# ORIGINAL Research

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# Latino Health Behavior: An Exploratory Analysis of Health Risk and Health Protective Factors in a Community Sample

**Abstract:** Background. *Demographic and cultural factors have been found to affect health behaviors in Latinos in both positive and negative ways, but few studies have examined the impact of culture and adherence to machismo norms on health behaviors in a mixed gender community sample of Latinos. Of particular interest was if positive (caballerismo) or negative aspects of machismo would affect Latino health behaviors.* Methods. *A paper survey was given to a community sample of Latinos in northern Utah to explore the variables that affect both health promoting and health risking behaviors in this cross-sectional study (final N = 144 participants).* Results. *Life satisfaction, self-reported health, health insurance status, language preference, and gender were significantly related to overall health score. Surprisingly, the cultural variables of fatalism, machismo, and caballerismo were nonsignificant in all analyses.* Conclusion. *Access to health care mediated by health insurance and self-reported health status may be the most effective way to encourage Latinos to engage in protective health behaviors.*

Latinos are the largest minority group in the United States at approximately 17% of the US population.[1,2] Given the group's size and potential to affect health care utilization, it is important to study Latino health behavior patterns if only to accurately predict future areas of need. It is well accepted that Latinos currently underutilize health care as compared with non-Latinos.[3] One possible explanation is lack of access as Latinos as a group have the lowest rate of health insurance coverage—29% uninsured as compared with 10.4% for the White population group and also lower household income compared to White households ($39 000 vs $50 000).[4,5] Other possible explanations include cultural beliefs about when health care utilization is the

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appropriate option (eg, health locus of control and fatalism), culturally modified beliefs about gender, and family roles such as who is the appropriate health care decision maker, as well as structural barriers related to immigration status.[6]

Health risk and health protective factors in a community sample of Latinos were explored using an array of cultural

and demographic variables and several standard measures selected because of their presence in the literature and assumption of explanatory value. The local Latino population is not as well established in northern Utah as it is elsewhere (eg, California, Arizona, or Texas) and is unclear if the comparatively small size of the group or length of presence in the United States might have an impact on health care utilization. Given the likely upcoming changes in access to health care with the new administration, this topic is especially salient right now. For example, the demographic variables of marital status and religious attendance were chosen because they are believed to affect health status and thus are usually included in discussions about health behavior. But less is known about the impact of cultural variables on Latino health behavior or if that impact might vary depending on acculturation factors. Information about the variables used and why they were selected is in the following section.

## Cultural Variables

The use of a cultural lens to examine health behavior in a Latino population is suggested because cultural influence and level of acculturation may affect health behaviors for segments of this population, and cultural influences are often stronger for newer, less acculturated immigrants.[7-9] By the third generation these effects are often moderated by a variety of factors including age, level of education, occupation, physical location within a cultural enclave, and English language acquisition, among others.[8] While it is important to understand normative values for a specific culture, the predictability of their application in understanding the behavior of a specific individual is less clear.[10]

Acculturation is a multidimensional process of change that incorporates cultural variables that interact unpredictably with the new physical and social environment.[9,11] A degree of ambivalence is connected to the adaptation process as immigrants may be reluctant to relinquish the familiar as they strive to integrate to their new settings. There can be both positive and negative health aspects of acculturation. For example, the Latino or Hispanic Paradox says that health status is often better for some new, less acculturated immigrants when they first arrive.[2,11,12] Also, life expectancy is typically higher for Latinos, as compared with non-Hispanic Whites, perhaps because less acculturated Latinos bring better diet patterns from their home country, or possibly the social support provided in tight-knit ethnic communities is health protective, or it may be that healthier individuals choose to emigrate.[2,13] If any of these hypotheses are true, then greater acculturation brings negative health effects for Latinos. Conversely, greater acculturation may have positive effects on health when new immigrants gain greater proficiency in English, which enhances employment options and connections to social services, among other benefits.

