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Anthropological and Psychological Merge: Design of a Stress Measure for Mexican Farmworkers

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Abstract

This study implements qualitative and quantitative methodologies in the development of a culturally appropriate instrument of stress for Mexican immigrant farmworkers. Focus groups were used to uncover culturally based perspectives on life stressors, definitions of stress, and stress mediators. Qualitative data were analyzed using QSR NVivo and then used to develop a 23-item stress scale. The scale was tested for reliability and validity in an independent sample and demonstrates excellent reliability ($\alpha = 0.9123$). Test-retest coefficients of the stress scale are also strong ($r = 0.8344$, $p = 0.0000$). Qualitative analyses indicated three major sources of stress: work, family, and community. Emotional aspects of stress also emerged, demonstrating a cultural perspective of stress closely related to feelings of despair and not being able to find a way out of despairing situations. This paper reveals themes gathered from the qualitative data and identifies reliability and validity constructs associated with the scale. The stress scale developed as part of this investigation is a reliable and culturally appropriate instrument for assessing stress among Mexican immigrant farmworkers.

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Keywords

Mexican; Stress scale; Qualitative; Focus group; Validation

Background

Mexican immigrants make up the vast majority of the agricultural workforce in the United States. It is estimated that more than 80 percent of farmworkers in the United States are foreign-born, and more than 70 percent of those are from Mexico (Wallace 2002). Mexican farmworkers often lead transient and uncertain lifestyles with long hours and substandard housing (Alaniz 1994; de Leon Siantz 1994; Hovey and Magaña 2002a, b). The work of Mexican farmworkers is also fraught with hazardous conditions, and despite such sacrifice, many migrant workers are placed among the poorest of the working poor, earning an average yearly income of $5,500 for a family of 5.3 members (Alderete et al. 2000; de Leon Siantz 1994; Hovey and Magaña 2002a, b; Wallace 2002). (For comparison, the Department of Labor's definition of poverty for a family of four is $12,000 [Alaniz 1994].)

In addition to economic hardship, Mexican immigrant farmworkers experience stressors associated with being separated from family and friends, language barriers, discrimination, and exploitation by employers (Magaña and Hovey 2003). The difficult, uncertain lifestyle of Mexican immigrant farmworkers is further exacerbated by substandard, inadequate access to health care. This is particularly true in the area of mental health (Gutierrez 2002; Rogler 1996; Sue and Chu 2003). The deficiency in proper psychiatric treatment for this group is, perhaps, linked to a lack of a cultural understanding of stress in this population (Gutierrez 2002). Considerable research has shown that there is a relationship among ethnicity, culture, and stress (Baer et al. 2003; Berry et al. 2002; Brown et al. 2003; Cervantes and Lechuga 2004; Guarnaccia et al. 2003; Gutierrez 2002; Perilla et al. 2002; Rogler 1996; Sue and Chu 2003). Despite this, cultural dynamics of stress among Mexican immigrant populations are not very well understood. This is especially true among Mexican immigrant farmworkers.

Gutierrez (2002) states that distinct cultural groups have basic common beliefs and values that differentiate them psychologically from other groups. Cultural values and beliefs, therefore, should play a crucial role in mental health assessment. Stress, or *el estrés* (the Spanish word meaning stress), should be researched in its context of cultural meaning and value, then used in the development of a proper assessment tool. This investigation uses such an approach, combining the strengths of anthropology and psychology in the formation of a culturally appropriate instrument of stress for Mexican immigrant farmworkers. In this study, we provide information on the benefits associated with creating a culturally appropriate stress tool and address some challenges. Our model utilizes qualitative and quantitative techniques and presents a method by which stress, a common mental health concern, can be measured in ways that are population-centered. The review of our data will provide a rich, detailed discussion on constructing a stress assessment tool based on culturally perceived concepts among Mexican immigrant farmworkers.

Stress Scale Development for Mexican and Hispanic Immigrants

Only one known stress scale exists that has been designed and tailored for use among Mexican immigrant farmworker populations. This scale, which is available at the investigator's web site, shows good reliability constructs (Cronbach's $\alpha = 0.91$) among 23 subjects (Hovey et al. 2001). These results, however, lack the strengths associated with scientific peer review and are unavailable to the research community through published literature. Still, the results presented by the scale are sound and, once published, will act as an additional means to measure stress among Mexican farmworker populations.

Although only one stress scale currently exists for Mexican immigrant farmworkers, several stress measures have been created for Hispanic American and Hispanic immigrant samples. Many of these measures, however, are not culturally or population sensitive, defined by measurement of a concept from the perspective of the people or culture under investigation. This often arises from an obligation to translate or tailor existing stress scales by direct transfer of perceptions of stress across cultures in order to match original versions (Matias-Carrelo et al. 2003). When this is done, even extensive adaptations or changes sometimes fall short of creating translated items that are culturally appropriate. Spanish translation of the Daily Stress Inventory (DSI), for example, translated an original scale with the assistance of one bilingual staff person and 36 Hispanic research participants (Rodriguez-Charbonier and Burnette 1994). Translation of the DSI into Spanish involved using more than one word to convey the meaning of terms or phrases that would be difficult to understand if directly translated (Rodriguez-Charbonier and Burnette 1994). The DSI was then translated back to English to make sure that the original meaning of each item was maintained (Rodriguez-Charbonier and Burnette 1994).

A similar technique was used in the Spanish translation of the Depression Anxiety Stress Scale-21 (DASS-21) by Daza et al. (2002). Following standard guidelines for translation and equivalence in psychology and sociology, three professional, bilingual translators were used to translate, edit, and back-translate the scale to English (Daza et al. 2002). A lay panel and pilot testing were then used to make sure that the translation used words and phrases that were common to different Spanish dialects (Daza et al. 2002). While the techniques used for Spanish translation of the DSI and DASS-21 offer a sound approach for items to be used among various groups of Spanish-speaking people, sheer focus on translation and terminology may limit the ability of the scale to understand and measure deeply rooted causes of stress that are culturally defined among distinct groups (Hilton and Skrutkowski 2002). Ethnopsychology literature, which combines anthropological and psychological theory, emphasizes that humans acquire patterns of behavior regarding stress that are characteristic of the cultural contexts in which they live (Berry et al. 2002; Gutierrez 2002). Behaviors regarding stress, then, must be measured not only with sensitivity to language, but also with concern for the behavioral and causal context in which one characterizes stress.

