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Self-Rated Health Among Adult Women of Mexican Origin

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Abstract

Self-rated health (SRH), a consistent predictor of mortality among diverse populations, is sensitive to health indicators and social factors. American-born Hispanics report better SRH than their foreign-born counterparts but simultaneously report poorer health indicators and have shorter life expectancy. Using a matched prospective cross-sectional design, we analyzed data from 631 age-matched pairs of women, born in the United States or Mexico, enrolled in a cohort study based in Houston, Texas. Our first goal was to describe the relationships between SRH and health behaviors, physician-diagnosed chronic conditions, acculturation, and socioeconomic status (SES) by birthplace. Our second goal was to investigate the relative influence of SES, acculturation, health behaviors, and physician-diagnosed conditions in explaining expected differences in SRH between the two groups. Number of chronic conditions reported, particularly depression, more strongly influenced SRH than SES, acculturation, or reported health risk behaviors and the influence of birthplace is accounted for by these factors.

Keywords

Self-rated health; acculturation; SES; health indicators

Self-rated health (SRH) is one of the most consistent predictors of morbidity and mortality (Idler & Benyamini, 1997). Regardless of ethnicity, individuals who perceive their health as fair or poor tend to report more physician visits per year, spend more days per year in bed, and are more likely to die prematurely (McGee, Liao, Cao & Cooper, 1999) than are individuals who typically rate their health as good or better. Also, among older adults, health care expenditures have been shown to be five times greater for those reporting poor health than for those reporting excellent health with hospitalization rates following a similar pattern (Bierman, Bubolz, Fisher & Wasson, 1999).

Self-ratings of health vary by ethnicity and country of origin. Latinos, for example, report lower SRH than non-Hispanic whites do (Angel & Guarnaccia, 1989; Idler & Angel, 1990), and foreign-born Latinos report lower SRH than American-born Latinos do (Angel, Buckley & Finch, 2001; Finch, Hummer, Reindl & Vega, 2002). Acculturation, “the process by which immigrants assimilate into the dominant culture adopting new social norms and values,” influences how Latinos understand health (Vega & Amaro, 1994). Therefore, differences in SRH between Latinos and non-Hispanic whites and between American-born and foreign-born Latinos may reflect variations in how diverse groups of people interpret the concept of health. However, the differences may also reflect variations in co-morbidities, as SRH is associated with chronic health conditions (Manor, Matthews & Power, 2001). Yet

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the risk of mortality is lower among foreign-born Latinos than among American-born Latinos (Singh & Siahpush, 2002; Hummer, Rogers, Nam & LeClere, 1999). This may be explained by SRH, which is sensitive to behavioral factors that contribute to variations in morbidity and mortality. For example, obese individuals and smokers report poorer health than do individuals at normal weight and nonsmokers (Meurer, Layde & Guse 2001). Among women of Mexican descent, those born in Mexico smoke less (Wilkinson et al., 2005) and are less likely to be obese (Barcenas et al., submitted) than their U.S-born counterparts.

On the other hand, these differences in SRH may indicate that men and women in different social positions and circumstances interpret health-related information differently. For example, as markers of SES (e.g., education level) increase, ratings of fair or poor health tend to decrease (McGee, Liao, Cao & Cooper, 1999). In comparison, as age increases, aspects of SRH, such as functional status and activity limitations, also tend to decrease (House et al., 1990).

To date, which of these factors (acculturation, health behaviors, presence of disease, or SES) exerts the strongest influence when rating health is unknown. Furthermore, a counterintuitive relationship between health indicators (e.g., health behaviors, presence of disease) and SRH has been reported among people from the same ethnic group who were born in different countries. Specifically, American-born Latinos and non-Hispanic whites report better health status than their foreign-born counterparts do (Angel et al., 2001) but simultaneously report poorer health indicators (Singh & Siahpush, 2002). Therefore, in the present study, we examine SRH among women of Mexican descent enrolled in a population-based cohort of Mexican-American households in the Houston metropolitan area.

