

# Stress Resilience Among Border Mexican American Women

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The purpose of this study was to identify factors distinguishing Mexican American women living near the U.S.-Mexican border who are resilient to the experience of stress from those who are not. The study sample consisted of 418 participants ranging in age from 20 to 61 years. Data were gathered through a self-report survey instrument composed of items assessing stress vulnerability, acculturation, health, physical activity, education, and marital status. Descriptive discriminant analysis was used to determine which variables made the greatest contribution in discerning between stress-resistant and stress-susceptible women. The results indicated that higher educational attainment, greater acculturation, better health status, and marriage differentiated between those women reporting themselves resilient to the effects of stress and those reporting being vulnerable. These results have implications for stress resilience promotion among this population group.

**Keywords:** *stress resilience; vulnerability; acculturation; Mexican American women; hardiness*

The concept of stress generally refers to situations that trigger physical and emotional reactions as well as the reactions themselves. Selye (1993), a pioneer in stress research theory, characterized stress as the non-specific response of the body to any demand made on it. Stress sources are basically classified as physical, psychological, or psychosocial (Karren, Hafen, Smith, & Frandsen, 2006). Physical stress involves stressors in the environment, such as pollution or constant noise; psychological stress stems from how one reacts toward anything threatening, whether the threat is real or imagined; and psychosocial stress involves stressors from interpersonal relationships and among those with whom we interact. Considerable research has associated stress with a range of medical problems (McEwen, 2002).

The underlying premise is that stressors, through the actions of the nervous and endocrine systems, impair the immune system, thereby increasing susceptibility to certain illnesses (Segerstrom & Miller, 2004).

A number of theories have attempted to explain what causes stress, the most prominent being the transactional model developed by Lazarus (Lazarus & Launier, 1978). The central point of this model is that stress is not an environmental stimulus, a characteristic of a person, or a response but a relationship between demands and the power to deal with them without unreasonable or destructive costs (Lazarus & Launier, 1978). Two cognitive processes, appraisal and coping, are important to the person-demand transaction. Appraisal is one's evaluation of the potential threat posed by a stressor, and coping is all of the efforts used to master, reduce, or tolerate the stressor. Stress results when an individual appraises a demand as threatening and feels that he or she does not have the coping resources necessary to meet the demand. Thus, factors that reduce the impact of demands or increase perceived coping resources may protect persons against stress.

Ethnic minority status has been linked to higher stress levels than those experienced by persons outside of minority groups (Dana, 1998; Rogler, Cortes, & Malgady, 1991). Among Mexican Americans, socioeconomic and racial and ethnic stressors have been identified as powerful correlates of impaired well-being (Alderete, Vega, Kolody, & Aguilar-Gaxiola, 1999; Finch, Kolody, & Vega, 2000; Link & Phelan, 2000). Mexican American adults describe more problems in life than White adults concerning money, the mistreatment of family members for race or culture, and crime or violence (Commonwealth Fund, 1997). Consequently, Mexican Americans have negative stressors facing them that the majority of White Americans do not. Given this phenomenon, along with the causal relationship between stress and illness, factors serving to protect against stress may serve to protect against certain illnesses as well. The identification of factors that can help Mexican Americans resist stress-related illnesses could have a positive impact on the health status of this important population subgroup. It is therefore useful to examine protective factors that may reduce the experience of stress.

A review of the literature reveals a number of factors salient to one's resilience to the effects of stress. The more prominent of these include acculturation, age, current health level, marital status, leisure-time physical activity involvement, educational attainment, and gender.

Acculturation is defined as the psychosocial adaptation made by members of one culture as a result of contact with another culture (Burnam, Telles, Karno, Hough, & Escobar, 1987). In their meta-analytic study of

acculturation and psychological adjustment, Moyerman and Forman (1992) reported that higher income Mexican Americans increased their ability to cope with stress as they acculturated, but just the opposite was true for those less comfortable economically. Mechanisms associated with lower income levels, such as legal barriers to resources, pollution, overcrowding, crime, and poor housing infrastructure, produce greater stressors with increased acculturation but little commensurate efficiency in dealing with them (Finch & Vega, 2003; Thoman & Suris, 2004). When acculturation is accompanied by increased social support systems, regardless of economic level, the impact of stressful events and the negative feelings resulting from them are greatly reduced (Finch & Vega, 2003; Hovey & Magana, 2002).

Age-related stressors, although somewhat unique to each life state, place individuals at different levels of susceptibility (Greenberg, 2006). The development of resilience begins in childhood and continues in the form of physiological and psychological adaptation throughout life (Crowley, Hayslip, & Hobdy, 2003; Hannah & Morrissey, 1987). The role of age and aging as a stress-buffering agent is its utility as a function of adjustment derived from one's gathered experiences when confronting formidable circumstances or difficult demands.