Progress has been made in the adaptation of stress measurements with the goal of making instruments culturally equivalent between English and Spanish versions. For example, Matias-Carrelo et al. (2003) used a bilingual committee and focus groups to adapt five stress instruments, developing translations that were sensitive to Latino culture. The instruments considered in that investigation were the World Health Organization-Disability Assessment Scale, the Burden Assessment Scale, the Family Burden Scale, Lehman's Quality of Life Interview, and the Continuity of Care in Mental Health Services Interview (Matias-Carrelo et al. 2003). The authors describe their method as an “etic” approach with the goal of gaining comparative phenomena across different cultural contexts (Matias-Carrelo et al. 2003). The authors achieved their goal. Still, such an approach is sometimes limited in its evaluation of stress from *within* a cultural context. The ability to measure specific causes of stress, using this approach, can be lost in an attempt to make the concept translatable cross-culturally. This “etic” approach, therefore, may not allow full understanding of a stress phenomenon's significance in a distinct group.

In addition to studies that have translated, adapted, and validated instruments for use among culturally diverse groups, one study has been carried out that developed a culturally sensitive stress survey for use among Mexican and Central American communities. This scale, the Hispanic Stress Inventory (HSI), assesses stress associated with marital status, occupational/economic stress, parental stress, family/cultural conflict, and immigrant stress (Cervantes et al. 1990, 1991). The test has two versions: a 73-item immigrant version and a

60-item U.S.-born version (Cervantes et al. 1990). Each version shows acceptable levels of internal consistency, yielding Cronbach's α coefficient values of from 0.77 to 0.91 and test-retest values ranging from 0.61 to 0.86 (Cervantes et al. 1990, 1991).

Though the HSI was created with special attention to the cultural relevance of stressful events experienced by Mexican and Central American populations, some aspects limit the use of this scale. First, the scales for immigrants and nonimmigrants are different, and therefore, scores may not be comparable across the two samples. Further, the HSI scale is long. The HSI scales require considerable time to administer, and due to their lengths, may not be well suited for research settings beyond clinical environments.

In reaction to such limitations, this investigation introduces a new stress scale designed in a culturally appropriate manner to measure Mexican immigrant farmworker stress. Such a scale is needed because stressors directly linked to the Mexican farmworker lifestyle are unrecognized by scales created for general, Mexican American, and immigrant populations. This stress scale not only is sensitive to stressful events as experienced by the population, but also uses qualitative tools to discern culturally perceived causes of stress and is short enough to be used in “field” and community-based nonclinical research settings. Data were gathered through the use of focus groups, which were used to assess causes of stress and language associated with life stressors. Qualitative information was then used to design and validate a stress scale specifically tailored for use among Mexican immigrant farmworker communities.

Methods

This study was completed in two phases. First, focus-group interviews were held to examine life stressors among Mexican immigrant farmworkers. Themes gathered from the focus groups were analyzed using qualitative analysis software and then used to create a stress scale tailored for use in the population. Next, the scale was tested in an independent sample of Mexican immigrant farmworkers for validity and reliability.

Each portion of the study took place in the Yakima Valley of Washington State, a rural region that includes many small agricultural communities. Nearly half of all farms in the Yakima Valley hire Mexican migrant laborers, and overall an estimated 63,000 people in the Yakima Valley work in agriculture (Washington State Department of Agriculture 2002). The primary crops in this region are apples, pears, cherries, grapes, and hops (Washington State Department of Agriculture 2002).

Recruitment

Participants were recruited from the largest agricultural community in the Lower Yakima Valley by investigators Snipes and two trained, bilingual field assistants (Godina and Ibarra), who were trained and certified to perform focus groups and survey questionnaires in two languages (Spanish and English). For the first phase of the project, staff recruited participants in person via Spanish-language flyer distribution at local grocery stores, churches, and community centers. The second phase of the study utilized a slightly different technique. Participants were initially recruited in person, using flyers, at local churches and farm sites (after gaining farm owner approval). Those agreeing to take part in the second phase of the study were then asked to refer one to three other farmworkers who might want to participate. Referral recruitment is often used in anthropological studies as a means of establishing rapport and trust among potential participants and the researcher (Bernard 2002). After referral, phone numbers of project staff were given to potential participants, who then contacted project staff if they wished to participate.

At each recruitment site, projects staff described the purpose of the study and identified which individuals were eligible for participation. Eligible participants were at least 18 years old and had worked in agriculture in the previous 12 months of recruitment. Names and telephone numbers were collected from all eligible persons, who were then contacted by telephone and scheduled for a focus group or, for the second study, a stress scale interview. Each recruitment sample was independent; there was no overlap in recruited individuals for the first and second phases of the investigation.

All participants signed informed consent prior to their involvement in either phase of the study. Participants were read the consent forms aloud in Spanish and then given an opportunity to ask questions about the study. Each participant was then provided with a copy of the signed consent form.

Focus-group participants were told that each session would be audio recorded and would last approximately two hours. Participants in focus groups were given $10 for their involvement in the study. The sample of farmworkers involved in stress scale validation received $20 after completion of the stress scale interview and its retest. Methods used in both parts of this investigation were approved by the Institutional Review Board at the Fred Hutchinson Cancer Research Center in Seattle.

Focus Groups

Focus-group interviews were conducted by Snipes, Ibarra, and Godina. All focus groups were carried out in Spanish in the conference room of a project office established by the Fred Hutchinson Cancer Research Center in the Yakima Valley. One staff person conducted each session, and at least one assistant was available at each focus group for detailed note-taking, which was used to assist with transcription.

Guided, open-ended questions were used for each session, covering perceived definitions of stress, causes of stress, and things that mediate or reduce stress. The guided questions were supplemented by the use of probes, which further identified key factors related to social determinants of stress such as family, income, health, and work-related causes of stress. Some of the specific questions used were: What is stress? What are other names for the word “stress”? What things cause you to experience stress? and What are the sources of stress that cannot be prevented or reduced?

