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## Evaluation and revision of questionnaires for use among low-literacy immigrant Latinos

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### Abstract

As more Spanish speaking immigrants participate in and become the focus of research studies, questions arise about the appropriateness of existing research tools. Questionnaires have often been adapted from English language instruments and tested among college- educated Hispanic-Americans. Little has been written regarding the testing and evaluation of research tools among less educated Latino immigrants. The purpose of this study was to revise and evaluate the appropriateness of a battery of existing Spanish-language questionnaires for a physical activity intervention for immigrant Hispanic women. A three-step process was utilized to evaluate, adapt and test Spanish versions of the Self-Efficacy and Exercise Habits Survey, an abbreviated version of the Hispanic Stress Inventory-Immigrant version and the Latina Values Scale. The revised tools demonstrated acceptable validity and reliability. The adaptations improved the readability of the tools, resulting in a greater response rate, less missing data and fewer extreme responses. Psychometric limitations to the adaptation of Likert scales are discussed.

### Descriptors

Psychometrics; immigrant health; health disparities

### Introduction

Latinos, or persons of Hispanic descent, comprise nearly 16% of the total United States (U.S.) population and are the fastest growing minority group in the US; <sup>(1)</sup> approximately 40% of the over 45 million Latinos living in the US are foreign born. Although Latino immigration to the US is characterized by a relatively rapid transition from Spanish to English, close to 75% of first-generation Latino immigrants speak Spanish most of time. Many Latino immigrants, particularly those indigenous groups for whom Spanish is the second language, have lower levels of formal education and are unfamiliar with *una cultura de leer* (a culture of reading)<sup>(2)</sup>. Such persons typically have little grasp of the scientific method/ research process and are not likely to be familiar with research terminology. As more Spanish speaking immigrants participate in and become the focus of research studies in the US, questions arise about the appropriateness of existing research tools. Questionnaires designed for use among Latinos in the U.S. have often been translated from English and tested among second and third generation college-educated Hispanic-Americans. Such an approach assumes that persons of Hispanic ancestry are a homogenous, well educated group. Little has been written regarding the testing and evaluation of research tools among less educated Latino immigrants, particularly those who are less familiar with the research process.

## Methodological issues among Latinos

For some time, researchers have reported procedural difficulties and inconsistencies when conducting research among Hispanic populations<sup>(3,4)</sup>. In addition to the obvious translation/adaptation issues, there are a number of culturally-based methodological concerns for non-Hispanic investigators working with Latino subjects<sup>(5)</sup>. Most frequently cited is a cultural bias associated with the use of Likert scales among Latinos<sup>(3)</sup>. Because the logic of Likert scales is unique to the social science disciplines, the graded response format is likely to be poorly understood by low-literacy immigrant Latinos<sup>(4,6)</sup>. Other response trends include a tendency for social desirability responses<sup>(7)</sup>, extreme response sets (excessive use of the endpoints of the scale)<sup>(8)</sup> and missing data<sup>(9)</sup>. Lastly, population-related extraneous variables have been identified which may affect Latinos' responses to Likert scales including age, level of education, acculturation and country of origin<sup>(3,4,8)</sup>. Younger adults with more years of education and higher acculturation scores are less likely to report difficulties completing Likert scales<sup>(2)</sup>. Historically, there has been little agreement among researchers regarding the most appropriate way to handle these methodological dilemmas. Responses have included increasing<sup>(10)</sup> and decreasing<sup>(11)</sup> the number of anchors, and use of a visual analog scale<sup>(4)</sup>. All of these approaches have met with mixed results.

### Purpose

The purpose of this study was to revise and evaluate the appropriateness of a battery of existing Spanish-language questionnaires for a physical activity intervention for immigrant Hispanic women. The study consisted of three phases: Phase 1-Assessment of existing instruments; Phase 2 –Revision of instruments and Phase 3-Preliminary assessment of the psychometric properties of the revised instruments. In Phases 1 and 2, the PI was particularly interested in assessing the appropriateness of the instrument response format, evidence of social desirability issues, extreme response styles, missing data and time needed for completion. Phase 3 of the study focused on pilot testing the revisions and assessing the psychometric properties of the adapted instruments, including item- to- subscale correlation coefficients, internal consistency (alpha coefficient) and construct validity as determined by confirmatory factor analysis (CFA).