Our first goal was to examine SRH status and selected independent predictors by country of birth. We hypothesized that Mexican-born women will report lower SRH, lower levels of acculturation and lower SES, yet will have better health indicators when compared with Mexican-American women. We further hypothesized that less acculturated women will report lower SRH than their more acculturated counterparts; women with better health indicators will report better SRH compared to women with poorer health indicators; and women of lower SES will report lower SRH than women of higher SES. Our second goal was to investigate the relative influence of SES, acculturation, selected health behaviors, and the presence of physician-diagnosed conditions in explaining expected differences in SRH between the two groups. A better understanding of these factors among women of Mexican origin would be useful for clinicians and public health officials in the development of culturally appropriate health prevention and treatment programs.

Materials and Methods

Recruitment and Selection of Participants

Self-identified adult women of Mexican origin included in this study were drawn from an ongoing population-based cohort of households created by the Department of Epidemiology at The University of Texas M. D. Anderson Cancer Center. Participants have been recruited since July 2001 from 16 neighborhoods in south central and southeast Houston. Different recruitment methods were used, including random-digit dialing, intercept, or door-to-door block walking and through network contacts. These neighborhoods were selected because more than 85% of the population is of Mexican origin according to the 2000 U.S. census.

Sample and Matching Criteria

A detailed description of the recruitment methodology has been published elsewhere (Wilkinson et al., 2005). Briefly, participants in the current study were a subset of 1,262

women over the age of 20 years who were enrolled in the cohort between July 2001 and June 2004 and were born in the United States or Mexico. This subset represents 45% of the entire group of women enrolled in the cohort at that time. All American-born participants were matched with Mexican-born participants based on age (±1 year) and date of entry into the cohort (±1 year) with the goal of minimizing the difference between the two selection criteria by country of birth. Each woman included in the study was drawn from a different household. Since there were more Mexican-born women, when multiple matches were obtained the first Mexican-born who met the matching criteria and her American-born counterpart were selected for inclusion in the study. This process resulted in 682 matched pairs. However, women with missing SES data were excluded from the study; thus, the analysis was based on a final total of 631 matched pairs.

Interviews

After obtaining the participants' written informed consent, trained bilingual interviewers conducted personal interviews by using a structured questionnaire in either Spanish or English based on the participants' preference. The interviews lasted approximately 45 minutes each. The questionnaire elicited information about general health, behavioral risks, sociodemographic characteristics, residential history, and exposure data. The Institutional Review Board at M. D. Anderson Cancer Center approved the study.

Variables

The following is a brief description of the variables used in the current analysis.

SRH—SRH was assessed by asking, "In general would you rate your health as, excellent, very good, good, fair or poor?" and was scored from 1 to 5.

Physician-Diagnosed Conditions—Physician-diagnosed conditions were self-reported. Respondents reported up to four physician-diagnosed diseases or conditions. Because of the wide range of conditions reported, we included only chronic conditions: hypertension, diabetes, cancer, and heart disease. Although depression is frequently a chronic condition, we analyzed its role separately, because it is an affective state that strongly influences health-related perception and interpretation (Hays, Wells, Sherbourne, Rogers & Spritzer 1995) and has been shown to be associated with limitations in well-being and functioning that are at least equal to limitations associated with conditions such as diabetes (Wells et al., 1989).

Health Behavior Index—Health behavior index scores ranged from 0 to 4 and reflected the number of behavioral health risks (ever smoker, ever drinker, currently obese, and sedentary lifestyle) reported by the participants. Ever smokers were defined as having smoked at least 100 cigarettes in their lifetime. Ever drinkers were classified as having drunk at least one standard unit of alcohol a month for at least one year. We used body mass index (BMI), weight in kilograms divided by height in meter squared, to define obesity. Participants with a BMI of 30 or greater (National Institutes of Health guidelines) were classified as obese. Sedentary lifestyle was defined as less than 30 minutes of regular moderate-intensity activity 6 days per week, which represents the minimum physical activity level recommended for adults by the Centers for Disease Control and American College of Sport Medicine (Pate et al., 1995).

Acculturation—Acculturation was assessed using four items from the Bidimensional Acculturation Scale for Hispanics, (BAS) a validated acculturation instrument designed for use with MAs (Marin & Gamba, 1996). Scores ranged from 1 to 4, with higher scores

reflecting fluency in English and higher levels of acculturation. The scale has very good reliability (alpha=0.88).