Qualitative Analysis

Audiotapes from focus groups were translated directly into English. Focus-group transcriptions were then imported into the qualitative analysis software package N'Vivo by QSR Software to identify common themes (Scolari 1998). Codes representing a meaning or concept were created individually for each focus group. This way, all possible topics were gathered from each transcript, leaving room for codes to be created free from influence from other focus group interviews. After all transcripts were coded, subcodes were created, and the coding list was combined. Themes were gathered in N'Vivo by the number of times particular codes appeared across all focus groups.

Using the themes developed from the qualitative analysis, the stress scale was developed. The main topics from the focus-group interviews were assessed for frequency, language, and context. A 23-item stress scale was then created using (as much as possible) direct, contextual language to design each question. Original focus-group tapes were checked to confirm direct, contextual language for the Spanish version of the stress questionnaire. Questions in the scale address six major areas of stress: work-related stress, impulsive/addictive behavior, immigration stress, acculturative stress, economic stress, and depression/anxiety. Responses are indicated using a five-point Likert scale. The scale responses are 1 =

no or not at all, 2 = very little or almost never, 3 = sometimes or every now and again, 4 = many times or more than usual, and 5 = the vast majority of the time or almost always.

Scale Validation Procedure

Each person completed an oral administration of the 23-item investigator-developed scale followed immediately by an oral administration of the HANES I General Well-Being Schedule (GWBS short version; 18 items) created by the National Department of Health, Education and Welfare of the National Center for Health Statistics. The GWBS was used as a comparison for assessing the validity of the investigator-developed scale because it has been shown in multiple investigations to be a reliable measure of psychological well-being among respondents of Mexican origin; the GWBS demonstrates internal consistencies of 0.91 and 0.86 in two, independent research studies involving Mexican immigrant populations (Poston et al. 1998; Rodriguez et al. 2002).

The investigator-developed scale and the GWBS scale were readministered to each participant exactly one week (seven days) after the initial interview to test interindividual reliability of both scales. Each stress scale was administered either at the participant's home or at the participant's job site (with farm owner permission), depending on the choice of the farmworker.

The GWBS and investigator-developed stress scales were administered in Spanish by Snipes, Ibarra, and Godina. The investigator-developed scale was created in Spanish, then translated, modified, and edited in English by Snipes and two bilingual project staff in order to transfer, as much as possible, cultural equivalence of terms and meaning from Spanish to English.

The English version of the GWBS was translated to Spanish by two bilingual project staff persons of Mexican origin. The Spanish translation of the GWBS was then reviewed by a committee of four bilingual project staff. The wording of items evaluated as presenting difficulties in comprehension or intent were modified to overcome limitations.

Scale Analysis

Reliability analyses were conducted separately for the GWBS and the investigator-developed scale. For both scales, test-retest correlations were calculated using Pearson's pairwise correlation coefficients. Reliability of the scales was also assessed using Cronbach's alpha as a measure of internal consistency across the total individual scales. Cronbach's alpha measurements and Pearson's scores were determined using STATA statistical package software.

Individual items were also tested for their consistency with the entire scale. For the GWBS, individual items were tested by subtheme (psychological distress, well-being, general health, and vitality). Items in the investigator-developed scale were tested individually for each of the 23 questions according to how they correlated with the entire scale. An item was deleted from the investigator-developed scale if (a) it had a corrected item-total correlation that was less than 0.30 or (b) deletion of the item resulted in an appreciable increase in the subscale alpha coefficient.

Results

Focus Groups

Participants—A total of 69 farmworkers participated in seven focus groups. Thirty-four of the participants were male and thirty-five were female. Each participant identified him- or

herself as “Mexican” and all focus groups were held in Spanish. Table 1 summarizes the characteristics of participants by individual focus group.

Perceptions of Stress—Focus-group analysis identified a number of themes. First, emotional aspects of stress emerged, demonstrating a cultural perspective of stress closely related to feelings of desperation and not being able to find a way out of desperate situations. When asked the question, “What is stress?” one farmworker stated that stress is “when you feel sad and like you have no escape—surrounded by other people.” This concept of “no escape” was commonly used when farmworkers described stress. Some farmworkers expressed sentiments such as “It's like I can't find the door.” Others indicated that stress was when you “can't find a way out” or when you have “problems that you can't solve.”

A secondary pattern that emerged from the focus groups was that six participants (one or two people in four focus groups) indicated that they did not know what the word meant or had “never heard the word used” before. Overall, however, most farmworkers seemed comfortable with the use and concept attached to the word stress, and used it often when citing examples of stress in their cultural or life contexts.

When asked, “What are other names for stress?” farmworkers indicated that *deprimido* (depression), *desesperación* (despair), *triste* (sadness), and *nervios* (physical/mental anxiety) were words that could be used interchangeably with the word stress. Depression, despair, and sadness were each given as responses for other names for stress in all seven focus groups. The word *nervios* was not mentioned as an alternate word for stress in only one focus group. The words *deprimido*, *desesperación*, and *triste* were used in each of the four focus groups where one or two farmworkers had never used or heard of the word stress before. This information was used in stress scale design. The word “stress” is used for all described conceptions where farmworkers used the term *el estrés*, and when alternate words were used infrequently; this was the majority of cases. The term “desperation” is used in the scale to measure conceptions of stress when an alternate term was given to consistently describe a life stressor. *Desesperación* was the most frequently used alternate term for the word stress.

The concept of stress also corresponded to how farmworkers felt physically. One farmworker indicated that “when I become desperate [*have feelings of despair*], my head hurts and I feel very dizzy.” Other farmworkers reported having terrible headaches, becoming sleepy, losing sleep, shaking in the hands, and becoming tired because of stress.

Stress also affected the behavior of farmworkers. Focus-group participants indicated becoming forgetful and not being able to concentrate, eating without being hungry, or not eating at all. A common answer among farmworkers to the questions “How do you know when you are stressed?” and “How does it feel when you are stressed?” was “Sad” or “I feel like crying.” This sentiment, however, was only reported among females. Male farmworkers reported other ways of dealing with stress; some indicated that drinking alcohol made them feel better, while most admitted (male and female) that this sometimes resulted in domestic violence between a husband and a wife.