## Methods

### Phase 1- Assessment of existing instruments

**Sample**—A purposive sample of 13 females was recruited from a group of immigrant Latinas attending a *promotora* (community health worker) training program in New Jersey. The descriptive statistics for the subjects in Phases 1, 2 and 3 are presented in Table 1.

**Data collection measures**—1) Self-Efficacy and Exercise Habits Survey<sup>(12)</sup>; 2) Latina Values Scale (LVS)<sup>(13)</sup> and 3) Abbreviated version of the Hispanic Stress Inventory-Immigrant (HSI-I)<sup>(14)</sup>. Both the Self-Efficacy and Exercise Habits Survey and the HSI-I had previously been translated into Spanish with good validity and reliability among Spanish speaking populations in the US. A Spanish version of the LVS was not available during Phase 1, so the tool was translated into Spanish by the author and three bi-lingual community consultants and then back-translated into English. The English and Spanish versions of the questionnaires were compared and differences in terms and conceptual accuracies were resolved.

**Self-Efficacy and Exercise Habits Survey (12):** The instrument measures self-efficacy for exercise in relationship to two factors; “Making time for exercise” and “Resisting relapse”. Alpha coefficients for the Self-Efficacy for Exercise Behaviors have been reported among

groups of women at .83 and .85, with a test-retest reliability of .78. Both the English and Spanish versions of the instruments have a 5-point Likert scale; choices 1 and 2 correspond to “I am sure that I cannot” (“Estoy seguro que no puedo”), choices 3 and 4 represent “Perhaps I can” (“Quizas sí puedo”), while choices 5 and 6 correspond to “I am sure that I can” (“Estoy seguro que puedo”). The English version of the tool, developed among college students, contains 12 items, with a possible range of 12–60. The 15-item Spanish version was developed for use among young and middle-age community-dwelling adults and has a possible range of 15–75<sup>(15)</sup>. Higher scores are associated with a greater degree of exercise self-efficacy.

**Latina Values Scale (LVS)<sup>(13)</sup>**: The 31-item two-stage Likert scale tool was developed among young Hispanic women in the US and has demonstrated an inter-item reliability of .87. A significant inverse correlation ( $r = -.65$ ,  $p = .01$ ) was noted between scores from the LVS and those reported from a measure of assertiveness. Exploratory factor analysis (EFA) revealed three subscales; Responsibility, Assertion and Satisfaction. The “main scale” of the original English version of the tool contains a 6-point Likert scale, with the responses ranging from 1- “I totally disagree” to 6- “I totally agree”. Scores in the main scale range from 31–186. Scores in the higher range are associated with stronger *marianismo* beliefs, reflecting greater adherence to the traditional roles assigned to women in Hispanic culture. The “Satisfaction” scale also contains 31 items, which correspond to the items in the main scale. For each question, the subject is asked, “How satisfied are you of your response?” The subject then chooses one of four anchors-responses range from 1- “I am very unsatisfied” to 4- “I am very satisfied.” Scores on the satisfaction scale range from 31–124. High scores indicate the subject is very comfortable with her responses to the questions. A Spanish version of the LVS was not available during Phase 1, so a draft of a Spanish version of the tool was created as previously described.

**Abbreviated version of the Hispanic Stress Inventory-Immigrant version (HSI-I)<sup>(14)</sup>**: The tool was developed for use with immigrant Latinos and has been widely tested among Hispanic groups. The five subscales deal with occupational/economic stress, parental stress, marital stress, immigration stress and family/culture stress. Internal consistencies are acceptable across all subscales, ranging from .68 to .83. Convergent validity of the revised tool is supported with moderately positive relations through self-report measures of depression, anxiety, and anger mood levels. The original Spanish version of the tool contains 17 items. Respondents are first asked to answer “Yes” or “No” to whether or not they have experienced a series of acculturation-related stressors in the past three months. If the subject answers “yes” to an item, he/she is then instructed to indicate on a scale of 1–5 how worried or tense the situation made them feel. A rating of 1 means the subject felt “Not at all worried/tense” (“Nada preocupada(o)/tensa(o)”) while a score of 5 indicates the subject felt “Extremely worried/tense” (“Muy preocupada (o)/tensa(o)”). Scores on this scale range from 17–85. Higher scores correspond to higher levels of subject anxiety.

