The Development of the Cultural Health Attributions Questionnaire (CHAQ)

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Current general health belief measures that are used to assess health behaviors do not capture the full range of health beliefs present among Latinos. The purpose of this study was to develop a reliable and valid measure of Latino health beliefs, the Cultural Health Attributions Questionnaire (CHAQ). Three hundred forty participants were recruited in 2 metropolitan areas with large Latino populations. Exploratory factor analysis revealed 2 highly interpretable 12-item subscales: the Equity Attribution and the Behavioral-Environmental Attribution scales. Examination of the relationships between the subscales and measures of acculturation provided evidence of construct validity. Moreover, the prediction of health care behavior by the CHAQ also indicated initial criterion validity.

Latinos are at greater risk than the general U.S. population for many infectious and chronic health conditions (Higginbotham, Trevino, & Ray, 1990; Marks, Garcia, & Solis, 1990). Many Latinos seek care only when severely ill, and the number of physician visits per year is lower for Latinos than for non-Hispanic Blacks and Whites (U.S. Depart-

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Cultural Health Attributions (269).

Moreover, the frequency of preventive examinations in the absence of illness is lower for Latinos in the southwestern U.S. than for the general population (Anderson, Lewis, Giachello, Aday, & Chin, 1981). Several factors have been suggested to explain Latino health care behaviors. These factors include cultural health beliefs, demographic barriers, acculturation, and health locus of control.

The Latino worldview includes complex beliefs about the etiology, symptom expression, and treatment of illnesses that may affect health care utilization (Fishman, Bobo, Kostub, & Womeodu, 1993; Freidenberg & Jimenez-Velasquez, 1992; Pachter, 1993, 1994). These beliefs include the influence of supernatural forces, such as hexes, punishment from God, spiritual imbalance, and lack of faith (Freidenberg & Jimenez-Velasquez, 1992; Pachter, 1993, 1994; Zea, Quezada, & Belgrave, 1997). Murdock (1980) classified two major health belief schemas present in 189 cultures worldwide. These health belief schemas classified illnesses as being caused by natural or supernatural agents. Murdock also reported that a majority of the cultures view illnesses as a result of supernatural and interpersonal actions, and only four cultures included natural agents as a possible cause for illnesses.

Landrine and Klonoff (1994) found in a college sample that people of color, including Latinos, attributed illness to supernatural causes to a greater extent than did non-Hispanic Whites. Illness among Latinos may be interpreted as being influenced by moral and religious implications (Gomez & Gomez, 1985; Koss-Chioino, 1995; Landrine & Klonoff, 1992; Pachter & Weller, 1993). Suarez, Raffaelli, and O'Leary (1996) reported that nearly half of their sampled HIV-positive Latinos believed spirits had a causal role in their infection, and two thirds used folk healing for the reduction of physical pain, spiritual relief, or protection from evil. Similar beliefs and health-seeking practices among Latinos have also been reported for the treatment of bowel complaints (Zuckerman, Guerra, Drossman, Poland, & Gregory, 1996), asthma (Pachter, Cloutier, & Bernstein, 1995), and diabetes (Zaldivar & Smolowitz, 1994).

There are many Latino culture-bound syndromes that are treated by indigenous healers who share the same religious beliefs, values, symbols, and language of the community they serve (Koss-Chioino, 1995). Latinos have been shown to use spiritual healers for the treatment of illnesses. These healers have an understanding of Latino health beliefs and are knowledgeable about the cultural rituals used to treat culture-bound syndromes and medical illnesses (Guarnaccia, De La Cancefa, & Carillo, 1989; Koss-Chioino, 1995; Marsh & Hentges, 1988; Pachter, 1994).

Often among diverse populations, illnesses are “described and treated without references to family, community, or the gods” (Landrine & Klonoff, 1992, p. 267). Among these populations, treatment for illnesses may be viewed as a long-term fluid informal healing process in which the healer, patient, and family make amends and improve the habits and relationships thought as being the cause of illness (Kleinman, Eisenberg, & Good, 1978; Landrine & Klonoff, 1992). An underlying theme among the different Latino cultures and their specific ethnomedical approach is harmony and balance (Koss-Chioino, 1995). Thus, among these approaches, illness-causing (causa) spirits are attracted to persons who behave immorally . . . those who “break the rules” (including “uncleanliness” in the moral sense) often become ill because they threatened the integrity of the social fabric. Transgressions are sinful both because they unbalance the “good” within an individual and because they generate conflict among persons. (Koss-Chioino, 1995, pp. 148-149)

Because these health beliefs assume that good deeds will be rewarded and bad deeds punished by a deity or other forces, we refer to this concept through our investigation as equity. This entails the notion that there is
Journal according to natural law. Examples of thoughts reflecting equity attributions among Latino culture include "I am ill because I was mean to my sister" or "I am in good health because I lead a morally upright life."

