Exploring the Mental Health of Mexican Migrant Farm Workers in the Midwest: Psychosocial Predictors of Psychological Distress and Suggestions for Prevention and Treatment

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ABSTRACT. The purposes of the present study were threefold: (a) to assess the prevalence levels of anxiety and depression in a sample of Mexican migrant farm workers in the midwestern United States; (b) to explore the relationships among acculturative stress, anxiety, and depression; and (c) to examine the variables that best predict anxiety and depression. The overall sample revealed elevated levels of anxiety and depression. Migrant farm workers with heightened levels of acculturative stress were more likely to report high levels of anxiety and depression. Family dysfunction, ineffective social support, low self-esteem, lack of agreement with the decision to migrate, high education levels, high levels of acculturative stress, and high levels of anxiety were significantly associated with high depression levels. The overall findings suggest that migrant farm workers 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 farm workers that aim to increase levels of emotional support, self-esteem, and coping skills.

Key words: acculturative stress, anxiety, depression, Hispanic, Mexican migrant farm worker

IT HAS BEEN ESTIMATED (Napolitano & Goldberg, 1998) that there are approximately 5 million migrant farm workers in the United States. *Migrant farm workers* are defined as individuals who annually migrate from one place to another to earn a living in agriculture, in contrast to seasonal farm workers, who live in one location during the entire year. Migrant farm workers 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 (Barger & Reza, 1994; Goldfarb, 1981). The West Coast stream is primar-

ily composed of Mexican immigrants who return to Mexico or the southwestern 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 (e.g., Barger & Reza, 1994; Goldfarb, 1981; Rothenberg, 1998; Valdés, 1991) have noted the difficulties inherent in the migrant farm worker lifestyle. For example, they are socially marginal, a situation that is reinforced by physical isolation, discrimination, and limited opportunities. Most migrant farm workers earn less than $6,000 per year, making them one of the most economically deprived groups in the United States. Physical labor is often strenuous, and migrant workers are often subjected to dangerous working conditions such as being sprayed with pesticides. Farm labor has the highest incidence of workplace fatalities in the United States. Child labor is common, and thus the average education level of migrant farm workers is sixth grade.

Migrant workers typically find housing in labor camps provided by their employers. The housing and sanitation are often substandard and include one-room homes that lack water and toilet facilities. In addition, 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 and their average life expectancy is 49 years, migrant farm workers have very limited access to medical care.

Given these difficult living conditions, it seems likely that migrant farm workers would be at psychological risk and thus susceptible to problems such as anxiety and depression. Very few researchers, however, have explored the mental health of migrant farm workers in the United States.

Previous Research of Mental Health Among Migrant Farm Workers

Vega, Warheit, and Palacio (1985) examined psychological distress among 501 Mexican American farm workers in central California with the Health Opinion Survey (HOS; MacMillan, 1957), a measure of general psychopathology. Vega et al. (1985) found that high levels of psychological distress were related to reduced health status and an occurrence of environmental stress over the previous year. In addition, they found that middle-aged individuals (aged 40 to 59 years) reported higher levels of psychological distress than other age groups.

Vega et al. (1985) conjectured that middle age is an especially high-risk peri-od for farm workers; significant occupational and life hazards exist to progres-sively degrade their health and functional capacities. Moreover, farm workers have few available resources for health maintenance or preventive care. Accord-ing to Vega et al. (1985), the severe lifestyle (high frequency of environmental stressors such as hazardous working conditions) experienced by Mexican Amer-ican farm workers places them at extraordinary psychological risk.

The Vega et al. (1985) study is important in that it was the first to explore mental health among Mexican American farm workers in the United States. Their work, however, was limited in several respects. First, they did not separate migrant farm workers from seasonal farm workers in their analyses. This dis-tinction is important because a number of authors (e.g., Barger & Reza, 1994; Goldfarb, 1981; Rothenberg, 1998) have suggested that the unstable lifestyle of migrant farm workers puts them at greater risk than seasonal farm workers.