Level of acculturation may be connected to the variables that circumscribe gender roles in Latino families.[9,14] Adherence to the attitudes and behaviors tied to those variables may affect the power balance within the family (eg, in decision-making or parenting styles).[9] For example, recent research has examined the role of both traditional *machismo* and *caballerismo* in Mexican culture.[14] Traditional *machismo* is associated with hypermasculinity in men, while *caballerismo* is associated with protection of the family and chivalry. In terms of the interaction of health and *caballerismo*, men may be more likely to engage in health protecting behaviors if these behaviors are associated with being able to work and provide for their families as well as not becoming dependent on others for their care. In terms of health, men who self-report more traditional *machismo* traits are less likely to engage in health protective behaviors and adhere to traditional gender roles. Acculturation also plays a role. Less acculturated families are more likely to hold on to traditional family roles and behaviors, for example, that men make important decisions for their families and are permitted to abuse alcohol and engage in domestic violence as long as they are also good providers.[6] Less acculturated families are also more likely to demonstrate strong family connectedness and group identity.[9,14,15] Thus, greater acculturation may result in more autonomy and independence for a Latina wife and mother but may also produce family discord around who makes family decisions.[11,15]

Other influences, such as fatalism, might affect the appropriate use of health education and screenings that target disease prevention.[16] Because of their reliance on fatalistic beliefs, lack of faith in preventive medicine, or lack of access to health insurance,[16] Latinos are less likely to take part in screening tests for a variety of potentially serious illnesses (eg, breast cancer, prostate cancer, and cervical cancer) and thus more likely to discover them at a later, less treatable stage.

It is well established that religion and health are connected.[17] Church-based social connections are believed to influence both physical and mental health for many groups including Latinos.[18] Religious importance also appears connected to level of acculturation, that is, it is possible that the more acculturated, the less overt are those influences.[19] Level of acculturation seems relevant to health care in other ways as well—the newer, less acculturated immigrant is more likely to rely on traditional forms of health care (eg, herbal remedies and folk healers) rather than more Westernized health care delivery.[19] Spirituality is also a core value for many Latinos; in fact, both religious and spiritual practices can influence Latino health behaviors.[20]

Marital status is also well accepted as influential on health—married individuals generally have better physical health than those who are unmarried.[21,22] Marriage has been an effective vehicle through which to transmit health-promoting behaviors and

is linked to subjective health variables such as self-rated health and objective outcomes such as lower incidence of heart disease.[23,24] Older age also appears to highlight some beneficial social characteristics of Latinos. In particular, that higher marriage rates and longer life expectancies may temper the negative impact of lower lifetime earnings and higher rates of disability.[13,25] Older Latinos are currently only a small segment of the US Latino population but that segment is expected to grow as the Latino share of the population grows. It seems likely that length of time lived in the United States might result in different financial patterns for older Latinos.[26] For example, given their lower incomes and rates of asset accumulation and higher poverty rates, one might expect older Latinos to be at a disadvantage in later life but they benefit from Social Security because of several positive demographic characteristics—high rates of marriage and longer lives.[25] Living within a family system is obviously a dynamic process that varies with life stage, and it is not clear which variables or family characteristics exert the most influence.[26]

The primary purpose of this study was to examine a variety of cultural and demographic variables expected to influence health behaviors in a community sample of Latinos. These variables include fatalism, *machismo*, *caballerismo*, marital status, gender, health insurance status, life satisfaction and self-rated health, religiosity, education, language preference, and age. We also included diet, anger-stress management, medical compliance, preventive care, and overall health behavior variables.

