

Acculturative Stress, Anxiety, and Depression among Mexican Immigrant Farmworkers in the Midwest United States

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No previous studies have examined the psychological functioning of immigrant farmworkers in the midwest United States. The purposes of the present study were threefold: (1) to assess the prevalence levels of anxiety and depression in a sample of Mexican immigrant farmworkers in the midwest United States; (2) to explore the relationships among acculturative stress, anxiety, and depression; and (3) to examine the variables that best predict anxiety and depression. The overall sample revealed elevated levels of anxiety and depression. Immigrant farmworkers with heightened levels of acculturative stress reported high levels of anxiety and depression. Family dysfunction, ineffective social support, low self-esteem, lack of choice in the decision to immigrate and live a migrant farmworker lifestyle, high education levels, and low levels of religiosity were significantly associated with high levels of anxiety and depression. The overall findings suggest that Mexican immigrant farmworkers who experience elevated levels of acculturative stress may be "at risk" for experiencing high levels of anxiety and depression. The findings highlight the importance of establishing prevention and treatment services for migrant farmworkers that aim to increase levels of emotional support, self-esteem, and coping skills.

KEY WORDS: migrant farmworker; acculturative stress; anxiety; depression; Mexican immigrants; Hispanic.

BACKGROUND

Immigrants may encounter many stressors during the process of acculturating to a new country (1–2). For example, immigrants may experience the breaking of ties to family and friends in their country of origin, thus resulting in feelings of loss and a reduction in coping resources. Immigrants may also experience factors that are specific to the new environment. These include discrimination, language inadequacy, the lack of social and financial resources, stress and frustration associated with unemployment and/or low income, feelings of not belonging in the host

society, and a sense of anxious disorientation in response to the unfamiliar environment. Immigrants may furthermore feel pulled between the influence of traditional norms, values, and customs and the values, norms, and experiences in the new culture (e.g., parent–child conflict due to the child's encountering of the new culture through school; role conflict due to a working mother).

Acculturative Stress Framework

The above types of experiences are encapsulated by the term *acculturative stress*, which refers to the stress that directly results from and has its source in the acculturative process (2). Hovey (3–4) and Hovey and King (5–6) presented a conceptual framework for studying acculturative stress among immigrants

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and its relationship to psychological functioning. These authors extended Berry's (2, 7-8) acculturative stress model to include possible *consequences* of elevated levels of acculturative stress, rather than focusing on predictors of acculturative stress as have other researchers (9-11). The revised framework has two components. First, it suggests that acculturating individuals experience varying levels of acculturative stress, and that high levels of acculturative stress may result in significant levels of anxiety and depression. In other words, the model suggests that individuals who experience high levels of acculturative stress may be at risk for the development of anxiety and depression. Second, the model identifies the cultural and psychological factors that may account for high versus low levels of anxiety and depression. These include social support found within the new community; support from immediate and extended family support networks; socioeconomic status (SES); pre-migration variables, such as adaptive functioning (self-esteem, coping ability), knowledge of the new language and culture, and control and choice in the decision to immigrate (voluntary vs. involuntary); cognitive attributes, such as expectations for the future (hopeful vs. nonhopeful); religiosity; and the nature of the larger society—that is, the degree of tolerance for and acceptance of cultural diversity within the new environment. These variables may serve as predictors of anxiety and depression. Acculturating individuals with positive expectations for the future and relatively high levels of social support may, for example, experience less depression than individuals without the same expectations and support.

Hovey used the above framework to guide past research that explored the psychological functioning of immigrants. For example, Hovey and King (5) explored the relationship among acculturative stress, depressive symptoms, and suicidal ideation in a sample of adolescent Mexican immigrants. They found that acculturative stress was positively associated with depression and suicidal ideation, and that acculturative stress, perceived family dysfunction, and nonhopeful "expectations for the future" were significant predictors of depression and suicidal ideation. Hovey (3-4) found the same positive relationship among acculturative stress, depression, and suicidal ideation in samples of adult Mexican and Central American immigrants. These latter two studies also found that family dysfunction, ineffective social support, low levels of religiosity, nonhopeful expectations for the future, lack of choice in the decision

to immigrate, and low levels of education and income significantly predicted high levels of depression and suicidal ideation. Hovey's overall findings suggest that those acculturating individuals experiencing elevated levels of acculturative stress are "at risk" for experiencing critical levels of psychological distress, and that buffering variables such as those above may help protect against distress during the acculturative process.

Characteristics of Migrant Farmworkers

There are approximately 1 million migrant farmworkers in the United States (12-13). Migrant farmworkers are individuals who annually migrate from one place to another to earn a living in agriculture. This is in contrast to seasonal farmworkers, who live in one location during the year. Migrant farmworkers generally live in the southern half of the United States during the winter and migrate north before the planting or harvesting seasons. Three migrant streams have been identified (12, 14). The West Coast stream is primarily composed of Mexican immigrants who return to Mexico or the southwest United States after the harvest season. The East Coast stream is primarily composed of Puerto Ricans and African-Americans who migrate from Florida. The Midwest stream is primarily composed of Mexican migrants who return to Mexico or Texas after the agricultural season.