SES Index—The SES index reflected educational attainment and home ownership. Educational attainment was classified according to two categories: less than high school and high school/General Educational Development equivalency or more. Both variables were standardized and summed to create the index following a methodology described by Winter, Morris and Murphy (1993).

Sociodemographic Characteristics—Age was calculated on the basis of the participants' reported birth date, reported in years, and used as a continuous variable. Marital status was categorized as married or not married (never married, divorced, separated, or widowed). Married women served as the reference category. Childbearing status was also classified according to two categories--parous and nulliparous--with the nulliparous group serving as the reference category. Nativity status was classified as American-born or Mexican-born, with the latter group serving as the reference category.

Statistical Analyses

Description, summarization, and analysis of the data were performed using the SPSS (release 12.0.0 for Windows, 2003) and LogXact (release 5.0. Cytel Software Corporation, 2002) software programs. Paired *t*-tests were used to assess differences in means on the continuous variables by nativity status and McNemar tests were used to assess the strength of the association between categorical variables. Multivariate logistic regression analyses were conducted using both SPSS (unconditional) and LogXact (conditional). We used LogXact to calculate odds ratios and 95% confidence intervals when the analysis was based on the matched data and SPSS to calculate odds ratios and 95% confidence intervals when we stratified the dataset by nativity status.

Results

Table 1 shows the sociodemographic and health characteristics of the study participants by nativity status. Overall, most of these characteristics differed in the two groups. There were 631 pairs of women, ranging in age from 20 to 87 years, who were well matched on age ($p = 0.366$). The American-born women were more acculturated ($p < 0.001$) and had a higher mean SES ($p < 0.001$). Although they reported engaging in more health risk behaviors ($p < 0.001$) than their Mexican-born counterparts did, both groups reported similar numbers of diagnosed chronic conditions ($p = 0.249$). A higher number of American-born women reported their health as good or better when compared with their Mexican-born counterparts ($p < 0.001$) but a higher proportion also reported depression compared with the Mexican-born women. A higher percentage of the Mexican-born women were married as compared with the American-born women ($p < 0.001$). Although the childbearing rates in the two groups look similar, a higher proportion of the American-born women were nulliparous ($p < 0.001$).

Table 2 presents odds ratios (OR) and 95% Confidence Intervals (CI) for physician-diagnosed chronic conditions by nativity status and SRH based on conditional logistic regression analyses. Mexican-born women served as the reference category for the analyses by nativity status, whereas women in good or better health served as the reference category for the analyses by SRH. Unexpectedly, there were no differences in the frequency of reported physician-diagnosed chronic conditions according to nativity status. However, compared to women in good or better health, women with diabetes were 3.18 times more

likely to rate their health as fair or poor, whereas women with heart disease were 10.00 times more likely to rate their health as fair or poor.

We then calculated ORs for the independent variables by nativity status using conditional logistic regression models (Table 3). Mexican-born women reported better health indicators than American-born women. Specifically, American-born women were 2.27 times more likely to be ever smokers, 4.55 times more likely to report ever drinking, 1.36 times more likely to be obese, 72% less likely to lead a sedentary lifestyle, and 1.44 times more likely to report at least one chronic condition compared to Mexican-born women.

To establish the relative influence of nativity status, acculturation, selected health behaviors, presence of a physician-diagnosed chronic condition, and SES on SRH, we conducted a matched conditional logistic regression analysis (Table 4). Lower SES and less acculturated women were more likely to rate their health as fair or poor when compared to their higher SES (OR, 1.23) and more acculturated peers (OR, 1.62). Each additional health risk behavior was associated with a 37% increased chance of reporting fair or poor health, and each additional physician diagnosed chronic condition was associated with a twofold increased chance of reporting fair or poor health. Furthermore, women with a diagnosis of depression were 6.85 times more likely to rate their health as fair or poor than were women without such a diagnosis.