## Methods

### Design, Setting, and Participants

University institutional review board approval was obtained prior to data collection. The initial sample consisted of 171 men and women 18 years of age or older who self-identified as Hispanic or Latino who were recruited from health fairs, an English language center,

**Table 1.**

Demographic Information With Means, Sample Size, and Percentages.

| Variable | Item | n (N = 144) | % |
|---|---|---|---|
| Age | Mean = 35.57 | 144 | |
| | Range from 19 to 71 | | |
| Gender | Male | 53 | 36.8 |
| | Female | 91 | 63.2 |
| Self-rated health | Excellent | 31 | 21.5 |
| | Good | 63 | 43.8 |
| | Fair | 50 | 34.7 |
| Health satisfaction | Satisfied | 112 | 77.8 |
| | Not satisfied | 32 | 22.2 |
| Health insurance | Yes | 65 | 45.1 |
| | No | 79 | 54.9 |
| Language preferred | Spanish | 94 | 65.3 |
| | English | 12 | 8.3 |
| | Both | 38 | 26.4 |
| Marital status | Single | 36 | 25 |
| | Ever married | 108 | 75 |
| Education | GED | 78 | 54.2 |
| Religious importance | Very | 119 | 82.6 |
| | Not very | 25 | 17.4 |

and other community events for Latinos in northern Utah. Due to missing demographic data, a static sample was used in all analyses for a final sample size of 144 participants, 37% male (n = 53) and 63% female (n = 91; see Table 1). The mean age of the sample was 35.57 years (SD = 10.6) with a range of 19 to 71. The majority of the sample (n = 94, 65%) reported a preference for speaking Spanish, while only 10% (n = 12) indicated English as their preferred language; 26% (n = 38) preferred both English and Spanish. Due to small sample sizes, the marital status variable was collapsed from 5 choices to 2 (single and ever married) with most of

the sample (n = 108, 75%) identified as ever married. Similarly, education was collapsed from 5 choices to 2—high school or less, and all others—most of the sample (n = 78, 54%)—was categorized as high school or less. As expected, most participants (n = 119, 83%) reported a high level of religiosity selecting religion as very important; only 17% (n = 25) said religion was somewhat or less important. Responses for health insurance status were approximately equal with 45% (n = 65) reporting no health insurance and 55% (n = 79) selecting some level of health insurance. Respondents reported a high level of life satisfaction, with 78%

(n = 112) selecting satisfied with their lives. When asked about self-reported health status, 35% (n = 50) reported fair/poor, 44% (n = 63) said good, and 22% (n = 31) selected excellent. Mexico was the primary country of origin for the sample (n = 98, 68%), the United States a less frequent second choice (n = 10, 5.6%), then a smaller number of respondents from other Central and South American countries—Guatemala, Peru, Argentina, Brazil, Venezuela, Chile, Ecuador, the Dominican Republic, Bolivia, and El Salvador.

### Instrumentation

A paper survey distributed to participants at recruitment locations was available in both English and Spanish (the Spanish version was translated by a native Spanish speaker). Additionally, we pilot tested the survey with a community group of native Spanish speakers from a variety of Spanish-speaking countries to ensure appropriate translation. A Spanish-speaking graduate assistant was available to answer questions and provide the institutional review board letter of information to participants in either English or Spanish.

The *Health Behavior Inventory-20* (HBI-20) evaluates health behaviors that promote health or increase risk for poor health.[27] Three subscales of the HBI-20 evaluate health protective behaviors and include the diet (5 items; eg, I limit the amount of fat I eat), preventive care (3 items; eg, I have physical exams each year), and medical compliance subscales (6 items; eg, I fill my prescriptions immediately). Two subscales evaluate health risk behaviors and include the anger and stress (3 items; Things build up until I lose my tempter) and substance use subscales (3 items; I use recreational drugs). Both of the health risk subscales are reverse scored; thus, a higher score indicates more health promotion and less health risk taking. Due to lack of variability in our sample with a large proportion of nonusers, the substance abuse subscale was not used in the final analyses. Participants rated their behaviors on a 5-point scale where 1 = always and 5 = never.[27] All subscales, excluding substance abuse, were summed to create the HBI-20 total score. Levant and Wimer[28] reported an internal consistency α of .78 for the HBI-20 total score while the subscale αs ranged from .57 to .84.