Second, Vega et al. (1985) did not directly measure stressors that are partic-ular to a farm worker's lifestyle. Their level of environmental stress was based on one question. The participants were asked whether they had experienced a stress-ful life event during the previous 12 months, including deaths of family members or friends, accidents, or job loss. Finally, Vega et al. examined psychological risk in a general fashion. As noted, they used an instrument for general psychological distress, and thus the data did not reveal whether the farm workers were at greater risk for depression or anxiety, for example.

White-Means (1991) explored the relationship between the health status (physical and mental) and the level of work productivity among 246 migrant farm workers in upper New York state. White-Means assessed mental health sta-tus with Chi's (1986) general index of well-being. White-Means found signifi-cant positive associations among general health perception, mental health, and farm worker wages. Multivariate analyses showed that mental well-being was a significant predictor of weekly wages, whereas general health perception was not. White-Means therefore concluded that the most important health factor influencing farm workers' weekly wages is mental well-being. Moreover, she suggested that increased mental health services would improve the earnings potential and quality of life for migrant farm workers.

As did Vega et al. (1985), White-Means (1991) used a general measure of psychological distress. In addition, she did not give specific information regard-ing the ethnic composition of her sample. She simply noted that a large percent-age were Latino. It should also be noted that the focus of White-Means's study was not mental health per se but factors that influence the productivity of farm workers. In other words, White-Means used mental well-being as a predictor of work productivity rather than focusing on predictors of mental health. Neverthe-less, her study is relevant in that it suggests that low levels of mental well-being may result in decreased earnings among migrant farm workers.

Finally, Alderete, Vega, Kolody, and Aguilar-Gaxiola (1999) examined

depressive symptoms and their relationship to psychosocial risk factors among Mexican migrant farm workers in Fresno County, CA. These authors explored demographic characteristics, social support, acculturation level, discrimination, language conflict, and worries over legal residence status as risk factors and found that 19.7% of the women and 21.1% of the men reached *caseness* (indicating the presence of potentially significant depressive symptoms) on the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977).

Typically, about 18% of individuals from general population samples will reach caseness (Radloff, 1977; Weissman & Meyers, 1978). The standard level of depression found in the Alderete et al. (1999) sample may be a reflection of the migrant farm workers' access to the available social support network found in the Fresno area. Not surprisingly, therefore, Alderete et al. found that the farm workers who scored high in instrumental and emotional support reported lower depression. In addition, migrants who scored high in acculturation and experienced high discrimination (a component of acculturative stress) reported greater depression.

With regard to the latter two findings, discrimination appears to be the better predictor of depression because the relationship between high acculturation and high depression is questionable. Alderete et al. (1999) used an acculturation measure that assessed language use in different social contexts (e.g., home, work, with friends). On this measure, scaled acculturation scores range from 1 (*low acculturation*) to 5 (*high acculturation*). Alderete et al. defined low acculturation as ranging from 1 to 1.001, medium acculturation as 1.002 to 1.43, and high acculturation as 1.431 to 5. Thus, defined as such, an individual may speak predominantly Spanish in different social contexts and yet still be considered highly acculturated. Therefore, the Alderete et al. conclusion that high acculturation may result in increased psychological depression among migrant farm workers is unwarranted.

Acculturative Stress Among Immigrants

Hovey (2000a, 2000b) and Hovey and King (1996, 1997) presented a conceptual framework for studying acculturative stress (stress that directly results from, and has its source in, the acculturative process) among immigrants and its relationship to psychological functioning. They extended Berry's (Berry, 1990; Berry & Kim, 1988; Williams & Berry, 1991) acculturative stress model to include possible consequences of heightened levels of acculturative stress. Researchers can use the revised framework to explore the psychological functioning of migrant farm workers.

This framework has two components. First, it suggests that acculturating individuals experience varying levels of acculturative stress and that elevated levels of this stress may result in significant levels of anxiety and depression. In other words, the model suggests that individuals who experience elevated 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; 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 migrate (voluntary vs. involuntary migration); cognitive attributes such as expectations for the future (hopeful vs. not hopeful); religiosity; and the nature of the larger society—that is, the degree of tolerance for and acceptance of cultural diversity (multicultural versus assimilationist) within the mainstream society. These variables may predict anxiety and depression. 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.

