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Depression, Social Factors, and Farmworker Health Care Utilization

A. Georges, PhD;[1] T. Alterman, PhD;[2] S. Gabbard, PhD;[1] J. G. Grzywacz, PhD;[3] R. Shen, PhD;[4] J. Nakamoto, PhD;[1] D. J. Carroll, BSc;[5] & C. Muntaner, PhD[6]

1 Aguirre Division, JBS International, Burlingame, California
2 Division of Surveillance, Hazard Evaluation and Field Studies, National Institute for Occupational Safety and Health, Cincinnati, Ohio
3 Department of Human Development and Family Science, Oklahoma State University, Kaiser Family Endowed Professor of Family Resilience, Center for Family Resilience, Tulsa, Oklahoma
4 Emergint Technologies, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Cincinnati, Ohio
5 Employment and Training Administration, US Department of Labor, Washington, DC
6 University of Toronto School of Public Health, Toronto, Ontario, Canada

Abstract

Purpose: Farmworkers frequently live in rural areas and experience high rates of depressive symptoms. This study examines the association between elevated depressive symptoms and health care utilization among Latino farmworkers.
Methods: Data were obtained from 2,905 Latino farmworkers interviewed for the National Agricultural Workers Survey. Elevated depressive symptoms were measured using the Center for Epidemiologic Studies Depression short-form. A dichotomous health care utilization variable was constructed from self-reported use of health care services in the United States. A categorical measure of provider type was constructed for those reporting use of health care.
Results: Over 50% of farmworkers reported at least 1 health care visit in the United States during the past 2 years; most visits occurred in a private practice. The odds of reporting health care utilization in the United States were 45% higher among farmworkers with elevated depressive symptoms. Type of provider was not associated with depressive symptoms. Women were more likely to seek health care; education and family relationships were associated with health care utilization.
Conclusions: Latino farmworkers who live and work in rural areas seek care from private practices or migrant/Community Health Clinics. Farmworkers with elevated depressive symptoms are more likely to access health care. Rural health care providers need to be prepared to recognize, screen, and treat mental health problems among Latino farmworkers. Outreach focused on protecting farmworker mental health may be useful in reducing health care utilization while improving farmworker quality of life.

Key words depression, health care utilization, immigrant, Latino farmworkers, mental health.

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For further information, contact: Annie Georges, PhD, JBS International, Inc., Aguirre Division, 555 Airport Boulevard Suite 400, Burlingame, CA 94010;
e-mail: ageorges@jbsinternational. com.

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Farmworkers, many of whom are immigrants from Mexico, frequently live, work, and receive health care in rural areas.[1,2] Previous research showed this population generally has low health care utilization due to low incomes, limited English skills, low health literacy, undocumented immigration status, lack of health insurance, and lack of transportation.[3-7] However, this research focused on single states, counties, or communities.[3,6-9] National

descriptions of Latino farmworkers' use of health care in the United States are missing from the literature, but such a description is essential for effective health care planning and resource allocation to support this vulnerable population.[10] This study addresses this gap in the literature.

The existing literature shows rural health care providers, particularly those in private practice settings, face several challenges in providing care to farmworkers. These challenges encompass farmworker attributes that limit health care utilization such as language, cultural beliefs about medical care treatments, low educational attainment, frequent mobility and migratory lifestyle, inadequate transportation, financial strains, lack of health insurance, and lack of authorization to work in the United States.[7] Structural characteristics of the rural health care system also contribute to the challenges of providing care and the low health care utilization among the Latino farmworker population. In particular, publicly funded health clinics exist to serve farmworkers, but the actual delivery of health care, especially specialty care, remains challenging in rural communities where Latino farmworkers live and work because of insufficient financial resources to increase the number of facilities and the supply of physicians to staff the clinics.[7,11] Another factor limiting access is that local health centers are funded with county funds to serve eligible county residents. Farmworker migrants, who comprise a large portion of the Latino farmworker population, are often not eligible for county-funded services because they are not permanent county residents.[a]