**Procedure**—Following an explanation of the study and informed consent, each of the 13 women was given a packet containing the questionnaires in random order. The subjects were instructed to answer the questions, spot the need for grammatical changes and identify any questions felt to be ambiguous or overly sensitive. Three bi-lingual research assistants/student nurses assisted women who requested clarification or who wished to have the questions read to them. Data were managed and demographic and psychometric analyses performed using SPSS version 16.0 for Windows (SPSS Inc. Chicago, Illinois).

## Results

Only 8 of the 13 women were able to complete the questionnaires within one hour. Literacy level and number of years of education were prominent factors in completion of the questionnaires. The four subjects who had less than six years of formal education were more likely to omit multiple items. Six of the women noted difficulty in responding to questions containing double negatives. The small sample size and the preponderance of missing data prevented an assessment of the validity and reliability of the tools.

All of the women voiced displeasure with the Likert format. One of the women pointed at the anchors and asked the PI, “You expect me to put everything that’s in my head into one of these little boxes?” A typical response to the Likert questions was, “Why do we need all of these choices? It’s either sí or no”. Many of the subjects debated at length over the meaning of phrases such as “somewhat stressed (“un poco preocupado/tenso”). Half of the questionnaires showed evidence of the subjects’ preference for extreme responses. Likewise, half of the group favored choices which avoided putting themselves in an unfavorable light (social desirability responses) or simply answered all of the questions with the same response (halo effect). The four completed packets contained significant amounts of missing data. For the Self-Efficacy and Exercise Habits Survey, only four questionnaires were completed in their entirety. All contained a large number of positively skewed extreme responses to proposed situations where exercising might be difficult (“I am sure that I can”) (“Estoy seguro que si puedo”). Hence, the total scores for this tool were quite high (mean = 41.5, SD = 2.4) although none of the women were regular exercisers. There were frequent disagreements over whether to choose, “I’m sure that I cannot” (“Estoy seguro que no puedo”) or “Maybe I can” (“Quizás si puedo”). The LVS was the longest instrument in the package so those women who received the LVS as the first questionnaire in the packet were least likely to complete all of the questionnaires. The LVS also contained some questions of a sexual nature which the women considered “too personal” to answer. Many of the subjects did not answer the second half of each question (Satisfaction subscale), which was a crucial component of the questionnaire. For those women who did respond, many later indicated they understood the phrase, “How satisfied are you of your response?” (“¿Cuán satisfecho está Usted con su respuesta?”) to mean “How sure are you of your response?” (“¿Cuán seguro está Usted con su respuesta?”). Rather than appear indecisive, the majority of the women answered, “I am very satisfied” (“Estoy muy satisfecho”) without fully understanding the nature of the question. Similar to the LVS, more than one-half of the women omitted the second half of each question-. Three of the questionnaires contained responses with strong halo effects.

### Phase 2- Revision of instruments

**Modifications to the instruments**—Prior to revisions, the PI met with two bi-lingual community consultants and an experienced Latino researcher to discuss the difficulties encountered during the assessment of the questionnaires. Based upon the findings from Phase 1, the following changes were suggested and subsequently implemented: 1) Likert scales were collapsed into 3 choices; Yes/No/I don’t know, or I’m not sure; 2) a set of simple instructions, sample questions and responses were added to the beginning of each questionnaire; 3) all of the tools were administered in the same order, beginning with the simplest tool first and ending with the longest and/or one with the most sensitive questions; 4) local women from the community were trained as community research assistants(CRAs) to allow for a 2:1 ratio of subjects/assistants. CRAs were instructed how to read the questions without excessive “coaching”; 5) babysitting was provided during data collection; 6) directions for the questionnaires were standardized e.g. scales were all written in the same direction; 7) tools were rewritten in a larger font with more “white space” around each

