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Depression, Anxiety, and Coping Strategies Among Farmworkers Exposed to Substance Use at Work

Annie J. Keeney [a,b], Dianne Ciro[a], Yu Meng[c], Laura Coco[d], and Katherine Ekonomo[a]

[a]School of Social Work, San Diego State University, San Diego, CA, USA; [b]Colorado State University, High Plains Intermountain Center for Agricultural Health and Safety, Fort Collins, CO, USA; [c]Youth Family and Community Advisor, University of California Cooperative Extension Imperial and Riverside Counties, CA, USA; [d]School of Speech, Language, and Hearing Sciences, San Diego State University, San Diego, CA, USA

ABSTRACT

Objective: Migrant farmworkers are at an increased risk of experiencing high levels of stress, depression, anxiety, and problematic substance use. Farmworker behavioral health is a predominant concern for agricultural health and safety efforts. While substance use has been found to be a visible part of the work environment among farming populations, there is scarce information about how farmworkers who are exposed to substance use at work are impacted.

Methods: This exploratory assessment investigated the association between substance use exposure at work and migrant farmworkers' ($N = 58$) symptoms of depression, anxiety, and coping strategies used. Univariate, bivariate, and regression analyses were conducted to examine data from a survey administered to migrant farmworkers in Southern California's Riverside and Imperial Valley counties.

Results: Exposure to substance use at work was significantly associated with farmworkers reporting more severe symptoms of anxiety ($p = .018$). We also found that anxiety among farmworkers was significantly related to their experiences of sexual harassment ($p = .026$), being called names or insulted ($p = .05$), feeling unsafe ($p = .005$), having an increased work burden ($p = .001$), and caring for a colleague ($p = .001$). Furthermore, as exposure to substance use at work increased, farmworkers reported more severe symptoms of depression ($F(1,45) = 7.90$, $p = .007$) and anxiety ($F(1,45) = 16.743$, $p = .001$). To cope, the farmworkers in our sample reported using emotion-focused coping strategies most often.

Conclusions: Substance use exposure at work can affect migrant farmworker health and safety. Addressing and supporting the behavioral health of the entire farming community is warranted.

KEYWORDS

Hispanic/Latino; farming communities; mental health; occupational health and safety; ; substance abuse

Introduction

Evidence has established that Hispanic/Latino farmworkers are susceptible to high levels of stress,[1,2] which can lead to substance abuse.[3,4] Studies also suggest that there is a strong association with depression and problem drinking among migrant and seasonal workers.[3,4] In 2019, one in five United States residents reported being harmed by someone else's drinking or drug use.[5] Harassment, aggression, property damage, and relationship issues have been identified as harms associated with substance use exposure. However, most farmworker literature focuses on individual psychological distress and behavior outcomes. To our knowledge, no studies address the indirect effects of alcohol and drug use in farming communities. Our study aims to understand how migrant farmworkers' exposure to substance use impacts depression, anxiety, and coping strategies.

Background and study site

In 2022, California's agriculture sector alone generated more than $55 billion in economic output.[6] Among the top 15 productive counties in the state are Imperial and Riverside County, which generated $2.2 billion and $1.4 billion, respectively, in 2021.[6] Despite boasting multibillion-dollar agricultural industries, Imperial and Riverside counties could be some of the most vulnerable counties to work as a farmworker. Compared to all California counties, Imperial and Riverside have higher instances of poor mental and physical health days, higher levels of food insecurity, higher percentage of uninsured population, lower levels of high school completion, and higher levels of injury-related deaths.[7] Further, Riverside County has the 14th-highest percentage of driving deaths with alcohol involvement, and Imperial County

CONTACT Annie J. Keeney akeeney@sdsu.edu School of Social Work, San Diego State University, 5500 Campanile Drive, San Diego, CA 92182-4119, USA.

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has the ninth-highest drug overdose mortality rate in the state.[7]

The reliance on foreign-born farm laborers is a crucial aspect contributing to the overall magnitude of California's agricultural production. Approximately 90% of California's 800,000 farmworkers were born in Mexico, and approximately 60% are unauthorized to work in the US.[8] In 2020, 67.1% of Hispanics/Latinos had no access to mental health and substance use treatment services.[9] Numerous studies have established that the working environment, farm-related stress, and occupational injuries increase Hispanic/Latino farmworker's risk of experiencing mental health problems when compared to other labor-intensive occupations.[10–14] Work-related injuries are found to contribute to deaths from both opioids and suicides.[15] Given that fatal occupational injuries remain highest for Hispanic/Latino workers, and suicide rates for foreign-born workers doubled from 2017 to 2018, in a non-pandemic year,[16] the mental health of Hispanic/Latino workers is imperative to occupational health and safety efforts. As such, understanding the indirect effects of alcohol and drug use among Hispanic/Latino farming communities is imperative to mitigate the illness and injury burden among vulnerable worker populations.

Methods

Study design and procedures

For this exploratory assessment, we sought participation from Hispanic/Latino farmworkers or family members in Imperial and Riverside County who were at least 18-years-old. Family members of farmworkers were included because the struggles farmworkers face (e.g., low wages, lack of access to social supports, substance use) are felt by the entire family unit. The San Diego State University IRB approved the study protocols and procedures (Protocol Number: 2023–0161). By partnering with a trusted community gatekeeper, data were collected between August and October 2023 at two known migrant housing sites in each county. Bicultural and bilingual research personnel administered the survey verbally to respondents who required assistance. However, most were self-administered using paper and pencil surveys. The survey took approximately 10 minutes, and survey respondents were provided a $10 gift card for their time. Surveys were offered in English and Spanish.