Several authors (12-16) have noted the difficulties intrinsic to a migrant farmworker lifestyle. For example, migrant farmworkers are socially marginal. This situation is intensified by the physical isolation, discrimination, and limited opportunities experienced by migrants. Most migrant farmworkers earn less than \$6,000 per year, making them one of the most economically deprived groups in the United States. Farm labor is strenuous. Migrant workers are often subjected to dangerous working conditions, such as being sprayed with pesticides, and thus, not surprisingly, farm labor has the highest incidence of workplace fatalities in the United States. Child labor is common, and thus the average migrant worker has a sixth-grade education. Migrant workers typically find housing in labor camps provided by their employers. However, the housing and sanitation are often substandard. For example, one-room homes that lack water and toilet facilities are common, and drinking water and toilet facilities are often not readily available in the fields. Finally, although their health

conditions are among the worst in the United States (average life expectancy: 49 years), migrant farmworkers have very limited access to health care.

Given their difficult living conditions, migrant farmworkers may be at psychological risk, and thus susceptible to problems such as anxiety and depression. Very little research, however, has explored the mental health of migrant farmworkers in the United States.

Previous Research of Mental Health among Migrant Farmworkers

Vega *et al.* (17) examined psychological distress among 501 Mexican-American farmworkers in central California. They measured psychological distress with the Health Opinion Survey (HOS) (18), a measure of general psychopathology. They found that high levels of psychological distress were related to reduced health statuses and an occurrence of environmental stressors over the previous year. In addition, they found that middle-age individuals (40–59 years) reported elevated levels of psychological distress in comparison to other age groups. Vega *et al.* conjectured that middle age is an especially high-risk period for farmworkers because significant occupational and life hazards exist to progressively degrade farmworkers' health and functional capacities. According to Vega *et al.*, the severe lifestyle (e.g., high frequencies of environmental stressors, such as hazardous working conditions) experienced by Mexican-American farmworkers places them at extraordinary psychological risk.

Vega *et al.* (17) is the only study that has examined predictors of mental health among migrant farmworkers in the United States. However, their work was limited. In their analyses, Vega *et al.* did not separate migrant farmworkers from seasonal farmworkers. This distinction is important because a number of authors (12–14) have suggested that, due to their migratory and unstable lifestyle, migrant farmworkers are at greater risk for health problems than seasonal farmworkers. Second, Vega *et al.* did not directly measure stressors that are specific to the farmworker lifestyle. Level of environmental stress was based on one question. The participants were asked whether they experienced a stressful life event in the previous 12 months, such as the loss of a job, an accident, or the death of a family member or friend. Finally, as noted, Vega *et al.* examined psychological risk in a general fashion. Thus the data do not

reveal whether the farmworkers are at greater risk for anxiety or depression, for example.

Purpose of Present Study

The first purpose of the present study is to assess the prevalence levels of anxiety and depression in a sample of Mexican immigrant farmworkers in the midwest United States. Given the stressors associated with both immigration and migrant farmwork, it is expected that the sample will reveal elevated levels of anxiety and depression. The second purpose is to determine the relationships among acculturative stress, anxiety, and depression. It is expected that elevated levels of acculturative stress will be positively associated with high levels of anxiety and depression. The third purpose is to determine the best predictors of anxiety and depression. The predictor variables explored are acculturative stress, family functioning, social support, self-esteem, religiosity, control and choice in the decision to immigrate, control and choice in the decision to live as a migrant farmworker, education, and income.

METHOD

Participants and Procedure

Participants were 45 Mexican migrant farmworkers (20 females, 25 males) in the northwest Ohio/southeast Michigan area. The age of the sample ranged from 17 to 65 ($M = 33.53$, $SD = 11.03$). Twenty-four percent (24.4%) of the sample were aged 16–25 years; 33.3% were 26–35; 26.7% were 36–45; 13.3% were 46–55; and 2.2% were 56–65. All of the participants were first-generation individuals. The number of years living in the United States ranged from 1 to 35 years ($M = 11.71$, $SD = 8.87$). Thirty-three percent (33.3%) of the sample had lived in the United States for 1–5 years; 22.2% of the sample had lived in the United States for 6–10 years; and 44.5% of the sample had lived in the United States for more than 10 years.

Sixty-two percent (62.2%) of the participants were married; 24.5% were never married; 4.4% were separated or divorced; and 8.9% were in a common-law marriage or living together. Eighty-two percent (82.2%) of the participants were Catholic; 6.7% were "Christian"; 8.9% reported "other" religious affiliations; and 2.2% reported no religious affiliation.

