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Gender Differences in Anxiety and Depression Among Immigrant Latinos

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This study determines elements of a social history that could assist primary care providers in identifying and treating anxiety and depression among immigrant Mexicans. Cross-sectional data were obtained through interviewer-administered survey questionnaires from immigrant Latinos in the United States fewer than 5 years (N = 150). Interviews were conducted by native Spanish-speakers in community settings. Mental health was measured with the Center for Epidemiologic Studies-Depression Scale (CES-D) and the Personality Assessment Inventory (PAI). Mental health in this sample was poor with nearly 40% indicating levels of anxiety and depression that may impair functioning. Social marginalization was associated with higher depression symptoms in men, and separation from family stress was associated with more depressive symptoms among women. When caring for immigrant Latinos, questions about social isolation and separation from family may provide insight into stress and its contribution to clinically significant anxiety and depression. These characteristics should also be considered when offering a treatment plan for anxiety and depression.

Keywords: social history, immigrant mental health, gender differences, psychosocial stressors, Latino

Primary care physicians caring for immigrant Latinos need to be prepared to recognize and treat mental health problems. Approximately one in three Latinos has a lifetime history of mental disorder, and 19% experienced an episode of mental disorder in the past twelve months (Vega et al., 1998; Vega, Sribney, Aguilar-Gaxiola, & Kolody, 2004). Lifetime and 12-month prevalence of mental disorder increases incrementally with additional time spent in the United States. For example, whereas 9.2% of Latinos who have been in the United States less than 13 years experienced an episode of mental illness in the

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past 12 months, 18.4% of Latinos in the United States longer than 13 years, and 27.4% of United States born Latinos had a 12-month history of mental disorder (Vega et al., 2004). The collective evidence suggests that the prevalence of mental disorder among recent immigrants is similar to the prevalence in their homeland, but increases with additional time in the United States (Escobar, Hoyos Nervi, & Gara, 2000; Escobar & Vega, 2000). Latinos, particularly immigrant Latinos, are unlikely to use mental health services, but rather seek care from general practitioners and the public health clinic system (Vega, Kolody, Aguilar-Gaxiola, & Catalano, 1999).

Mental health among immigrant Latinos must be viewed in a biopsychosocial perspective. In addition to the pathophysiology of depression, social hardship can contribute to poor mental health. Immigrant Latinos are disproportionately employed in physically demanding jobs and in industries where there is substantial potential for injury (Pranksy et al., 2002; Shipp, Cooper, Burau, & Bolin, 2005; Bonauto, Keifer, Rivara, & Alexander, 2003; Elkind, Pitts, & Ybarra, 2002). Earnings for immigrants are low (Welniak, 1988; Welniak & Wilnard, 1986; Denavis, 1988; Davila, Pagan, & Viladrich Grau, 1998), and income is frequently sent to support families left in Mexico (Chavez, 1992; Grey & Woodrick, 2002; Mehta, Gabbard, & Barrat, 2000). Securing employment, economic hardship, and job demands are major stressors that have been found to contribute to mental illness among Latinos (Finch, Catalano, Novaco, & Vega, 2003). Immigration is also psychologically stressful and contributes to mental health problems (Escobar, Hoyos Nervi, & Gara, 2000; Shuval, 1993; Hovey & King, 1997). Separation from family creates feelings of isolation and loss of social support which has been associated with poor mental health (Grzywacz et al., 2006; Magaña & Hovey, 2003). This evidence suggests that information that could be obtained through a standard social history could provide diagnostic and treatment insight for primary care clinicians.