question and 8) the LVS was replaced with The Latina Values Scale- Revised (LVS-R)<sup>(16)</sup>, a 28-item Spanish language version developed for young to middle-aged Latinas. In the LVS-R, the Satisfaction scale was replaced by the Conflict Scale and the second part of each question was rewritten as: “Has your response to this question caused problems or conflicts in your life?” (¿La respuesta a esta pregunta a causados problemas o conflictos en su vida?) Study participants felt that this phrase better represented the intent of the questionnaire than did the word “satisfaction” (“satisfecho”) in the LVS. Cronbach’s alpha for the LVS-R in Melendez’s study was .94 and  $\alpha = .95$  for the Conflict scale. In addition to the Conflict Scale, EFA of the LVS-R<sup>(16)</sup> revealed six other factors: Self-Sacrifice, Assertion, Guilt, Self-Blame, Putting Others Needs First and Responsibility. The presence of seven factors in the LVS-R as opposed to only three factors in the LVS demonstrates the complexity of the concept of *marianismo*<sup>(16)</sup>. All of the revised tools were run through TX Readability website<sup>(17)</sup> to assure a sixth grade reading level in Spanish. TX Readability is a multi-language readability tool which performs webpage and text analysis in English and Spanish using the Huerta Reading Ease (HRE) score. Once permission was obtained from the authors, the revised tools were reviewed for face validity and cultural appropriateness by community consultants prior to administration to six immigrant Latinas enrolled in the *promotora* training program. Characteristics of this sample are described in Table 1.

**Results**—All six participants completed the full battery of questionnaires. Mean completion time was 35 minutes with close to 100% of the questions answered by all of the subjects. Psychometric testing was not performed due to the small number of subjects. The six respondents had no significant recommendations for grammatical changes to any of the revised instruments.

### Phase 3- Psychometric properties of the revised instruments

The revised tools were subsequently administered to 81 immigrant Hispanic women participating in the Physical Activity Intervention for Latinas (PAIL) Study (manuscript in progress). The *promotoras* assisted subjects by reading/clarifying the meaning of selected questions and checking to see that all questions were answered. Mean completion time for the set of tools was 40 minutes with less than 2% missing data for all of the women.

### Psychometrics

The reliability of the adapted tools was assessed through corrected item - total correlations and the internal consistency of each tool and adapted subscales. Construct validity was assessed through CFA, carried out on each revised tool through principal axis extraction with Varimax rotation.<sup>(18)</sup> Prior to CFA, the assumptions for factor analysis were tested and verified. Bartlett’s Test of Sphericity, which measures the strength of the relationship among variables and the Kaiser-Meyer- Olkin (KMO) measure of sampling accuracy were used to assess the factorability of the correlation matrix<sup>(18)</sup>. Factor extraction was guided by a priori theory, the original tools and eigenvalues (factors with eigenvalues of less than 1.0 were excluded). Items with a factor loading greater than .32 were retained<sup>(18)</sup>. A minimum of a .20 difference between an item’s loading on theoretically aligned and opposed factors was recommended. Scree plots were used to corroborate decisions regarding factor extraction. The results of the psychometric analysis are presented in tables 2, 3, and 4.

**Self-Efficacy and Exercise Habits Survey**—The Likert scale was reduced to 3 anchors: 1) “I am sure I cannot”; 2 “Maybe I can” 3) “I am sure that I can”. The revised Spanish version of the tool contained 15 items, with a possible range of 15–45. Mean score for the questionnaire was 37.5 (SD= 4.81), with a range of 28–45. The histogram plot of the data revealed skewness of  $-.22$  and kurtosis of  $-1.0$ ; although descriptive statistics were not calculated in the earlier sample because of the large amount of missing data, it appears as

though there was less of a tendency for the women to choose extreme positive responses using the revised tool. All of the item-total subscale correlation coefficients ranged from .41 to .72. Cronbach's alpha for the entire tool was .81. KMO was .64 and Bartlett's test of Sphericity was statistically significant ( $p < .001$ ), both of which are acceptable.<sup>(18)</sup> The results of CFA are presented in Table 2. Since only two factors had Eigen values over 1.0, CFA supported the same two factor solution identified in the English version<sup>(12)</sup> and the Scree plot verified that a 2 component solution was most appropriate. Internal consistency for each of the two subscales, "Making time for exercise" and "Resisting relapse" was satisfactory at .75. These two factors accounted for 42.2 % of the total variance.

