

Stress Factors Contributing to Depression Among Latino Migrant Farmworkers in Nebraska

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Abstract Migrant farmworkers represent a structurally vulnerable population coming to rural communities to work, but often are economically disadvantaged and socially isolated. Based on survey data from 200 migrant farmworkers in rural Nebraska in 2013, this study seeks to identify and categorize major stressors that have contributed to depression among farmworkers. Over 30 % of respondents were identified to have high stress levels as indicated by the Migrant Farmworker Stress Inventory (MFWSI). The MFWSI was categorized into eight domains: economics and logistics; acculturation and social isolation; relationship with partner; health; entertainment; concerns for children; and substance use by others. Nearly half (45.8 %) of respondents were depressed. Correlations between the principal component scores of the eight stressor domains and the cumulative depression score were significant for the domains: (1) economics and logistics and (2) health ($r = 0.22$, $p < 0.01$). Findings highlight the

importance of improving economic and living conditions as well as addressing social and cultural needs by creating more welcoming receiving communities.

Keywords Latino migrant farmworkers · Stress · Depression · Mental health · Agricultural safety and health

Background

Migrant farm work supports a \$28 billion fruit and vegetable industry in the United States [2]. Each year, it is estimated that there are between 3 and 5 million migrant and seasonal farmworkers in the U.S. [1]. Research from across the country has demonstrated that migrant farmworkers represent one of the most economically disadvantaged working groups in the country. Typically, these workers have very little formal education and are extremely poor. Due to the nature of migrant labor, workers spend a significant amount of time on the road traveling from one job to another [2], and many are working to support a family in their country of origin [3]. More than 80 % of migrant farmworkers in the U.S. are Latinos and the predominant language spoken by these workers is Spanish [2, 4], but there are growing numbers of workers who speak indigenous languages such as various Mayan dialects making communication and acculturation more complex and challenging [4–6].

The exact number of migrant farmworkers in Nebraska is unknown. According to the National Center for Farmworker Health, there was an estimated 12,697 migrant workers in Nebraska in 1993 [2], but no new reliable estimates have been readily available. According to the 2012 Census of Agriculture, there were only 788 migrant farmworkers in the state [7]; however, it is likely that the

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presence of migrant farmworkers has been undercounted [8–11]. Migrant labor has not disappeared from the landscape of Nebraska, and the demand for lower-educated, low-wage labor continues to be a major force behind immigration to this state [12]. Nebraska's Latino population is expected to continue to grow and may triple by 2050 [13]. This growth will not be solely from immigration, but instead will be from natural growth as families continue to settle in Nebraska [13]. Currently, 9.7 % of the total population of Nebraska is of Hispanic/Latino descent [14] with 79.3 % being Mexican, 1.9 % Puerto Rican, 1.2 % Cuban, and 17.6 % representing other Latino subgroups [15]. Nebraska is not alone in this growth, and many other Midwestern areas face the same changing demographic landscape; however, there is limited research on Midwestern Latino populations especially in terms of occupational health, safety, and well-being [16].

Stress and depression are common among farmworkers and are associated with isolation; economic hardships; difficult weather conditions; physical, emotional, and/or sexual abuse that may be present; and a low level of control over their immediate environment [17, 18]. Evidence suggests that 20–50 % of farmworkers have poor mental health as indicated by symptoms of depression, anxiety, experiences of culturally-bound syndromes such as “susto” or frequent alcohol usage [4, 17, 19, 20]. Previous studies have documented that migrant farmworkers are vulnerable to high risk behaviors [21] including substance abuse which may be used as a coping mechanism to overcome social isolation, invisibility, or boredom [20, 22] and risky sexual behaviors may be due in part to substance use and abuse [23]. Additionally, since a majority of the population has very little formal education, has limited English proficiency (LEP), and does not have a strong cultural understanding of “prevention,” their working knowledge about preventative healthcare is also limited [16, 24, 25].

In this study we seek to assess stress and depression among a group of Latino migrant farmworkers in rural Nebraska through an ecological perspective which recognizes that individuals both affect and are affected by their social environment. Therefore, effects at one level may impact any of the other levels within a person's life—positively or negatively. Exploring social, cultural, and economic factors such as working conditions, educational attainment, family income, and language barriers can further our understanding of and help in predicting health outcomes among this population [25] as well as frame interventions so that they are grounded in the lived experience of migrant farmworkers.