In pursuit of the U.S. goal to promote high quality mental health care, a new line of research suggests that clinician-patient interactions in the context of everyday practice may be an important component in recognizing depression (Baik, Bowers, Oakley, & Susman, 2005; Stange et al., 1998; Agency for Healthcare Research and Quality: Research Activities, 2002; Susman, Crabtree, & Essink, 1995; Miller, McDaniel, Crabtree, & Stange, 2001; Robinson, Prest, Susman, Rouse, & Crabtree, 2001; Carney, Eliassen, Wolford, Badger, & Dietrich, 1999; Levinson, Gorawara-Bhat, & Lamb, 2000; Robinson & Roter, 1999; Meredith, Orlando, Humphrey, Camp, & Shelbourne, 2001). Clinicians' abilities to engage in sorting through symptoms and arriving at a diagnosis through ruling out, opening the door or allowing the patient to talk about what was bothersome, and recognizing the person are influenced by familiarity with the patient, clinical experience, and time availability (Baik et al., 2005). Understanding the social circumstances and psychological states that accompany mental disorder can help primary care physicians identify poor mental health. Additionally, being aware of these social circumstances and psychological states is essential in considering and facilitating treatment. Pincus, Hough, Knox-Houtsinger, Rollman, and Frank (2003) argue that to achieve maximum benefit of managing depression, health care providers need to consider barriers and interventions at each of six levels: the patient, the provider, the practice, the health plan, the purchaser, and the population (deGruy, 2005). Patient outcomes improve significantly when depression recognition and management programs are integrated into usual care (Agency for Healthcare Research and Quality, 2002).

The goal of this study is to determine elements of a social history that could assist primary care providers in identifying and treating anxiety and depression among immigrant Mexicans. This goal is achieved

by accomplishing three specific aims: (1) describing the prevalence of clinically significant depressive and anxiety symptomatology among immigrant Mexicans; (2) delineating the social and psychological stressors associated with elevated anxiety and depression symptoms; and (3) identifying if associations among stressors and mental health differ by gender. We study this in a region of the country where little research exists on the mental health of immigrants and where the growth of immigrants is substantial. North Carolina's Latino population is new and has expanded rapidly from 76,745 in 1990 to 378,963 in 2000 (Guzman & McConnell, 2002). This expansion was largely foreign-born Latinos. Estimates from the 2000 Census indicate that less than half the Latinos in the United States (40%) and in California (44%) and Texas (32%) are foreign-born, compared to 61% in North Carolina as a whole and 59% in the study counties. Foreign-born Latino residents in North Carolina appear to be less acculturated than those residing elsewhere.

METHOD

Data

These data were from a study designed to explore the stressors that accompany immigration from Mexico to the rural Southeast and the effect of these stressors on immigrants' mental health. Structured face-to-face survey interviews were conducted with 150 immigrants (82 men and 68 women) from Mexico who had been in the United States for fewer than five years. A site-based sampling plan, a strategy recommended for studies focused on "hard-to-reach" populations (Faugier & Sargeant, 1997; Muhib et al., 2001), was used to identify a sample that was representative although not statistically random (Arcury & Quandt, 1999). "Sites" are places, organizations, or services used by the population of interest, such as churches, trailer parks, tiendas (stores), or health care facilities. With the assistance of cooperating community-based organizations, an extensive and diverse list of "sites" across three contiguous counties in western North Carolina was compiled. A rough estimate of the site composition (e.g., gender, duration of time in North Carolina) and number of residents was made, and the number of persons to be recruited per site was designated. Trained interviewers then visited each site to recruit and interview participants in the summer of 2002. The study design called for recruitment to fill six cells of approximately equal numbers, defined by gender (male and female) and three discrete timeframes since migration (less than 1 year, 1 to less than 3 years, and 3–5 years). All interview items were translated into Spanish, and the interviews were completed in Spanish. Recruitment and data collection procedures were approved by an Institutional Review Board.

The resulting sample included 82 men (55%) and 68 women (45%). They were born in 26 of the 31 Mexican states (including the Federal District). The highest percentage (18%) were born in Michoacán, followed by Querétaro (14%). They ranged in age from 18–56 years, with a mean of 29.6 (SD = 8.1) years. Sixty-three percent were 30 years of age or less, 18% ages 31–40 years, and 19% ages 41 years and older. Sixty-seven percent were married or living as married; 31% were single. Formal educational attainment ranged from no formal schooling through college graduate. Thirty-two percent reported completing Mexican primary school, 38% secondary, and 19% preparatory.