This framework has been used to guide past research that explored the psychological functioning of immigrant individuals. For example, Hovey and King (1996) 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 (2000a, 2000b) 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 showed that family dysfunction, ineffective social support, low levels of religiosity, nonhopeful expectations for the future, lack of choice in the decision to migrate, and low levels of education and income significantly predicted high levels of depression and suicidal ideation. These overall findings suggest that individuals experiencing elevated levels of acculturative stress are at risk for experiencing critical levels of psychological distress and that buffering variables such as those just listed may help protect against distress during the acculturative process.

Purposes of the Present Study

Our first purpose in the present study was to assess the prevalence levels of anxiety and depression in a sample of Mexican migrant farm workers in the midwestern United States. We expected the sample to reveal elevated levels of anxiety and depression. Our second purpose was to determine the relationships among acculturative stress, anxiety, and depression. We expected elevated levels of acculturative stress to be positively associated with high levels of anxiety and depression. Our third purpose was to determine the best predictors of anxiety and depression. The predictor variables we explored included acculturative stress,

family functioning, social support, self-esteem, influence of religion, education, income, and control and choice in the decision to live a migrant farm worker lifestyle.

Method

Participants

Participants were 75 Mexican migrant farm workers (38 women, 37 men) in the northwest Ohio/southeast Michigan area. The age of the sample ranged from 16 to 65 years ($M = 29.01$, $SD = 11.01$). Forty-four percent of the sample were aged 16 to 25 years; 26.7% were aged 26 to 35; 20% were 36 to 45; 8% were 46 to 55; and 1.3% were 56 to 65. Sixty percent of the participants were first generation (immigrants); 33.3% were second generation; and 6.7% were third generation.

Fifty-six percent of the participants were married, 32.0% had never been married, 4.0% were separated or divorced, and 8.0% were in a common law marriage or living together. Eighty-three percent (82.7%) of the participants were Catholic; 8.0% were non-Catholic Christians; 6.6% reported "other" religious affiliations; and 2.7% reported no religious affiliation.

Measures

We used a self-administered battery of questionnaires. We used a background information form to assess age, gender, marital status, ethnicity, generational status, religious affiliation, influence of religion, education, family income, language use, and control and choice in the decision to live a migrant farm worker lifestyle.

Influence of religion. The background information form asked the following question previously used by Hovey (1999) to assess the influence of religion among Mexican immigrants. "How much influence does religion have upon your life?" Possible responses ranged from 1 (*not at all influential*), 2 (*slightly influential*), 3 (*somewhat influential*), to 4 (*very influential*).

Control and choice in the decision to live a migrant farm worker lifestyle. The participants were asked whether they agreed with the decision to live as a migrant farm worker. Responses were coded on a 4-point Likert-type scale ranging from 1 (*strongly disagreed*), 2 (*disagreed*), 3 (*agreed*), to 4 (*strongly agreed*).

Family Assessment Device. We used the General Functioning subscale of the Family Assessment Device (FAD; Epstein, Baldwin, & Bishop, 1983) 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-type scale ranging from *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 used extensively to measure family functioning among different ethnic groups (e.g., Keitner et al., 1991), including Mexican Americans (Hovey, 2000b; Hovey & King, 1996). The FAD has been found (Epstein et al., 1983; Halvorsen, 1991; Hovey, 2000b) to have adequate internal consistency reliability (.71 to .92), test–retest reliability (.66 to .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. We used the Personal Resource Questionnaire–Part 2 (PRQ85; Weinert, 1987) to measure social support. Part 2 of the PRQ85 measures the perceived effectiveness of social support and consists of 25 items rated on a 7-point Likert-type scale ranging from *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 (Hovey, 2000b; Weinert, 1987; Weinert & Brandt, 1987; Weinert & Tilden, 1990) to have adequate internal consistency reliability (.85 to .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. We measured self-esteem with the Global Self-Worth subscale of the Adult Self-Perception Scale (Messer & Harter, 1986). The subscale consists of 6 items. Each item is scored 1 to 4 with possible total scores ranging from 6 to 24. Higher scores indicate higher levels of self-esteem. The Global Self-Worth subscale has been found (Knight, Virdin, Ocampo, & Roosa, 1994; Messer & Harter, 1986) to have adequate internal consistency reliability, test–retest reliability, and construct validity among general and Mexican American samples.