A lack of awareness of Latino cultural beliefs on the part of health care providers may make diagnosis difficult and render treatment ineffective in minority groups (Landrine, 1992). Moreover, providers may fail to recognize or accept culture-bound syndromes or ethnomedical approaches available for treatment of these or other physical illnesses (Guarnaccia et al., 1989; Marsh & Hentges, 1988; Rivera, Lucero, & Salazar, 1979; Spicker, 1977; Zea et al., 1997).

Another factor associated with health care behaviors among Latinos is demographic barriers, including limited health insurance coverage, lack of a primary physician, financial constraints, long waiting periods in clinics, inflexible intake procedures, inaccessibility to clinics, inadequate transportation services, limited English proficiency, and the absence of child-care centers (Anderson et al., 1981; Ell et al., 1995; Estrada, Trevino, & Laura 1990; Johnson et al., 1995; Markides, Levin, & Ray, 1985; Trevino, Moyer, Valdez, & Stroup-Benham, 1991). In addition, psychosocial factors, such as degree of acculturation and locus of control, affect health care use among Latinos. Low levels of acculturation in U.S. culture have been associated with low utilization rates of health care services (Chesncy, Chavira, Hall, & Gary, 1982; Wells, Golding, & Hough, 1989). More acculturated individuals possess a greater knowledge about the availability of health care services and are less likely to use ethnomedical interventions such as folk healers (Echeverry, 1997). Moreover, higher levels of acculturation in U.S. culture have been associated with compliance with medical regimens (Pachter & Weller, 1993).

Because of the association between acculturation and health care behaviors, measures of acculturation (Castro, Furth, & Karlow, 1984; Higginbotham et al., 1990; Solis, Marks, Garcia, & Shelton, 1990) or proxies of acculturation, such as country of education, place of birth, or language preference (Skaer, Robinson, Sclar, & Harding, 1996), have been used to account for health beliefs among Latinos. Although acculturation may provide some insight into health beliefs, this construct does not necessarily adequately reflect cultural health beliefs that influence health behaviors.

Locus of control has also been associated with health behaviors among Latinos (Bundek, Marks, & Richardson, 1993). High internal control for Latino women was related to frequent breast self-examination, and the attribution of control to powerful others was associated with recency of gynecological exams (Bundek et al., 1999). Similarly, HIV-positive Latinos and African Americans were more likely to attribute their health status to powerful others or chance (Spalding, 1995). Although health locus of control has also been used to identify health beliefs among Latinos, this construct does not address the full range of spiritual and cultural health attributions of this group.

This study presents a new measure, the Cultural Health Attributions Questionnaire (CHAQ), which attempts to identify and quantify health beliefs that affect the use of the formal health care system and traditional ethnomedical approaches. The work focuses on equity attributions and presents initial factor analysis, reliability, concurrent, and criterion validity.

**Study 1: Psychometric Development**

**Method**

**Development of the CHAQ.** To assess health beliefs, we developed an initial set of 24 attributions of the causal factors in six vignettes describing positive and negative health experiences. The vignettes were originally developed in Spanish. This preliminary version of the CHAQ was reviewed by a focus group of Latino psychology graduate students and professors. Suggestions included phrasing of items, clarifying
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concepts, and improving readability of the measure. Comments and suggestions were incorporated in the final version of the scale. Upon the completion of the initial health beliefs measure, a focus group was conducted at a Latino community clinic to qualitatively assess the presence and accuracy of the health beliefs presented in the CHAQ. In the final version after each vignette, four possible reasons for the outcome of the vignette are given, and participants are asked to rate each reason (24 in total) on a 5-point Likert scale ranging from 1 (no effect) to 5 (great effect). The revised measure was translated to English and back translated to Spanish successfully.

The scale attempts to identify two types of equity attribution (EA) beliefs. The first type of EA belief involves an internal control construct. Sample item responses of internal EA beliefs include “She deserved it for being good to her community” and “He left his family.” The second type of EA belief involves a powerful others control construct. Sample responses of a powerful others EA belief include “God was testing her faith” and “Spirits are causing her undue distress.” In general, EA beliefs assess beliefs about negative health outcomes due to punishment by an outside force because of a person’s violation of community standards, and they assess positive health outcomes due to a person’s culturally sanctioned behaviors. EA responses in the CIIAQ reflect the application of retributonal justice to health outcomes.