The interaction of present health level with one's stress resilience is complex. The transactional model assumes that stress and health have reciprocal influences; stress can have a powerful impact on health, and conversely, health can influence a person's coping ability (Coyne & Holroyd, 1982). Stress-resistant people tend to engage in more consistent health-promoting behaviors and therefore when exposed to stressors are physically more resistant to disease and illness (Hannah, 1988). Healthy individuals tend to maintain reasonable personal control in their lives; this trait, according to Friedman and Vandebos (1992), allows them to have fewer episodes of illness as well as helping boost recovery when illnesses are incurred.

Married persons, in addition to the personal benefits of companionship and personal affirmation, experience fewer bouts of anxiety, depression, and other stress-related illness than those who are single, divorced, or widowed (Horwitz, McLaughlin, & White, 1998; Karren et al., 2006). There is a clear association between marriage and being well and longevity due to the tendency of married individuals to have less stress and better material resources, to indulge in fewer risk-taking behaviors, and to have better social support (Centers for Disease Control and Prevention, 2004).

In response to stressors, physically active individuals experience milder physical responses and less emotional distress than sedentary persons.

Physical activity provides protection against the effects of stress linked with both poor physical health and mental health issues, including hostility, anxiety, and depression (Carnathon, Gulati, & Greenland, 2006). Exercise decreases epinephrine and norepinephrine secretions, by-products of the stress response, and increases levels of endorphins, neurotransmitters that suppress fatigue and affect mood, thus producing feelings of relaxation and euphoria (Farrell, 1987). In investigating the relationship of physical activity with illness, Kobasa, Maddi, and Puccetti (1982) found that as stress levels increased, the more exercise proved its worth as a stress buffer, and those who exercised least had the highest rate of stress-related illness.

Educational attainment is the most powerful determinant of socioeconomic status (SES) with regard to influence on health-related behavior (Green & Ottoson, 1999). Persons of high educational attainment often enjoy the best health status and respond more readily to appeals from health professionals to modify their lifestyles related to smoking cessation, weight control, exercise, and nutrition (Lanz, House, Lepkowski, & Williams, 1998; U.S. Department of Health and Human Services, 2000). In contrast, persons of low educational level suffer poorer health, greater social isolation, more job stress, less access to health care, and the tendency to neglect self-care practices, all of which serve to erode one's resilience to the effects of stressors (Green & Ottoson, 1999; Moyerman & Forman, 1992).

Gender has been shown to be a significant predictor of global or overall stress and illness, with women reporting greater stress levels and illness symptoms than men (Denton, Prus, & Walters, 2004; Sandanger, Nygård, Sørensen, & Moum, 2004). Differences in social experiences and conditions relating to family structure, SES, and recent life events have been theorized as reasons for such disparities (Denton et al., 2004). In addition, stressful life events have been more strongly associated with mental disorders in women, suggesting their greater susceptibility to the effects of stress compared with men (Argyle, 1987; Sandanger et al., 2004).

Given the importance of gender in the experience of stress and illness, the purpose of this study was to examine the protective nature of factors contributing to the stress resilience of Mexican American women. Specifically, the influence of acculturation, age, health level, marital status, physical activity involvement, and education were determined through the identification of factors that distinguished between those women who were resilient to the harmful effects of stress and those who were not.

## Method

### Participants

The study sample was drawn from the lower Rio Grande valley region of south Texas. The lower Rio Grande valley lies in the easternmost area of the U.S.-Mexican border, with almost 90% of its population being of Mexican ancestry (U.S. Census Bureau, 2005). Participants were the parents and adult relatives of students enrolled in four border-serving elementary schools from two valley school districts, of which Mexican Americans constituted 95.4% of the districts' total student body. A self-report questionnaire instrument was distributed to all students in three randomly selected fourth grade and fifth grade classes in each of the four schools, with students given two questionnaires each and asked to present them to parents and/or adult family members in the household and then return them within 3 days. Students were informed that their parents' or relatives' participation was voluntary, and the study's purpose and voluntary nature were also described on the instrument. All necessary human subjects research stipulations were observed and followed to protect the confidentiality and rights of the respondents, and approval for the study was granted by the appropriate university institutional review board. As an incentive for participating, students were given a local vendor voucher for a fat-free frozen dessert for each returned respondent-completed questionnaire. This incentive-by-extension procedure (i.e., the adult's incentive to participate is seeing the child rewarded) is an accepted method of increasing response rates and the adequacy of data (Neutins & Rubinson, 2002).