Focus-group interviews also revealed strong feelings of desperation around gender roles. Female participants expressed that having to work as well as perform traditional household duties was extremely stressful. Women reported that when they get home from work, they are still expected to cook, clean the home, do dishes and laundry, and take care of children. One woman farmworker stated, “Sometimes I get off from work really late, go and pick up the kids, get home, clean the house and if that wasn't enough, I still have to make dinner for my husband and my kids. Time is a big stress for me because I do not have enough time to

do all my work and no one helps me." Men also stated that this was a problem for their wives, but held that having time to relax without having to take care of children or the home was equally important for them.

Mexican Immigrant Farmworker Stress—Some of the themes gathered in the focus groups were specific to the participants' lives as immigrant farmworkers. Table 2 indicates the most frequently mentioned sources of stress related to migration and farm work. As shown in Table 2, the most prevalent source of stress recorded in the focus groups was issues regarding work. Within the category of work, the most common stressor was lack of having a consistent job. One farmworker stated that "I look for work and cannot find any. Sometimes I find a job and it only lasts two weeks, then I have another two weeks off. Then I find another [job] for another two weeks or only a few days, and that's how I work most of the year."

The theme of inconsistent work is closely linked with lack of income. In fact, in nearly every case in which a farmworker cited lack of work, he or she also expressed feelings of desperation caused by not having enough money to pay bills. An example of this is stated by one farmworker, indicating that inconsistent work is his greatest source of stress: "…Lack of work because I get worried [when I have] all of my bills and do not have money to pay them. Where I live, they were about to take the house away because I didn't have money to pay the rent. There was no work everywhere we went and that really stresses me a lot."

Farmworkers also reported that the lack of work results in physical feelings of stress. Participants stated that inconsistent work kept them from sleeping through the night, brought on headaches, and even caused them to have "nerves" or shakiness. One woman stated that when stressed, she felt "nervousness. Sometimes I can't even drive. Sometimes I even tell my husband to take me to the store because I feel very nervous."

Another subtheme involving work was related to *injusticia*, or the concept of injustice. Farmworkers revealed that in addition to the instability of finding and keeping a job, they often were paid less than they were guaranteed and were threatened by deportation if they complained. Regarding injustice, one female farmworker stated, "One time I fell from the ladder and had to go to the doctor. I told them [the farm owners] what happened, and was [told that] they didn't want to give me a job anymore…. I begged them [the farm owners] for my job and they said if I was not going back to the doctor any more, they would give me my job back."

The concept of injustice was not limited to feelings about farm owners, but included other farmworkers as well. A related theme in the data revealed that farmworkers competed so heavily for work that they would promise farm owners services such as free child care or working for less pay if they would fire one farmworker and hire a family member or close friend. This bargaining for jobs usually occurred on behalf of those who recently migrated and could not find work. This type of *injusticia* is described by one farmworker as follows:

> Sometimes there are many people wanting to work in the field. You complain about something like not having water, or the bathrooms being dirty, [and] they tell you right away, "If you don't like it go find a job somewhere else, we have a lot of people that we can hire and they are not going to complain about those things." There are even people [other farmworkers] who tell them [farm owners], "We don't care if you pay us less than the rest of the people as long as you give us a job," so they really don't care if they fire you for complaining.

Family-Related Stress—Another major source of stress among Mexican immigrant farmworkers involved problems within families. A large proportion of stressors involving

family was related to family illness. One male farmworker stated that "I feel desperate [*have feelings of desperation*] from seeing a lot of my family sick. I even get sick from all the stress that I have and that makes me feel very tired, [I have] headaches and I have too many things in my mind."

Farmworkers also heavily noted family-related stressors regarding feelings of sadness or desperation over missing their family members in Mexico. A female farmworker said:

> Stress is the thought of having all my family in Mexico, and just thinking that when they get sick there is no way I can be with them to help them in anything I can. I feel like I can't find a way out when I hear that they are sick and I feel very desperate. Eleven years without seeing my family has not been easy. I have a brother that is in a wheelchair, and a sister that is very ill and that I can't be with them is very stressful for me and very sad. Sometimes I don't want to talk to anyone or do anything. I don't even feel like taking care of my family, that's how stressful I get.

Other sources of family-related stress included lack of communication in the home, problems raising children, and lack of child care while working.

Living in a Different Culture—Farmworkers disagreed with the laws in the United States, which caused them a great deal of stress. Factors such as discrimination were raised in the community and at the schools of their children. A female farmworker stated that "the laws in the schools sometimes require that we need to speak up as parents. Like one time a teacher just called me to let me know that she didn't like how my son sat, walked and talked. There is a lot of discrimination in the schools." In another example, a male farmworker stated, "All our lives we have lived in Mexico. Here we feel like prisoners. If I have a family get-together and we are making some noise, the police are called right away. We come from a different culture and this country's [culture] causes me stress. You can do almost anything you want in our Mexico."

Other stressful events related to living within a different culture were issues such as loss of cultural values such as language and traditions between generations. Participants in focus groups specifically referred to this as lack of communication among youth in the community. In addition to loss of language among youth, however, many farmworkers felt stressed because they did not speak English. This sometimes prevented them from obtaining jobs and communicating with doctors, police officers, and school teachers. One female farmworker indicated how much learning even a small amount of English reduced her stress: "The government sometimes has evening English classes and I set my goal that I wanted to learn English so that I can communicate with my kids and the teachers, which it did help a lot. It was hard but it can be done and it's worth it."

Stress Scale Validation

Participants—Using themes gathered from the focus groups, a 23-item stress scale was developed. The scale was tested for reliability and validity among an independent sample of 30 adult farmworkers (19 male, 11 female) of Mexican origin living in the Lower Yakima Valley region of Washington State. Participants ranged in age from 19 to 73, with a mean age of 37.53 years (SD = 11.32 years).

Stress Scale Properties—The scale measures six major areas of psychological distress: work-related stress, impulsive/addictive behavior, immigration stress, acculturative stress, economic stress, and depression/anxiety. Scores range from 23 to 115. The lowest score, 23, represents no stress, the median score, 46, represents moderate stress, and the highest score,

115, represents severe stress. Total scores of participants ranged from 26 to 89. The average score of all observations was 52.43 (SD = 14.50), representing a mean score of higher than moderate stress. Ten questions in the scale prompted responses indicating moderate levels of stress or higher (≥ 2.5 on the five-point Likert scale). The questions that prompted a response of moderate or higher stress in at least one of the two interviews are presented in Table 3.