As a point of contrast, behavioral-environmental attributions (BEA) were included in the sample responses. The BEA beliefs reflect more conventional and causal attributions of health outcomes related to behaviors and environmental factors. Examples of these items are “She smoked too much during pregnancy,” “The doctor recommended the correct changes,” and “She happened to live in a healthy environment.” In total, the CHAQ contains 12 EA and 12 BEA health beliefs. CHAQ vignettes are included in Appendix A, and a Spanish version of the CHAQ is included in Appendix B.

Participants. One hundred participants were recruited in Washington, DC, and 240 in Miami, Florida, in an attempt to obtain a wide range of Latino participants from different nationalities. The 340 Latino participants consisted of 144 men (42%) and 196 women (58%). The majority were Caribbean (63%), followed by Central and Mexican Americans (28%) and South Americans (9%). The mean age of the participants was 42.78 years (SD = 14.39), with a range from 19 to 82 years. The participants averaged a 10th-grade education (SD = 5) and had resided in the United States for a mean of 17 years (SD = 13). Fifty-five percent of the sample was employed.

Procedure. The Miami participants were recruited in various government-sponsored agencies within the Latino community and vocational classroom settings. The Washington, DC, participants were recruited in a Latino community clinic as they waited to see a physician. The response rate was over 90%, and all the questionnaires were orally administered in Spanish. Each one took approximately 15 min. The participants were asked to report relevant demographic information, such as age, employment status, and level of education. The participants from Washington, DC, were given additional questionnaires (e.g., acculturation) to further assess construct validity and provide initial criterion validity. This is discussed in detail in Study 2.

Results and Discussion

Factor Analysis. An exploratory factor analysis to determine the structure of the CHAQ was conducted, because the proposed factor structure was theoretical and untested. Exploratory factor analysis has been cited as the recommended analysis in the early stages of test development (Clark & Watson, 1995; Floyd & Widaman, 1995). A principal-components analysis with a varimax rotation was used. The optimal number of factors to extract was determined by scree plots, eigenvalues, and simple structure (Lochlin, 1992), and the theory of simple
structure or parsimony guided the specification of the models. Our goal was to have the smallest number of possible factors and for each item to load on only one latent factor.

We had expected to identify a three-factor solution reflecting two types of EA beliefs, internal and powerful others, and the BEA beliefs. However, results indicated a two-factor model with two highly interpretable components with eigenvalues of 6.92 and 3.57, accounting for 29% and 15% of the total variance (see Table 1). Although the factor analysis did not discriminate between the proposed different types of EA beliefs, the factor values successfully discriminated between the EA and BEA health beliefs. With a cutoff score of .39 for the factor loadings, each item loaded on only one factor. Furthermore, the 12 items loading on the EA scale were the ones theoretically believed to contain EA beliefs. The remaining 12 items, which reflect more conventional causal attributions related to behavioral and environmental elements, loaded on the BEA scale. Thus, the results of the factor analysis supported the hypothesized theoretical aspects of Latino health beliefs in the CHAQ.

INTERNAL CONSISTENCY. Subscales were formed by calculating the mean of the items that loaded on each factor. The mean for the EA and BEA subscales were 2.54 (SD = 1.15) and 3.92 (SD = 0.62). The correlations between individual items and the total subscale ranged from .49 to .78 for the EA and

| TABLE 1 Factor Analysis of the Cultural Health Attributions Questionnaire |
|-----------------------------|--------|--------|
| Factor and item             | 1      | 2      |
| Factor 1: Equity Attributions Scale |
| C3. A form of justice for poorly treating the community | .83    | .01    |
| F3. Punishment by God       | .81    | -.05   |
| E1. Deserved it for being good to the community | .80    | -.03   |
| F1. He left his family      | .77    | -.07   |
| C1. She was greedy and did not help anybody | .76    | -.17   |
| E2. God was looking out for her | .75    | .05    |
| D2. Spirits were causing her undue distress | .74    | -.16   |
| B3. God was testing her faith | .72    | .00    |
| A4. Left his children       | .70    | -.08   |
| A1. Punishment by others or God for his immoral behavior | .69    | .11    |
| B2. She became a better person | .60    | .17    |
| D1. She did not want to have anything to do with her neighbors | .55    | .10    |
| Factor 2: Behavioral-Environmental Attributions Scale |
| C2. She smoked too much during her pregnancy | -.11   | .68    |
| E4. Took good care of herself | -.32   | .62    |
| B1. Changed her eating and activity habits | -.32   | .60    |
| A2. One of his sexual contacts gave it to him | -.08   | .57    |
| B4. Her doctor prescribed the correct changes | -.11   | .56    |
| F2. He did not control his diet | .25    | .54    |
| D3. Feelings caused by past experiences | -.04   | .52    |
| C4. Complications at birth | .09    | .50    |
| E3. She happened to live in a healthy environment | .21    | .47    |
| A3. Having too much casual sex | .11    | .46    |
| F4. The other woman fed him too much | .32    | .42    |
| D4. The dangerous neighborhood around her | .21    | .39    |
| Eigenvalues                  | 6.92   | 3.57   |
| % of variance                | 29     | 15     |

*Note.* Boldface factor loadings signify items primarily with that factor.
from .30 to .52 for the BEA. Internal consistency reliabilities were .92 for the EA subscale and .77 for the BEA subscale.