### Instrument

Each item on the survey instrument used to collect the data was dually printed in both English and Spanish to accommodate non-English-speaking participants, with items translated into Spanish and back-translated to ensure accuracy, clarification, and content preservation. All instrument scale and item translations were performed by a trained Mexican linguist, with an MA in Spanish, experienced in dealing with psychosocial research measures. Age, gender, ethnicity, and marital status were obtained through single-item indices, and stress resilience, acculturation, activity level, health status, and education were assessed as follows.

*Stress resilience.* Susceptibility to the harmful effects of stress was measured through Edlin, Golanty, and Brown's (2000) adoption of Miller and Smith's (1985) stress vulnerability scale. This scale assesses respondents' relative vulnerability to stress through 20 stress-protecting items making up the moderator variable. A psychometric assessment of the scale was conducted by Peterson (1989). Participants were asked to rate, on a 5-point, Likert-type scale ranging from *never* to *almost always*, each item (e.g., "I have at least one relative within 50 miles on whom I can rely," "I feel strengthened by my religious beliefs," "I am able to speak openly about my feelings when angry or worried") according to how it applied to them. The scale's theoretical range is 20 to 100, with a higher score indicating greater resilience to the effects of stress.

*Acculturation.* English-language use, which measures functional integration into the U.S. mainstream, is recognized as one of the most powerful indicators of acculturation (Betancourt & Lopez, 1993). Accordingly, participants' acculturative status was determined through Marin, Sobagal, Vanoss Marin, Otero-Sabogal, and Perez-Stable's (1987) language-use acculturation scale. This scale, developed specifically for Hispanics, has correlated highly with the acculturation criteria of a respondent's generation ( $r = .69$ ), length of residence in the United States ( $r = 0.76$ ), and age at arrival ( $r = -.72$ ) (Marin & Vanoss Marin, 1991). The scale consists of four statements: (a) "In general, what language do you read and speak?" (b) "What language do you usually speak at home?" (c) "In which language do you think?" and (d) "What language do you usually speak with your friends?" Each statement is rated on a 5-point scale: *Spanish only*, *Spanish better than English*, *both equally*, *English better than Spanish*, and *English only*. The instrument's theoretical range is 4 to 20, with a higher score indicating greater acculturation. The scale's internal consistency for the present study was .97.

*Present activity level.* Current physical activity level was assessed by the participant's response to the statement "The number of times a week I participate in at least 10 minutes of moderate to vigorous leisure-time physical activity which causes an increase in breathing or heart rate is . . . ." Possible responses ranged from *none* to *5 or more times*. This outcome measure was based on the National Center for Health Statistics (2007) method of appraising and reporting leisure-time physical activity among adults according to one's number of weekly 10-minute moderate- to vigorous-activity sessions causing large increases in breathing or heart

rate. To help clarify this item, activity types based on the Compendium of Physical Activities metabolic equivalent values were listed on the instrument (Ainsworth et al., 2000). Examples given as moderate activities included bowling, dancing, golf, yoga, walking at a moderate or vigorous pace, softball, and lifting weights. Vigorous-activity examples included aerobics, jogging or running, basketball, tennis, soccer, riding a stationary bicycle or bicycling outside, swimming, and roller-skating or inline skating.

*Health status.* Perceived health status was measured by the question "In general, what is your overall health?" Possible responses (*excellent, very good, good, fair, poor*) were scored on a scale ranging from 5 to 1. For the purposes of psychosocial research, this subjective evaluation has been demonstrated to be a valid indicator of wellness regardless of ethnicity (Idler & Benyamini, 1997; McGee, Liao, Cao, & Cooper, 1999).

*Educational level.* Educational attainment was based on responses to the question "How much education have you had?" Possible response categories were *8th grade or less, some high school, high school or trade school graduate, some college, and college graduate or higher*.

## Data Analysis

Two-group discriminant analysis using the Mahalanobis  $D^2$  stepwise regression method was used to determine which of the investigated variables made the greatest contribution in distinguishing between Mexican American women who were resilient to the effects of stress and those who were not (Hair, Anderson, Tatham, & Black, 1998). To identify factors acting as stress buffers, the polar extremes approach, which divides participants into three approximate tertile groups with only the two extreme groups (upper and lower) used in the analysis, was applied to stress vulnerability scale scores to place participants into stress-vulnerable and stress-resistant categories (Hair et al., 1998). Respondents with scores of 60 or lower were placed in the vulnerable group, and those with scores of 75 or greater were placed in the resistant group. Pearson's correlation coefficients were computed to ascertain degrees of association between variables, and descriptive statistics were determined for all variables. All data analyses were conducted using SPSS 15.0.