Finally, we stratified the sample by nativity status to determine whether the relative influence of acculturation, selected health behaviors, presence of a physician-diagnosed chronic condition, and SES on SRH varied by country of birth (Table 4). We used unconditional logistic regression for these analyses, as they were not based on the matched data. Age was a significant predictor of fair or poor health for the Mexican-born women, whereas SES was a significant predictor for the American-born women. Among the Mexican-born women, older age was associated with SRH. Each additional year was associated with a 2% increase in the likelihood of reporting fair or poor health. Also, less acculturated Mexican-born women were more likely to report their health as fair or poor than their acculturated counterparts were. Each additional health risk behavior was associated with a 28% increased chance of reporting fair or poor health, and each additional physician-diagnosed chronic condition was associated with a twofold-increased chance of reporting fair or poor health. Finally, Mexican-born women with a diagnosis of depression were 7.70 times more likely to report fair or poor health when compared with their counterparts without this diagnosis.

Among American-born participants, lower SES (OR, 1.17) and less acculturated (OR, 1.50) women were more likely to report that their health was fair or poor than were higher SES and more acculturated women. Each additional behavioral health risk was associated with a 29% increased chance of reporting fair or poor health, and each additional physician-diagnosed chronic condition was associated with a significantly increased chance of reporting fair or poor health. American-born women with a diagnosis of depression were 3.99 times more likely to rate their health as fair or poor than were women who did not have a diagnosis of depression.

Discussion

The purpose of this analysis was to examine the differential influence of acculturation, SES, number of reported health behaviors, and number of physician-diagnosed chronic conditions on SRH among women of Mexican origin who were born in Mexico or the United States. The research question is of interest because a counterintuitive relationship between health indicators (e.g., behaviors, presence of disease) and SRH has been reported. That is,

American-born Hispanics report better health status than their foreign-born counterparts do (Angel, Buckley, & Finch, 2001; Finch et al., 2002) but simultaneously report poorer health indicators (Singh & Siahpush, 2002). Overall, our results show that although the number of physician-diagnosed chronic conditions reported by both groups of women was similar, the Mexican-born women reported lower SRH yet better health behaviors than their American-born counterparts did. They were also less acculturated and of lower SES.

The lack of association between nativity status, parity, or marital status on SRH underscores the role of SES, acculturation, and the health indicators. As expected, more acculturated and higher SES women reported better SRH than did less acculturated and lower SES women, both factors associated with being born in the United States. On the other hand, women who reported engaging in one or no health risk behaviors, a factor associated with being born in Mexico, or reported no physician-diagnosed chronic conditions (including depression) reported better SRH than did women who reported engaging in two or more risky health behaviors or reported one or more chronic physician-diagnosed conditions.

The results from the multivariate analyses stratified by birthplace suggest that, regardless of birthplace, the number of physician-diagnosed chronic conditions exerts a stronger influence on SRH rating than does level of acculturation, number of health behaviors, or SES. This observation is consistent with previous findings by Krause and Jay (1994), who reported that when Hispanics rate their health, they refer to specific health problems when making their decision, whereas non-Hispanic whites tend to make more global assessments based on general physical functioning.

Depression proved to be a stronger predictor of SRH than were other chronic conditions, health behaviors, acculturation, or SES, which may reflect a tendency toward somatization. Somatization, the expression of psychological distress or social or personal problems as physical symptoms, has been reported to be more common among Latinos than among non-Hispanic whites (Angel & Guarnaccia, 1989). Therefore, when Latinos rate their health, they may include a wider range of factors when compared with non-Hispanic whites. It follows that more acculturated Latinos would be less likely to express social, personal, and psychological problems as physical symptoms when compared with their less acculturated peers. Our results are consistent with this notion, as the influence of depression on SRH was almost twice as strong among the Mexican-born women, who were less acculturated, than among the American-born women.

On the other hand, immigration can be a stressful experience that for some may be related to the onset of depression. Acculturative stress refers to stress that is rooted in the acculturation process (Berry, 1990) and has been found to be unrelated to level of acculturation (Hovey & King, 1996). Hovey (2000) reported that acculturative stress significantly predicted depression among a community-based sample of Mexican adults. Vega, Kolody, Valle and Hough (1986) found higher depressive symptomatology among immigrants who had lived in the United States for five or fewer years than among their peers who had resided in the United States for longer. In addition, Finch and Vega (2003) found that higher levels of acculturative stress associated with one’s legal status in the United States were associated with poorer SRH. It is possible to speculate that the influence from depression on SRH was stronger among the Mexican-born women than the American-born women as a result of their immigration experiences. However, in our study the number of women who reported depression was small and therefore these results must be interpreted tentatively; further research is needed to more clearly elucidate these relationships.

