S. adults used at least one CAM therapy in the past year, with usage higher among non-Hispanic whites (30.8%) than for persons of Hispanic origin

(19.9%). The same applies to being fatalistic, a belief that is frequently associated with Hispanics. Davison, Frankel and Smith (1992) demonstrated that fatalistic attitudes are found in most Western countries, not just Hispanic.

### **Failure to Adequately Consider Socioeconomic Difference**

It has been argued that social classes do not exist in the United States. Government agencies do not collect mortality statistics by income, education or occupation (Navarro, 1990) and socioeconomic disparities within the United States population have traditionally not been part of the official dialog. Instead, differences among ethnic/race groups have taken priority over social class differences in public discourse in the U.S. Governmental agencies report differences in income, health status, and unemployment among ethnic groups but rarely present that information for social classes. Martha Gimenez (1992) explained this situation as the effects of McCarthyism "...which eradicated the left from American politics and defined class politics as un-American" (p. 7).

Reflecting an American ideology that all individuals have similar opportunities, health researchers often focus on ethnic/racial group differences as a substitute for analysis of social class differences. But we would argue that understanding the dynamics of social problems in American society is incoherent when social class is excluded. Hispanics are a salient example of this. Most immigrants from Latin America come to the U.S. for economic survival (Norris-Tirrell, 2002). Most have low socioeconomic status in their own countries and are willing to take great risks in order to come to this country and survive. However, their lack of education and capital restrict their opportunities and leave them in the lowest paid jobs in this country. The median household income for Hispanics is \$33,565, while for non-Hispanics whites it is \$46,305 (U.S. Census, 2000). Hispanics account for 33.2% of the 41.2 million uninsured Americans (Mills, 2001). The proportion of Hispanics 25 years old and over with less than a ninth grade education was 27.3% in 2000, compared to 4.2% for non-

Hispanic whites (Therrien and Ramirez, 2000). Only 57% of young adult Hispanics (age 25 years and older) reported to have graduated from high school versus 88.5% for non-Hispanic whites (Therrien and Ramirez, 2000). Finally, the poverty rate for Hispanics in 2000 was 21.4% while the rate for non-Hispanic whites was only 7.8% (Proctor and Dalaker, 2001).

The effects of lack of education are especially pervasive because functional illiterates live in an information world that excludes them. Plimpton and Root (1994) studied the problem and concluded that 30-50% of Americans cannot understand information that is at a 10th grade level. The situation is worse in the Hispanic community for two reasons. First, the large number of people lacking a high school education, and second, the large number of people who do not speak English or speak it with limited proficiency. Plimpton and Root add that several studies have demonstrated that many health professionals cannot communicate with low literate individuals. In many cases, doctors and nurses do not even realize it when their patients did not understand their instructions. This situation is similar in social service agencies, governmental offices and even national media. What this situation produces is a large disparity between the informed and uninformed people making it more difficult for the latter group to escape the cycle of poverty.

We believe that a serious problem with measuring acculturation levels as a primary explanation for health disparities is that such measures neglect these very important socioeconomic factors. A problem with the use of race/ethnicity as variables in social research, according to Osborne and Feit (1982), is that: "constant attention on African Americans and Hispanics as being disproportionately affected by certain diseases often leads to a belief that one of the best efforts to reduce illness is to concentrate on more health programs for these groups. In this context, other more virulent societal problems that predispose to disease, such as underemployment, poor management, and adverse public attitudes need not to be addressed" (p.278).

For the most part, acculturation studies of Hispanics are done primarily with low Socioeconomic Status (SES) subjects. This is, in part, because they suffer disproportionately from kinds of problems which acculturation research seeks to explain, such as crime, violence, lack of medical care, etc. However, there is another important reason — high SES individuals are often unwilling to participate in research projects. Without higher SES participants, it is very difficult to disaggregate the effects of acculturation from that of socioeconomic factors. What happens to subjects that have the means to pay for adequate medical care, live in healthy neighborhoods, have access to education and training? Do they suffer the same problems as low SES immigrants? There is not reliable data about these sectors of society, but anecdotal information indicates that even when they are of Hispanic origin, they do not have the prevalence of social problems that hinder low SES Hispanics.

Actually, the social problems of low SES Hispanics may be closer to those of low SES non-Hispanic whites than to Hispanics of high SES. Most acculturation studies assign distinct behavioral characteristics that are purported to be generalizable to a larger population of Hispanics based on an acculturation score. However, these scores are often based on samples from low-income Hispanics, who are then compared to more affluent Mexican Americans or middle-class non-Hispanic whites. The result is that the poor people are characterized as culturally Hispanic, while middle-class Mexican Americans and middle-class non-Hispanic whites are identified as Americans. For example, Hazuda, Stern and Haffner (1988) characterized Hispanics as prone to use unconventional medicine and being fatalistic: “Mexican Americans as a whole had a certain ‘cultural tenacity’ about maintaining a religious orientation which places a high value on doing God’s will, an outlook about factors influencing one’s state in life which emphasizes luck and living for the present, and an attitude toward health and death which is largely fatalistic” (p. 701; see also Deyo et al, 1985).