Although much has been explored about migrant farmworkers on the coasts and in Texas, little is known about the health of migrant farmworkers in the Northern Plains.

The purpose of this study was to develop baseline data on the health of Latino migrant farmworkers in Nebraska. The specific objectives of this study were to categorize and understand the major stressors that may have contributed to depression among farmworkers in Nebraska such as poverty, the working environment, language barriers, acculturation, social isolation, and health care access so that meaningful interventions and policies can be developed to improve the health and well-being of this population.

Methods

Participants

Participants were recruited between May and September 2013 from five central counties in Nebraska: Adams, Clay, Hall, Holt, and York. Potential participants were informed of the study by the research team during a community meeting held at each farmworker camp. Community meetings were convened by a recruiter from the Nebraska Migrant Education Program and led by a member of the research team who explained the study, the research process, rights of research participants, and obtained informed consent of those interested in participating. All study materials were available in English and Spanish. Participants were required to be at least 19 years of age, be of Latino descent, and currently work as a migrant farmworker in Nebraska. “Migrant Farmworker” was defined as an individual whose principal employment is in agriculture on a temporary or seasonal basis and has established a temporary abode in a Nebraska community for <24 months [26].

Data Collection

Four bilingual, trained members of the research team administered the survey to participants at the various farmworker camps. An informed consent statement was read in Spanish or English and all questions were answered prior to administration of the survey. Some participants were able to complete the survey themselves, but many others required assistance from a member of the research team in which case surveys were completed through an oral interview with the participant using a standardized script. Interviews were conducted away from other workers; however, a private facility was not available for use given the nature of the facilities at the farmworker camps. Each participant was given a \$10 cash stipend for participating. All responses were kept confidential and no personal identifiers were recorded. The study was approved by the University of Nebraska Medical Center Institutional Review Board.

Measures

The Migrant Farmworker Health Survey, developed for this study, consisted of 103 questions encompassing five general areas: demographics, current health status, stress measured by the Migrant Farmworker Stress Inventory (MFWSI) [17], depression measured by the Center for Epidemiologic Studies Depression (CES-D) scale, and substance use including tobacco and alcohol through the Rapid Alcohol Problems Screen-Quantity Frequency (RAPS4-QF). Both the MFWSI and the CES-D scale have been validated for use with Latino migrant farmworkers.

The MFWSI contains 39 statements that migrant farmworkers have reported as stressful. Participants are asked to report their stress level for each statement they have experienced on a scale from 1 'not at all stressful' to 4 'extremely stressful'. Respondents may also choose option 0 'have not experienced'. The total MFWSI score is obtained by summing the scores for all 39 stressor items. Possible MFWSI scores range from 0 to 156, with higher scores indicating a greater degree of stress related to the migrant farmworker lifestyle. Individuals who score 80 or greater may be experiencing relatively high levels of migrant farmworker stress and may be at greater risk for experiencing psychological difficulties such as anxiety, depression, or suicidal behavior [27]. The CES-D is scored by summing the scores for all 20 items. Possible CES-D scores range from 0 to 60; however, if more than four questions were missing answers, the CES-D was not scored. A score of 16 or more is considered depressed [28].

Analysis

SPSS version 21.0 was used to analyze all data. Basic descriptive variables were computed for respondent demographics. Principal Component Analysis was used to identify major types of stressors out of the initial 39 stressors. Factors with eigenvalues greater than one were identified. Based on factor loadings associated with each stressor under varimax rotated component matrix in the SPSS output, we listed the most important stressors with correlation coefficients greater than 0.55 under each identified factor. Associations between factor scores, depression, and self-rated health were evaluated using Pearson correlation coefficients.