## Results

A total of 687 instruments were distributed, and 594 were returned. The deletion of erroneously marked instruments yielded 505 usable tests; of these, 418 respondents identified themselves as female and Mexican American, thus constituting the study sample. Participants ranged in age from 20 to 61 years with, a mean age of 37.5 years. Participants' stress resilience scale mean score was 68.5 ( $SD = 14.99$ , range = 29 to 95). The majority of respondents, 70.8%, reported themselves as currently married. Acculturative status was moderate, with the sample's mean acculturation score being 10.8 on a scale ranging from 4 to 20. Present physical activity level was low, with 18.2% indicating no weekly leisure-time participation and 44.5% reporting only one or two 10-minute activity sessions per week. Self-reported health status indicated that the participants perceived themselves as relatively healthy, with 54.8% reporting their overall health as very good or excellent. The sample's educational attainment level was low: 45.2% did not graduate from either high school or trade school, 26.1% were high school or trade school graduates, and 28.7% reported some college-level work or higher. Table 1 presents a descriptive profile of the participants.

Correlation coefficients between stress resilience level and investigated variables revealed that positive relationships existed with acculturation ( $r = .217$ ,  $p < .01$ ), marriage ( $r = .118$ ,  $p < .05$ ), health status ( $r = .192$ ,  $p < .01$ ), and education ( $r = .254$ ,  $p < .01$ ). The reason for these relatively modest correlations was the large sample size, which tends to overpower the test (Hair et al., 1998). Regardless, they indicate that greater stress resilience was associated with being more acculturated, married, healthier, and more educated.

Grouping participants into stress-vulnerable (scores of 60 or lower) and stress-resistant (scores of 75 or higher) categories yielded 134 vulnerable and 151 resistant respondents. Because of tied scores, the number of participants in the lower and upper tertiles were not equal. A discriminant function model was generated to determine what variable differences existed between the vulnerable and resistant groups. The discriminant analysis produced a statistically significant Wilks's lambda of .85 ( $\alpha = .001$ ), indicating a difference between groups. Additionally, the discriminant function was evaluated for predictive accuracy by means of a classification "hit" matrix. Cross-validation "leave-one-out" classification analysis produced a 64% hit ratio, exceeding the 62% hit ratio classification necessary to be at least one fourth greater than that achieved by chance (Hair et al., 1998). Therefore, the function discriminated between the lower and upper groups in both statistical and practical significance.



**Table 1**  
**Description of the Sample (*n* = 418)**

Variable	<i>n</i>	%
Marital status		
Married now	296	70.8
Never married	65	15.5
Divorced/separated	49	11.7
Widowed	8	2.0
Weekly activity sessions		
None	77	18.4
One	76	18.2
Two	110	26.3
Three	79	18.9
Four	30	7.2
Five or more	46	11.0
Self-rated health		
Excellent	109	26.1
Very good	120	28.7
Good	157	37.6
Fair	28	6.7
Poor	4	.9
Educational level		
8th grade or less	105	25.1
Some high school	84	20.1
High school or trade school graduate	109	26.1
Some college	81	19.4
College graduate or higher	39	9.3

The discriminant analysis retained education, acculturation, health, and marriage as the only statistically significant discriminators of membership in the stress-vulnerable and stress-resistant groups (Table 2). In other words, among the Mexican American women studied, educational attainment, perceived health, and being married differentiated between those who were more resilient to the harmful effects of stress and those who were not.

## Discussion

In this study, we used descriptive discriminant analysis to distinguish individuals who were more stress resilient in a sample of border-area Mexican American women. The results indicated that educational attainment, acculturative level, health status, and being married differentiated

**Table 2**  
**Discriminant Function Structure Matrix**

Variable	Function Loading
Educational attainment	.648**
Acculturative status	.563**
Perceived health	.446*
Married	.423*
Age	-.079
Activity level	.001

\* $p < .05$ . \*\* $p < .01$ .

between those who were resilient and those vulnerable to stressors, but age and physical activity involvement showed no discriminating value between the two groups.

The protective function of greater education in the experience of stress has been upheld in previous research. SES, with education as its most powerful correlate, influences lifestyle, which in turn governs environmental hazards, occupation, and habits that affect stress exposure (Green & Ottoson, 1999). Higher SES Mexican Americans report more efficient coping styles due to their support network members and reciprocal helping (Griffith & Villavicencio, 1985). Conversely, persons of low SES have the most job stress and the greatest amount of social isolation (Karren et al., 2006). It appears that among the Mexican American women studied, educational attainment or its lack affects one's sense of efficacy experienced in summoning an appropriate response to stress.