Winkleby et al (1993) pointed out that in the Hazuda, Stern and Haffner study, the researchers used unbalanced samples, excluding lower class non-Hispanic whites, therefore biasing their results.

### **A Legacy of Discrimination?**

Researchers are not immune to the influence of their society and the United States is a society that a few decades ago maintained a legal discriminatory policy against Hispanics and other minorities. Williams, Lavizzo-Mourey and Warren (1994) acknowledge that “...racial discrimination is commonplace in a broad range of settings in contemporary American society. Racism has survived and thrived because it is undergirded by deeply entrenched cultural attitudes and beliefs, norms and roles, as well as practices and institutions” (p. 29). Social scientists have certainly produced numerous writings where the authors, claiming some knowledge of Mexican-Americans and their culture, seem to us to be intent on characterizing this group based more on stereotypes and prejudices than on scientific facts. Several examples from previous academic studies help to illustrate this point.

Robert M. Yerkes may be the originator of acculturation studies (Gould, 1981). In the 1920’s, using men in the army, Yerkes correlated intelligence with race. According to him, whites had higher scores than blacks and Latinos. Yerkes also determined that test scores for foreign-born Army recruits improved with years of residence in this country. People with 0-5 years of residence had an average mental age of 11.29 points. Mental age score jumped to 13.74 for people with 20 or more years in America. Gould (1981) reviewed the test and showed innumerable problems in Yerkes research. Yerkes study suffered from some of the same methodological flaws we have pointed out that plague modern acculturation studies — comparing people of different socioeconomic characteristics without examining the effects of SES differences, and ignoring the socioeconomic implications of length of residence in the U.S. What might have been viewed as an indicator of an increasing familiarity with American culture was instead equated with innate intelligence.

In the 1940's and 1950's, some writers (eg: Burma, 1954; Griffith, 1948) characterized Mexican-Americans as people of low aspirations and lacking interest in education. What these authors did not take into account was that educational opportunities were not open for children of poor Mexican-American peasants. Sometimes teachers discouraged them; sometimes the parents needed their children to work as soon as possible (Bonjean, Romo, Alvarez and de la Garza, 1985). In the 1960's, William Madsen (1964) conducted anthropological studies in Hidalgo County with crop pickers, as well as middle and upper middle class Mexican Americans. Madsen quotes a teacher he supports: "They (Mexican-Americans) are good people, their only handicap is the bag full of superstitions and silly notions they inherited from Mexico. When they get rid of these superstitions, they will be good Americans" (p.106). This author, proclaiming to be very fond of Mexican-Americans, was unable to avoid a distorted view of this group.

Further illustrating this legacy of worrisome studies of Hispanics, Demos (1962) compared 105 Mexican-American children and 105 Anglo children regarding their attitudes toward education. Demos asked the children whether it is wise or unwise to take part in a class discussion and the correctness of disagreeing with the teacher. While these questions may make perfect sense within the American school system, they may be interpreted quite differently by children who come from another system with a different code of discipline. Does that mean that the other children have less desirable attitudes toward education, as Demos concludes? No, it only means that their attitudes are different. Demos does not report how long these children or their families had been living in the U.S., which may have explained any difference that they found. Demos also asked 29 questions about education, but found only six items to be statistically significant (five in favor of Anglos and one in favor of Mexican-Americans). Even with such weak results, Demos concluded that Mexican-Americans have less desirable attitudes toward education than Anglo students and that the differences "are (the) result of Mexican-American ethnic group membership" (p. 255).

In a 1987 paper, Domino and Acosta state, "It has been assumed that values inherent in the Mexican culture are antithetical to American values; in particular such specific values as a negative attitude toward education, perceived lack of personal control over one's environment, and a present time orientation have been identified as central to Mexican-Americans" (p 132).

They conclude that highly acculturated Hispanics and Anglos endorse different values than less acculturated subjects. However, the differences they claim to have identified are based on abstract, subjective concepts such as what constitutes "a comfortable life," "an exciting life," "wisdom" and "freedom" that the value of the findings are not at all clear.

We contend that studies such as the ones we've reviewed in this section exemplify a long and worrisome legacy of acculturation studies that are disposed to label as "inadequate" groups or cultures that differ from the undefined American mainstream.