The *Machismo Measure* is a 20-item s*cale* that measures both positive (*caballerismo*) and negative aspects of *machismo* (traditional *machismo*). On a 5-point Likert-type scale, participants were asked to indicate their degree of agreement to statements that correspond either to traditional *machismo* or *caballerismo*.[14] For both subscales—traditional *machismo* or *caballerismo*—higher scores indicated higher agreement. The authors report an internal consistency of α = .84 for the traditional *machismo* subscale and α = .71 for the *caballerismo* subscale, indicating an acceptable level of validity of the 2 subscales.[14]

A modified version of the *Multiphase Assessment of Cultural Constructs–Short Form* (MACC-SF) fatalism subscale was used to assess the degree of fatalistic beliefs of the study sample.[29] The item "When I make plans, I am certain I can make them work" was reversed scored, a higher score indicating a higher level of fatalism. The question "If my doctor said I was disabled, I would believe it even if I disagreed" was dropped from the subscale following feedback provided by Latino community members. Latino community members felt the question made no sense and asked it be removed. In addition, for consistency with the other measures used and for data analysis, a 5-point Likert-type scale replaced the true/false response options of the original scale. Internal consistency ranged from α = .59 to .65 for the original fatalism subscale.

Self-reported health status, life satisfaction, acculturation, and demographic items were added, as was a question about language preference (Spanish, English, both). Questions related to country of origin, age, gender, marital status, highest level of education completed, and religious importance and frequency were also asked.

A pilot test was conducted prior to generate feedback on the survey questions. The pilot test respondents were Latino community members at a university-sponsored extension class on healthy relationships. Due to the small sample size (n = 30) no statistical analysis was conducted on the pilot data. The respondents reported that the questions were acceptable but based on their feedback one question was dropped from the MACC-SF fatalism subscale and all scales were converted to 5-point scales.

### Procedures and Analysis

Total and subscales were created for the outcomes of the HBI-20 with reverse coding. Descriptive statistics on all measures were performed with outliers assessed; values exceeding ±3.0 z-scores were trimmed.[30,31] Multicollinearity was evaluated through correlation analysis of all potential independent variables to eliminate redundancy. Normality testing using the Shapiro-Wilk test of outcome variables indicated normal distribution for the HBI-20, diet, preventive care, and anger and stress subscales, with highly skewed results for the medical compliance subscale. General linear models were used in analyzing normally distributed outcomes and for the medical compliance subscale to model its exponential form.

Interaction terms were tested, and no significant interactions were found among the independent variables. A full model of independent variables potentially related to the dependent variables was tested. Through backwards elimination a final parsimonious model of significant terms was formed for each outcome, with post hoc comparisons for all factors to quantify specific subgroup differences (see Table 2). We did not correct for multiple comparisons in post hoc testing because of the exploratory nature of the study.[32]

**Table 2.**

Significant Findings in the Parsimonious Model (*P* Values, Means, 95% Confidence Intervals) Including Self-Rated Health and Language Preference Subgroup Comparisons.