SES was predictive of SRH among the American-born women but not the Mexican-born women. This was likely a function of the distribution of SES among each subgroup. Among

the Mexican-born women relative to the sample as a whole, SES was skewed toward the low end, as 71% of the women were clustered below the median. In comparison, among the American-born women, SES was evenly distributed. Therefore, this finding could have been a function of the restricted range in SES among the Mexican-born women and thus not a true test of the relative role of SES among women born in Mexico. Further studies that include women with more diverse SES backgrounds are needed to properly address this issue.

Our results are consistent with those of previous studies investigating the relationship between acculturation and SRH among adults of Mexican origin, which, when taken as a whole, suggest that higher levels of acculturation are associated with better SRH. Although Markides and Lee (1991) found no association between acculturation and SRH among Mexican-American women, they did find that less acculturated Mexican-American men were more likely to report fair or poor SRH than were their more acculturated peers. Others have reported that less acculturated Hispanic adults, regardless of their gender, rate their health as poorer than do non-Hispanic white adults but that more acculturated Hispanics and non-Hispanic whites rate their health similarly (Shetterly et al., 1996). In an analysis evaluating the role of use of the English language as a proxy for acculturation, Angel, Buckley, & Finch (2001) reported that Spanish-speaking immigrants with a better command of and preference for English reported better SRH than did immigrants whose preferred language was Spanish. Using a language-based measure of acculturation, we found this to be the case for both the Mexican- and American-born women in our study. Interestingly, however, language preference, as determined according to the language spoken in the interview, was not a significant predictor of SRH among our participants regardless of whether we controlled for acculturation (data not shown).

Previous studies evaluated the relationships between health risk behaviors such as smoking, level of physical activity, and poor nutrition (Meurer et al., 2001) as well as the interactions between physical activity and both nutrition and smoking (Johansson & Sundquist, 1999) and their effect on SRH. In our study, we examined the additive impact of ever smoking, ever drinking, obesity, and physical inactivity on SRH. Our findings are not directly comparable; rather, they extend previous findings. Similar to previous studies, we found that engaging in health risk behaviors is associated with poorer SRH but we also found that each additional behavior engaged in is associated with almost a 30% increase in the likelihood of reporting fair or poor health regardless of country of birth.

In our study, age was predictive of SRH among the Mexican-born women only. This result, although intuitively surprising, is consistent with previous research. Specifically, previous studies have demonstrated that certain aspects of SRH, such as the number functional limitations and chronic diseases, are sensitive to age (House et al., 1990). In particular, as age increases, the number of chronic diseases and functional limitations also increases. Therefore, among the American-born women in our study, chronic conditions may have fully accounted for the relationship between age and SRH.

The present study has some limitations. First, we were unable to either verify the physician-diagnosed chronic conditions or adjust for their severity. Furthermore, because of the high number of Mexican-Americans and immigrants in particular, without health insurance, chronic conditions may be underreported. We did, however, analyze the distribution of each condition by country of origin and found no differences. Second, the weight and height of the participants were self-reported; thus, the BMI and obesity status of the participants may have been underreported, as well. This would likely detract from the overall influence of the health behavior index on SRH. Finally, because all of the data in the analysis were self-reported, our results may suffer from common method effects. Verification of the

participants' self-reported conditions and inclusion of a physician's evaluation of the participants' health would address this issue.

In conclusion, we found that the number of chronic conditions reported, particularly depression, exerted a stronger influence on SRH than SES, acculturation, and reported health risk behaviors did and that the influence of country of birth is accounted for by these factors. In the analyses stratified by country of birth, the role of acculturation and a diagnosis of depression were associated with higher odds of reporting fair or poor health among the Mexican-born participants compared to the American-born women. Therefore, American-born Latinos may report better health status than their foreign-born counterparts do due to cultural preferences that influence response styles and in particular willingness to endorse the most positive end of the scale. However, reports of fair or poor health among Mexican origin women, and immigrants in particular, may reflect underlying depression, not physical health complaints alone. Given that primary care physicians both assess health using clinical and self-report data and are frequently the first medical professionals to recognize the presence of depression, our results have important implications for health care providers.