Measures

Dependent Variables

Mental health was operationalized with two variables. Anxiety was assessed with the Personality Assessment Inventory (PAI; Morey, 1991). The PAI consists of 24 items measuring cognitive (e.g., "I often have trouble concentrating because I'm

nervous."), affective (e.g., "Sometimes I am afraid for no reason."), and physical anxiety (e.g., "I often feel jittery."). Response categories for each item ranged from 0 (*false, not at all true*) to 3 (*very true*). Items were summed, with higher values indicating greater anxiety. Raw values were then transformed into T-scores to provide interpretation relative to a standard sample of community-dwelling adults. The construct validity of the PAI among Mexican and Mexican-American samples has been established (Morey, 1991; Fantoni-Salvador & Rogers, 1997; Hovey & Magaña, 2000; Rogers, Flores, Ustad, & Sewell, 1995), and the estimated internal consistency (i.e., Cronbach's alpha) in the current sample was .87.

Depressive symptoms were assessed with the Center for Epidemiological Studies-Depression scale (CES-D; Radloff, 1997). The CES-D is a widely used instrument, with previous studies demonstrating adequate internal consistency (.81–.90) and construct validity (.80) in Mexican and Mexican-American samples (Hovey & Magaña, 2000; Golding & Aneshensel, 1989; Golding, Aneshensel, & Hough, 1991; Hovey, 2000). The 20 items of the CES-D are summed, with higher values indicating greater depressive symptoms. Most important for this study, the CES-D minimizes the use of somatic symptoms to assess depression, and it relies on short statements that can be administered orally in this low literacy population. The Cronbach's alpha in the current sample was .84.

Independent Variables

Independent variables were created to evaluate both structural and social stressors. Variables reflecting four structural stressors were created, including: 1) currently employed (yes = 1, no = 0), 2) hours worked/week, 3) economic hardship assessed with a single question asking "How well does the amount of money you have take care of your needs" [1 (*very well*) to 4 (*poorly*)], and 4) experience meets expectations. Experience meets expectations was operationalized by summing three items assessing the degree to which participants' expectations of life in the United States corresponded with their actual experiences. Participants were asked to indicate how much they agreed with each of the following statements: 1) "I am making as much money as I expected to make"; 2) "Finding a job was as easy as I expected"; and 3) "I can send as much money home as I planned to send." The response categories for each item ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). The estimated internal consistency of these items was .74.

Variables reflecting three social stressors were created. Perceived isolation was created by calculating the mean of three items, such as "There is no one to talk to about how I am feeling" nested in Personal Relationships Questionnaire (Weintert, 1987). The response categories for the isolation items were 1 (*strongly disagree*) to 7 (*strongly agree*) (Cronbach's alpha = .62). A social marginalization measure was created by calculating the mean of eight items such as "Because of my ethnic background, I feel that others often exclude me from participating in their activities" nested in an acculturative stress scale (Mena, Padilla, & Maldonado, 1987). The response categories were 0 (*not at all experienced*) to 5 (*extremely stressful*) (Cronbach's alpha = .82). Separation from family stress was operationalized by calculating the mean of two items that were also nested in an acculturative stress scale (Mena et al., 1987). The items were: 1) "It bothers me that I cannot be with my family" and 2) "I feel guilty because I have left family and friends in my home country." The response categories for these items were the same as those for the social marginalization items (r = .46; estimated Cronbach's alpha was .61).

Analyses

Descriptive statistics were computed for all analysis variables. Tests of gender dif-

ferences in all variables were undertaken because mental health and stressors believed to undermine mental health frequently differ by gender (Holman, Silver, & Waitzkin, 2000; Cuellar, Bastida, & Braccio, 2004; Masi, Rickett, Hawkley, & Cacioppo, 2004; Turner & Avison, 2003) Ordinary least squares regression models for each outcome were fit in a two step fashion. First, all of the stressor variables were simultaneously entered in the model specification to evaluate the association between stressors and mental health. Second, Gender × Stressor multiplicative interaction terms were created and entered into each equation to determine if the effect of stressors on depressive symptoms and level of anxiety differed by gender. Prior to constructing the interaction terms, each of the stressor terms was centered on the sample mean to minimize multicollinearity and resulting problems of inefficient parameter estimation (Aiken & West, 1991; Jaccard, Turrisi, & Wan, 1990). The threshold for Type I error was relaxed to a p-value of .10 because these analyses were based on pilot data.