A nonsignificant correlation between the EA and BEA subscales \( (r = -0.05, \text{ns}) \) suggests that the CHAQ measures two independent constructs of health beliefs. Thus, endorsement of equity beliefs is unrelated to endorsement of beliefs more typical of approaches used in developed countries. Level of education was strongly negatively related to EA \( (r = -0.47, p < .0001) \) and weakly positively related to BEA beliefs \( (r = 0.13, p < .05) \). Additionally, age was weakly positively related to the EA scale \( (r = 0.16, p < .01) \). Independent samples \( t \) tests did not reveal significant differences for gender in EA beliefs or BEA beliefs.

**Study 2: Construct and Criterion Validity**

The purpose of Study 2 was to assess initial construct validity of the CHAQ and to determine if the EA and BEA subscales were related to health behaviors among Latinos. We hypothesized that construct validity would be supported and that high equity attributions among Latinos would be related to higher use of ethnomedical approaches and delayed health care utilization. Construct validity was examined with bivariate correlations between CHAQ subscales and acculturation and chance health locus of control scales. Multivariate analysis was conducted to assess the CHAQ's criterion validity as compared with other currently used scales of health behavior.

**Method**

**Participants.** The 100 Latinos from Washington, DC, used in Study 1 constituted the sample for Study 2. Participants ranged in age from 20 to 80 years (mean age = 43). The sample consisted of 31 men and 69 women. The majority were Central American and Mexicans (76%), 17% were South American, and 7% were Caribbean Latinos. A community health clinic was chosen for recruitment to obtain an accurate assessment of the length of time a potential participant remained ill before deciding to visit the community health clinic. Participants were recruited as they waited to see a physician. The response rate was over 90%. All measures were orally administered in Spanish, and testing lasted approximately 45 min.

**Independent Measures.** The following independent measures were used.

**CHAQ.** The two-factor CHAQ, as previously described, was administered.

**Health locus of control.** The abbreviated version (Bundek et al., 1993) of the Multidimensional Health Locus of Control Scale (MHLOC; Wallston, Wallston, & DeVillis, 1978) was administered. As previously discussed, Bundek et al. (1993) reported an association between health beliefs, as measured by the abbreviated MHLOC, and preventive health behaviors. They obtained Cronbach's alpha scores of .82 for the internal control, .82 for powerful others, and .72 for the chance control subscales with a sample of Latino women. However, in the present study internal consistencies were .26 for internal control, .64 for powerful others, and .71 for chance control. Because of the low reliability for the internal and powerful others control subscales with this sample, these subscales were dropped. The mean score for the chance health locus of control subscale was 7.69 (SD = 1.69).

**Acculturation.** The Identity Acculturation Scale (IAS; Birman, 1998), which was adapted from the Bicultural Involvement Questionnaire for Cuban Americans (Sapoznik, Kurtinez, & Fernandez, 1980), was used to measure acculturation. The scale contains 42 items with a Likert response format. The IAS assesses the degree to which participants' beliefs and behaviors are a reflection of Latino or U.S. culture. In the present sample, the Cronbach's alpha was .97 for the Latino acculturation subscale and .89 for the U.S. acculturation subscale. The mean for the Latino acculturation subscale
was 4.40 (SD = .53) and was 2.58 (SD = .98) for the U.S. acculturation subscale.

**Barriers to health care utilization.** We used a checklist of barriers to health care utilization developed by Estrada et al. (1990) for Mexican Americans. These barriers were cost, lack of transportation, absence of Spanish speaking and/or Latino staff members, inconvenient hours, disrespectful staff, potential lost wages, lack of available care, no knowledge of where to obtain care, lack of child care, lack of confidence in the staff, and long waiting times in the clinic and for appointments. The average number of demographic barriers encountered by the sample was 3.53 (SD = 2.82).

**DEPENDENT VARIABLES.** The following dependent variables were used for the study.

**Length of time spent ill.** Each participant was asked the length of time usually spent ill before deciding to visit a formal health care provider. Because of positive skewness in reported “time spent ill,” the participants were categorized into two groups. Participants were categorized as 3 months or less (43%) versus more than 3 months (57%).