Results

There were 200 participants, of which 185 were male (92.5 %) (Table 1). Ages ranged from 19 to 70, with an average of 33 years. The majority were born outside of the United States (75.8 %) and 92.9 % were Mexican or of

Table 1 Demographic characteristics of migrant farmworker health survey respondents, Nebraska, 2013 (N = 200)

Characteristics	N (%)
Gender	
Male	185 (92.5)
Female	14 (7.0)
Age (Years)	
Under 25	62 (33.7)
25–40	66 (35.9)
Over 41	56 (30.5)
Education	
Never attended	13 (6.7)
Elementary School	42 (21.8)
Some High School	59 (30.6)
High School Graduate	50 (25.9)
At Least Some College	29 (15.0)
Ethnicity	
Mexican	184 (92.9)
Central American	10 (5.1)
Other	4 (2.0)
Nativity	
Born in the United States	45 (24.2)
Born outside the United States	141 (75.8)
Length of Time in the United States	
<1 year	52 (34.0)
1–10 years	38 (24.9)
More than 10 years	63 (41.2)
Marital status	
Married or member of unmarried couple	124 (62.6)
Not married	74 (37.4)
Income	
<\$10,000/year	110 (61.5)
\$10,000–\$15,000/year	32 (17.9)
\$15,000–\$20,000/year	11 (6.1)
\$20,000–\$25,000/year	10 (5.6)
\$25,000–\$35,000/year	6 (3.4)
More than \$35,000/year	10 (5.6)
Hours worked per week	
35 or Less	33 (18.5)
35–50	110 (61.8)
More than 50	35 (19.7)

Source: The 2013 Migrant Farmworker Health Survey

Mexican descent, 5.1 % were from Central America or Central American descent, and 2 % were of other Hispanic/Latino subgroups.

Of the 200 participants, 61 (30.5 %) were identified to have stress levels of over 80 as indicated by the MFWSI. Scores ranged between 0 and 148, and the mean score was 62.45. Table 2 shows the percentage of participants for the top 15 stressors identified through the MFWSI.

Table 2 Major Stressors identified in the Migrant Farmworker Stress Inventory, Nebraska, 2013

Stressor	N	% Who felt extreme stress
Being away from family	162	44.8
Other people's drug use	124	37.4
Worry about my kids' education	114	36.8
Difficulty understanding English	128	36.4
Do not have adequate medical care	140	34.4
Make little money	129	33.9
No Spanish language radio/TV	122	33.7
Adjusting to different foods	129	27.8
Do not feel at home	129	27.3
Difficulty being away from friends	135	26.8
Difficulty finding a job	110	26.2
Work long hours	108	25.7
Difficulty communicating in English	126	25.4
Feeling unsettled	112	25.3
Working in bad weather	130	25.1

Source: The 2013 Migrant Farmworker Health Survey

The highest rated stressors in this survey were related to economics and logistics; acculturation and social isolation; relationship with partner; health; entertainment, concerns for children, and substance use by others (Table 2). The eight stressor domains listed in Table 3 accounted for 67.5 % of the variance in the initial 39 stressors.

Stressors associated with economics and logistics accounted for 16.1 % of variance. Some of the stressors in this domain included having difficulty finding reliable transportation, not getting credit from family for the work done, difficulty in completing paperwork for needed services, poor bathroom conditions, difficulty finding a job, experiencing discrimination, and difficulty finding a place to live. Acculturation and social isolation was the second most important domain and accounted for 9.9 % of the variance in stressors. Some of the key stressors under this domain included difficulty in adjusting to different food in the U.S., feeling isolated and difficulty meeting people, and difficulty being away from family members. Some other important domains of stressors included concerns over their relationship with partner, health, immigration issues, entertainment, concerns for their children, and substance abuse by others.

Nearly half (45.8 %) of respondents were depressed. Correlations between the principal component scores of the eight stressor domains and the cumulative depression score were significant for the domains: (1) economics and logistics and (2) health ($r = 0.22$, $p < 0.01$) (Table 4). In other words, respondents who were exposed to economics and logistics or health stressors were more likely to be depressed. With the exception of these two domains, all other stressor domains were not significantly associated

with levels of depression. We also observed a significant correlation between three stressor domains and self-rated health. Stress over acculturation and social isolation is positively associated with poor self-rated health. Similar associations can also be observed in the case of concerns over immigration issues and concerns for workers' children.

Discussion

This was the first study to assess stress and depression among Latino migrant farmworkers in rural Nebraska. Research has proven that multiple stressors such as poverty, the working environment, language barriers, acculturation, social isolation, and health care access impact the health and well-being of workers [29]. People are shaped by their environment; therefore, reducing stressors at the individual, interpersonal, and community levels as well as developing appropriate policy may significantly improve worker health and safety.