Farmworker mental health is an understudied yet potentially important factor in understanding health care utilization. Previous research indicates that poor mental health is associated with greater levels of health care utilization in nonfarmworker samples.[12-14] Several studies found that an estimated 20%-50% of Latino farmworkers have mental health problems at some point during the agricultural season.[15,16] The high prevalence of mental health problems, combined with evidence that farmworkers with mental health problems frequently present with somatic symptoms to a primary care provider,[2] suggests that health care providers need to be attentive to mental health problems. It is important to document whether the pattern of health care utilization among Latino farmworkers with mental health problems is similar to that observed among nonfarmworkers. Furthermore, rural areas frequently lack specialized mental health services, particularly services suited for a low-literacy, Spanish-speaking clientele.[4,7] Thus, rural health care providers have fewer alternatives for screening and treating mental health problems. The evidence from previous research further suggests that farmworker mental health problems could overburden an already stretched rural health care delivery system. There have been no national or definitive studies of the potential implications of mental health problems on farmworkers' health care utilization. This study contributes to this literature by using a nationally representative sample of Latino farmworkers to examine the association between depressive symptoms and health care utilization.

The goal of this study is to understand the potential role of mental health problems in farmworkers' health care utilization. To accomplish this goal, we used data from a supplement to the National Agricultural Workers Survey (NAWS) on work organization, psychosocial factors, and mental health to: (1) identify the association between elevated depressive symptoms and health care utilization, controlling for sociodemographic (sex, age, dominant language, education, family characteristics, marital status, difficulty of separation from family, migrant and legal status) and work factors (years doing farmwork, job insecurity, region of employment, type of employer, distance traveled for work and transportation to work); and (2) identify the association between elevated depressive symptoms and the types of health care providers utilized.

Methods

Data Source

The data for this analysis are based on 2,905 farmworkers who participated in the October 2008 through September 2010 administration of the NAWS and answered the NAWS Supplement items on *Work Organization and Psychosocial Factors*. The NAWS Supplement was administered to all farmworkers. Farmworkers who self-identified as "Latino" and have been in the United States for at least 2 years if they were born outside of the United States were included in this analysis. The NAWS is the primary source of data on US farmworkers. Each year, since federal fiscal year 1989, the NAWS has conducted interviews with a national probability sample of field workers employed in crop agriculture, not including workers with a temporary work permit (H2A visa). The US Department of Labor sponsors the NAWS and it is fielded by the Aguirre Division of JBS International. The sampling, recruitment, and data collection protocol received approval from the National Institute for Occupational Safety and Health Human Subjects Review Board.

The NAWS uses a multistage sampling design to account for seasonal and regional fluctuations in the level of farm employment. The year is divided into 3 interviewing cycles, each lasting 4 months to capture seasonal fluctuations in the agricultural work force. The number of interviews allocated to each cycle is proportional to the

amount of crop activity at that time of the year. All NAWS data are collected through interviewer-administered survey questionnaires in a face-to-face interview by trained interviewers. Once growers agree to participate, the workers are then contacted. The cooperation rate among growers was 60%. Interviewers explain the purpose of the survey to the workers, ask them to participate, and obtain informed consent. Interviewers administer the questionnaire in the location and language of the worker's choice. Workers receive a $20 honorarium for their participation, enabling a worker response rate of 91%. This high level of response greatly aids in protecting the survey estimates from nonresponse bias. A detailed description of the NAWS sampling and weighting can be found at http://www.doleta.gov/agworker/naws.cfm.

Measures

Two measures of health care utilization were constructed from participants' responses. First, health care utilization in the United States was constructed as a dichotomous measure from the question "In the last 2 years, in the USA, have you used any type of health care services from doctors, nurses, dentists, clinics or hospitals?" Farmworkers that responded yes to this question were then asked "the last time you used the health care provider, where did you go (what kind of place was it)?" Using the responses we constructed a categorical measure of the type of provider utilized in the 2 years prior to the survey. There were 4 possible provider types: (1) private medical doctors or clinics; (2) Community Health Centers or Migrant Health Clinics, which we labeled public-funded providers or clinics; (3) Hospital or Emergency Room; and (4) other providers which included visit to a dentist, a healer/"curandero," or chiropractor or naturopath's office.