**Use of ethnomedical approaches.** We assessed the use of ethnomedical approaches to health care. Respondents were asked whether they had ever used a folk remedy or a spiritual/folk healer such as a santero, curandero, sobador, hierbista, or espiritista to treat a medical problem. Participants indicated all methods that they had used, and a count of methods was calculated. The mean use of ethnomedical approaches was 1.50 (SD = 1.20, range = 0 to 5).

**Results and Discussion**

**Construct Validity.** It would be expected that a culturally sensitive health belief scale would be related to acculturation. We expected that higher scores on the EA scale would be negatively associated with acculturation in U.S. culture and positively associated with Latino acculturation as measured by the IAS. In accordance with our expectations, the EA scale was negatively correlated with the U.S. acculturative style ($r = -.32, p < .001$) and positively correlated with the Latino acculturative style ($r = .17, p < .05$). The BEA scale, which attempts to measure conventional causal attributions to illnesses related to behavioral and environmental elements and not necessarily cultural affiliations, did not reveal any significant relationships with the U.S. and Latino acculturative style.

These results provide initial construct validity and suggest that the subscales measure health beliefs, which are related to acculturation in the expected direction. In addition, even though the EA scale was significantly related to U.S. acculturation, the moderate to weak correlations do not suggest that they are measuring the acculturation construct.

We had also expected that the EA subscale would be positively related to chance health locus of control, whereas the BEA subscale would be negatively associated. Both of these associations were found. Chance health locus of control was positively related to equity attributions ($r = .47, p < .0001$) and negatively associated with behavioral–environmental attributions ($r = -.35, p < .001$). The chance health locus of control scale contains items attributing one’s current health to events such as accidents and good luck and not to causes that can be explicitly controlled. This explanatory style is more consistent with the EA items in which causes include God, spirits, and retributional justice, and is inconsistent with BEA items.

**Criterion Validity.** Criterion validity was examined by determining whether the CHAQ was related to health behaviors such as seeking medical assistance and using ethnomedical approaches. To determine whether the CHAQ was able to explain the variance in the proposed health behaviors beyond more commonly used health belief and behavior measures, we conducted multivariate analyses. Control variables included age, gender, barriers to health care use, U.S. and Latino acculturative style, educational
level, and chance health locus of control. A logistic regression analysis in which all the independent variables are entered simultaneously was performed to test the prediction of length of time respondents stayed sick before deciding to visit a medical health care provider (criterion groups: less than 3 months vs. 3 months or greater). The model was significant with a $-2 \log$ likelihood of 107.67, $\chi^2(9, N = 100) = 25.96, p < .005$. Results are shown in Table 2. Higher scores on the EA subscale were associated with a greater likelihood of delaying health care seeking behavior. This finding provides criterion validity for the CHAQ. The EA scale of the CHAQ was able to provide predictive utility to the model while controlling for previously used measures of health behaviors.

Other findings indicate that chance health locus of control and Latino acculturative style were also significantly related to length of time usually spent ill before deciding to visit a medical health care provider after controlling for the other variables in the model. These relationships, however, are counterintuitive in that higher endorsements of chance beliefs and Latino acculturative style were related to visiting a health care provider more expediently. This finding raises questions about the validity of the chance health locus of control construct for this population and about the specificity of acculturation measures regarding health behaviors. Further investigation of the chance subscale should be conducted to obtain a more comprehensive understanding of how a more external belief would relate to better health care behaviors among Latinos. Perhaps chance health attributions have a different meaning among Latinos than among Whites.

Other control variables such as education and gender were not related to seeking primary health care. Acculturation into U.S. culture was also not significantly related to the dependent variable. Although studies have used acculturation as an indicator of attitudes about health care (Castro et al., 1984; Higginbotham et al., 1990; Solis et al., 1990), existing acculturation scales may not be able to measure specific cultural health beliefs. Our results suggest that when a specific measure of cultural health beliefs, such as the CHAQ, is included in the model, a general measure of acculturation to U.S. culture fails to provide additional explanation for health-related behaviors.