SAFE Scale. We measured acculturative stress with the SAFE Scale (Mena, Padilla, & Maldonado, 1987). 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 ranging from *not*

stressful to *extremely stressful*. Examples 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.

We slightly revised the SAFE 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 total scores ranging from 0 to 130. Higher scores indicated higher levels of acculturative stress. The SAFE scale has been found (Hovey, 2000b; Mena et al., 1987; Padilla, Alvarez, & Lindholm, 1986) to have adequate internal consistency reliability (.89 to .90) and construct validity among Mexican American samples. The Cronbach alpha for the present study was .88.

Personality Assessment Inventory (PAI). We used the Anxiety scale of the Personality Assessment Inventory (PAI; Morey, 1991) 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 ranging from *false, not at all true,* to *very true.* 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 PAI Anxiety Scale has been found (Fantoni-Salvador & Rogers, 1997; Morey, 1991; Rogers, Flores, Ustad, & Sewell, 1995) to have adequate internal consistency reliability (.90), test–retest reliability (.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. We used the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) 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 ranging from *rarely or none of the time* to *most or all of the time.* Possible total scores range from 0 to 60. Higher scores indicate higher levels of depressive symptoms. The accepted caseness is a score of 16 or over, which represents the upper 18% of scores (Radloff, 1977; Weissman & Meyers, 1978). This threshold was established through validity studies of patient and community populations. The CES-D has been used extensively with different ethnic groups, including Mexican Americans (e.g., Golding & Burnam, 1990a; Hovey, 2000b). Several studies (e.g., Golding & Aneshensel, 1989; Golding, Aneshensel, & Hough, 1991; Hovey, 2000b) have shown that the scale has adequate internal consistency reliability

(.81 to .90) and construct validity among Mexican American samples. The Cronbach alpha for the present study was .80.

Translation. The Spanish version of the PAI (Morey, 1992) 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 (Brislin, 1980) with the help of two translators.

Procedure

The first author established contact with community agencies who have well-established ties with migrant farm worker camps in the northwestern Ohio/southeastern Michigan area. These agencies helped coordinate data collection by accompanying the present researchers to the camps and introducing them to the migrant farm workers. Having the support of the community organizations helped establish trust with the farm workers. The first author and four research assistants collected data from nine camps. The four research assistants underwent intensive training, which provided instruction on the administration of the instruments and focused on issues of cultural competence. The training was conducted by the first author, who has had extensive experience in community-based research with Latino populations.

At each labor camp, the researchers recruited one farm worker from each dwelling. In instances in which several unrelated families lived in the same household, more than 1 participant was recruited so that each family was represented. Following consent, each participant first completed an open-ended interview. The purpose of these interviews was to capture the phenomenology of the migrant farm worker lifestyle, including their particular stressors and associated coping mechanisms. The findings from these interviews are reported in a separate paper (Magaña & Hovey, 2002). After the interview, each participant completed a questionnaire. Questionnaire items were read to participants who needed assistance. The participants had the option of using either Spanish or English. Fifty-five percent (54.7%) of individuals participated in Spanish; 45.3% participated in English. The interview and questionnaire required approximately an hour to complete. Each individual was reimbursed $20 for his or her participation.

Data Analyses

The data analyses are presented in three steps: descriptive statistics first, then bivariate associations among the predictor variables and depression. We used Pearson correlation coefficients to assess the relationships among the continuous predictor variables (acculturative stress, family functioning, social sup-

port, self-esteem) and depression; we used Spearman coefficients to assess the relationships among the ordinal predictor variables (influence of religion, agreement with the decision to live a migrant farm worker lifestyle, education, income) and depression. Finally, we conducted two stepwise multiple regression analyses to determine the best predictors of anxiety and depression.