Stress not only impacts the quality of life for individuals but also the well-being of rural, agricultural communities across the country. Our findings were consistent with the existing literature reporting high rates of stress and depression among migrant and seasonal farmworkers [3, 17, 19], where approximately 30–40 % of participants could be considered depressed. The stressors that have been previously identified consist of life domains such as: (1) legality and logistics (2) social isolation, (3) working conditions, (4) family, and (5) substance abuse by others [17, 18]. The highest rated stressors were related to family, working

Table 3 Classification of major types of stressors based on the principal component analysis

Stressor components	Key stressors under each principal component	Factor loading	Rotated Eigenvalue	% of Variance	Cronbach's Alpha
Economics and logistics	Do not have reliable transportation	0.743	6.3	16.1	0.90
	Do not get credit from family for the work I do	0.691			
	Difficult to complete paperwork for services	0.690			
	Poor conditions of the bathroom	0.661			
	Difficult to find a job	0.660			
	Experienced discrimination in this country	0.633			
	Difficult to find a place to live	0.576			
Acculturation and Social Isolation	Difficult to adjust to different foods in the U.S.	0.793	3.9	9.9	0.76
	Feel isolated and hard to meet people	0.723			
	Difficult to be away from family members	0.554			
Relationship with Partner	Worry about relationship with partner	0.672	3.4	8.7	0.49
	Physically or emotionally abused by partner	0.587			
Health	Health problems due to physical nature of work	0.731	3.2	8.2	N/A
Immigration issues	Worry about lacking a permit to work in the U.S.	0.798	2.8	7.1	0.76
	Worry about being deported	0.791			
	Migrating to U.S. was difficult	0.578			
	Limited access to Spanish radio or TV shows	0.671	2.5	6.4	N/A
Concerns with children	Worry about children's education	0.725	2.4	6.3	0.78
	Worry about the values that children learn in the U.S.	0.681			
	Worry about whom children are spending time with	0.607			
Substance abuse by others	Not having anyone take care of children while work	0.579			
	Feel bothered when other people use drugs	0.817	1.9	4.8	0.75
	Feel bothered when other people drink much alcohol	0.742			
	Total variance explained			67.5	

Information on factor loadings were based on rotated component matrix

Source: The 2013 Migrant Farmworker Health Survey

Table 4 Pearson correlation between stressor scores, depression, and self-rated health

Principal component scores	Correlation with cumulative depression score	Poor self-rated health
Economics & logistics	0.22**	0.05
Acculturation & social isolation	-0.05	0.29**
Relationship with partner	0.08	-0.04
Health	0.22**	0.02
Immigration issues	-0.01	0.28**
Entertainment	-0.08	0.08
Concerns with children	-0.01	0.16*
Substance abuse by others	0.09	0.05

Source: The 2013 Migrant Farmworker Health Survey

* $p < 0.05$; ** $p < 0.01$

conditions, and social isolation [17]. Based on results from Principal Component Analysis, our study adds to extant literature by categorizing different stressors into major stressor domains and by weighing the importance of each domain for a migrant farmworker population in the Northern Plains. Altogether the identified eight domains

including economics and logistics; acculturation and social isolation; relationship with partner; health; entertainment; concerns for children; and substance use by others accounted for 67.5 % of the variance. The most important domain concerns stressors associated with economics and logistics, which alone accounted for 16.1 % of variance.

Such a finding highlights the importance of poor economic and social living conditions as a source of stress among migrant farmworkers. According to the National Agricultural Statistics Service (NASS), agricultural workers earned an average of \$9.09 per hour [30]; however, migrant farmworkers are often not paid by the hour, and in fact, many are paid by the piece, pound, or acre [1]. Most migrant farmworkers are not employed full-time or all-year round thereby limiting their actual annual income. The harsh reality is that most migrant farmworkers in the U.S. work at low wages with no or limited employer-sponsored benefits, which makes it difficult for them to make ends meet and to support their families either in the U.S. or in their countries of origin. It would certainly help if current minimum wage reform in the U.S. could also be extended to cover agricultural workers, especially migrant farmworkers to ensure that hard work will lift them out of poverty and thus reduce stress and the risk of depression. Additionally, the H-2A agricultural visa program, which is designed to provide a temporary agricultural labor force when there are not enough U.S. workers who are willing, qualified, able, and available to do the work, specifies conditions that the employer must adhere to such as a basic standard of living, provision of meals, and basic protections for workers from abuse and exploitation. Stronger oversight of the H-2A program is necessary and may alleviate some of the substandard living conditions and financial issues prevalent amongst this population.