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Table 1

Sociodemographic and Health Characteristics of Women of Mexican Origin by Nativity Status

Characteristic	Mexican-Born (*n* = 631)	American-Born (*n* = 631)	*p* Value
Mean (SD[a])			
Age	45.0 (16.4)	45.6 (16.4)	0.366
SES	−0.4 (1.3)	0.4 (1.4)	< 0.001
Acculturation	1.6 (0.7)	3.3 (0.7)	< 0.001
Health behavior index	1.6 (0.9)	2.1 (1.0)	< 0.001
Number of chronic conditions	0.4 (0.7)	0.5 (0.7)	0.249
Number (%)			
Good or better health status	341 (54.0)	393 (62.3)	< 0.001[b]
Married	505 (80.0)	391 (62.0)	< 0.001[b]
Nulliparous	40 (6.3)	47 (7.4)	< 0.001[b]
Depression	10 (1.6)	13 (2.1)	< 0.001[b]

[a] SD, standard deviation.

[b] *p*value based on McNemar's test.

Table 2

Age-Adjusted ORs for American-Born Women and Women Reporting Fair or Poor Health According to Physician-Diagnosed Chronic Conditions

	American-Born Women[a] (*n* = 631)	Fair or Poor SRH[b] (*n* = 631)
Chronic condition	**OR (95% CI)**	**OR (95% CI)**
Hypertension (*n* = 251)	1.29 (0.93-1.78)	1.53 (0.97-2.43)
Diabetes (*n* = 220)	0.96 (0.70-1.32)	3.18 (1.97-5.14)
Cancer (*n* = 47)	1.33 (0.72-2.46)	1.67 (0.73-3.81)
Heart disease (*n* = 25)	2.33 (0.90-6.07)	10.00 (1.28-78.12)
Depression (*n* = 23)	1.57 (0.61-4.05)	2.67 (0.71-10.05)

[a] Mexican-born women served as the reference group; the outcome of interest is the disease.

[b] Women without the disease served as the reference group; women reporting fair or poor health is the outcome of interest.

Table 3

Age-Adjusted ORs and CIs for Nativity Status[a] According to Behavioral and Clinical Predictors of SRH

	Number (%)		
Risk Characteristic	**Mexican-Born (*n* = 631)**	**American-Born (*n* = 631)**	**OR (95% CI)**
Ever smoker	110 (17.4)	206 (32.6)	2.27 (1.73-2.98)
Ever drinker	93 (14.7)	278 (44.1)	4.55 (3.34-6.20)
BMI ≥ 30	289 (45.8)	336 (53.2)	1.36 (1.08-1.72)
Sedentary lifestyle	528 (83.7)	500 (79.2)	0.72 (0.54-0.97)
One or more physician-diagnosed chronic conditions	324 (51.3)	367 (58.2)	1.44 (1.11-1.85)

[a] Mexican-born women served as the reference group.

Table 4

Adjusted ORs and CIs[a] for Predictors of Fair or Poor SRH Among Women of Mexican Origin

Risk Characteristic	OR (95% CI)		
	All Women (*n* = 1,262)	Mexican-Born Women (*n* = 631)	American-Born Women (*n* = 631)
Mexican-born	1.41 (0.82-2.44)	−-	−-
Age	−-	1.02 (1.00-1.03)	1.00 (0.99-1.02)
Married	1.19 (0.73-1.93)	1.30 (0.80-2.10)	0.95 (0.66-1.38)
Nulliparous	1.81 (0.88-3.72)	1.90 (0.89-4.06)	1.37 (0.68-2.76)
SES	1.23 (1.06-1.44)	1.03 (0.89-1.18)	1.17 (1.03-1.34)
Acculturation	1.62 (1.22-2.16)	1.75 (1.30-2.38)	1.50 (1.16-1.93)
Health behavior index	1.37 (1.11-1.69)	1.28 (1.05-1.57)	1.29 (1.08-1.54)
Chronic conditions	2.39 (1.69-3.38)	2.63 (1.88-3.67)	2.45 (1.82-3.30)
Depression	6.85 (1.35-34.61)	7.70 (1.45-40.84)	3.99 (1.12-14.26

[a] Adjusted for all other covariates in the table.