There were no significant correlations between total averaged score and age using Pearson correlation coefficients ($r = -0.0971$, $p = 0.6096$). When analyzed separately by first or second interview, however, significant correlations emerged for one question. In the second stress scale interview, when participants were asked, “In the past month, have you had feelings of desperation because your family lives far away?” the level of stress decreased with age ($r = -0.4917$, $p = 0.0058$). Answers to this question in the first scale were evenly distributed. This result may be skewed, however, by a considerable change in response from the two oldest participants. In the first questionnaire, both of these persons indicated they experienced severe stress related to their families living far away. In the following interview, however, both responded that their families living far away caused them no stress at all.

Three questions were significantly correlated with gender, although only one question was consistently correlated in both the first and the second interviews. The question, “In the past month, have you felt stressed because of painful injuries at work?” prompted men to respond with an average score of 2.37, while women responded with an average score of 1.45. The correlation between this question and gender was 0.3871, with a significance of $p = 0.0347$ averaged across both scales.

Two other questions had significant correlations with gender. To the first, “In the past month, have you had feelings of desperation because your family lives far away?” women responded with an average score of 3.73, while men responded with an average score of 2.77 for the second interview, which yielded a correlation of 0.3671 ($p = 0.0460$). To the other question, “In the past month, have you felt stressed because there is a lack of communication with the youth in your community?” women responded with an average of 3.00, while men responded with an average of 1.84, with a correlation of 0.4514 ($p = 0.0123$). For both questions, responses of men and women were equally distributed for the first stress scale interview but yielded significant correlations by gender in the follow-up interview.

Scale Validation—The stress scale exhibits an internal reliability of 0.9123 across both stress scale interviews using Cronbach's alpha measurement for average inter-item covariance. Test-retest coefficients from Pearson's correlation were also strong ($r = 0.8344$, $p \leq 0.0001$). All but one of the individual questions on the scale correlated with the entire scale at a coefficient of ≥ 0.30 (see Table 4). That question, “In the past month, have you felt stressed because you do not speak English?” exhibited a correlation average of 0.1672 and was the only question exhibiting a nonsignificant correlation ($p = 0.3772$) (see Table 4). When this question was eliminated from the original scale, however, Cronbach's α measurement increased only to 0.9190. When both the above question and an additional question were eliminated (i.e., “In the past month, have you felt stressed because of painful injuries at work?”), Cronbach's α measurements reached 0.9210. Excluding either or both questions from the scale does not considerably increase the reliability coefficient. Thus, both questions remain on the scale.

Comparison with the GWBS—Cronbach's alpha measurements for the GWBS were not as strong as for the investigator-developed scale, indicating an average reliability coefficient of 0.8800. Test-retest correlations for the GWBS were also less strong, showing negative,

nonsignificant results (−0.0243; $p = 0.8985$). This lack of correlation presented an initial obstacle for validation of the investigator-developed scale with a known reliable measure appropriate for the study population. The GWBS, however, is made up of four subscales (psychological distress, well-being, general health, and vitality). The scores for these subscales were calculated for each farmworker and correlated with the total score for the investigator-developed scale, indicating significant correlations for the psychological distress subscale for both interviews and with the well-being and vitality subscales for the second interview. Table 5 shows validation correlations between the total score for the investigator-developed scale and the subscale score for each portion of the GWBS. The investigator-developed scale is validated by each subsection of the GWBS except “general health.” General health is not measured on the investigator-developed scale. Psychological distress caused by life stressors, which is measured on the investigator-developed scale, corresponds reliably with the GWBS subscale, with a score of 0.5846 ($p = 0.0007$).

Test-retest correlations for the GWBS improved when the four distinct subscales were tested separately but were still not as strong as for the investigator-developed scale (see Table 6). Cronbach's alpha measurements did not improve on the four subscales of the GWBS.

Discussion

This paper presents an investigation that combined qualitative and quantitative tools for the development of a culturally appropriate instrument for stress assessment for Mexican immigrant farmworkers. We examined culturally perceived causes of stress using focus groups and then developed and validated a stress scale uniquely tailored for the community.

Focus Groups

Seven focus groups were conducted among 69 participants. Focus groups uncovered perceived definitions of stress, causes of stress, and things that mediate or reduce stress. Qualitative analysis of the focus groups revealed a cultural perception of stress strongly tied to feelings of desperation. The concept of stress used by farmworkers represented feelings of being overwhelmed, not being able to find “a way out,” or not being able to “find the door” or escape one's problems. This feeling of desperation was portrayed by farmworkers as they described having so many problems that they felt like giving up hope for any kind of resolution. This concept has been cited in other studies involving Mexican immigrant farmworkers. Thompson et al. (2001) report that farmworkers often experience feelings of despondency with regard to feelings of sickness associated with being exposed to pesticides. In that study, farmworkers stated that physicians and health-care systems did not recognize symptoms of pesticide exposure, often attributing the cause of their symptoms to the flu (Thompson et al. 2001). Other cases of despondency reported in other investigations state that farmworkers felt that their protection from pesticides was outside of their own control. Farmworkers in those studies reported that they were not provided with protective equipment, they were afraid to demand protective equipment for fear of being fired, and even groups charged to protect them from exposure (e.g., State Labor and Industries) did not do so (Arcury et al. 2001; Thompson et al. 2001).

While exposure to pesticides was mentioned as a source of stress in only one focus group in this investigation, many farmworkers reported feelings of having no control over being treated unfairly at work. Still, unfair treatment, or *injusticia*, while at work seemed much less important to farmworkers than being able to obtain steady, consistent work. Lack of work was the highest generated subtheme in this investigation and was closely related to other themes. Not having a steady job led to feelings of stress related to not having a reliable source of income. Lack of money was closely related to not being able to pay bills for household items or for family illnesses. Each of these stressors was reported in other

qualitative work carried out among Mexican immigrant farmworkers (Hovey and Magaña 2003). There was, however, one stressor mentioned in previous work that was not confirmed in this investigation. Farmworkers in previous investigations reported that they experienced stress due to lack of transportation (Hovey and Magaña 2003). Focus-group participants in our investigation never alluded to lack of transportation being a problem, perhaps because lack of work (which would require transportation) was a greater concern.