Results

Descriptive Statistics

Table 1 shows the frequency distributions for education and income. Most individuals reported relatively low levels of education and extremely low levels of income. Table 1 also shows the frequency distributions for influence of religion and agreement with the decision to live a migrant lifestyle. Most participants reported that religion had some level of influence on their lives. The mean score for influence of religion was 2.96 ($SD = 0.94$). About two thirds of the par-

TABLE 1
Sample Distributions for Sociodemographic Variables

Variable	%	Cumulative %
Education		
0–2 years of school	12.0	12.0
3–5 years of school	12.0	24.0
6–8 years of school	20.0	44.0
9–11 years of school	40.0	84.0
High school graduate	12.0	96.0
Some college	4.0	100.0
Income		
$0–$4,999	32.9	32.9
$5,000–$14,999	41.4	74.3
$15,000–$24,999	21.4	95.7
Over $25,000	4.3	100.0
Perceived influence of religion		
Not at all influential	8.1	8.1
Slightly influential	21.6	29.7
Somewhat influential	36.5	66.2
Very influential	33.8	100.0
Did you agree with the decision to live as a migrant farmworker?		
Strongly disagreed	9.5	9.5
Disagreed	18.9	28.4
Agreed	36.5	64.9
Strongly agreed	35.1	100.0

ticipants agreed with the decision to live a migrant lifestyle. The mean score for agreement was 2.97 (SD = 0.96).

The mean score for the General Functioning subscale of the FAD (family functioning) was 2.04 (SD = 0.40). The mean score for the PRQ85 (social support) was 130.25 (SD = 28.54). These two means represent overall moderate levels of support. The mean score for self-esteem was 17.87 (SD = 3.35). This mean represents a moderate level of self-esteem.

Table 2 lists the means and standard deviations for the SAFE scale (acculturative stress), the PAI (anxiety), and the CES-D (depression). The present sample revealed a relatively high level of anxiety (M = 56.1) compared with the expected mean of 50 (Morey, 1991), $t(74)$ = 4.1, p < .0005. The present sample revealed a relatively high level of depression. Of the participants, 38.7% reached caseness with a score of 16 or greater on the CES-D compared with the expected 18% (Radloff, 1977; Weissman & Meyers, 1978). 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.

Table 3 lists the correlations among the predictor variables, anxiety, and depression. Low self-esteem, ineffective social support, low influence of religion, lack of agreement to live a migrant lifestyle, greater education, and high levels of acculturative stress were related to high levels of anxiety. Low self-esteem, ineffective social support, family dysfunction, lack of agreement with the decision to live a migrant lifestyle, greater education, high levels of acculturative stress, and high levels of anxiety were related to elevated levels of depression.

Table 4 summarizes two multiple regression analyses that were conducted to determine the best predictors (of those variables that were significantly related to anxiety and depression in the correlation analyses) of anxiety and depression. For each analysis, we entered the predictor variable into the model if the significance

TABLE 2
Means and Standard Deviations for Measures of
Acculturative Stress, Anxiety, and Depression

Sample	Acculturative stress		Anxiety		Depression	
	M	SD	M	SD	M	SD
Overall	56.2	18.6	56.1	12.7	14.4	9.3
Women	54.7	14.7	58.7	12.7	14.6	8.8
Men	58.7	22.7	53.3	12.3	14.2	9.9

TABLE 3
Correlations Among Predictor Variables
and Anxiety and Depression

Variable	Anxiety	Depression
Self-esteem	−.33****	−.45****
Social support	−.19**	−.47****
Family functioning	.06	.16*
Influence of religion	−.16*	.06
Agree to migrate	−.24**	−.35****
Education	.26***	.15*
Income	.02	.04
Acculturative stress	.55****	.53****
Anxiety		.54****

Note. Significance levels are based on one-tailed tests.
*$p < .10$. **$p < .05$. ***$p < .01$. ****$p < .005$.