Elevated depressive symptoms in the past week, the focal independent variable, was assessed using a 10-item version of the Center for Epidemiologic Studies Depression (CES-D) scale.[17-21] The CES-D was selected because it is one of the most widely used measures of depressive symptomatology in community samples, and it has been found to have good internal reliability and construct validity among Mexican Americans.[2,18,22-25] Farmworkers were asked to report whether they experienced 10 different symptoms (enjoyed life, happy, everything was an effort, restless in sleep, lonely, people were unfriendly, sad, people disliked them, could not get going, and depressed). If they experienced a particular symptom, they were asked how many days in the past 7 days they experienced the symptom for most of the day. This method was developed on the basis of cognitive testing and piloted with more than 400 hired farmworkers during 1 cycle of the NAWS.[18] Number of days the farmworker reported experiencing a symptom was coded as a categorical variable—value range from 1 to 3 as follows: 5 days or more coded as 3; 3 or 4 days coded as 2; 1 or 2 days coded as 1. We reverse coded positive items (ie, enjoyed life, happy). The final score was obtained by summing across the 10 items. Higher scores indicate more depressive symptoms. Farmworkers with a CES-D score of 10 or more were classified as having elevated depressive symptoms.[19]

Sex was coded as a dichotomous variable where female was set to 1. Age was measured in categories (14 to 24 years, 25 to 34 years, 35 to 44 years, 45 to 54 years, and 55 years or older); dominant language spoken was coded as Indigenous, Spanish, or English; and educational attainment was measured in categories (0 to 6 years, 7 to 9 years, and 10 years or more). The measure of whether the farmworker was accompanied by immediate family members captures whether the farmworker's nuclear family lives in the same household; and a family separation measure was based on responses to the question: "How difficult is it for you to be separated from your family?" This measure captures level of worrying and concerns among farmworkers who are separated from family. Answers were coded into 4 categories: farmworkers that reported it was not difficult to be separated from family; those who reported that it was somewhat difficult; and the last measure included those who reported that it was very difficult to be separated from family. Farmworkers who were not separated from their family were the reference category.

Other measures included years of experience doing farmwork and job insecurity, which was measured by whether farmworkers reported they were afraid they could be fired from their current farm job. We examined whether the farmworker was a migrant worker (traveled at least 75 miles for work); and whether the farmworker was authorized to work in the United States, which is derived from several questions including whether the respondent is a US citizen, has a permanent resident/green card, whether the respondent is authorized to work in the United States and the type of program under which the respondent received work authorization. General health status was constructed as a dichotomous variable based on whether the farmworker described his health as fair or poor compared with those who reported their health as good or excellent. We also measured whether the farmworker had health insurance.

Employment characteristics such as region of farmwork employment, the location of current residence to job, and mode of transportation to work were also measured. Transportation was measured as 3 dichotomous variables: the first was whether the farmworker walked

to work; second, whether the farmworker rode with others, used public transportation/labor bus/raitero or other mode of transportation; and third, whether farmworkers drove their own car to work, which was used as the reference category.

Analytic Approach

Our analytic sample excluded 609 farmworkers who are not Latino or Hispanic; 13 whose ethnicity was unknown; 4 farmworkers did not respond to the question on whether they utilized any health care in the United States in the past 2 years; 10 farmworkers could not be classified in any of the 4 types of health care providers; and 150 farmworkers who were born outside of the United States but have been in the United States for less than 2 years. After these exclusions, the final sample consisted of 2,905 farmworkers who are Latino and have been in the United States for at least 2 years if they were born outside of the United States.

We applied postsampling weights to all analyses to account for the probability of sample selection. Descriptive statistics were run for all variables, followed by 2 multivariate logistic regression models using SAS 9.3 (SAS Institute Inc., Cary, North Carolina). The first model was a multivariate stepwise logistic regression model using forward selection to identify the association between utilizing health care in the United States, elevated depressive symptoms, general health, job insecurity, and personal and employment characteristics. The second model was a multinomial logistic regression to identify the correlates of types of provider utilized, which included those variables significantly associated with any health care utilization from the first model.

Results

Table 1 presents descriptive results on health care utilization and types of provider from which health care was obtained. More than half (56%) of the sample reported using US health care in the 2 years prior to their interview. Of those farmworkers who accessed US health care, the majority visited private doctors or clinics (42%). Nearly one-third (29%) of farmworkers who accessed the health care system reported visiting a public/CHC provider, while the remainder visited hospital or emergency rooms (15%), or another type of provider such as a dentist (14%). About 67% of farmworkers with elevated depressive symptoms reported utilizing health care in the United States compared with 55% of farmworkers without elevated depressive symptoms (Table 1). Conversely, about 33% of farmworkers with elevated depressive symptoms did not have any health care visits in the prior 2 years compared with 45% of farmworkers without elevated depressive symptoms. The type of health care provider utilized at the last visit did not vary by elevated depressive symptoms.