| | HBI-20 | Diet | Anger/Stress | Preventive Care | Medical Compliance |
|---|---|---|---|---|---|
| Gender | .001 | ns | ns | .002 | .05 |
| Male | .001, 68.6 (61.5, 75.8) | | | .002, 2.5 (2.2, 2.7) | .05, 3.4 (3.0, 3.7) |
| Female | .001, 73.9 (67.0, 80.8) | | | .002, 2.9 (2.7, 3.2) | .05, 3.7 (3.4, 4.0) |
| Self-rated health | .06 | .02 | .07 | ns | ns |
| *Subgroups* | | | | | |
| Excellent w/good | .27, 69.4 (64.9, 73.9) | .1, 3.3 (3.01, 3.6) | .02, 3.9 (3.5, 4.2) | | |
| Good w/fair | .10, 66.9 (63.5, 70.34) | .15, 3.0 (2.8, 3.3) | .72, 3.4 (3.2, 3.7) | | |
| Fair w/excellent | .02, 63.6 (60.4, 66.7) | .006, 2.8 (2.6, 3.07) | .08, 3.5 (3.3, 3.7) | | |
| Health satisfaction | .03 | ns | .03 | .005 | .02 |
| Satisfied | .03, 69.0 (66.5, 71.6) | | .03, 3.8 (3.6, 3.9) | .005, 2.9 (2.7, 3.2) | .02, 3.8 (3.5, 4.0) |
| Not satisfied | .03, 69.2 (61.7, 76.7) | | .03 3.4 (3.1, 3.7) | .005, 2.5 (2.1, 2.8) | .02, 3.3 (2.9, 3.7) |
| Health insurance | .006 | ns | ns | .002 | .008 |
| Yes | .006, 69.0 (65.9, 72.1) | | | .002, 2.9 (2.7, 3.2) | .008, 3.8 (3.5, 4.1) |
| No | .006, 64.2 (60.9, 67.5) | | | .002, 2.5 (2.2, 2.7) | .008, 3.3 (3.0, 3.6) |
| Language preference | 0.09 | 0.04 | ns | ns | ns |
| *Subgroups* | | | | | |
| Spanish w/English | .03, 68.9 (66.4, 71.5) | .03, 3.2 (3.0, 3.4) | | | |
| English w/both | .05, 61.9 (55.8, 68.2) | .01, 2.7 (2.3, 3.1) | | | |
| Both w/Spanish | .97, 68.9 (65.6, 72.3) | .35, 3.3 (3.1, 3.6) | | | |
| Religious importance | ns | .07 | ns | .04 | .002 |
| Very | | .07, 2.9 (2.7, 3.1) | | .04, 2.9 (2.7, 3.1) | .002, 3.9 (3.7, 4.1) |
| Not very | | .07, 3.2 (2.9, 3.5) | | .04, 2.5 (2.2, 2.9) | .002, 3.2 (2.8, 3.6) |
| Age | .01 | ns | ns | .003 | ns |

Abbreviations: HBI-20, Health Behavior Inventory-20; ns, nonsignificant.

## Results

The goal was to explore demographic and cultural variables that may affect health risk and health protective factors for a community sample of Latino adults. To this end the full model with 9 demographic variables, the *fatalism, machismo,* and *caballerismo* scales, the HBI-20 total score, diet, anger and stress, preventive care, and medical compliance subscales was regressed. Regression results allowed creation of a parsimonious version that featured all significant variables from the full model by the HBI-20 total score and subscales using backward elimination. Due to the exploratory nature of the study, a *P* of <.10 was used for significance testing.[33]

### HBI-20

The full model yielded several significant results when examining relationship to HBI-20 total score. Significant results include life satisfaction (*P* = .02), health insurance status (*P* = .01), gender (*P* = .006), and age (*P* = .02). The cultural variables of fatalism (*P* = .56), traditional *machismo* (*P* = .85), and *caballerismo* (*P* = .2) were not significant with HBI-20 score although the results were in the expected direction with both fatalism and traditional *machismo* negatively associated and *caballerismo* positively associated with HBI-20 score. Meaning, those that reported more fatalism and traditional *machismo* were less likely to engage in health protective behaviors while those scoring higher on *caballerismo* were significantly more likely to engage in health protective behaviors.