TABLE 4
Stepwise Multiple Regression Analyses of Anxiety
and Depression Among Migrant Farmworkers

Dependent and predictor variables	F	df	p	Total % variance accounted for
Anxiety symptoms				
Acculturative stress	31.73	1, 73	.0005	30.3
Acculturative stress, self-esteem	17.78	2, 72	.0005	33.1
Depressive symptoms				
Anxiety	29.80	1, 73	.0005	29.0
Anxiety, social support	26.55	2, 72	.0005	42.5
Anxiety, social support, self-esteem	21.62	3, 71	.0005	47.7
Anxiety, social support, self-esteem, acculturative stress	17.94	4, 70	.0005	50.6

level of its F value was ≤ .10 and removed it from the model if its significance level became ≥ .15.

As indicated in Table 4, acculturative stress ($\beta = .55$, $t = 5.6$, $p < .0005$) and then self-esteem ($\beta = -.18$, $t = -1.7$, $p < .09$) were entered into the stepwise regression model for anxiety. Together they accounted for 33% of the variance in anxiety. Social support, influence of religion, agreement to live a migrant lifestyle, and education did not meet criteria for entry into the model.

Anxiety ($\beta = .54$, $t = 5.2$, $p < .0005$) was entered first into the stepwise regression model for depression, followed by social support ($\beta = -.38$, $t = -4.1$, $p < .0005$), self-esteem ($\beta = -.25$, $t = -2.7$, $p < .01$), and acculturative stress ($\beta = .21$, $t = 2.0$, $p < .05$). Overall, these variables accounted for over 50% of the variance in depression. Family functioning, agreement to live a migrant lifestyle, and education did not meet criteria for entry into the model.

Discussion

The major theme of the present study was that the migrant farm worker lifestyle may put an individual at psychological risk. As mentioned, few researchers have addressed the psychological functioning of migrant farm workers in the United States. A purpose of our present study was to examine acculturative stress, anxiety, and depression within this group. The resulting data contribute critical information both to the acculturative stress literature and to the cultural psychology literature on depression. Because qualitative data provide a sense of individual experience that is sometimes lacking in quantitative data, our discussion is highlighted with examples of narrative responses from the interviews.

Acculturative Stress in Relation to Anxiety and Depression

In the present study, acculturative stress was strongly associated with anxiety and depression. Migrant farm workers experiencing elevated levels of acculturative stress also experienced high anxiety and depression. These findings suggest that migrant farm workers may feel pulled between the influence of traditional customs, values, and norms and the values, norms, and experiences in mainstream society. In addition, they may experience economic hardship, language difficulties, and discrimination during the acculturative process. The present findings are generalized from and corroborate previous findings (Hovey, 2000a, 2000b; Hovey & King, 1996), which suggested that Mexican and Central American immigrants experiencing elevated levels of acculturative stress may be at risk for developing psychological problems.

Many farm workers reported experiencing discrimination. For example, the following narratives were reported by a 22-year-old woman and a 27-year-old woman, respectively. They strikingly capture the experience of discrimination.

We don't feel welcomed by the people in the area. When we're out in the field working, some guys pass through there and call us names. My dad said, "Just try to ignore them." We don't come over here to do harm. We just come here to work. . . . There's always racists.

Sometimes people discriminate, but it's just ignorance, I guess. . . . I had a problem with the cashier at the store. I went in the store to shop. I asked her where the bathrooms were and she just ignored me, completely ignored me. This other lady said,

"They don't have bathrooms here." I said, "Is she deaf or what? Can she not hear that I asked her a question?" I just left the cart there with the food and I walked out of the store. I said, "If she is not going to treat me right, then I'm not going to give her any customers."

Level of Depression Among Migrant Farm Workers

The present study revealed that 39% of the sample reached 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 or exceed the caseness threshold of 16 (Radloff, 1977; Weissman & Meyers, 1978). As a further comparison, Vega, Kolody, Valle, and Hough (1986) noted the very high prevalence of depressive symptoms found within their sample of Mexican Americans. They found that 42% of their sample scored 16 or greater. It is important to note that the high overall rate of depression found in the present sample does not imply that all migrant farm workers are highly depressed but that the experiences that go into being a migrant farm worker potentially influence psychological status. For example, those who are socially marginalized may be at greater risk for the development of psychological problems (Berry, 1990).