Table 2 presents descriptive results for all independent variables used in the analysis. About 1 in 10 (11%) farmworkers had elevated depressive symptoms. We highlight a few key variables rather than commenting on all descriptive variables presented in Table 2. Farmworkers were predominantly men (75%). The majority of the sample was over 35 years of age, although a substantial proportion was younger than 25 years of age, with about 1 in 4 (26%) being over the age of 45. The majority (93%) reported Spanish as their dominant language, and most (85%) were from Mexico. Most farmworkers had little formal education; more than half (55%) reported less than 6 years of education. Nearly two-thirds (61%) were accompanied by family, and nearly 1 in 4 (23%) were single. More than two-thirds (69%) reported working in US agriculture for 5 or more years, and the majority worked directly for a grower (83%), with most (75%) having 1 employer during the previous year (Table 2). Almost two-thirds (61%) lacked legal documents to work in the United States, and more than 1 in 4 (30%) were migrant workers. In addition, more than half (61%) said it would not be easy to find another job that pays the same as their current job. Although farmworkers were spread over the regions or migratory streams, the largest number surveyed were in California (35%). The majority (72%) of farmworkers had health insurance and more than 3 in 4 (76%) rated their health as good or excellent.

Table 3 presents the results of the logistic regression predicting any health care utilization in the United States. We used listwise deletion for all independent variables whereby observations with missing values on any of the variables are excluded; consequently, 2,793 farmworkers were included in the final model. Farmworkers with elevated depressive symptoms had significantly higher odds of utilizing health care in the United States in the prior 2 years. After adjustment for possible confounders, health care utilization in the United States was 45% higher among farmworkers with elevated depressive symptoms.

Sex, education, language, and age were significantly associated with health care utilization. The odds of health care utilization for women were 4 times that of men. The odds of health care utilization for farmworkers with at least a middle school education (7-9 years of schooling) were 54% higher compared to those with primary school; for farmworkers with 10-12 years of schooling the odds of health care utilization were 3 times higher compared to those with primary school. For farmworkers whose primary language was an indigenous language, the odds of health care utilization were 3 times higher compared with

Table 1 Farmworker Health Care Utilization and Type of Health Care Provider Used

	All Farmworkers		Farmworkers With Elevated Depressive Symptoms		Farmworkers Without Elevated Depressive Symptoms	
	N	Percent	N	Percent	N	Percent
Did not have any health care visits in the past 2 years in the United States	1,295	43.7	108	33.0	1,187	45.0
Any health care visits in the past 2 years in the United States	1,610	56.3	141	67.0	1,469	55.0
Health care provider used in the past 2 years in the United States						
Hospital or emergency room	184	14.6	23	11.3	161	15.0
Private provider	628	42.4	49	45.0	579	42.0
Migrant/community health clinics	552	29.2	51	30.0	501	29.1
Dentist and other	246	13.9	18	13.7	228	13.9

Source: NAWS, Department of Labor, Employment and Training Administration.
Note: The N column is unweighted number of farmworkers. The percent column is weighted. Total sample size is 2,905.

those with Spanish as their primary language. The odds of health care utilization were significantly higher for farmworkers who were at least age 55 or older.

Family relationships were associated with seeking health care. The odds of utilizing health care were almost 3 times higher for farmworkers who were accompanied by family compared with those who were unaccompanied. The odds of health care utilization for migrant workers were 25% lower compared to nonmigrant workers. Those who reported their separation from family as difficult had significantly lower odds of utilizing health care compared with those who were not separated from family.

Employment characteristics and availability of transportation were also significantly associated with health care utilization. Working in farmwork for 5-10 years increased the odds by 46%. Farmworkers who had their own car for transportation to go to work had significantly higher odds of utilizing health care in the United States compared with those walking to work. There was also evidence that legal status was associated with health care utilization. The odds of utilizing health care in the United States were 3 times higher among farmworkers who are a US citizen and 57% higher among those having work authorization when compared with farmworkers who are not authorized to work in the United States.