**Latina Values Scale Revised**—Twenty- three of the twenty-eight items in the LVSR were retained and tested. The five items omitted were either of a sexual nature and thus not relevant to this study or had been considered redundant. The five point Likert scale used in the original LVSR was reduced to 3 anchors: 1) "I disagree"; 2) "Not sure" and 3) "I agree". The 5 anchors used in the original LVSR Conflict scale were reduced to 3 choices: 1) "Never"; 2) "Sometimes" and 3) "Always". Possible total score was from 23–69. Mean score on the LVSR was 45 (SD= 7.23) with a range of 33–69. The histogram plot was similar to that of the scores for the revised Self-Efficacy and Exercise Habits Survey, with a slight negative skew (-.28) and kurtosis of -.78. This data suggests that subjects once again did not tend to adhere to the extreme response style. Cronbach's alpha for the LVSR was acceptable at .74. Two items had item to subscale correlations less than the acceptable level of .40. These were: "I often put myself down in relation to men/ A menudo me siento inferior en comparación a los hombres" and "I find myself believing that criticism is caused by my faults/ Creo que los conflicto y problemas son mí culpa." Based upon informal discussion with a subset of the women, the first question should have been omitted in this study as it was strongly related to the other sexually-themed items. For the second question, the women felt the wording of the Spanish version of the question was confusing and evoked a different type of response than was intended by the English version. As a result, both items were subsequently excluded from analysis for this study. The KMO was .50, indicating minimally acceptable sample size<sup>(19)</sup> and Bartlett's Test of Sphericity was statistically significant ( $p < .001$ ). CFA supported Melendez's seven factor model, which accounted for 66.5% of the variance. Internal consistency for each of the subscales exceeded .70. Results of the CFA are presented in Table 3.

**Hispanic Stress Inventory**—The first half of each two-stage question pertaining to sources of immigration-related stress was not altered. The 5- point Likert scale used in the second half of each question was reduced to 3 anchors: 1) "Not at all worried"; 2) "A little worried" and 3) "Very worried". Mean score for the main scale was 4.06 (SD = 3.95), indicating that most of the subjects reported few instances of immigration-related stress. Potential range of scores for the second half of the revised tool was 0–54. Mean score for the second half of the questions was 7.79 (SD = 9.41) with a range of 0–36. In the revised version, there were less than 5% missing values. Item to subscale correlation coefficients were acceptable, ranging from .41 to .77. Cronbach's alpha for the entire tool was .74. KMO was .67 and Bartlett's Test of Sphericity was  $p < .001$ . Only two factors had Eigen values over 1.0, CFA supported the two factor model<sup>(14)</sup>, consisting of Interfamilial and Extrafamilial Stressors. Internal consistency for the two subscales was .72 and .76 respectively. These two factors accounted for 40.3 % of the total variance. A scree plot confirmed the two factor solution. One item, "I have felt that my children's ideas about sexuality are too liberal" did not load well on to either scale, probably because of the young age of the parents. The results are presented in Table 4.

The item which was added to the adapted tool, "I think that if I would go to a social service or government agency, I would be deported", exhibited an item to subscale correlation

coefficient of .42. The internal consistency of the Extrafamiliar subscale remained the same whether or not the item was included, suggesting that it was a good fit in the subscale.

## Discussion

The results support earlier studies which indicate the use of Likert scales among immigrant Latinos is often problematic. This is true even when the instruments have been previously translated into Spanish and have demonstrated adequate validity and reliability among Spanish speaking populations in the US. This study demonstrated that adapted Spanish language questionnaires can be used successfully among groups of low-literacy immigrants who are unfamiliar with the research process. The adaptations appeared to improve the readability of the three tools, resulting in a greater response rate, less missing data and a diminished tendency toward extreme responses and demonstrated acceptable validity and reliability among a sample of immigrant Latinas.

Although condensing the number of Likert anchors from 5 to 3 appeared to resolve some of the subjects' ambiguities, it also lowered the variability of the responses. In the CFA process, the factors isolated explained only 40–65% of the total variance. Although identifying enough factors to account for 80–90% of the variance is desirable, this criterion could be as low as 50 % when the goal is to explain variance with as few factors as possible. <sup>(20)</sup> Given that the CFA of each of the three instruments confirmed the original factor structure, this lends support for the format of the adapted tools.

The issue of the optimum number of anchors in a Likert scale is a controversial one. Five to seven anchors are often considered ideal to assure a thorough representation of responses, but it can be argued that three points are sufficient if the emphasis is on group, rather than individual data. In this study, using more points than the subjects could understand might have resulted in increased variability, but not necessarily increased validity or reliability. Another potential issue concerns the loss of variability when the 3- point Likert scale is used in a pre-test/ post-test format. In instances where the ability to capture change is necessary, it may necessary to use a larger number of anchors. In such cases, prospective subjects will be to be thoroughly prepared before data collection begins.