Predictors of Anxiety and Depression

Family support. The present study showed that family dysfunction was linked with greater depression. This is not surprising, given that the family is a core characteristic of Mexican culture and has traditionally been important in providing emotional support (Rueschenberg & Buriel, 1989). Without the family providing emotional support, a more difficult acculturative experience is thus expected. Hovey (2000b) and Hovey and King (1996) found a similar association between family dysfunction and depression in their studies of the acculturative experiences of adult and adolescent Mexican immigrants.

Social support and self-esteem. In the present study we measured the perceived effectiveness of social support rather than access to social support networks. Several authors (e.g., Golding & Burnam, 1990b; Holtzman & Gilbert, 1987; Sarason, Levine, Basham, & Sarason, 1983) have observed 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 the quantity of social support. The present findings indicated that ineffective social support was associated with high anxiety and strongly predicted heightened levels of depression. These findings lend support to the idea that social support of high quality may help farm workers cope with distress.

The following is a narrative example from a 36-year-old male farm worker

who hints at the connection between support and distress. In speaking about current stressors, he poignantly described his lack of social support.

> It's difficult coming here. . . . I cry because of the loneliness and because there is nobody to talk to. You can't just walk up to someone and carry on a conversation. It makes me feel like a stray vagrant. I get this hopeless feeling. A helpless feeling. You want to make friends with somebody and you can't because everybody knows that you are just temporary and just passing through, so they don't trust you. They don't want to take the responsibility of helping you.

Mexican culture traditionally emphasizes collectivist values and affiliation (Alvarez, 1987). Migrant individuals may therefore 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 migrant workers to feel undervalued and may contribute to low self-esteem (Smart & Smart, 1995). Moreover, given that self-esteem may help buffer against distress during the acculturative process (Espin, 1987), low self-esteem may place an individual at greater risk for distress. Not surprisingly, the present findings indicated that low self-esteem was a strong predictor of anxiety and depression. Napholz (1994) also found an inverse relationship between self-esteem and depression among Mexican Americans.

Agreement to live a migrant farm worker lifestyle. Vega, Kolody, and Valle (1987) and Salgado de Snyder (1987), 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 fewer depressive symptoms than those 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 did not choose to immigrate may reflect the lack of empowerment to control their lives when immigration occurs.

Although we have focused here mainly on the migration of farm workers within the United States rather than international migration, we expected that those who willingly migrated would report less depression than those who did not. In the present study we assessed farm workers' willingness to migrate by asking them whether they agreed with living a migrant lifestyle or whether they were involved in farmwork because of the desire of others. Not surprisingly, those who were willingly involved in the migrant lifestyle did report significantly less depression.

Education and income. Berry, Kim, Minde, and Mok (1987) noted that education may help provide acculturating individuals with the resources to cope with the larger society. They believed that individuals with more education may have greater cognitive, economic, and social resources to deal with change.

The direction of education as a predictor in the present study was therefore surprising. Higher education was related to anxiety and depression. This finding may partly depend on the question of comparison. The comparison point for some migrant workers may be a lower SES experience in Mexico. On the other hand, those who are more educated may be more sensitive to the discrepancy between their current life conditions and those of others in the United States. Those who are more educated may also, at some point, have set life and career goals other than migrant farm work and may have felt that they failed to achieve these goals.

Previous studies (e.g., Hovey, 2000a; Vega et al., 1986) have suggested a negative association between income and depression among acculturating Mexican Americans. Results of these studies suggest that economic marginality, in combination with other factors (e.g., ineffective social and family support), may contribute to the severity of perceived distress and narrow the range of coping alternatives. With a relatively lower income, for example, fewer resources are available for health maintenance or preventive health care.