Farmworkers without health insurance and the farmworkers' general health were also significantly associated with health care utilization. The odds of health care utilization for farmworkers without health insurance decreased 28% compared to those who had health insurance. However, the odds of health care utilization for farmworkers who reported their health as fair or poor were 2 times that of farmworkers who reported their health as good or excellent. Region was also significantly associated with health care utilization. We further explored regional differences by estimating the multivariate model presented in Table 3 by each of 3 migratory streams: Eastern, Midwest, and Western streams. The 3 migratory streams represent the flow of agricultural workers up and down the stream as farmworkers follow the harvest. There were differences across migratory streams. In the Western stream, elevated depressive symptoms were significantly associated with health care utilization (OR = 2.11, $P = .0001$; 95% CI ranges from 1.44 to 3.01). In the Eastern and Midwest streams, there was not a statistically significant association between elevated depressive symptoms and health care utilization.

Using multinomial logistic regression, elevated depressive symptoms were not associated with types of providers utilized (eg, private providers, public/CHC providers, hospital or emergency rooms, dentists or other providers, which included chiropractors and healers; $P > .05$). Therefore, there were no significant differences in types of providers utilized for farmworkers with elevated depressive symptoms compared to those without elevated depressive symptoms. Across all 3 migratory streams, elevated depressive symptoms were not associated with types of providers utilized.

Discussion

Latino farmworkers frequently live and work in rural areas, and available evidence suggests high rates of mental health problems in this population.[15,16,25,26] If, as previous research suggests, primary care is the point of entry into the health system for farmworkers with mental health problems,[2] there is substantial likelihood that rural primary care providers will encounter farmworker

Table 2 Farmworker Sociodemographic, Health Characteristics, and Employment

	N	Percent
Farmworker has elevated depressive symptoms	249	10.5
Sex		
Male	2,395	75.3
Female	510	24.7
Age		
14-24 years	453	20.2
25-34 years	863	28.0
35-44 years	756	25.8
45-54 years	518	17.7
55 or more years	315	8.4
Dominant language		
English	121	5.5
Spanish	2,732	93.1
Indigenous or other languages	52	1.5
Years of education		
No school preschool/pre-Kindergarten	155	4.2
1-6	1, 535	50.5
7-9	618	20.6
10-12	512	18.5
13+	84	6.1
Family characteristics		
Not accompanied by family	1,211	39.1
Accompanied by family	1,694	60.9
Marital status		
Single no children	639	22.6
Parents	1,712	61.1
Married no children	374	10.5
Separated/widowed/divorced	180	5.8
Family separation		
Separation from family is not at all difficult	162	6.8
Separation from family is somewhat difficult (more or less)	383	13.7
Separation from family is very difficult	893	32.2
Not separated from family	1,458	47.4
Years doing farmwork		
Less than 1 year	83	7.8
1-5 years	574	23.5
5-10 years	678	25.3
11-15 years	353	10.7
15 or more years	1,104	32.6
Number of farmwork employers		
1 employer	2,205	74.7
2 employers	426	14.7
3 employers	173	6.2
4 or more employers	101	4.3
Job insecurity		
Farmworker is concerned could be fired from farm job	838	27.6
Finding employment at the same pay		
It would not be easy to find another job	1,697	61.3
It would be somewhat easy to find another job	785	26.4
It would be very easy to find another job	299	12.1
Do not know/refused	8	0.1
Migrant		
Settled	2,306	70.5
Migrant	595	29.5
Legal status		
Citizen	362	13.1
Green card	744	24.8
Work authorized	53	1.1
Work unauthorized	1,726	61.0
General health		
Farmworker describes health as excellent	515	17.0
Farmworker describes health as good	1,686	58.8
Farmworker describes health as fair/poor	700	24.1
Do not know/refused	–	–
Health insurance		
Farmworker does not have health insurance	766	28.2
Farmworker has health insurance	2,116	71.8
Employment characteristics		
Region[a]		
East	314	10.4
Southeast	461	9.8
Midwest	186	16.0
Southwest	231	7.8
Northwest	451	20.6
California	1,262	35.4
Location of residence to job		
Located at the job	519	13.9
Within 9 miles	985	35.0
10-24 miles	985	31.5
25-49 miles	330	14.3
50-74 miles	61	4.4
75+ miles	20	0.9
Mode of transportation		
Drive own car	1,586	51.5
Walk	278	8.0
Rode with others/public transport/bus/raitero/other	1,040	40.4
Type of employer		
Grower	2,484	83.0
Farm labor contractor	421	17.0

Source: NAWS, Department of Labor, Employment and Training Administration.

Note: The N column is unweighted number of farmworkers. The percent column is weighted. Total sample size is 2,905. The total within each domain may add due to missing values.

"—" indicates the cell size has less than 4 respondents and is suppressed.