Multiple regression was used to predict level of ethnomedical approaches to health care. Predictors included equity and behavioral-environmental attributions, as well as control variables of age, gender, barriers to health care, U.S. and Latino acculturation, educational level, and chance health locus of control. The model was significant, $F(9,$

### Table 2: Logistic Regression Predicting Time Spent Ill Before Visiting a Health Care Provider (Less Than 3 Months Versus 3 Months or More)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimate</th>
<th>SE</th>
<th>Odds ratio</th>
<th>Wald $\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>.10</td>
<td>.54</td>
<td>1.11</td>
<td>0.04</td>
</tr>
<tr>
<td>2. Age</td>
<td>-.02</td>
<td>.92</td>
<td>0.98</td>
<td>1.22</td>
</tr>
<tr>
<td>3. Demographic barriers</td>
<td>.11</td>
<td>.69</td>
<td>1.11</td>
<td>1.43</td>
</tr>
<tr>
<td>4. American acculturation</td>
<td>-.20</td>
<td>.31</td>
<td>0.82</td>
<td>0.43</td>
</tr>
<tr>
<td>5. Latino acculturation</td>
<td>-1.08</td>
<td>.50</td>
<td>0.36</td>
<td>4.24*</td>
</tr>
<tr>
<td>6. Educational</td>
<td>.05</td>
<td>.67</td>
<td>0.97</td>
<td>0.18</td>
</tr>
<tr>
<td>7. Chance control</td>
<td>-.52</td>
<td>.19</td>
<td>0.60</td>
<td>7.34**</td>
</tr>
<tr>
<td>8. Equity attributions</td>
<td>.87</td>
<td>.27</td>
<td>2.38</td>
<td>9.96**</td>
</tr>
<tr>
<td>9. Behavioral-environment</td>
<td>.26</td>
<td>.55</td>
<td>1.30</td>
<td>0.24</td>
</tr>
</tbody>
</table>

* $p < .05$. ** $p < .01$. 
Results are shown in Table 3. Higher equity attributions were significantly associated with an increased use of ethnomedical approaches to health care, such as santeros, hierbistas, and folk remedies. In addition, high behavioral-environmental attributions were also significantly associated with lower use of ethnomedical health care. Individuals who believe in equity attributions have a greater tendency to attribute their health outcomes to factors other than Western medical explanations, and therefore are more likely to seek health care in various nonmedical settings. This utilization pattern may ultimately delay the use of medical providers, and thus partially explain observed results concerning the amount of time spent ill before deciding to seek medical assistance.

It should be noted that beliefs related to equity attributions are more consistent with those endorsed by ethnomedical practitioners. For instance, in the Santeria worldview, illness could be related to the failure to honor one's ancestors or the violation of culturally sanctioned norms. The basis of some ethnomedical approaches rests on a belief in a system of retributial justice, therefore it is not surprising that people who subscribe to equity attributions feel comfortable in that milieu. In contrast, participants subscribing to the behavioral-environmental explanation of diseases showed significantly less use of ethnomedical approaches, which may conflict with their belief systems.

Those participants who reported more demographic barriers to health care, such as lack of insurance, transportation, and child care, were also more likely to use alternative health care approaches. This may be due to the social class differences, as well as to the fact that those who experience these barriers have few options left for seeking formal health care. Alternative approaches may be more accessible, as well as more consistent with cultural beliefs. Because the participants were mostly Central American and Mexicans, future studies are needed to explore the validity of the CHAQ with other Latino groups and collectivist non-Latino populations.

**General Discussion**

The primary purpose of this investigation was to develop a culturally sensitive, reliable, and valid measure of health beliefs prevalent among Latinos: the CHAQ. The exploratory factor analysis resulted in two factors with nonoverlapping items and acceptable internal consistencies. The results suggest the CHAQ is an appropriate measure of Latino health belief attributions. In particular, one of the CHAQ factors appears to be an internally consistent and valid measure of the proposed equity health beliefs present among Latinos. This EA scale is significantly related to the level of acculturation to U.S. and Latino culture and health behaviors, that is, time spent ill before visiting a formal health care provider and the use of ethnomedical approaches to treat medical illnesses. Moreover, the EA scale provides a stronger association with these health behaviors than acculturation and chance health locus of control. Thus, it appears that chance locus of control and acculturation scales may be less sensitive as indicators of Latino health beliefs and therefore are less

**TABLE 3 Summary of Multivariate Regression Analysis Between Independent Variables and Use of Ethnomedical Approaches to Health Care**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parameter estimate</th>
<th>F(9, 90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender*</td>
<td>-.07</td>
<td>0.09</td>
</tr>
<tr>
<td>2. Age</td>
<td>.00</td>
<td>0.02</td>
</tr>
<tr>
<td>3. Demographic barriers</td>
<td>.10</td>
<td>6.48*</td>
</tr>
<tr>
<td>4. American acculturation</td>
<td>.13</td>
<td>0.99</td>
</tr>
<tr>
<td>5. Latino acculturation</td>
<td>-.20</td>
<td>0.95</td>
</tr>
<tr>
<td>6. Educational level</td>
<td>-.05</td>
<td>2.81</td>
</tr>
<tr>
<td>7. Chance control</td>
<td>-.10</td>
<td>1.44</td>
</tr>
<tr>
<td>8. Equity attributions</td>
<td>.27</td>
<td>5.02*</td>
</tr>
<tr>
<td>9. Behavioral-environmental</td>
<td>.90</td>
<td>6.11*</td>
</tr>
</tbody>
</table>

*Female = 0 and male = 1.