The primary investigator established contact with community agencies who have well-established ties with migrant farmworker camps. These agencies helped coordinate data collection by accompanying the present researchers to the camps and introducing the researchers to the migrant farmworkers. The primary investigator and four research assistants collected data from nine camps. The four research assistants underwent intensive training that provided instruction on the administration of the instruments and focused on issues of cultural competence. The training was conducted by the primary investigator who has extensive experience in community-based research with Latin populations.

At each labor camp, the researchers recruited one farmworker from each dwelling. In instances in which several unrelated families lived in the same household, more than one participant was recruited so that each family was represented. Following consent, each participant completed an open-ended interview. The purpose of these interviews was to capture the phenomenology of the migrant farmworker lifestyle. The interview data is reported in a separate paper. After the interview, each participant completed a questionnaire. Because of the low educational levels among some migrant farmworkers, the interviewers offered to read and clarify, if necessary, the questionnaire items to each participant. Approximately 33% of participants requested assistance. The participants had the option of participating in either Spanish or English. Eighty-seven percent (86.7%) of individuals participated in Spanish; 13.3% participated in English. The interview and questionnaire required approximately 1 hour to complete. Each individual was reimbursed \$20.00 for her or his participation.

Measures

A self-administered battery of questionnaires was used. A background information form assessed age, gender, marital status, ethnicity, generational status, religious affiliation, influence of religion, church attendance, education, family income, language use, control and choice in the decision to immigrate to the United States, and control and choice in the decision to live as a migrant farmworker.

Religion Variables

To assess perception of religiosity, influence of religion, and church attendance, the background in-

formation form asked three questions. These questions were previously used (19) to assess religion among Mexican immigrants. They were as follows: "How religious are you?" (Possible responses were the following: 1 = not at all religious; 2 = slightly religious; 3 = somewhat religious; 4 = very religious.) "How much influence does religion have upon your life?" (Possible responses were the following: 1 = not at all influential; 2 = slightly influential; 3 = somewhat influential; 4 = very influential.) "How often do you attend church?" (Possible responses were the following: 1 = never; 2 = once or twice a year; 3 = once every 2 or 3 months; 4 = once a month; 5 = two or three times a month; 6 = once a week or more.)

Control and Choice in the Decision to Immigrate to the United States

To assess perception of control and choice in the decision to immigrate to the United States, the participants were asked the following questions (4): "Did you contribute to the decision to move to the United States?" (Possible responses were the following: 1 = not at all; 2 = some [a little bit]; 3 = moderate [pretty much]; 4 = very much [a great deal].) "Did you agree with the decision to move to the United States?" (Possible responses were the following: 1 = strongly disagreed; 2 = disagreed; 3 = agreed; 4 = strongly agreed.)

Control and Choice in the Decision to Live as a Migrant Farmworker

To assess perception of control and choice in the decision to live as a migrant farmworker, the participants were asked whether they contributed to the decision to live as a migrant farmworker (1 = not at all; 2 = some; 3 = moderate; 4 = very much) and whether they agreed with the decision to live as a migrant farmworker (1 = strongly disagreed; 2 = disagreed; 3 = agreed; 4 = strongly agreed).

Family Assessment Device

The General Functioning subscale of the Family Assessment Device (FAD) (20) was used to measure family functioning. The FAD is a self-report scale consisting of statements that participants endorse in

terms of how well each statement describes their family. Items are scored on a 4-point Likert scale ("strongly agree" to "strongly disagree"), with scaled scores for each dimension ranging from 1.00 (healthy) to 4.00 (unhealthy). The General Functioning subscale consists of 12 items. Examples of items include the following: "In times of crisis we can turn to each other for support" and "We avoid discussing our fears and concerns." The FAD has been found (4, 20–21) to have adequate internal consistency reliability (.71–.92), test–retest reliability (.66–.76), and construct validity among general and Mexican-American samples. The Cronbach alpha for the present study was .72, thus indicating adequate internal consistency reliability.

The Personal Resource Questionnaire

The Personal Resource Questionnaire—Part 2 (PRQ85) (22) was used to measure social support. This scale measures the perceived effectiveness of social support and consists of 25 items rated on a 7-point Likert scale ("strongly disagree" to "strongly agree"). Possible scores range from 25 to 175. Higher scores indicate higher levels of perceived social support. Examples of items include the following: "I belong to a group in which I feel important"; "I have people to share social events and fun activities with"; "I can't count on my friends to help me with problems"; and "Among my group of friends we do favors for each other." The PRQ85—Part 2 has been found (4, 22–24) to have adequate internal consistency reliability (.85–.93), test–retest reliability (.72), and construct validity among general and Mexican-American samples. The Cronbach alpha for the present study was .92.

Adult Self-Perception Scale

Self-esteem was measured with the Global Self-Worth subscale of the Adult Self-Perception Scale (25). The subscale consists of 6 items, each of which is scored 1 to 4, with possible scores ranging from 6 to 24. Higher scores indicate higher levels of self-esteem. The Global Self-Worth subscale has been found (25–26) to have adequate internal consistency reliability, test–retest reliability, and construct validity among general and Mexican-American samples.