In the parsimonious model (see Table 2), life satisfaction was significantly associated with total HBI-20 score (satisfied vs not satisfied) with less satisfied having a significantly higher HBI-20 score (*P* = .03). There was a significant difference on the health insurance (yes/no) variable, and those with health insurance status engaged in more health protective behaviors (*P* = .002). While self-reported health status overall was significant (*P* = .06), we looked further at the specific categories

of this variable (excellent, good, fair health) and found no significant differences between excellent/good self-reported health (*P* = .27), but significant differences between HBI-20 score and good/fair (*P* = .10) and fair/excellent (*P* = .02) were seen. Preferred language was significant overall (*P* = .09), and when examined further, we found significant differences between HBI-20 score and Spanish preferred versus English preferred (*P* = .03) and English preferred versus both preferred (*P* = .05) but not for both preferred and English (*P* = .97). We believe this indicates that those that reported a Spanish preference also reported more health protective behaviors as compared to those who reported an English language preference. Regression analysis indicated that age was significantly related to the HBI-20 score (*P* = .01), in that for every year increase in age there was a 0.22-unit increase in HBI-20 score. Gender was significant for HBI-20 total score with females scoring significantly higher than males (*P* = .001).

### Diet Subscale

In the parsimonious model, examination of the diet subscale of the HBI-20 self-reported health status was significantly related to diet score (*P* = .02). When the self-reported health categories were scrutinized, there was a significant difference between excellent and good health (*P* = .10) but no significant difference between good and fair health (*P* = .15). The strongest relationship was seen between fair and excellent health (*P* = .006). Language preference was significantly associated with diet score with significant difference between Spanish and English preference (*P* = .03) and English and both preference (*P* = .01). Religious difference appeared to influence diet score with very religious scoring lower on the diet subscale (*P* = .07, mean [M] = 2.91) as compared to the somewhat religious (*P* = .07, M = 3.21). It appears that having a healthy diet was associated an overall healthy lifestyle as measured by the HBI-20, especially for those that reported being in excellent health. Interestingly,

language and being highly religious were also significantly associated with a healthier diet.

### Anger/Stress Subscale

The anger/stress subscale was significantly associated with life satisfaction (satisfied vs not satisfied) with satisfied having a significantly higher stress/anger subscale score (*P* = .03). In terms of self-reported health status, significant differences were found between excellent/good (*P* = .02) and fair/excellent (*P* = .08) but not fair/good (*P* = .72). This may indicate that people who were satisfied with their lives and rated their health as excellent were better able to manage stress and anger than those with less life satisfaction.

### Preventive Care Subscale

Life satisfaction (satisfied vs not satisfied) was also associated with preventive care behaviors in this sample. Those that reported being satisfied with their lives scored significantly higher on the preventive care subscale (*P* = .005, M = 2.95). Those with health insurance scored significantly higher on preventive care indicators than those lacking health insurance (*P* = .002). Gender differences were also found, with women scoring significantly higher on preventive care than men (*P* = .002). Those that reported high religious importance engaged in more preventive care behaviors than those indicating less religious importance (*P* = .04). Regression analysis indicated that age was significantly related to preventative care score; for every year increase in age, there was a 0.003 unit increase in preventative subscale score.

### Medical Compliance Subscale

Medical compliance was associated with life satisfaction—those satisfied with their lives were significantly more medically compliant (*P* = .02). There were significant differences in health insurance status, with those insured scoring higher on the medical compliance subscale (*P* = .008). Women scored significantly higher on medical compliance compared to men (*P* = .05). Those that reported religion as very

important scored significantly higher on medical compliance ($P = .002$).

## Discussion

A variety of cultural and demographic variables expected to influence health behaviors in a community sample of Latinos were explored using several standard measures. As is often the case in research, some findings were as expected and some were not. For example, marital status is believed to be health protective, especially for men, but we did not find a significant interaction between marital status and any of the health behaviors measured. Conversely, religious importance, but not attendance, was a predictor of several important health-promoting behaviors, specifically diet, preventive care, and medical compliance. Religion factors can be unpredictable; although it is practically a truism that religion and health are connected, the process is not clearly understood.[17] Religious attendance is usually measured separately from religious importance because it may be the church-based social connections and social support that are good for one's health rather than attendance per se.[18]