RESULTS

Mental health in this sample of immigrant Latinos was poor (Table 1). On average, respondents scored 59.22 (SD = 11.50) and 18.28 (SD = 9.90) on the PAI and the CES-D assessing anxiety and depression, respectively. Approximately 39% of participants met caseness for significant anxiety or a level of anxiety that may impair functioning, which is defined as a score of 60 or more on the PAI (Morey, 1991), and nearly 40% of participants met caseness for potentially significant depressive symptomatology which is defined as having scores of 16 or higher on the CES-D (Weissman, Sholomaskas, Pottenger, Prusoff, & Locke, 1977). There were no differences between women and men in terms of anxiety or depression symptoms, or in potential caseness for mental disorder.

Table 1
Descriptive Statistics for All Analysis Variables by Gender

Variables	Total sample (n = 150)		Men (n = 82)	Women (n = 68)	Gender difference
	M or % (SD)	Range	M or % (SD)	M or % (SD)	
Outcomes					
Anxiety scores	59.23 (11.50)	37–98	59.40 (11.78)	59.01 (11.22)	*n.s.*
Depressive symptoms	18.29 (9.90)	0–50	17.88 (9.65)	18.77 (10.24)	*n.s.*
Independent variables					
Time in the United States					*n.s.*
Less than 1 year	32.0%		34.1%	29.4%	
1–3 years	29.3%		29.3%	29.4%	
3–5 years	38.7%		36.6%	41.2%	
Currently employed (1 = yes)	71.0%		92.7%	45.6%	***
Hours worked/week	38.31 (7.93)	8–65	40.18 (6.29)	33.57 (9.63)	***
Spouse in Mexico	22.7%		36.6%	5.9%	***
Acculturation	0.87 (0.19)	.14–1.0	0.85 (0.18)	0.89 (0.20)	*n.s.*
Economic hardship	3.10 (1.03)	1–4	2.96 (1.08)	3.27 (0.96)	†
Experience meets expectations	6.35 (2.19)	3–12	6.82 (2.05)	5.78 (2.23)	**
Perceived isolation	4.06 (1.55)	1–7	4.34 (1.41)	3.73 (1.65)	*
Social marginalization	1.76 (1.08)	0–5	1.96 (1.08)	1.52 (1.04)	**
Separation from family stress	3.03 (1.41)	0–5	3.21 (1.32)	2.79 (1.50)	†

Note. Gender differences for continuous/ordinal and categorical items were assessed with t tests and chi-square, respectively. n.s. = not significant.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

Several of the social and structural stressors differed between women and men. A greater proportion of men than women were currently working, and among employed respondents, men worked more hours per week than women. Whereas over one third of men reported leaving their spouse in Mexico, fewer than 6% of women left a spouse behind. Women's reports of experiences in the United States matched their expectations less than men's; otherwise, men scored higher than women on perceived isolation, social marginalization, and separation from family stress. Consistent with our sample design, the sample was evenly divided in terms of the amount of time in the United States and in the level of acculturation as indicated by summary scores of language preference.

Greater structural and social stressors were associated with higher anxiety scores (Table 2, Model 1). Average anxiety symptoms were nearly 14 points lower among those who were employed in contrast to the unemployed. However, among the employed, anxiety scores increased as the average number of hours worked per week increased. Two of the three social stressors—i.e., perceived isolation and separation from family—were associated with greater anxiety scores. However, evaluation of the multiplicative Gender × Stressor variables indicated that the association of these variables with anxiety differed between women and men. Simple slopes analyses revealed that greater social marginalization was associated with higher anxiety scores among men ($b = 4.58$; $p < .001$), but was not significantly associated with anxiety among women ($b = -0.2$; $p = .99$).

A similar pattern of results is seen for depressive symptoms (Table 2, Model 2). Current employment may reduce average depressive symptoms by over seven points. Greater feelings of marginalization were associated with higher depressive symptoms; however, again, inclusion of the interaction terms suggested that associations between stressors and depressive symptoms differed by gender. Simple slopes analyses indicated that greater social marginalization was associated with higher depressive symptoms among men ($b = 3.96$; $p < .001$) but was not associated with depression among women ($b = 1.72$; $p = .24$). By contrast, simple slopes analyses revealed that greater separation from family stress was associated with more depressive

Table 2
Ordinary Least Squares Estimates of the Associations of Structural and Social Stressors With Anxiety Scores and Depressive Symptoms Immigrants From Mexico