SAFE Scale

Acculturative stress was measured with the SAFE scale (9). This scale consists of 24 items that measure acculturative stress in social, attitudinal, familial, and environmental contexts, in addition to perceived discrimination toward acculturating populations. Participants rate each item that applies to them on a 5-point Likert scale ("not stressful" to "extremely stressful"). Examples of items include the following: "People think I am unsociable when in fact I have trouble communicating in English"; "It bothers me that family members I am close to do not understand my new values"; and "Because of my ethnic background, I feel that others exclude me from participating in their activities." If an item does not apply to a participant, it is assigned a score of 0. The present investigators slightly revised the scale by adding two additional items: "I feel guilty because I have left family or friends in my home country"; and "I feel that I will never gain the respect that I had in my home country." The scale used in this particular study thus consisted of 26 items, with possible scores ranging from 0 to 130. Higher scores indicate higher levels of acculturative stress. The SAFE scale has been found (4, 9–10) to have adequate internal consistency reliability (.89–.90) and construct validity among Mexican-American samples. The Cronbach alpha for the present study was .88.

Personality Assessment Inventory (PAI)

The Anxiety scale of the Personality Assessment Inventory (PAI) (27) was used to measure anxiety. This scale measures clinical features of symptomatology related to anxiety disorders and consists of 24 items rated on a 4-point scale ("false, not at all true" to "very true"). Higher scores indicate higher anxiety levels. Examples of items include the following: "I am so tense in certain situations that I have great difficulty getting by"; "When I'm under a lot of pressure, I sometimes have trouble breathing"; "I often have trouble concentrating because I'm nervous"; and "I usually worry about things more than I should." The accepted caseness threshold is 60. A score of 60 or more represents potentially significant anxiety, which may impair functioning. It is estimated (27) that 16% of general population individuals will reach caseness. The PAI Anxiety scale has been found (27–29) to have adequate internal consistency reliability (.80–.90), test–retest reliability (.85–.88),

and construct validity among general and Mexican-American samples. The Cronbach alpha for the present study was .91.

Center for Epidemiologic Studies Depression Scale

The Center for Epidemiologic Studies Depression Scale (CES-D) (30) was used to measure depression. The CES-D assesses level of depressive symptoms within the previous week and consists of 20 items rated on a 4-point scale ("rarely or none of the time" to "most or all of the time"). Possible scores range from 0 to 60. Higher scores indicate higher depression. The accepted caseness is a score of 16 or more, which represents the upper 18% of scores (31). A score of caseness indicates the presence of potentially significant depressive symptomatology. Several studies (4, 32-33) have found that the CES-D has adequate internal consistency reliability (.81-.90) and construct validity among Mexican-American samples. The Cronbach alpha for the present study was .80.

Translation

The Spanish version of the PAI (34) that was used in the present study was translated by Psychological Assessment Resources, Inc. The background information form, the FAD, the PRQ-85, the Adult Self-Perception Scale, the SAFE, and the CES-D were translated into Spanish through the double-translation procedure (35) with the help of two translators.

Data Analyses

The data analyses are presented in three steps. Descriptive statistics are presented first. Second, correlation coefficients that were used to assess the relationships among the predictor variables (i.e., acculturative stress, family functioning, social support, self-esteem, church attendance, perception of religiosity, influence of religion, contribution to the decision to immigrate, agreement with the decision to immigrate, contribution to the decision to live as a migrant farmworker, agreement with the decision to live as a migrant farmworker, education, and income) and dependent variables (anxiety and depression) are presented. Finally, two forward stepwise multiple

regression analyses are presented. They were conducted to determine the best predictors of anxiety and depression. For each regression analysis, the criteria for entering the equation was set at $F = 3.84$.

RESULTS

Descriptive Statistics

Education and Income

Table I shows the frequency distributions for education and income. Most individuals reported relatively low levels of education and extremely low levels of income. The median level of education was 6-8 years of schooling. Thirteen percent (13.3%) of the sample reported high education levels, which is represented by high school graduation and greater.

Church Attendance, Perception of Religiosity, and Influence of Religion

Table I shows the frequency distribution for church attendance. About two-thirds of individuals attended church at least 2 or 3 times per month. The mean score for perception of religiosity was 2.41

Table I. Sample Distributions for Sociodemographic Variables*

Variable	Females	Males	Entire sample
Education			
0-2 years of school	20.0	20.0	20.0
3-5 years of school	20.0	20.0	20.0
6-8 years of school	10.0	32.0	22.2
9-11 years of school	40.0	12.0	24.5
High school graduate	10.0	12.0	11.1
Some college	0.0	4.0	2.2
Income			
\$0-\$4,999	15.8	33.3	25.6
\$5,000-\$14,999	42.1	41.7	41.8
\$15,000-\$24,999	36.8	20.8	27.9
Over \$25,000	5.3	4.2	4.7
Church attendance			
Never	0.0	4.2	2.3
Once or twice a year	0.0	8.3	4.5
Once every 2 or 3 months	0.0	12.5	6.8
Once a month	20.0	16.7	18.2
2 or 3 times a month	15.0	29.2	22.7
Once a week or more	65.0	29.2	45.5

*There were no significant gender differences for education, income, and church attendance.