## Conclusions

In this paper we have outlined some of the reasons we believe that efforts to quantify culturally based attitudes and beliefs need to be reevaluated. The explosion of quantitative projects in social science has produced some important results, but this trend neglects a full understanding of the complex context of the processes they seek to report. Gould (1981) criticized the American social scientists' obsession with measuring everything. He analyzed the problem of measuring intelligence and its implications, stating "ranking... our propensity for ordering complex variation as a gradual ascending scale. Metaphors of progress and gradualism have been among the most pervasive in Western thought" and continued by saying "...the use of these numbers to rank people in a single series of worthiness, invariably to find that oppressed and disadvantaged groups — races, classes or sexes — are innately inferior and deserve their status" (pgs. 24 & 25).

The goals of individual acculturation studies may be of limited scope and claim to refer only to the group that was sampled or a population of similar characteristics. However, in our observations, it is common for social activists, politicians and journalists to try to extrapolate study results to the whole spectrum of Hispanics. Such practices can corrode not only acculturation studies but any social science research. We strongly believe that social researchers who study ethnic minorities have an obligation to clearly delineate the boundaries of their study and actively resist efforts to exaggerate and sensationalize their findings.

The study of how other cultures mingle in the American pot has never been more exciting. This is particularly true in the case of people of Latin American origin, where research opportunities on the influences on health are growing rapidly. We hold that responsible research on this topic must include careful attention to the difference in the process of acculturation between social classes. Are upper class immigrants' experiences distinct from those of lower socio-economic status? Are low socioeconomic individuals more attached to their traditions than wealthier people? Do those traditions and rituals function as a survival mechanism?

Poverty, unemployment, lack of security and uncertain futures can be devastating for anyone, and these forces affect health and behavior of all the ethnic groups with unequivocal consequences. Unfortunately, the socioeconomic differences are not narrowing, but widening, and the urgency to explain the root of such social problems is greater today than before (Pappas et al, 1993, Osborne and Feit, 1992; Adler et al, 1993; Cockerham, 1990; North et al, 1993; Navarro, 1990; Belle, 1990; Winkleby et al, 1990; and Winkleby, 1992.) Therefore, there is an urgent need to study the effects of inequality in the U.S. If the study of acculturation's influence on a particular group of people is to be useful in understanding their health, researchers must develop an in-depth ethnographic understanding about the specific group and not neglect the importance of non-cultural factors. We believe that this can best be accomplished by designing studies that integrate qualitative and quantitative methods. Cultural

research cannot be simplified; the researchers need to approach the whole culture of the group as well as the culture of the community they are entering. We contend that reducing culture to a numeric indicator may be an inappropriate goal.

## References

- Adler, N., W. Boyce, M. Chesney, S. Folkman, & S.L. Syme. 1993. "Socioeconomic inequalities in health: No easy solution." *Journal of the American Medical Association*, 269 (24), 3140-3145.
- Belle, D. 1990. "Poverty and women's health." *American Psychologist*, 45 (3), 385-389.
- Bonjean, C, R. Romo, R. Alvarez & R. de la Garza. 1985, *The Mexican-American Experience; An Interdisciplinary Anthropology*, Austin, University of Texas Press, 952 p.
- de la Garza, R.O. 1985. *The Mexican-American experience: An interdisciplinary anthology*. Austin: University of Texas Press.
- Burma, J.H. 1954. *Spanish-speaking groups in the United States*. Durham, N.C.: Duke University Press.
- Cockerham, W. 1990. "A test of the relationship between race, socioeconomic status, and psychological distress." *Social Science & Medicine*, 31(12), 1321-1326.
- Cushman, P. 1990. "Why the self is empty: Toward a historically situated psychology." *American Psychologist*, 45(5), 599-611.
- Davison, C., S. Frankel & G.D. Smith. 1992. "The limits of lifestyle: Re-assessing 'fatalism' in the popular culture of illness prevention." *Social Science & Medicine*, 34(6), 675-685.
- Demos, G.D. 1962. "Attitudes of Mexican-American and Anglo-American groups toward education." *Journal of Social Psychology*, 57(2), 249-256.