It is notable that the subjects had little difficulty completing other Spanish language tools using multiple response scales when the choices were more quantifiable. An example of such a tool is the Spanish version of the Center for Epidemiologic Studies Depression Scale (CES-D),<sup>21</sup> which asks respondents to indicate how many times in the past week they have experienced a set of specific symptoms. This same format could be implemented in the design of new instruments to measure physical activity concepts. Rather than asking how confident the subject is about getting up early to exercise, the question could be worded, "How many times per week do you feel that you could get up early to exercise?" In this case, the responses would be based on the number of days/week (e.g. 0, 1–2, 3–4, 5–6, 7). Such an approach would improve clarity and conceivably preserve response variability.

While the women in this study completed an average of nine years of education, a significant percentage (21%) only completed the sixth grade. Since conversational literacy in a language is likely to be greater than familiarity with the research terminology, it is not surprising that many of the subjects in Phase 1 struggled to complete the tools. Researchers who work with immigrant populations must take into account that their subjects are not likely to be "research literate", so additional time and attention must be paid to instructions for data collection.

One limitation of Phase 3 of the study was the small sample size. KMO values for two of the three instruments suggest the sample size was likely adequate. If there are four or more

variables with loadings above .60, the pattern may be interpreted whatever the sample size used and when communalities are high ( $> .60$ ), sample sizes well below 100 will still be adequate. Such was the case with all three instruments. Repeated CFA of the three instruments with larger sample sizes is advisable.

## Conclusion

Adaptation of existing research tools remains a significant instrumentation challenge for researchers who work with immigrant Latinos. Given the growing diversity in the US population, it is imperative that researchers expand their repertoire of approaches to data collection. Nurse researchers should consider a variety of culturally appropriate methods to encourage participation in research studies by low-literacy immigrant populations. Transnational collaborations among nurse researchers committed to the health of Latin American immigrants may be one approach to identify such culturally appropriate methods.

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**Table 1**

## Characteristics of the sample

<b>Description</b>	<b>Group 1 (n =13)</b>	<b>Group 2 (n = 6)</b>	<b>Group 3 (n = 81)</b>
Mean age-years (SD)	39.8 (11.76)	31.5 (7.71)	29.8 (7.92)
Mean number of years living in the US (SD)	9.23 (5.10)	8.67 (2.73)	10.36 (6.78)
Country of origin	Mexico (31%) Honduras (25%), Peru (25%). Others- Puerto Rico, Ecuador, Dominican Republic, Columbia	Mexico (100%)	Mexico(76%) Guatemala(4 %) Others- Nicaragua, El Salvador, Ecuador, Columbia
Mean number of years of education(SD)	10.33 (2.87)	9.17 (2.86)	9.04 (1.86)
Family income-			
Less than \$21,000/yr	31%	50%	26%
\$21,000-\$35,000/yr	23%	17%	5%
\$35,000-\$50,000/yr	15%	0%	6%
Don't know	31%	33%	36%

**Table 2**

Factor loadings for Confirmatory Factor Analysis with Varimax Rotation of the Self-Efficacy for Exercise Habits Survey (n = 81).

Items	Making time for exercise	Resisting relapse	Communality
Ask my neighbors or friends to walk with me regularly. (Pedirle a sus vecinos o amigos de ir a caminar con Ud. regularmente)	<b>.69</b>	-.50	.85
Ask my friends to exercise with me (Pedirle a sus amigos que hagan ejercicios con Ud.)	<b>.48</b>	.27	.63
Exercise with my family (Hacer ejercicios con su familia)	<b>.58</b>	.24	.67
Stick to an exercise program when emergencies arise at work (Seguir con su programa de ejercicios aunque tenga demasiadas exigencias en el trabajo)	<b>.65</b>	.06	.82
Stick to an exercise program when social obligations take up much time (Seguir con su programa de ejercicios aunque tenga obligaciones sociales que le toman mucho tiempo)	<b>.71</b>	.25	.71
Begin a program of exercise after a break (such as Christmas or when it rains) (Empezar su programa de ejercicios de después de una interrupción (como la Navidad o cuándo llueve))	<b>.58</b>	.33	.78
Set aside time to exercise for 30 minutes, three times a week. (Apartar tiempo para un programa de ejercicio, por lo menos 30 minutos tres veces par semana)	<b>.61</b>	.24	.78
Change my mealtime to make it more convenient to exercise (Cambiar su horario de comer para hacer más conveniente el ejercicio)	.18	<b>.50</b>	.52
Wake up earlier to exercise (Levantarse mas temprano para hacer ejercicios)	.13	<b>.55</b>	.65
Set aside time for physical activity (Planear el ejercicio dentro su horario)	.18	<b>.57</b>	.47
Walk instead of driving short distances (Caminar en vez de manejar distancias cortas)	.34	<b>.42</b>	.71
Attend a party only after exercising (Ir a una fiesta solo después de haber hecho sus ejercicios).	.31	<b>.57</b>	.33
Exercise during my lunch hour (Hacer ejercicios durante la hora de comida)	-.08	<b>.60</b>	.63
Stick to an exercise program when work is demanding and I am tired. (Seguir con su programa de ejercicios después de un día de trabajo largo y cansado)	.43	<b>.62</b>	.71
Exercise when I feel depressed (Hacer sus ejercicios aunque se sienta deprimido).	.34	<b>.52</b>	.41
Eigenvalue	4.6	1.7	
Percentage of variance explained	30.7	11.5	