($SD = 0.76$). This mean represents a moderate level of perceived religiosity. The mean score for influence of religion was 2.93 ($SD = 1.00$). This mean represents a relatively high level of influence of religion.

Contribution to and Agreement with the Decision to Immigrate to the United States

The mean score for contribution to the decision to immigrate was 3.05 ($SD = 1.12$). The mean score for agreement with the decision to immigrate was 3.21 ($SD = 0.97$). These means represent a relatively high level of contribution and agreement.

Contribution to and Agreement with the Decision to Live as a Migrant Farmworker

The mean score for contribution to live as a migrant farmworker was 3.20 ($SD = 1.14$). The mean score for agreement to live as a migrant farmworker was 3.07 ($SD = 0.97$). These means represent a relatively high level of contribution and agreement in the decision to live as a migrant farmworker.

Family Functioning and Social Support

The mean score for the General Functioning subscale of the FAD (family functioning) was 2.07 ($SD = 0.43$). The mean score for the PRQ85 (social support) was 126.09 ($SD = 33.24$). These two means represent overall moderate levels of support.

Self-Esteem

The mean score for self-esteem was 18.51 ($SD = 3.24$). This represents a moderate level of self-esteem.

Acculturative Stress, Anxiety, and Depression

Table II lists the means and standard deviations for the SAFE scale (acculturative stress), the PAI

Table II. Mean Scores and Standard Deviations on Measures of Acculturative Stress, Anxiety, and Depression

	Acculturative stress Mean (SD)	Anxiety Mean (SD)	Depression Mean (SD)
Overall	57.8 (21.4)	55.0 (14.0)	14.5 (10.2)
Females	55.3 (17.6)	56.5 (13.9)	13.8 (9.4)
Males	59.9 (24.2)	53.8 (14.3)	15.0 (10.9)

(anxiety), and the CES-D (depression). The present sample revealed a relatively high level of anxiety ($M = 55.0$) in comparison to the expected mean of 50 (27) in general population individuals ($r [44] = 2.4, p < .01$). Twenty-nine percent (28.9%) of the participants reached caseness on the PAI with a score of 60 or greater, compared to the expected 16% (27). The present sample revealed a relatively high level of depression. Thirty-eight percent (37.8%) of the participants reached caseness with a score of 16 or greater on the CES-D, compared to the expected 18% (31).

To note, ANOVAs revealed no significant main effects for gender, generation level, age (16–25 years, 26–35, 36–45, 46–55, 56–65), and language of participation on acculturative stress, anxiety, and depression.

Correlations among Predictor Variables and Anxiety

Table III shows the correlations among the predictor variables and anxiety. Greater education, low levels of perception of religiosity, low levels of influence of religion, low contribution to the decision to immigrate, low contribution to the decision to live as a migrant farmworker, low self-esteem, ineffective

Table III. Correlations among Predictor Variables and Anxiety and Depression*

	Anxiety	Depression
Education	.25**	.23**
Income	.07	-.01
Perception of religiosity	-.24**	-.06
Perceived influence of religion	-.29**	-.01
Church attendance	-.06	-.25**
Contribute to decision to immigrate	-.24**	-.19*
Agreement with decision to immigrate	-.01	-.23**
Contribute to migrant farmwork	-.29**	-.13
Agreement with migrant farmwork	-.14	-.41***
Self-esteem	-.34***	-.53****
Social support	-.25**	-.52****
Family functioning	-.03	.18*
Acculturative stress	.64****	.57****
Anxiety	—	.57****

*Significance levels are based on one-tailed tests.

** $p < .10$; *** $p < .05$; **** $p < .01$; ***** $p < .001$.

social support, and high levels of acculturative stress were related to high levels of anxiety.

Correlations among Predictor Variables and Depression

Table III lists the correlations among the predictor variables and depression. Greater education, infrequent church attendance, low contribution to the decision to immigrate, low agreement with the decision to immigrate, low agreement with the decision to live as a migrant farmworker, low self-esteem, ineffective social support, family dysfunction, high levels of acculturative stress, and high levels of anxiety were related to elevated levels of depression.

Multiple Regression Analysis of Anxiety

Table IV shows a stepwise multiple regression analysis that was conducted to determine the best predictors of anxiety. In this analysis, education, perception of religiosity, influence of religion, contribution to the decision to immigrate, contribution to the

decision to live as a migrant farmworker, self-esteem, social support, and acculturative stress were entered as predictors of anxiety. Significant independent predictors of anxiety were acculturative stress ($\beta = .59$, $t = 4.9$, $p < .0001$), contribution to the decision to live as a migrant farmworker ($\beta = -.37$, $t = -3.2$, $p < .003$), and influence of religion ($\beta = -.20$, $t = -1.7$, $p < .10$). As seen in Table IV, these variables accounted for 50% of the variance in anxiety. The other variables added minimal variance to the equation. The overall equation accounted for 53% of the variance in anxiety.