*p < .05.
able to explain patterns of health care utilization than the CHAQ.

The BEA scale of the CHAQ also appears to be an internally consistent and valid measure. The BEA scale, however, measures health beliefs more prominent among Western cultures that strongly adhere to the medical model of illness. The BEA was negatively associated with health behavior prevalent in Latino culture, that is, the use of ethnomedical approaches to treat medical illnesses. Similar to the EA scale, the BEA scale provided stronger prediction of the use of ethnomedical approaches than did acculturation to U.S. and Latino culture and chance health locus of control variables.

It should be noted that although this investigation used a quantitative way of assessing health beliefs that may in itself be culturally rooted (i.e., a Likert-based scale), community focus groups designed to refine the measure and improve its cultural sensitivity indicated that the presentations of these beliefs were effectively conveyed. Future investigations could include other groups of participants to assess the CHAQ's external validity. Although the factor analysis was conducted with a wide range of Latino participants, concurrent and criterion validity were assessed from Central American and Mexican Latino participants. Investigations of the CHAQ with non-Latino, English-speaking Latino, and non-Central American and Mexican Latino participants are needed to further assess its utility with these populations.

Overall, the CHAQ provides an effective way to identify individuals who subscribe to health beliefs present in Latino and possibly other collectivist cultures. The CHAQ may allow the health care provider an opportunity to assess the health beliefs a Latino client has regarding illnesses. Health beliefs, which affect the use of the formal health care system and ethnomedical approaches, can be identified and quantified through the CHAQ. This affords the health care provider an opportunity to examine how these specific health beliefs compare with the Western biomedical model, in order to assess any discrepancies regarding etiology, treatment, and outcome that may hinder a client's clinical management. This comparison may also help the health care provider know what specific aspects of treatment need clearer explanation and what types of education may be most useful.

Once these models of service are established, a health care provider may be able to negotiate effectively between the client's and the provider's own views to provide effective and culturally sensitive treatment. This process is crucial in developing the client's trust, easing the therapeutic outcome, and increasing compliance (Pachter, 1994). The provider may also consider designing educational interventions that attempt to bridge the two worldviews.

To develop treatment plans that can achieve these goals, one needs to document and include the cultural dimensions of these health beliefs and schemas in theories and empirical research (Landrine & Klonoff, 1992). More traditional health belief measures may not cover the full range of Latino beliefs. For example, locus of control measures do not encompass attributions based on spiritual determination and retributinal justice that are prevalent in Latino and other collectivist cultures. New or additional indicators of cultural health beliefs, such as the CHAQ, which include health attributions common in collectivist cultures, are needed to help promote and maintain successful health care interventions.

References


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**Appendix A**

**English Version of the Cultural Health Attributions Questionnaire**

A. Jose is a very sexually active 42-year-old man. He has fathered three children out of wedlock and continues to refuse to wear a condom. Recently, Jose has discovered he is HIV positive.

What are some of the reasons Jose developed the virus that may develop into AIDS?
1. Punishment by others or God for his immoral behavior
2. One of his sexual contacts gave it to him
3. Having too much casual sex
4. Left his children

B. Manolita recently suffered a heart attack. She was advised by her doctor to change her eating and activity habits or face the risk of another life-threatening heart attack. During the period that followed, Manolita dramatically changed her eating and activity habits. She also began going to church and praying extensively. After a recent checkup, Manolita is in the best shape of her life.

What are some of the reasons for Manolita's amazing recovery?

1. Changed her eating and activity habit
2. She became a better person
3. God was testing her faith
4. Her doctor prescribed the correct changes

C. The Hernandez family is the richest family in the neighborhood. They made their money through community-supported businesses. The Hernandez family, however, is very greedy. They will not lend their neighbors any money nor let any other community stores prosper. Maria, who smokes and is a typical Hernandez family member, recently gave birth to a premature child who is currently having respiratory problems.

What might have been some of the reasons that Maria's child is having these problems?

1. She was greedy and did not help anybody
2. She smoked too much during her pregnancy
3. A form of justice for poorly treating the community
4. Complications at birth

D. Rosalinda is an unfriendly 56-year-old lady who is afraid to leave her house. Whenever she tries to go outside, she feels dizzy, cold, and her heart begins beating at a fast pace. She feels as if an uncontrollable feeling is coming over her.

What might have led to Rosalinda's feeling?