Other analyses of focus groups revealed that farmworkers mentioned that sadness, nervousness, depression, and desperation were both feelings that they had when they were stressed and alternate words for stress. When analyzed further, we found that the words nervousness and depression, though described as alternate words for stress, were used in only one focus group to describe examples of how stress affected peoples' lives. The words depression and nervousness, instead, were used by the majority of the group to describe physical and emotional states of being stressed.

There was much use of the words sadness and desperation in the focus groups to describe stressful life events. Still, farmworkers most often used the word stress. We are uncertain to what extent there was introduction of bias into farmworkers' use of this term since, at the beginning of the focus groups, a total of six participants (in four groups) stated that they didn't know what stress was. Because the first question asked in each focus group was “What is stress?” some participants may have chosen to use the word “stress” instead of words in their everyday vocabularies. This investigation does show, however, that farmworkers frequently use terms other than the word stress to communicate feelings of being overwhelmed and not being able to discover solutions to their problems. This information, and the possible bias, was taken into consideration in the wording of the stress scale, which was created using focus-group data. For each stress factor, the word most used to describe the stressful situation was used. Desperation was the most commonly used alternate word for stress, and is used in the scale to present stressful situations for which the word stress was used infrequently.

Though most of the data in this investigation were not specific to gender, some effects were noted. Women participants reported that feelings of stress deeply influenced their abilities to perform traditional roles such as cooking, cleaning, and taking care of their children. Depression among Mexican women as recorded in the literature is often associated with sex role conflict (Hovey 2000a; Mendes de Leon and Markides 1988; Munet-Vilaro et al. 1999). Such roles are often jeopardized when Mexican immigrant families move to the United States, initiating the need for two incomes (Munet-Vilaro et al. 1999). Many women must share work and financial responsibility with their husbands in order to make ends meet (Munet-Vilaro et al. 1999). When women work as farmworkers, for instance, they do not receive maternity leave, are exposed to pesticides while pregnant, and often experience sexual harassment while on the job (Alaniz 1994). Work-related stress, lack of daycare, and stress associated with sex roles were major sources of stress reported by the women in this investigation. This finding is consistent with other qualitative work that has been carried out among Mexican immigrant farmworker women. In prior work, investigators revealed that women reported lack of daycare and performing traditional roles as stressors (Hovey and Magaña 2003).

Several couples participated in focus groups together. This, in itself, was observed as a cultural dynamic among participants. While focus groups were originally intended to be held separately, male and female participants did not seem to want to separate from their partners. When project staff asked that men and women go to different rooms, participants simply sat in open spaces paired with their spouses. This occurred repeatedly. As a result, farmworkers were allowed to sit in whatever configuration was most comfortable for them.

Still, from coupled pairings, interesting themes emerged such as how couples jointly dealt with stress. Some farmworker couples eased each other's stress by cooking meals, quieting playful children, or rubbing each other's feet after a long day.

The results of this investigation revealed aspects about stress among Mexican immigrant farmworkers that have not been found in other studies. The feeling of despair is new and should be further explored with regard to how this concept is related to stress. Further, this concept has clinical implications, as farmworkers noted that feelings of desperation affected them physically as well as emotionally.

Also, themes regarding injustice, or *injusticia*, were revealed as a part of this investigation. Though many studies have shown that farmworkers suffer from unfair treatment by employers at work, no investigation has linked this to competition between farmworkers for jobs. This new information could better inform research on the migrant worker lifestyle and the complications that come along with finding new work.

Stress Scale Validation

The stress scale developed as part of this two-part investigation yields an excellent internal reliability and test-retest consistency. The test was validated against a known scale with good reliability constructs measuring psychological distress and well-being among Mexican populations (Poston et al. 1998; Rodriguez et al. 2002). Our scale, however, showed a considerably stronger internal reliability. This is, perhaps, because our scale was uniquely tailored for populations of Mexican immigrant farmworkers.

Two outliers were present in the sample when reliability was tested using repeated measures. This was observed when major answers were changed among the two oldest participants, who happened to live in the same household. Except when influenced by the outliers' change in responses, there were no correlations between age and any outcome measure when results were averaged across two tests.

There was a positive correlation between gender and stress associated with painful injuries at work among men. This finding may be influenced by the fact that the majority of farmworkers in Washington State are male (Wallace 2002). Other responses that differed by gender involved youth in the community and family members who lived far away. This result may be influenced by information found in other studies indicating that, among Mexican immigrants, women are more likely than men to report stressful feelings (Hovey 2000a; Munet-Vilaro et al. 1999). Perhaps in this study, women felt more comfortable reporting feelings of emotion regarding their community and family living far away. It is also possible that men in this study experienced less stress in these areas. Future research should be carried out to explore further the relationship between gender and life stressors in this community.

One question on the stress scale, “In the past month, have you felt stressed because you do not speak English?” exhibited an average correlation of < 0.30. This question was not, however, eliminated from the scale. When this item was dropped, the internal consistency increased by only 0.0061, which was not considerable enough to remove the item. Also, other work done in this population revealed, qualitatively, that the Spanish-English language barrier is a major stressor in the Mexican migrant farmworker population (Hovey 2000b; Hovey et al. 2003; Magaña and Hovey 2003). In fact, one study found that among migrant farmworker women, language barriers were the most critical of all stressors. The information provided in prior research strengthens our decision to maintain the question regarding the ability to speak English as a part of the scale.

This new scale, designed to measure stress among Mexican immigrant farmworkers, holds a Cronbach's α measurement of 0.9123. The high internal consistency of this scale is nearly identical to that of the GWBS and the HIS, both proven as stable measures for assessing stress in Mexican populations. One advantage of our scale, however, is that it contains only 23 items and can be quickly administered in a variety of research settings. This scale is also culturally specific and allows stress to be measured in the context defined by the lives of Mexican immigrant farmworkers.

Though few, this study has limitations that should be considered. For example, Baer (1996) resolved that formal choice categories such as those used on our scale are interpreted with large amounts of overlap and are difficult to assess accurately. Our Likert scale, which rates stress responses across five points, according to Baer, may have been interpreted by our sample as problematic. This, however, is not supported by our data.