Multiple Regression Analysis of Depression

Table V shows a stepwise multiple regression analysis that was conducted to determine the best predictors of depression. Education, church attendance, contribution to the decision to immigrate, agreement with the decision to immigrate, agreement with the decision to live as a migrant farmworker, self-esteem, social support, family functioning, acculturative stress, and anxiety were entered as predictors of depression. Significant independent predictors of

Table IV. Multiple Regression of Anxiety among Migrant Farmworkers

Dependent and predictor variables	F	(df)	p	Total percentage variance accounted for
Anxiety symptoms (PAI)*				
SAFE	22.06	(1,41)	.000	35.0
SAFE, Contribute to migrant farmwork	17.52	(2,40)	.000	46.7
SAFE, Contribute to migrant farmwork, influence	13.13	(3,39)	.000	50.2
SAFE, Contribute to migrant farmwork, influence, contribute to move	10.10	(4,38)	.000	51.5
SAFE, Contribute to migrant farmwork, influence, contribute to move, religiosity	8.05	(5,37)	.000	52.1
SAFE, Contribute to migrant farmwork, influence, contribute to move, religiosity, PRQ	6.68	(6,36)	.000	52.7
SAFE, Contribute to migrant farmwork, influence, contribute to move, religiosity, PRQ, self-esteem	5.65	(7,35)	.000	53.1
SAFE, Contribute to migrant farmwork, influence, contribute to move, religiosity, PRQ, self-esteem, education	4.83	(8,34)	.000	53.2

*PAI = Anxiety subscale of Personality Assessment Inventory; PRQ = Personal Resource Questionnaire (social support); SAFE = Social, Attitudinal, Familial, and Environmental acculturative stress scale; Influence = influence of religion; Contribute to move = contribution to the decision to immigrate to the United States; Contribute to migrant farmwork = contribution to the decision to live as a migrant farmworker.

Table V. Multiple Regression of Depression among Migrant Farmworkers

Dependent and predictor variables	<i>F</i>	(<i>df</i>)	<i>p</i>	Total percentage variance accounted for
Depressive symptoms (CES-D)*				
PAI	20.34	(1.40)	.000	33.7
PAI, PRQ	18.71	(2.39)	.000	49.0
PAI, PRQ, Self-esteem	14.91	(3.38)	.000	54.1
PAI, PRQ, Self-esteem, attendance	13.39	(4.37)	.000	59.1
PAI, PRQ, Self-esteem, attendance, agree with migrant farmwork	11.64	(5.36)	.000	61.8
PAI, PRQ, Self-esteem, attendance, agree with migrant farmwork, contribute to move	10.31	(6.35)	.000	63.9
PAI, PRQ, Self-esteem, attendance, agree with migrant farmwork, contribute to move, SAFE	9.04	(7.34)	.000	65.0
PAI, PRQ, Self-esteem, attendance, agree with migrant farmwork, contribute to move, SAFE, agree with move	7.85	(8.33)	.000	65.6
PAI, PRQ, Self-esteem, attendance, agree with migrant farmwork, contribute to move, SAFE, agree with move, education	6.83	(9.32)	.000	65.8
PAI, PRQ, Self-esteem, attendance, agree with migrant farmwork, contribute to move, SAFE, agree with move, education, FAD	6.00	(10.31)	.000	65.8

*CES-D = Center for Epidemiologic Studies Depression Scale; PAI = Anxiety subscale of Personality Assessment Inventory; PRQ = Personal Resource Questionnaire (social support); FAD = Family Assessment Device; SAFE = Social, Attitudinal, Familial, and Environmental acculturative stress scale; Attendance = church attendance; Contribute to move = contribution to the decision to immigrate to the United States; Agree with move = agreement with the decision to immigrate to the United States; Agree with migrant farmwork = agreement with the decision to live as a migrant farmworker.

depression were anxiety ($\beta = .58, t = 4.5, p < .0001$), social support ($\beta = -.40, t = -3.4, p < .002$), self-esteem ($\beta = -.28, t = -2.3, p < .03$), church attendance ($\beta = -.24, t = -2.4, p < .03$), and agreement with the decision to live as a migrant farmworker ($\beta = -.21, t = -1.8, p < .10$). These five variables accounted for 62% of the variance in depression. The remainder of the variables added little variance. The overall equation accounted for 66% of the variance in depression.