[a]Region is one of the stratification variables. All regions are included in each cycle of the NAWS.

patients in need of mental health services. High rates of mental health problems coupled with the challenges of identifying and treating mental health problems in this group may tax an already stretched private and public rural primary health care system. To evaluate the potential threat of farmworker mental health to the rural health care system, this study was designed to understand the potential role of depression in Latino farmworkers' health care utilization.

Table 3 Results From Multivariate Logistic Regression of Health Care Utilization

	Coefficient	Standard Error	*P* Value	Odds Ratio	95% CI Limits	
Intercept	−1.08	0.20	<.0001			
Elevated depressive symptoms						
Elevated depressive symptoms vs depressive symptoms not elevated	0.37	0.16	.02	1.45	1.07	1.98
Sex						
Women vs men	1.43	0.12	<.0001	4.19	3.29	5.33
Age						
Age 14-24 vs age 25-34	−0.57	0.12	<.0001	0.56	0.44	0.72
Age 55 or more vs age 25-34	0.29	0.13	.02	1.34	1.04	1.72
Dominant language						
Dominant language is English vs dominant language is Spanish	−0.61	0.24	.01	0.54	0.34	0.87
Dominant language is Indigenous vs dominant language is Spanish	1.15	0.34	.00	3.15	1.61	6.17
Years of education						
Education completed 7 to 9 years vs 1 to 6 years of education completed	0.43	0.11	<.0001	1.54	1.24	1.90
Education completed 10 to 12 years vs 1 to 6 years of education completed	1.15	0.13	<.0001	3.17	2.47	4.06
Family characteristics						
Farmworker is accompanied by family vs farmworker is not accompanied by family	1.05	0.12	<.0001	2.86	2.24	3.64
Single no children	0.33	0.13	.01	1.39	1.08	1.80
Family separation						
Separation from family is very difficult vs not separated from family	−0.33	0.10	.00	0.72	0.59	0.88
Years doing farmwork						
Working in farmwork 5-10 years vs working in farmwork 15 or more years	0.37	0.11	.00	1.46	1.18	1.79
Number of farmwork employers	−0.10	0.05	.06	0.91	0.82	1.00
Job insecurity						
Farmworker is concerned could be fired from farm job vs not concerned could be fired from job	0.32	0.10	.00	1.38	1.13	1.69
Migrant						
Farmworker migrates for work vs farmworker does not migrate	−0.29	0.10	.00	0.75	0.61	0.91
Legal status						
US citizen vs unauthorized	1.02	0.18	<.0001	2.78	1.95	3.97
Work is authorized vs work is unauthorized[a]	0.45	0.12	<.0001	1.57	1.25	1.97
Seasonality						
Farmworker was employed during high season	−0.23	0.09	.01	0.79	0.67	0.95
Place of birth						
Central America and other vs born in Mexico	−0.78	0.20	<.0001	0.46	0.31	0.68
General health						
Farmworker health is fair or poor vs health is good or excellent	0.81	0.11	<.0001	2.24	1.81	2.78
Health insurance						
Farmworker does not have health insurance vs farmworker has health insurance	−0.33	0.11	.00	0.72	0.58	0.89
Farmworker has children without health insurance vs farmworker has children with health insurance	−0.35	0.17	.05	0.71	0.50	0.99
Region						
East region vs California	0.84	0.16	<.0001	2.32	1.70	3.17
Southeast region vs California	0.40	0.15	.01	1.50	1.11	2.02
Southwest region vs California	−0.55	0.17	.00	0.57	0.41	0.80
Northwest region vs California	0.35	0.12	.00	1.42	1.13	1.79
Mode of transportation						
Walk to work vs drive own car to work	−0.34	0.16	.04	0.71	0.52	0.99
Rode with others/public transport/bus/raitero/other vs drive own car to work	0.32	0.10	.00	1.37	1.12	1.68

Source: NAWS, Department of Labor, Employment and Training Administration.
Note: The log-likelihood for the model without elevated depressive symptoms is 3,344.66; for the full model that includes elevated depressive symptoms the log-likelihood is 3,338.93.
[a] Authorized is a composite variable based on answers to several questions about legal status.