**Table 3**  
Factor loadings for Confirmatory Factor Analysis with Varimax Rotation of the Latina Values Scale Revised (LVSR) (n = 81).

Items	Conflict	Self-sacrifice	Assertion	Guilt	Self-blame	Putting others first	Responsibility	Communality
I find myself doing things for others that I would rather not do (Me encuentro a mi misma haciendo cosas para otros que preferiría no hacer).	<b>.73</b>	.13	.01	.15	.01	.16	.03	.59
I feel proud when others praise me for the sacrifices I have made (Me siento orgullosa cuándo otros me halagan por los sacrificios que he hecho)	<b>.52</b>	.26	.41	.32	.23	.08	-.12	.69
I often take on responsibilities with my family that I'd rather not take, because it makes me feel like a better person (A menudo tomo responsabilidades familiares que preferiría no tomar, porque me hace sentir una mejor persona).	<b>.66</b>	.09	.18	.02	.34	-.09	-.05	.60
I often find myself doing things that will make my family happy even when I know it's not what I want to do (Yo a menudo me encuentro haciendo cosas que hacen feliz a mi familia, aún cuando se no es lo que quiero hacer).	<b>.75</b>	.03	-.01	.01	.09	-.03	.16	.60
Being seen as a "good person" by others is very important to me (Ser visto como una "buena" persona por otros es muy importante para mí)	.03	<b>.89</b>	-.02	.02	.06	.04	.01	.80
I am relieved that sacrificing for others is eventually rewarded (Creo que mis sacrificios podría ser recompensado algún día)	.13	<b>.83</b>	.09	.11	.16	.08	.25	.82
I consider my family a great source of support (Considero mi familia una gran fuente de apoyo)	.10	.07	<b>.83</b>	.11	.08	.12	-.01	.74
Family is important to me (La familia es muy importante para mí.)	.23	.01	<b>.79</b>	.12	.01	.04	.05	.72
I often take on responsibilities having to do with my family (A menudo tomo responsabilidades familiares).	.34	.24	.17	<b>.46</b>	-.31	.26	-.47	.81
I have difficulty expressing my anger (Tengo dificultad expresando mi enojo)	.09	.05	.10	<b>.70</b>	.07	.02	-.18	.56
I believe that sacrificing for others makes you a better person (Creo que sacrificarse por otros te hace una mejor persona).	.04	.23	.46	<b>.50</b>	-.03	.26	.39	.70
I feel like a terrible person when I know someone is upset or disappointed with me (Yo me siento como una persona terrible cuando sé que alguien está molesto o desilusionado conmigo).	.03	.03	.11	.74	.02	.03	.26	.64
I find it difficult to say "no" to people even when it is "no" is what I should be saying (Encuentro difícil decir "no" a la gente, aún cuando se que decir "no" es lo que debería)	.17	.05	.18	.13	<b>.61</b>	.28	.18	.56
I have difficulty asserting myself to figures of authority (Tengo dificultades para hacerme valer ante personas de autoridad.)	.10	.25	.29	.24	<b>.58</b>	.04	.09	.56
I feel guilty when I ask others to do things for me (Me siento culpable cuando le pido a otros que hagan cosas por mí.)	.34	.02	-.15	.01	.66	.07	-.23	.64
I often put myself down in relation to figures of authority (A menudo me siento menos ante las personas de autoridad)	.65	.33	-.21	.49	<b>.53</b>	.13	.09	.70
I try to make others happy at all costs (Trato de hacer feliz a los otros a toda costa)	.11	.02	-.19	.12	.23	<b>.75</b>	-.05	.68