DISCUSSION

The major theme of this study is that the immigration experience in conjunction with the migrant farmworker lifestyle may put an individual at psychological risk. As mentioned, no previous studies have addressed the psychological functioning of immigrant farmworkers in the midwest United States. Therefore, a purpose of the present study was to examine acculturative stress, anxiety, and depression within

this context. These findings contribute critical information both to the acculturative stress literature and to the cross-cultural literature on depression and anxiety.

Because qualitative data portray a sense of individual experience that is often lacking in quantitative data, the following discussion is highlighted with examples of narrative responses from the interviews.

Acculturative Stress in Relation to Anxiety and Depression

In the present study, migrant farmworkers experiencing elevated levels of acculturative stress also reported high levels of anxiety and depression. These acculturating farmworkers may feel caught between cultures. That is, these individuals may feel pulled between the influence of traditional customs, values, and norms and the values, norms, and customs found in the mainstream society. Experiences of economic hardship, language difficulties, and discrimination

may further contribute to distress during the acculturative process. Many farmworkers reported experiencing discrimination and exploitation. For example, the following narrative, reported by a 26-year-old male, captures such experiences.

There are lots of thieves. On one occasion I caught one guy who was trying to steal from our home. I took him to the police. The police said we could press charges, so we did, but the thief was released on the third day because he was a U.S. citizen. The bottom line is that they let him go free because we are not U.S. citizens, so the police did not pay attention to our charges.

They are supposed to pay us weekly or every other week, but they take longer to pay us. They make excuses such as they don't have the checks, or they may say to come back another day. We need the money right away but they still don't pay us. Usually the contractors take advantage of the people who are new and who know nothing about being a farmworker.

Levels of Anxiety and Depression among Migrant Farmworkers

Relatively high levels of anxiety and depression were found in the present sample. As noted, 38% of the sample reached depression caseness with a CES-D score of 16 or greater. This percentage appears to be high. As a comparison, about 18% of individuals from general population samples reach the caseness threshold (30, 36). As a further comparison, Vega *et al.* (31) noted the very high prevalence of depressive symptoms found within their sample of Mexican immigrants. They found that 42% of their sample scored 16 or greater. It is important to note that the high overall rate of anxiety and depression found in the present sample does not imply that all immigrant farmworkers, per se, are highly anxious and/or depressed, but that the experiences that go into being an immigrant farmworker (e.g., discrimination, language inadequacy, reduced self-esteem, financial stressors, lack of family and social support) potentially influence psychological status.

The present study measured depression as a constellation of symptoms and did not obtain specific clinical information about the onset, duration, and severity of the symptoms. Although the CES-D is not a diagnostic instrument, it was found (37) to have a concordance of 85% for current major depression using the Diagnostic Interview Schedule (38). There-

fore, the present findings have relevance for clinical work and research among immigrant farmworkers.

Predictors of Anxiety and Depression

Social Support and Self-Esteem

The present study measured the perceived effectiveness of social support rather than access to social support networks. Several authors (39–41) have noted that larger social networks do not ensure that the support will be of higher quality or more effective, and therefore the perceived quality of social support may be a more accurate predictor of psychological distress than is quantity of social support. The present findings indicated that ineffective social support was strongly related to heightened levels of anxiety and depression. These findings thus lend support to the idea that social support of high quality may help immigrant farmworkers cope against anxiety and depression.

Mexican culture traditionally emphasizes collectivist values and affiliation (42). Mexican immigrants may thus feel particularly vulnerable when they lack social support. Because social support helps provide individuals with a sense of belonging and identity, ineffective social support may lead acculturating individuals to feel undervalued and contribute to low self-esteem (43). Moreover, given that self-esteem may help buffer against distress during the acculturative process (44), low self-esteem may place an individual at greater risk for distress. Not surprisingly, the present findings indicated a very strong relationship between low self-esteem and elevated levels of anxiety and depression.

Control and Choice in the Decisions to Immigrate and to Live as a Migrant Farmworker

Salgado de Snyder (45) and Vega *et al.* (46), in their respective studies of depression risk factors among Mexican immigrants, found that those individuals who voluntarily immigrated (“wanted to”) to the United States revealed significantly less depressive symptoms than those individuals who involuntarily immigrated (“had to”). These findings suggest that individuals who are willing to immigrate may be at less risk for depression than those who are not willing. In other words, greater depression among those who do not choose to immigrate may be due to the effects

of the lack of empowerment to control their lives when migration occurs. This notion has relevance for the present study. The present study assessed both international migration and the participants' migration as farmworkers. The farmworkers were asked whether they contributed to and agreed with moving to the United States, and whether they contributed to and agreed with the decision to live as a migrant farmworker, or whether they were involved in farmwork due to the desire of others. Not surprisingly, it was generally found that those farmworkers who willingly migrated reported less anxiety and depression than those who did not.