The degree of acculturation observed among this sample was relatively moderate; however, the findings demonstrate that higher acculturation has a significant impact on buffering the negative effects of stress. Acculturative stress occurs when individuals experience problems arising from the acculturation process (Williams & Berry, 1991).

Acculturating persons, while trying to maintain ethnic identity, must contend with issues of language, cultural characteristics, legal status, and interpersonal beliefs, all of which can contribute to psychological distress (Cervantes, Salgado de Snyder, & Padilla, 1989; Finch et al., 2000; Finch & Vega, 2003; Gil, Vega, & Dimas, 1994; Romero & Roberts, 2003). Our findings that education and acculturation serve as important stress moderators among female Mexican Americans are supported by investigations indicating that persons of higher SES, achieved in part by greater educational attainment, encounter less

conflict and appear to be able to more effectively deal with the effects of acculturative stress as they acculturate (Crockett et al., 2007; Moyerman & Forman, 1992). In fact, Franzini, Ribble, and Keddie (2002) viewed education as the vehicle by which the acculturation process often takes place.

The results indicating that healthier women are less vulnerable to the effects of stressors are consistent with those reported in the general population. Of interest, however, is our study sample's relatively high health status despite overall modest educational and acculturative levels. Language acquisition leads to higher SES through higher paying jobs; in this way, acculturation helps promote good health. Yet there is evidence that greater acculturation leads to health-risking behaviors, such as alcohol and substance abuse and poor dietary practices (Acevedo, 2000; Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005; Markides & Coreil, 1986). The reason for this paradox, that less acculturated and lower SES Mexican American women have more desirable health outcomes, is unclear. Negy and Woods (1992) suggested that some of this apparent inconsistency may be due to a lack of study controls for important SES and health care-related factors and to a lack of multidimensional, consistent measures of acculturation.

The protective nature of marriage on the sample's resilience to the effects of stress is in keeping with that observed nationally. Because of a strong family and group orientation culture, being married may provide a critical social support coping mechanism for Mexican American women. Married Hispanic women have greater propensity for social interaction and involvement, and being married acts as a buffer to deleterious health behaviors and social stressors (Clark & Hofess, 1998; Kaniasty & Norris, 2000). Results suggest that for female Mexican Americans, marriage presents a form of immediate social support; thus, those with supportive spouses are more likely to respond favorably to stressful incidents in their lives.

*Hardiness* is a term used to describe individuals who perceive fewer situations as stressful and whose reactions to stressors tend to be less intense, therefore helping them resist stress-related illnesses. Kobasa (1979) wrote that resilient persons have psychological hardiness, that they view potential stressors as challenges and opportunities for growth and learning rather than burdens. The promotion of a more stress-resistant personality among Mexican American women appears to be the result of a complex interaction of acculturation and education affecting health status. This phenomenon, coupled with the importance of marriage as a means of social support, produces a degree of protection against stress. Although previously cited research indicates that some protective aspects of Mexican culture may be

lost with greater acculturation (i.e. worsening health behaviors), its effects on dealing with stress seem to be enhanced. Concomitantly, the high value placed on social support and its role in reduced stress vulnerability seem to be maintained during the acculturative process. Kasirye et al. (2005) reported that more acculturated female Mexican Americans perceive their lives to be more stressful, but our study indicates that acculturation produces greater resilience to those stressors. Certainly the net effect of acculturation on the experience of stress among Mexican American women warrants further investigation.

Although the present study adds to the stress resilience research in an important Mexican American population group, several limitations exist. First, the participants were a convenience sample of Mexican American women in a Texas border area, so the generalizability of our results may be limited in the context of geographic and demographic characteristics. Second, the data were gathered through the use of a self-report instrument, and this approach may not take into account respondents' perhaps incorrect interpretations of items. Also, even though each returned instrument was scrutinized by age, completeness, and reasonableness of responses to ascertain that it was completed by an adult, there remains the possibility that some may have been completed by persons other than those constituting the intended study sample. Finally, only the language-use dimension was used to assess acculturation; future investigations including the dimensions of country of origin, age at arrival, and length of residence in the United States could help more adequately explain the complexity of this construct.

Despite these limitations, this study adds to the stress resilience literature in an underreported and rapidly growing population group. The results provide evidence that education, marriage, better health, and acculturation provide Mexican American women with protection against the harmful effects of stress and thus, theoretically, stress-related illnesses. Given the health benefits attendant to one's being more resilient to the experience of stress, information of this nature could serve as a point of departure in the development of intervention efforts designed to enhance the emotional adjustment and overall well-being of an underserved ethnic minority.

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