Items	Conflict	Self-sacrifice	Assertion	Guilt	Self-blame	Putting others first	Responsibility	Communality
I find myself putting others' needs ahead of my own (Considero primero las necesidades de los otras personas antes de las mías).	.14	.02	.15	.05	.05	<b>.66</b>	-.02	.51
I find myself putting family needs ahead of my own (Considero primero las necesidades de mi familia antes de las mías)	.01	.37	.01	.03	-.10	<b>.54</b>	.39	.60
Making my partner happy makes me feel better about myself (Hacer feliz a mi pareja me hace sentir bien conmigo misma)	.17	.25	.04	.14	.03	.03	<b>.82</b>	.78
Eigenvalue	2.1	2.1	2.0	1.8	1.6	1.6	1.5	
Percentage of variance explained	11.1	10.4	10.3	10.1	9.0	8.2	7.3	

**Table 4**

Factor loadings for Confirmatory Factor Analysis with Varimax rotation of the Hispanic Stress Inventory-Immigran version (HSI-I) (n = 81)

Item	Interfamilial Stressors	Extrafamilial stressors	Communality
Lack of English makes interactions difficult (Por no saber suficiente inglés ha sido difícil para mi socializar con otros).	<b>.61</b>	.03	.38
People expect me to work harder because I am Latino (Debido a que soy latina se ha esperado que trabaje más rapido o duro).	<b>.53</b>	.39	.40
I do not feel like I earn enough money to support my family or myself. (Mis ingresos no han sido suficientes para mantener a mi familia o a mí misma).	<b>.64</b>	.16	.43
Finding a job that I want has been difficult because I am Latino. (Debido a que soy latina he tenido dificultad para encontrar el tipo de trabajo que quiero)	<b>.63</b>	.52	.67
Sometimes I feel as though others expect me to be lazy. (He tenido que ser cuidadosa con la calidad de mi trabajo para que otros no piensen que soy una perezosa).	<b>.70</b>	.31	.59
Because I am Latino, promotions or salary raises are hard to get (Debido a que soy latina, ha sido difícil obtener ascensos o aumentos de salario)	<b>.67</b>	.35	.57
I have to accept low paying jobs. (Me he visto forzada a aceptar trabajos con salarios bajos)	<b>.75</b>	.11	.58
I have felt pressured (or forced) to learn English.(Me he sentido presionada (o forzada) para aprender inglés).	<b>.67</b>	-.02	.45
I have thought that if I went to a social or government agency I would be deported (He pensado que si voy a una agencia social o del gobierno sería deportada)	<b>.57</b>	-.05	.32
My spouse and I disagree on how to bring up our children (Mi esposo y yo hemos tenido desacuerdos acerca de como criar a nuestros hijos).	.05	<b>.75</b>	.56
Because of my poor English, people treat me badly(Debido a mi mal inglés, la gente me ha tratado mala)	.39	<b>.59</b>	.48
My children do not respect my authority the way they should (Mis hijos(as) no respetan mi autoridad en la forma que deberían).	-.02	<b>.77</b>	.59
I have felt that my children's ideas about sexuality are too liberal (He sentido que las ideas de mis hijos(as) acerca de la sexualidad son demasiado liberales)	.14	.12	.03
There have been conflicts (or disagreements) among members of my family (Ha habido conflictos o malos entendidos entre miembros de mi familia).	.15	<b>.49</b>	.26
There has been physical violence among members of my family(Ha habido violencia física entre miembros de mi familia)	.09	<b>.55</b>	.31
My children have talked about leaving home (Mis hijos(as) han hablado acerca de irse de la casa)	-.20	<b>.49</b>	.28
My children have received bad school reports (or bad grades)(Mis hijos(as) han recibido malas calificaciones o reportes en la escuela)	.20	<b>.41</b>	.21
I had serious arguments with family members (He tenido serios problemas con miembros de mi familia).	.17	<b>.35</b>	.15
Eigenvalue	5.2	2.0	
Percentage of variance explained	28.9	11.4	