Marital status was not a significant finding which may be due to the small number in the single category as well as the loss of specificity when the marital categories were collapsed. Nevertheless, this finding was unexpected given that married individuals, men in particular, have been shown to engage in more health protective behaviors as compared to their nonmarried counterparts.[24,34] One possible reason is that married people in general and men in particular tend to receive more social control by spouses to avoid health risk behaviors, such as smoking, excessive alcohol use, and delay in seeking health care.[24,34] Little research exists on the impact of marital status of Latinos living in the United States, although Peak et al[35] found that Latino men relied on their spouses to assist and direct family health–related decisions. Future research should further explore the link between marital status and health in Latino populations.

Another surprising finding was that the cultural variables of fatalism, traditional *machismo*, and *caballerismo* did not prove to be significant predictors for any part of the HBI-20. This was unexpected given the significance of these variables in other studies. Typically in research with men, adherence to traditional masculine gender norms has been associated with riskier health behaviors and less help-seeking behaviors.[27,35,36] We had been curious to see if traditional *machismo* beliefs affected health behaviors in both Latino men and women as compared to the more positive aspects of *caballerismo*. No other research was found that examined the relationship between Latinas and adherence to *machismo* norms and health behaviors; thus, this is a unique contribution of the present study. A study of Latino men infected with HIV did find that medical compliance was associated with higher levels of *caballerismo* while traditional *machismo* was associated with lower levels of compliance,[37] but in the present study these cultural variables were not significant for either gender although the results were often (but not always) in the expected direction. Little research has looked at positive and negative aspects of machismo in a mixed gender community sample, and a larger sample size might have yielded significant results.

Previous research on the role of fatalism and health behaviors has produced mixed results; more recent studies have not found a strong association between fatalism and health-related behaviors.[3,38] For example, Sobralske[39] found that Mexican American men did not have a strong affinity toward fatalism, and Green and colleagues say that fatalism is not necessarily limited to Latinos and may be less of a cultural issue than a socioeconomic one.[40] De Jesus and Xiao[3] found that structural variables such as access to care were more important than fatalism when examining Latino health care utilization, as measured by Health Locus of Control.[3]

The cultural variable of preferred language (significant only for total HBI-20 score and diet) indicated the majority of the sample preferred to speak Spanish. Total HBI-20 score and diet were the only 2 scales affected by language preference; participants who preferred to speak Spanish appeared to engage in more healthful eating behaviors than those who preferred English. These findings are in accordance with other research in this field and may reflect some of the health benefits associated with the Latino or Hispanic Paradox.[2] For example, in a comprehensive review of diet with acculturated Latinos living in the United States, Ayala et al[41] found that less acculturated Latinos followed more healthful practices and ate more fruit, rice, and beans, drank less sugar-sweetened beverages, and used less sugar.

Women engaged in more protective behaviors overall, as shown in total HBI-20, preventive care, and medical compliance results. This is in accord with previous research that Latinas utilize health care more often than their male counterparts.[42] Women have a better life expectancy than men in the United States regardless of ethnicity and this can be due in part in the case of Latina women engaging in more health protective behaviors as we found in our study. Other research has found that in Latino families, women often assume the role of overseeing the health of the fmaily.[35] This could possibly lead to Latino women being more knowledgeable and motivated to engage in health protective behaviors and avoiding health risk behaviors.

Life satisfaction was one of the more robust variables and showed a significant relationship with total health, anger/stress, preventive care, and medical compliance but not the diet subscales. Self-reported health status was also an important predictor of health protective factors (eg, total health score, diet, and anger/stress), with those self-reporting excellent health engaged in more healthful behaviors. Self-reported health status has been shown elsewhere to be a valid measure when compared with more objective measures of health.[43] Other research has found that Latinos often report lower levels of both life

satisfaction and self-reported health status when compared to Whites—acculturation stress often linked to these differences.[44] This community sample reported high levels of life satisfaction and the majority self-reported excellent or good health. It should be noted that a recent study determined that placement and context of the self-reported health status questions might influence how older Latinos respond,[45] and as these were the first 2 items on the survey, this may be an artificially elevated response. Regardless, life satisfaction and health status were positively linked to protective health behaviors.