1. She does not want to associate with her neighbors
2. Spirits are causing her undue distress
3. Feelings caused by past experiences
4. The dangerous neighborhood around her

E. Juanita is a 50-year-old lady who is well liked by everyone and has never been seriously ill. During her life, she has been very compliant with her doctor and has been a model citizen.

What might have been some of the reasons for Juanita's good health?
F. Francisco left his wife and two younger daughters a year and a half ago. He does not provide support for them and is currently living off another woman’s earnings. During this time, he gained a great deal of weight. After a recent emergency room visit, he was diagnosed with diabetes.

What might have been some of the reasons for Francisco’s diabetic condition?

<table>
<thead>
<tr>
<th>Had:</th>
<th>No Effect</th>
<th>Moderate Effect</th>
<th>Great Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. He left his family</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. He did not control his diet</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Punishment by God</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. The other woman fed him too much food</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Appendix B

Spanish Version of the Cultural Health Attributions Questionnaire

A. José tiene 42 años y mantiene una vida sexual muy activa. Ha tenido tres hijos fuera de su matrimonio y continua rechazando el uso de condones. Recientemente, José ha descubierto que es positivo para el virus de VIH.

¿Cuáles son algunas de las razones por las que José ha desarrollado el virus que puede convertirse en SIDA?

<table>
<thead>
<tr>
<th>Tuvó:</th>
<th>Ningún Efecto</th>
<th>Efecto Moderado</th>
<th>Mucho Efecto</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Porque Dios u otros le castigaron por su conducta immoral</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Porque una de las personas con las que tuvo relaciones sexuales se lo contagió</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Porque ha tenido muchas relaciones sexuales fuera del matrimonio</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Porque ha abandonado a sus hijos</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Hace poco tiempo Manolita sufrió un ataque al corazón. Su médico le aconsejó cambiar de dieta y hacer ejercicio, si nó, corre el riesgo de otro ataque al corazón que puede costarle la vida. Después de un tiempo, Manolita cambió dramaticamente su dieta y se volvió más activa. También empezó a ir a la iglesia y a rezar muchísimo. Después de un chequeo, el médico notó que Manolita estaba mejor que nunca.

¿Cuáles son algunas de las razones por las que Manolita se recuperó tanto?
1. Cambió su dieta y empezó a hacer ejercicio
2. Se convirtió en una mejor persona
3. Premio de Dios
4. Su médico le recetó los cambios correctos

C. La familia Hernández es la familia más rica del barrio. Ganaron su dinero en negocios apoyados por la comunidad, pero los miembros de la familia son tacaños. No prestan dinero a sus vecinos ni dejan que otros negocios en el barrio tengan éxito. María, que es un miembro típico de la familia, fuma. Recientemente, ella dio luz a un bebé prematuro que está teniendo problemas respiratorios.

¿Cuáles son algunas de las razones por las que el bebé María no ha nacido en buen estado de salud?

1. Fue tacaña y nunca ayudó a nadie
2. Fumó mucho cuando estaba embarazada
3. Una forma de justicia por tratar mal a la comunidad
4. Complicaciones durante el parto

D. Rosalinda, de 56 años, es una mujer muy poco amistosa. Tiene miedo de salir de su casa. Cuando trata de salir, se siente marcada, fría y su corazón empieza a latir muy rápido. Siente que algo incontrolable le está sucediendo.

¿Cuáles son algunas de las razones por las que Rosalinda se está sintiendo así?

1. No quiere tener nada que ver con sus vecinos
2. Los espíritus le están causando demasiada angustia
3. Sentimientos causados por experiencias pasadas
4. El barrio es peligroso para ella

E. Juanita es una mujer de 50 años. Nunca ha estado gravemente enferma y todos piensan que es muy buena persona. Durante su vida siempre ha seguido las instrucciones de su médico y también ha sido una ciudadana modelo.

¿Cuáles son algunas de las razones por las que Juanita tiene buena salud?

1. Lo merece por ser buena con la comunidad
2. Dios la ha estado cuidando
3. Por casualidad, vive en un ambiente saludable
4. Cuida muy bien de su salud
F. Francisco dejó a su esposa y dos niñas pequeñas hace un año y medio sin ningún apoyo. Ahora, él está viviendo con otra mujer. Durante este tiempo, ha aumentado mucho de peso. Después de una visita a la sala de emergencia, fue diagnosticado con diabetes.

¿Cuáles son algunas de las razones por la condición diabética de Francisco?

<table>
<thead>
<tr>
<th></th>
<th>Ningún</th>
<th>Efecto</th>
<th>Moderado</th>
<th>Mucho</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abandonó a su familia</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>No pudo controlar su dieta</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Castigo de Dios</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>La otra mujer le dio mucho de comer</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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