Another limitation of our study is that there are no current measures created specifically to measure Mexican immigrant farmworker stress. Therefore, there was a lack of comparable stress scales with which to evaluate and validate this one. The GWBS was chosen as the best instrument to validate this scale because it showed good reliability in two Mexican samples. The GWBS is also a short measure and is the best comparison for a field-appropriate stress scale. Using the GWBS, however, presented some difficulty in validating this instrument. This scale was also validated in a population of only 30 Mexican immigrant farmworkers. Though the results of this study are compelling, a larger sample size could have more strongly validated the scale. Future work validating this scale should use an increased sample size, which will allow for factor analysis, and compare this scale to other scales created for Mexican immigrant populations. It should be noted as well that, although the cultural specificity of this scale is its strength, the scale is not intended as a cross-cultural measure and should be used with caution in populations other than Mexican immigrant farmworkers.

Conclusions

This paper introduces a new, culturally appropriate instrument with which to measure stress among Mexican immigrant farmworkers. This stress scale, which was developed using qualitative and quantitative tools, is sensitive to culturally perceived causes of stress and is a reliable and culturally appropriate instrument for assessing stress. Because our scale was tailored specifically for use among Mexican immigrant farmworkers, use of this scale outside of the population for which it was created is cautioned against. Future work on this instrument will involve testing the scale in a larger population, which will enable us to gain more information about the psychometric properties of the scale.

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Appendix

Focus-Group Questions

1. What is stress?
2. Are there other names for the word “stress”?
3. What are some different forms of stress?
4. What types of things cause you to experience stress?

   a. Family?
   b. Community?
   c. Health?
   d. Work?
5. How do you know when you are experiencing stress?
   a. How does it feel when you experience this?
6. What types of things can a person do to prevent or reduce their stress?
   a. Family?
   b. Community?
   c. Health?
   d. Work?
7. Are there sources of stress that cannot be prevented or reduced?
   a. Family?
   b. Community?
   c. Health?
   d. Work

Preguntas para los Grupos de Conversación

1. ¿Qué es el estrés?
2. ¿Hay otras nombres por la palabra “estrés”?
3. ‘Cuales son diferentes formas de estrés?
4. ¿Cuales son las causas de estrés en la vida de usted?
   a. ¿Familia?
   b. ¿Comunidad?
   c. ¿Salud?
   d. ¿Trabajo?
5. ¿Como sabe que usted está estresado?
   a. Como se siente tener el estrés?
6. ¿Que pueden hacer alguien para prevenir o reducir la cantidad de estrés?
   a. ¿Familia?
   b. ¿Comunidad?
   c. ¿Salud?
   d. ¿Trabajo?
7. ¿Hay fuentes de estrés que alguien no pueda prevenir o reducir?
   a. ¿Familia?
   b. ¿Comunidad?

c. ¿Salud?

d. ¿Trabajo

Mexican Farmworker Stress Scale

1. In the past month, have you felt stressed because you did not have enough money to pay your bills?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

2. In the past month, have you felt stressed because of lack of enough work?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

3. In the past month, have you felt stressed because of injustice at work?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

4. In the past month, have you felt stressed because of painful injuries at work?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

5. In the past month, have you felt stressed because you have to work too hard?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

6. In the past month, have you had feelings of desperation because of sickness in your family?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

7. In the past month, have you had feelings of desperation due to lack of money to pay medical bills?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

8. In the past month, have you had feelings of desperation because members of your family have problems that you cannot solve?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

9. In the past month, have you been stressed about where to leave your children while working?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

10. In the past month, have you had feelings of desperation because members of your family live far away?

1	2	3	4	5

Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

11. In the past month, have you felt stressed because of problems with your children?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

12. In the past month, have you felt stressed because there is a lack of communication in your home?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

13. In the past month, have you felt stressed because of a drinking problem in your home?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

14. In the past month, have you felt stressed because of drug use in your home?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

15. In the past month, have you felt stressed because of domestic violence in your home?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

16. In the past month, have you felt stressed because of crime in your community?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

17. In the past month, have you felt stressed because of discrimination in your community?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

18. In the past month, have you felt stressed because you do not speak English?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

19. In the past month, have you felt stressed because there is lack of communication with the youth in your community?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

20. In the past month, have you felt stressed because there is discrimination in schools?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

21. In the past month, have you found it hard to work up the energy to do things?

1	2	3	4	5

Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

22. In the past month, have you lost sleep because of stress?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

23. In the past month, have you to felt depressed due to stress?

1	2	3	4	5
Not at all	Yes, a little	Yes, sometimes	Yes, a lot of the time	Yes, most of the time

Escala del Estrés para Trabajadores del Campo Mexicanos

1. ¿En el último mes, se ha sentido estresado porque no tiene bastante dinero para pagar los gastos?

- **a.** Ni siquiera (nunca)
- **b.** Si, un poco (casi nunca)
- **c.** Si, algunas veces (de ves en cuando)
- **d.** Si, muchas veces (mas de lo usual)
- **e.** Si, la mayoría del tiempo (casi siempre)

2. ¿En el último mes, se ha sentido estresado por la falta de trabajo?

- **a.** Ni siquiera (nunca)
- **b.** Si, un poco (casi nunca)
- **c.** Si, algunas veces (de ves en cuando)
- **d.** Si, muchas veces (mas de lo usual)
- **e.** Si, la mayoría del tiempo (casi siempre)

3. ¿En el último mes, se ha sentido estresado por la injusticia en el trabajo?

- **a.** Ni siquiera (nunca)
- **b.** Si, un poco (casi nunca)
- **c.** Si, algunas veces (de ves en cuando)
- **d.** Si, muchas veces (mas de lo usual)
- **e.** Si, la mayoría del tiempo (casi siempre)

4. ¿En el último mes, se ha sentido estresado por daños dolorosos en el trabajo?

- **a.** Ni siquiera (nunca)
- **b.** Si, un poco (casi nunca)
- **c.** Si, algunas veces (de ves en cuando)
- **d.** Si, muchas veces (mas de lo usual)
- **e.** Si, la mayoría del tiempo (casi siempre)

5. ¿En el último mes, se ha sentido estresado porque tiene que trabajar demasiado?