The majority of the sample reported no health insurance, which is similar to other research with Latino samples.[46,47] Latinos of Mexican ancestry are more likely to be uninsured as are Latino males, singles, those employed, those whose income is below the poverty line, younger Latinos, as well as those that self-report being in good health, Spanish-speaking preference, and the less educated.[48] Health insurance status was a significant finding in connection with total HBI-20 score, preventive care, and medical compliance. These subscale items specifically relate to medical screenings and taking prescription medicines as directed, behaviors that health insurance would likely help with because of the associated access to health care and health education.

Given the large age range in the sample (19-71), it was somewhat surprising that age was not a more significant predictor of protective health factors. Total HBI-20 score and preventive care were significant with an increase in age and may indicate an increase in preventive care behaviors. Preventive care questions focused on health screenings, and these may be more common with older age. Previous research with Latino immigrants has highlighted age of arrival in the United States as a significant predictor of access to health services and physician visits.[49] Although we did not ask about length of time in the United States, the majority of the sample preferred to speak Spanish and that may indicate more recent

arrival. Future researchers might consider an explicit examination of age and include length of time in the United States, parental nativity, and country of origin. A recent study found that, if uninsured, both middle-aged Latinos and African Americans were at increased risk to delay care and were more likely to report a problem accessing needed medical care.[50] Overall, uninsured minority middle-aged adults were less likely to receive preventive health services than those 65 and older. The passage of the Patient Protection and Affordable Care Act (ACA) in 2010, as well as the 2 Supreme Court cases that upheld it, raises the potential for a decline in the number of uninsured generally, as well as for enhanced access to preventive health services. The need for documented legal status to access care through the ACA, however, means these hoped-for benefits may not occur quickly.

## Limitations

There are several limitations to this study. First, the community sample of Latinos residing in northern Utah was a convenience sample that limits generalizability. Second, we used cross-sectional data whereas longitudinal measures would have enhanced reliability of the findings. Third, additional measures of acculturation would have increased the ability to examine the data from a wider variety of perspectives beyond just language preference. Finally, a larger sample size might have yielded different results with marital status and men's health behaviors.

## Conclusions

Despite the limitations, this research has yielded several important findings as little previous research with community samples examined the correlates of health risk and health protective behaviors of Latinos. For example, despite the belief that underutilization of health services is tied to structural factors (eg, lack of health insurance,

immigration status, and access to culturally competent health care), the majority of these participants did not have health insurance yet did engage in health-promoting behaviors. In addition, in contrast to other research with Latino groups, we found that variables such as machismo, fatalism, and religion attendance did not significantly affect health behavior. Self-reported health status and life satisfaction did appear to predict health protective behaviors, and future researchers should continue to add them to health research with Latino groups with the caveat noted above, to consider the placement of these questions.

Another consideration that relates to Latino health needs in the United States is the undocumented status of many individuals. Even though the uninsured rate for Latino adults has been reduced through the ACA from 41% in 2013 to 34% in 2014, that rate is still much higher in comparison to other groups—approximately 16% for all adults 18 to 64 and older in the United States in 2014—because of the lack of access connected to being undocumented; thus, any negative health consequences associated with being uninsured are likely to continue.[2,51] An additional concern is the narrower network of health care providers, which may affect the ability to search for culturally competent professionals.[5,52]

## Declaration of Conflicting Interests

## Funding

## Ethical Approval

Not applicable, because this article does not contain any studies with human or animal subjects.

## Informed Consent

Not applicable, because this article does not contain any studies with human or animal subjects. AJLM

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