Variable	Model 1 Anxiety score *b* (*SE*)	Model 2 Depression symptoms *b* (*SE*)
Structural stressors		
Currently employed (yes = 1)	−13.99** (4.80)	−7.33† (4.25)
Hours worked/week	0.40** (0.12)	0.17 (0.11)
Economic hardship	−0.45 (0.85)	−0.47 (0.75)
Experience meets expectations	−0.65 (0.43)	−0.21 (0.38)
Social stressors		
Perceived isolation	0.93 (0.59)	0.72 (0.52)
Social marginalization	4.32***‡ (1.13)	4.29***¶ (1.04)
Separation from family stress	1.67** (0.67)	−0.13¶ (0.84)
Constant	51.49*** (4.78)	9.29* (4.22)
Adjusted R^2	27.1%	22.7%

Note. Models control for length of time in the United States, gender, marital status and whether an individual's spouse was in Mexico, and language preference.
¶ and ‡ signify gender differences at $p < .05$ and $p < .01$, respectively.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

symptoms among women ($b = 1.81$; $p < .10$), but that this social stressor was not associated with depression among men ($b = .06$; $p = .94$).

DISCUSSION

The goal of this study is to determine elements of a social history that could assist primary care providers in identifying anxiety and depression among immigrant Mexicans. First, nearly 40% of our sample indicated a level of anxiety and a level of depression that may impair functioning, and therefore have clinical significance. The social and psychological stressors confronted by immigrants contribute to elevated depressive and anxiety symptoms; however, the effect of these stressors differ by gender. Social marginalization, or the feeling of being excluded because of one's ethnic background, is associated with higher anxiety and depression symptoms among men. A second predictive stressor is separation from family. Although not as significant in men, stress from separation from family was associated with elevated anxiety and depression symptoms among immigrant women. The results of this study are consistent with previous research suggesting that immigrant women's mental health may be more heavily influenced by family-related factors while men's mental health may be more heavily influenced by employment and earnings-related experiences (Hovey & Magaña, 2000; Magaña & Hovey, 2003.).

The implications of this study are twofold. First, when working with an immigrant population, questions related to separation from family (e.g., "How do you feel about leaving your family in your home country?" or "Does it bother you that you cannot be with your family?"), particularly for women, and social marginalization (e.g., "Do you feel excluded from activities because you are from Mexico?"), particularly for men, could be woven into the social history. Although health care providers have diagnostic criteria for anxiety and depression, these areas of questioning may facilitate the processes used to sort through symptoms and arrive at a diagnosis (ruling out, allowing the patient to talk, and recognizing the person all of which are influenced by familiarity with the patient, clinical experience, and time availability) (Baik et al., 2005). Second, as clinicians recognize mental health problems in the population, they need to recognize barriers to prescribed treatment regimens. Individuals working excessive hours per week may have a difficult time adhering to prescription medications; individuals who are isolated from family or have weak social networks may need different treatment options (education, psychotherapy, pharmacologic) than individuals who are accompanied by family members.

The results of this study need to be considered in the context of their limitations. First, causal inferences cannot be made from the cross-sectional data. It is quite possible that individuals with heightened levels of anxiety and depression may have responded differently to questions about isolation and separation from family. Second, the results of this study have limited generalizability because the sample was small and not randomly selected. One casualty of the small sample is that the estimates of association between stressors and mental health in the regression equations have large standard errors. Consequently the estimates may be unreliable, and they should be interpreted as preliminary.

Limitations not withstanding, the results of this study contribute to the literature in several ways. This study further documents the poor mental health in a cross-sectional nonrandomized selected Latino immigrant group. Consistent with prior studies (Hovey, 2000; Vega et al., 1998, 2004), mental health declines as the amount of time spent in the United States increases, eventually adopting the prevalence rate of the United States. We found no differences between men and women in terms of anxiety or depression, and there is

a precedent to this finding in the literature (Alderete, Vega, Kolody, & Aguilar-Gaxiola, 1999; Vega, Warheit, & Palacio, 1985). However, several social and structural stressors differed among men and women. Social marginalization, acculturative stress, or feeling excluded because of one's ethnic background contributes to anxiety and depression in men. Women are affected more so by separation from family and results in depressive symptomatology. These elements of the social history can contribute to a more efficient clinical encounter when working with immigrants, contributing to diagnosis, treatment, and high quality mental health care.

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