- **a.** Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

6. ¿En el último mes, ha tenido sentimientos de desesperación por enfermedades en su familia?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

7. ¿En el último mes, ha tenido sentimientos de desesperación por la falta de dinero para pagar los gastos médicos?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

8. ¿En el último mes, ha tenido sentimientos de desesperación porque miembros de su familia tienen problemas que usted no puede resolver?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

9. ¿En el último mes, se ha sentido estresado por problemas de dejar~a~sus hijos cuando va a trabajar?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

10. ¿En el último mes, ha tenido sentimientos de desesperación porque miembros de su familia viven lejos?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

11. ¿En el último mes, se ha sentido estresado por problemas con sus hijos?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

12. ¿En el último mes, se ha sentido estresado por la falta de comunicación en su hogar?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

13. ¿En el último mes, se ha sentido estresado por un problema de alcoholismo en su hogar?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

14. ¿En el último mes, se ha sentido estresado por el uso de drogas en su hogar?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

15. ¿En el último mes, se ha sentido estresado por abuso domestico en su hogar?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

16. ¿En el último mes, se ha sentido estresado por el crimen en su comunidad?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

17. ¿En el último mes, se ha sentido estresado por la discriminación en su comunidad?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

18. ¿En el último mes, se ha sentido estresado porque no habla inglés?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

19. ¿En el último mes, se ha sentido estresado porque no hay comunicación con la juventud en su comunidad?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

20. ¿En el último mes, se ha sentido estresado porque hay discriminación en sus escuelas?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

21. ¿En el último mes, es difícil hacer cosas por la falta de energía?

a. Ni siquiera (nunca)

b. Si, un poco (casi nunca)

c. Si, algunas veces (de ves en cuando)

d. Si, muchas veces (mas de lo usual)

e. Si, la mayoría del tiempo (casi siempre)

22. ¿En el último mes, ha perdido sueno por causa del estrés?

- **a.** Ni siquiera (nunca)
- **b.** Si, un poco (casi nunca)
- **c.** Si, algunas veces (de ves en cuando)
- **d.** Si, muchas veces (mas de lo usual)
- **e.** Si, la mayoría del tiempo (casi siempre)

23. ¿En el último mes, se ha sentido deprimido por causa del estrés?

- **a.** Ni siquiera (nunca)
- **b.** Si, un poco (casi nunca)
- **c.** Si, algunas veces (de ves en cuando)
- **d.** Si, muchas veces (mas de lo usual)
- **e.** Si, la mayoría del tiempo (casi siempre)

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Table 1

Focus-group participants

Focus group	No. male participants	No. female participants	Total no. participants
A	5	6	11
B	2	5	7
C	4	4	8
D	7	5	12
E	5	4	9
F	5	6	11
G	7	4	11
Total	34	35	69

Table 2

Most frequent codes assessed across five or more focus groups

Code	Frequency in 7 focus groups	Frequency in 6 focus groups	Frequency in 5 focus groups
Work stress	264		
Personal illness	250		
Lack of work	200		
Family illness	156		
Family stress	109		
Lack of money	89		
Family in Mexico	51		
Desperation	30		
Medical expenses	23		
Can't pay bills	22		
Depression	22		
Sadness	22		
Loss of values in community		31	
“Nerves”		20	
Can't speak English		13	
Injustice/unfair treatment (work)			36
Lack of communication (home)			25
Problems with youth in school			10

Table 3

Questions on stress scale indicating moderate or higher stress

No.	Question	Individual score[a]	Average score
1	In the past month, have you felt stressed because you did not have enough money to pay your bills?	3.3/2.53	2.92
2	In the past month, have you felt stressed because of lack of enough work?	2.77/2.63	2.70
3	In the past month, have you felt stressed because of injustice at work?	2.33/2.5	2.42
6	In the past month, have you had feelings of desperation because of sickness in your family?	2.60/2.23	2.42
7	In the past month, have you had feelings of desperation due to lack of money to pay medical bills?	2.73/2.13	2.43
8	In the past month, have you had feelings of desperation because members of your family have problems that you cannot solve?	2.57/2.5	2.53
9	In the past month, have you been stressed about where to leave your children while working?	2.53/2.6	2.57
10	In the past month, have you had feelings of desperation because members of your family live far away?	3.33/3.13	3.23
18	In the past month, have you felt stressed because you do not know how to speak English?	3.37/3.03	3.20
23	In the past month, have you to felt depressed due to stress?	2.83/2.20	2.52

[a]Mean score for first stress scale interview/mean score for second stress scale interview

Table 4

Item-total correlation for each question in the scale

Question no.	Item-total correlation	Significance: *p*
19	0.8541	≤0.0001
3	0.7599	≤0.0001
22	0.7315	≤0.0001
1	0.7255	≤0.0001
20	0.7233	≤0.0001
23	0.7212	≤0.0001
2	0.7061	≤0.0001
6	0.7023	≤0.0001
21	0.6994	≤0.0001
8	0.692	≤0.0001
11	0.6458	≤0.0001
12	0.6352	0.0002
17	0.5774	0.0008
16	0.5339	0.0024
10	0.5284	0.0027
13	0.516	0.0035
7	0.5094	0.0040
9	0.4901	0.0060
14	0.4613	0.0103
5	0.4536	0.0118
15	0.4084	0.0251
4	0.3359	0.0695
18	0.1672	0.3772

Table 5

Validation correlations between the GWBS and the investigator-developed stress scale

GWBS subscale	Pairwise Pearson's correlation[a]	Significance: p[a]
Psychological distress	−0.6248/−0.4962	0.0002/0.0053
Well-being	0.1651/0.4175	0.3833/0.0217
General health	0.3347/0.3209	0.0759/0.0896
Vitality	0.1561/−0.4163	0.4102/0.0221

[a]Mean value for first stress scale interview/mean value for second stress scale interview

Table 6

Test-retest correlations for GWBS subscales and investigator scale (n = 30)

Scale	Measure	Significance: p
GWBS		
Psychological distress	0.5846	0.0007
Well-being	0.3469	0.0603
General health	0.6898	≤0.0001
Vitality	0.5796	0.0008
Investigator-developed		
Entire scale	0.8344	≤0.0001