Results of the present study indicated, however, that income was not associated with anxiety or depression. The majority of participants reported very low family income. This lack of variability in income may help explain the lack of associations. In addition, because it is not uncommon for migrant farm workers to send part of their earnings to family members who live outside of the migrant stream (Rothenberg, 1998; Salgado de Snyder, 1993), family income in the present study may not be an accurate reflection of the financial resources that were available to the farm workers themselves. Farm workers with higher incomes may have sent more money to their relatives than did those with lower incomes.

Limitations and Directions for Future Research

This study should be considered preliminary because of its relatively limited sample size, its single-informant 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 farm worker streams.

Future researchers should concentrate on increasing the study's generalizability. This includes research of a representative nature that examines the specific pathologies found among migrant farm workers, examines the psychological functioning of migrant farm workers in other migrant streams, and explores the mental health differences between migrant and seasonal farm workers. Longitudinal research can track the fluctuations in mental health status and can, for example, determine whether individuals are at greater risk during the migratory agricultural season than during the "off-season." Qualitative research is needed to identify the stressors that are particular to the migrant farm worker lifestyle

and the coping mechanisms that are used in response to these stressors. Information from such research will be useful when establishing preventive services for migrant farm workers.

Clinical Implications

Currently, in the area sampled, there are few prevention and treatment options available for migrant farm workers 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 migrant farm workers. Because of their demanding work schedule, prevention and treatment efforts should be targeted to times and places that are convenient to migrant farm workers (e.g., at the labor camps on evenings or weekends; outreach efforts in Texas or Florida during the off-season).

Prevention. It is crucial that prevention efforts be directed toward farm workers who are at risk for depression as a result of isolation or lack of emotional support and self-esteem and who experience elevated levels of acculturative stress. Possible preventive strategies include the distribution of information about mental disorders and their associated risk factors in the form of educational articles in migrant newsletters and the distribution of mental health literature at migrant health fairs. Support groups can be established at the camps or at local community centers where migrants can discuss their difficult experiences and the ways in which they can cope with distress. Support groups would increase farm workers' self-esteem and would reduce their isolation by providing emotional support.

Educational workshops and presentations conducted by health professionals can be established at migrant camps, community centers, or local schools. These presentations can address specific topics such as risk factors for depression, substance abuse, and learning to cope with migratory stressors. These educational programs would be preventive in that active participation would help thwart future problems in these areas.

English classes can be held on-site at the camps to offset the inherent difficulties of not knowing English. Finally, mental health services can be integrated into mobile health clinic programs. Mobile clinics have been found (Lee & O'Neal, 1994; Wilson et al., 1995) to be effective in providing health care to rural, underserved populations.

The church is another possible prevention resource (Hovey, 1999). Religious organizations help foster social networks and therefore reduce psychological risk through social support. Church attendance may also provide exposure to basic religious beliefs thought to increase coping. Church members may use their priests and ministers as sources for emotional support. In addition to providing direct support, the clergy may disseminate information to migrant farm workers

about the availability of other community resources. The cultural importance of the church extends beyond scheduled religious services. Therefore, outreach programs sponsored by the church, but not necessarily held at the church, will likely have the respect of migrant workers.

Finally, preventive efforts can be incorporated into Camp Health Aide programs (Booker, Robinson, Kay, Gutierrez-Najera, & Stewart, 1997). These programs train migrant farm workers to provide health information and support to the migrant farm worker community. They organize and facilitate educational sessions (sample topic: HIV/AIDS prevention) and act as liaisons between community health agencies and migrant farm workers. Camp Health Aide programs have been shown (Booker et al., 1997) to be effective preventive resources and to be very empowering for migrant farm workers. In addition to being educational, these programs may help provide social contacts and increase self-esteem among migrant workers.

Treatment. For the farm worker 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 the migrant farm worker lifestyle, the stress related to acculturation, family and social support, the farm worker's sense of self, the farm worker's hopes and expectations for the future, and past and present coping strategies, including religion. Because of the nature of their lifestyle, treatment for migrant farm workers should be short-term in focus. Moreover, the clinician should be aware of mental health services that are available in the farm workers' other areas of residence.

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