Education

Berry *et al.* (47) noted that education may help provide acculturating individuals with the resources to cope with the larger society. They believed that those individuals with more education may have greater cognitive, economic, and social resources with which to deal with changes. The direction of education as a predictor in the present study was therefore surprising. High education was associated with depression. This finding may depend partly on the question of comparison. Some farmworkers may compare their current situation to a lower socioeconomic experience in Mexico. However, farmworkers who are more educated may be more sensitive to the discrepancy between their current life conditions and those of other individuals in the United States. Those who are more educated may also have set life and career goals other than migrant farmwork, and may have felt that they have failed to reach these goals. The following narrative is from a relatively educated (high school graduate) 39-year-old male who seems aware of the disparity between his current socioeconomic situation and those of others in the United States:

We receive such miserable pay as migrants. I believe that migrants are a resource. We are a very important part of the growth and feeding of this country, and I believe we have a right to be recognized for our hard work, either by the government or the labor department. They pay no more than minimum wage and that is too little to get by. Everything is so expensive. We should have better pay. It is our right.

Suggestions for Prevention and Treatment

Currently, in the area sampled, there is little to no prevention and treatment options available for

immigrant farmworkers who experience psychological problems. This situation may also exist in other areas of the United States. The present findings, however, suggest the need for prevention, assessment, and treatment services for immigrant farmworkers.

It is crucial that prevention efforts be directed toward those farmworkers who are at risk for anxiety and depression. These include farmworkers who are isolated, lack emotional support and self-esteem, and who experience elevated levels of acculturative stress. Possible preventive strategies include the establishment of support groups, at the camps or local community centers, where migrant workers can talk about their difficult experiences and the ways in which they can cope with these difficulties. Support groups would provide emotional support and increase self-esteem. Several participants in the present study expressed interest in the establishment of support groups.

Second, educational workshops and presentations (48–49) can be conducted by health professionals. Because for utmost prevention it is important that these educational workshops and presentations be accessible to migrant workers, they should be established at easily accessible locations such as migrant camps, community centers, or local schools. These lectures and workshops can address specific topics such as risk factors for anxiety and depression, substance abuse, and how to cope with the stress of a migratory lifestyle. These educational programs would be preventive in that active participation would help thwart future problems in these areas.

The church can be another possible site for prevention. Several characteristics of the church may be preventive (19). Religious organizations foster social networking and thereby reduce risk through social supports. Moreover, church attendance provides greater exposure to basic religious beliefs thought to increase coping. As expected, the present findings indicated a negative relationship between religiosity and distress. Church members may also use their ministers or priests as sources of support in times of distress. In addition to such supportive roles, clergy members may disseminate information to farmworkers regarding the availability of other community services. Because the cultural importance of the church extends beyond the scheduled religious services, outreach programs that are sponsored by the church—but not necessarily held at the church—are likely to have the respect of migrant workers.

Finally, preventive efforts can be incorporated into lay health-worker programs (50–51). Lay health-

worker programs use individuals who are former or current migrant farmworkers who are trained to provide health information to migrant farmworkers. The lay health-workers organize and run educational and preventive workshops (sample topic: HIV/AIDS prevention) and act as liaisons between community agencies/health services and migrant farmworkers. Lay health-worker programs have been shown to be effective preventive resources (51) and to be very empowering for migrant farmworkers (50). In addition to being educational, these programs may help provide social contacts and increase self-esteem among migrant workers.

For the farmworker who may be experiencing acculturative stress, anxiety, and/or depression, the findings highlight the importance of assessment and treatment within a cultural context. In other words, clinical evaluation and treatment should carefully address the stress related to farmwork; the stress related to acculturation; family and social support; the farmworker's sense of self; the farmworker's hopes and expectations for the future; and past and present coping strategies, including religion. Treatment for migrant workers should be short term in focus because of the migratory nature of their lifestyle. Moreover, the clinician should be aware of mental health services that are available in the farmworker's other areas of residence.

Limitations and Directions for Future Research

This study should be considered preliminary because of its relatively limited sample size, its self-report method, and its cross-sectional design. In addition, the homogeneity of the sample in terms of ethnicity and area sampled suggests that these findings should not be generalized to the West Coast and East Coast migrant farmworker streams. Similarly, the findings should not be generalized to migrant farmworkers of other ethnicities in the Midwest stream. Although the instruments used were shown to be reliable in the present study and have previously been validated on Mexican immigrants, these scales have yet to be fully validated on Mexican migrant farmworkers. The present study assessed the influence of religiosity on anxiety and depression. It is unclear how the findings would have differed if spirituality was also measured. Future research should thus use a more comprehensive measure of religion that is able to distinguish between the social

aspects, religious practices, and spiritual dimensions of religion.

Further research should concentrate on increasing the study's generalizability. This includes research of a representative nature that examines the specific pathologies found among migrant farmworkers, explores the mental health differences between migrant and seasonal farmworkers, and examines the psychological functioning of migrant farmworkers in other migrant streams. Qualitative research is needed to identify those stressors specific to the migrant farmworker lifestyle and the coping mechanisms that are employed in response to these stressors. This information will be useful in establishing preventive services for migrant farmworkers.

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