About 1 in 10 (11%) farmworkers had elevated depressive symptoms, indicating that depressive symptoms among Latino farmworkers are relatively similar to the overall population. Our findings showed elevated depressive symptoms significantly increased the odds of health care utilization in the United States among Latino farmworkers. After adjustment for many confounding factors, having elevated depressive symptoms increased the odds of health care utilization by 45%. Although our cross-sectional, retrospective study design does not allow us to conclude that elevated depressive symptoms "caused" greater utilization, our results are consistent with results from previous research showing higher rates of health care utilization for individuals with elevated depressive symptoms in the general population.[13,14,27,28] Our results reflect the first demonstration of an association between elevated depressive symptoms and health care utilization among Latino farmworkers, the vast majority of whom were immigrants from Mexico[1] and many of whom live and work in rural areas. The implications of this finding, therefore, are that rural health care providers should be prepared to identify mental health problems among farmworkers.

Our analysis on the prevalence of health care utilization among Latino farmworkers with and without depressive symptoms showed the majority of them with elevated depressive symptoms reported at least 1 health visit in the United States in the 2 years prior to the survey. Among those with elevated depressive symptoms, 75% reported using private practices or migrant/Community Health Clinics; and of the remaining, about 11% sought health care from hospital or emergency rooms and an additional 14% sought care from dentists or other providers such as "curandero" (ie, healer). Our basic prevalence finding indicating Latino farmworkers more frequently used private practice is supported by other data. For example, previous studies showed about 25% of the agricultural workforce in the United States is served through federally funded migrant health clinics.[29] Given this distribution in the utilization of public-funded providers and clinics, the majority of health care visits among farmworkers are likely to be in private practices. Furthermore, given the lower rate of treatment to rural residents for mental health problems,[30] Latino farmworkers with elevated depressive symptoms living in rural communities may not be receiving adequate mental health treatments: this is an important area for future research.

Our findings have implications for rural health care delivery. Rural primary care providers in regions with large concentrations of Latino farmworkers need to consider mental health problems when providing care to a farmworker. Moreover, providers in these regions need to prepare evaluation and treatment options to provide a comprehensive health care program that includes consideration of and treatment of co-occurring psychiatric conditions and psychological distress to this vulnerable worker group. At a more macrolevel, our results suggest that greater mental health resources may be needed in the rural health care delivery system. Ideally, these resources would take the form of outreach programs that help protect farmworker mental health, and these resources would also take the form of culturally and contextually appropriate care alternatives. Health services, in particular specialty services, are rare in rural areas, especially those services that can accommodate non-English-speaking patients.[7,11,30]

The study has 2 main strengths. The first strength is that this is the first study to use a nationally representative sample of Latino farmworkers to examine health care utilization. The second strength is the inclusion of an elevated depressive symptoms measure previously validated for use among farmworkers. However, one shortcoming of the study is that researchers have not yet validated the cut point for depressive symptoms used in this study against a clinical gold standard of depressive illness that requires medical treatment. It is possible that other unknown conditions that underlie depressive symptoms (eg, diabetes, alcoholism) may be promoting greater health care utilization. Nevertheless, the results do support the use of screening instruments to identify depression and other mental health problems among farmworkers as a potential differential diagnosis. Other limitations are the use of a cross-sectional design and a retrospective question regarding health care utilization (previous 2 years), leading to difficulty in interpreting association and potential recall bias. Data on depression and other social and psychological factors collected in the survey may be limited to the extent that the farmworker feels comfortable disclosing information to the interviewer. While the NAWS is a rich survey that covers many content areas, the ability to delve into specific issues is limited due to time and cost constraints. NAWS data could be strengthened if they were supplemented with ethnographic and qualitative research to better understand predictors and barriers of health care utilization.

In conclusion, the findings demonstrate the association of elevated depressive symptoms and social and family factors on health care utilization among farmworkers. The decision to seek medical care is a complex one that needs targeted measures to ensure Latino farmworkers with elevated depressive symptoms receive the care to treat these symptoms. Latino farmworkers with elevated depressive symptoms also visit "curandero" (ie, healers), which raises the need for access to adequate mental health care in this population. The finding that Latino farmworkers with elevated depressive symptoms

may not receive treatment from a mental health professional also highlights the need for mental health outreach programs that reach this underserved population. The finding of increased health care utilization among Latino farmworkers with elevated depressive symptoms provides an opportunity to design outreach programs, screen, and provide appropriate treatment for depression. Health care providers in both private and public primary care settings should be alert to problems of depression in this population.

Endnote

[a] We thank an anonymous reviewer for bringing to our attention these differences in county-funded resources in health care services.

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