- Deyo, R., A. Diehl, H. Hazuda & M. Stern. 1985. "A simple language-based acculturation scale for Mexican Americans: Validation and application to health care research." *American Journal of Public Health*, 75(1), 51-55.
- Domino, G. & A. Acosta. 1987. "The relations of acculturation and values in Mexican Americans." *Hispanic Journal of Behavioral Sciences* 9, 131-150.
- Egan, L. 2001. *Carlos Monsiváis: Culture and chronicle in contemporary Mexico*. Tucson, Ariz.: University of Arizona Press.
- Gimenez, M. 1992. "U.S. ethnic politics. Implications for Latin Americans." *Latin American Perspectives*, 19(4), 7-17.
- Gould, S. 1981. *The mismeasure of man*. New York: Norton.
- Griffith, B. 1948. *American me*. Boston: Houghton-Mifflin.
- Hahn, R.A. & D.F. Stroup. 1994. "Race and ethnicity in public health surveillance: Criteria for the scientific use of social categories." *Public Health Reports*, 109(1), 7-15.
- Hahn, R., J. Mulinare & S. Teutsch. 1992. "Inconsistencies in coding of race and ethnicity between birth and death in U.S. infants. A new look at infant mortality, 1983 through 1985." *JAMA*, 267(2), 259-263.
- Haub, C. 2002. 2002 World population data sheet. Population Reference Bureau. Retrieved on Nov. 5, 2002, from [http://www.prb.org/pdf/WorldPopulationDS02\\_Eng.pdf](http://www.prb.org/pdf/WorldPopulationDS02_Eng.pdf)
- Hazuda, H., M. Stern & S. Haffner. 1988. "Acculturation and assimilation among Mexican Americans: Scales and population-based data." *Social Science Quarterly*, 69, 687-706.
- Instituto Nacional Indigenista. 1984. *Grupos Etnicos de Mexico*. Mexico, Instituto Nacional Indigenista.
- Landrine.H. & E. Klonoff. 1992. "Culture and health-related schemas: A review and proposal or interdisciplinary integration." *Health Psychology*, 11(4), 267-276.
- Leon, D. 1993. "Failed or misleading adjustments for confounding." *The Lancet*, 342, 479-481.
- Madsen, W. 1964. *Mexican Americans of south Texas*. New York: Holt, Rinehart and Winston.
- Marin, G. & B.V. Marin. 1991. *Research with Hispanic populations*. Newbury Park: Sage Publications.
- Mills, R. 2001. Health insurance coverage: 2001. U.S. Census Bureau. Retrieved on Oct. 29, 2002 from <http://www.census.gov/prod/2001pubs/p60-215.pdf>
- Navarro, V. 1990. "Race or class versus race and class: Mortality differentials in the United States." *The Lancet*, 336, 1238-1240.
- Ni, H., C. Simile & A. Hardy. 2002. "Utilization of complementary and alternative medicine by United States adults: Results from the 1999 national health interview survey." *Medical Care*, 40(4) 353-358.
- North, F., S.L. Syme, A. Feeney, J. Head, M.J. Shipley & M.G. Marmot. 1993. "Explaining socioeconomic differences in sickness absence: The Whitehall II Study." *British Medical Journal*, 306(6874), 361-366.
- Norris-Tirrell, D. 2002. "Immigrant needs and local government services: Implications for policymakers." *Policy Studies Journal*, 30(1) 58-69.
- Osborne, N.G. & M.D. Feit. 1992. "The use of race in medicine." *JAMA*, 267(2), 275-279.

- Pappas, G., S. Queen, W. Hadden & G. Fisher. 1993. "The increasing disparity in mortality between socioeconomic groups in the United States, 1960 and 1986." *New England Journal of Medicine*, 329(2), 103-109.
- Phillips, A.N. & G. Smith. 1991. "How independent are 'independent' effects? Relative risk estimation when correlated exposures are measured imprecisely." *Journal of Clinical Epidemiology*, 44(11), 1223-1231.
- Plimpton, S. & J. Root. 1994. "Materials and strategies that work in low literacy health communication." *Public Health Reports*, 109(1), 86-92.
- Proctor, B. & J. Dalaker. 2001. Poverty in the United States: 2001. U.S. Census Bureau. Retrieved on Nov. 25, 2002 from <http://www.census.gov/prod/2002pubs/p60-219.pdf>
- Savitz, D.A. & A.E. Baron. 1989. "Estimating and correcting for confounder misclassification." *American journal of Epidemiology*, 129(5), 1062-1071.
- Therrien, M & R. Ramirez. 2000. The Hispanic population in the United States: Population characteristics. U.S. Census Bureau. Retrieved on Nov. 25, 2002, from <http://www.census.gov/prod/2001pubs/p20-535.pdf>
- Weinberg, C. 1993. "Toward a clearer definition of confounding." *American Journal of Epidemiology*, 137(1), 1-8.
- Williams, D.R., R. Lavizzo-Mourey & R.C. Warren. 1994. "The concept of race and health status in America." *Public Health Reports*, 109(1), 26-41.
- Winkleby, M.A., S. Fortmann & B. Rockhill. 1993. "Health-related risk factors in a sample of Hispanics and whites matched on sociodemographic characteristics." The Stanford five-city project. *American Journal of Epidemiology*, 137(12), 1365-1375.
- Winkleby, M.A., D. Jatulis, E. Frank, & S. Fortmann. 1992. "Socioeconomic status and health: How education, income and occupation contribute to risk factors for cardiovascular disease." *American Journal of Public Health*, 82(6), 816-820.
- Winkleby, M., S. Fortmann & D. Barrett. 1990. "Social class disparities in risk factors for disease: Eight-year prevalence patterns by level of education." *Preventive Medicine*, 19(1), 1-12.