Nationally, undocumented migrant workers account for about half of the seasonal farm workforce [31]. The production and harvest capability of the nation's agricultural industry is at risk without these workers [32]. Because so many farmworkers have experienced discrimination, exploring methods to promote welcoming, inclusion, and integration at the community and societal levels may also improve conditions. Furthermore, comprehensive immigration reform holds promise to improve the lives of farmworkers across the United States and provide farms as well as the agricultural industry the ability to hire the needed workforce without threat of enforcement actions and audits.

The other major source of stress identified in this study concerns acculturation and social isolation. Migrant farmworkers do not only have economic needs, they also have social and cultural needs as they try to adapt to a new community. In comparison to Latino immigrants in gateway states such as California, Arizona, and Texas where large concentrations of immigrants can be easily found in many communities, Latino migrant farmworkers who come to Northern Plains states such as Nebraska are usually more isolated, further away from home, and find it more difficult to adapt to their new communities. These migrant farmworkers may face being isolated from established Latino

communities disadvantaging them from potential social support to fully integrate into their new community [17]. There are also fewer recreational opportunities for migrant farmworkers to socialize, develop their personal networks, and find the cultural affinity needed as they try to cope with economic or work related stress, a concern shared among migrant workers across the globe [33]. Facilitating access to recreation, social activities, sports, music, or other types of healthy entertainment during production downtimes may help to build camaraderie amongst the workers themselves as well as between the workers and the greater community. These types of activities also promote overall health and well-being at the individual, interpersonal, and community levels. The results of the MFWSI provide a roadmap for developing an appropriate community response and actionable items for improving migrant farmworker health in Nebraska such as creating more welcoming communities to improve the context of reception, strengthening oversight of the H2A visa program, advocating for comprehensive immigration reform, networking social service agencies to improve ease of access to services, facilitating Spanish language literacy and access to English as a Second Language (ESL) instruction, ensuring culturally and linguistically appropriate health services, and assisting with immigration-related concerns.

This was a pilot study with several limitations. Participants were recruited based on existing collaborations with the Nebraska Migrant Education Program; therefore, participants may not have been representative of all migrant farmworkers in Nebraska and generalizability may be limited to workers from the participating counties. The survey relied on self-reported information. Three of the four members of the data collection team were female which may have affected the way males responded to sensitive questions such as those related to depression or intimate partner violence [34, 35]. Furthermore, more than 90 % of the sample was male and results may not be representative of female farmworkers. Although many workers requested assistance to complete the survey, there were a few who completed it on their own which may have impacted the quality of the data collected. Additionally, the surveys were administered to farmworkers at community meetings were both workers and crew chiefs were present. The presence of crew chiefs and other workers may have affected workers' responses.

Addressing mental health is challenging, and the uncertainty and constant change that exists in the lives of migrant farmworkers makes it all the more difficult to systematically advance. The high costs of and limited access to services; lack of available culturally and linguistically appropriate information, providers, and services; the stigma of "mental" health; and difficulty tracking and following up with workers present barriers to improving

mental health and well-being; however, incorporating knowledge of community conditions into potential interventions that address the economic and social environment of migrant farmworkers across the individual, interpersonal, community, and societal levels could lead to better results. More research on migrant farmworkers in the Midwestern stream is needed to better understand the health behaviors and social determinants that promote mental and emotional well-being and resilience among this population.

New Contribution to the Literature

Little research exists on mental health of Latino migrant farmworkers in the Northern Plains and the entire Midwestern stream. This study documents that there is a high level of stress and depression among migrant farmworkers in Nebraska. It also contributes to the standing body of literature by highlighting the types of stressors and relative importance of each that affects depression and self-rated health of migrant farmworkers.

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