Measures

Patient health questionnaire (PHQ-9)

The PHQ-9 is a nine-item questionnaire that assesses for depressive symptomology. It can be used to formulate a provisional diagnosis and measure depressive symptoms over time in research and clinical settings. Respondents report the presence of each symptom within the last two weeks, with response options ranging from 0='not at all' to 3='nearly every day'. Scores can range from 0–27, with total scores of 5, 10, 15, and 20, representing cutoff points from mild, moderate, moderately severe, and severe depression symptomology. Cronbach's analysis for the PHQ-9 found good reliability in our study (α=.869), consistent with previous studies.[17]

Generalized anxiety disorder (GAD-7)

The GAD-7 is a seven-item diagnostic tool that is commonly used to assess for symptoms of generalized anxiety disorder. The GAD-7 can be used with adults ages 18 and older in remote health surveys, epidemiologic studies, and primary care settings. Response options range from 0='not at all' to 3='nearly every day'. Scores can range from 0–21, with higher scores indicating more anxiety symptomology. The following cutoff scores are used to indicate the severity of anxiety: 0–4, minimal anxiety; 5–9, mild anxiety; 10–14, moderate anxiety; and 15–21, severe anxiety. Cronbach's analysis for the GAD-7 in our study found excellent reliability (α = .926), consistent with previous studies.[18]

Coping orientation to problems experienced inventory (brief COPE)

The Brief COPE is a reliable, valid, and widely used 28-item self-report questionnaire designed to measure respondents' coping styles. For our study, we selected 14 out of the 28 items to represent the three overarching coping styles (problem-focused, emotion-focused, and avoidant coping).

Responses range from 1 = "I haven't been doing this at all" to 4 = "I've been doing this a lot." Cronbach's analysis for the COPE found excellent reliability (α=.905), like previous studies.[19]

Harm to others survey

We took seven types of harm identified in the Alcohol's Harm to Others Survey (AHOS) developed by the Institute of Alcohol in the United Kingdom to assess how farmworkers were negatively affected by someone else's drinking/drug use at work.[20] Questions were in a "yes" or "no" format. Sample items include "In the past 12 months, have you been physically assaulted by someone at work who was under the influence of alcohol or drugs?" and "In the past 12 months, has your work burden increased because of someone being under the influence of alcohol/drugs." We additionally asked one question to assess more recent and frequency of exposure to substance use, which included "Over the last two weeks, how often are you around someone at work that you suspect is under the influence of alcohol or drugs?" Responses ranged from 0='not at all' to 3='nearly every day'.

Demographics

Four socio-demographic variables were assessed: gender identity, age, country of birth, and marital status (e.g., married, single, widow, divorced).

Analysis

Data collected from the in-person paper surveys were entered into SPSS (v. 27) for analysis. We used univariate analysis to explore the overall characteristics of the sample, including the type and frequency of harm experienced from exposure to substance use, the severity of depression and anxiety symptoms, and coping strategies. To assess relationships between types of harm experienced and depression and anxiety symptoms, we used bivariate analysis. Regression analysis was used to predict depression and anxiety symptomology based on substance use exposure at work.

Results

Characteristics of study participants

This exploratory assessment included surveys from Hispanic/Latino farmworkers and farmworker family members ($N = 58$) working in Imperial and/or Riverside Counties, California. Table 1 presents the sample characteristics of the participants included in the study. Most study participants identified as farmworkers ($n = 44$; 75.9%), with an average number of years working in agriculture being 20.03 (SD = 14.35). Almost one-quarter of participants identified as family members of farmworkers ($n = 14$; 24.1%), and all with a relationship of spouse/partner to the farmworker. The average age was 52.5 years (SD = 15.8). Most participants identified as female ($n = 35$; 62.5%) and married ($n = 28$; 52.8). Approximately 80% of participants were foreign-born, either in Mexico ($n = 46$; 79.3) or El Salvador ($n = 1$; 1.7%).

Table 1. Characteristics of study participants.

Variables	
Continuous Measures	Mean (SD)
Age	52.5 (15.8)
Years in farmwork	20.03 (14.35)
PHQ-9 Score	4.76 (4.9)
GAD-7 Score	4.12 (5.3)
Brief COPE	
Avoidant-focused	5.21 (2.0)
Emotional-focused	8.86 (3.3)
Problem-focused	5.84 (3.0)
Categorical Variables	Frequency n (%)
Farmworker	44 (75.9)
Family Member of Farmworker	14 (24.1)
Spouse/Partner	14 (100)
Country of birth	
Mexico	46 (79.3)
USA	9 (15.5)
El Salvador	1 (1.7)
Gender	
Male	21 (37.5)
Female	35 (62.5)
Civil Status	
Married	28 (52.8)
Single	15 (28.3)
Widow	2 (3.8)
Divorced	5 (9.4)
Other	3 (5.7)
Harm to Others	
Physical assault	2 (3.4)
Sexual harassment	4 (6.9)
Called names or insulted	5 (8.6)
Accidental injury	0 (0)
Felt unsafe	4 (6.9)
Increased work burden	5 (8.6)
Care of colleague	5 (8.6)

The average PHQ-9 score among participants was 4.76 (SD = 4.9), indicating mild levels of depression symptomology, with scores ranging from 0 to 18. The GAD-7 average score was 4.12 (SD = 5.3), slightly above minimal anxiety, with scores ranging from 0 to 21. Emotional-focused coping was utilized the most among participants, with a mean score of 8.86 (SD = 3.3), followed by problem-focused coping ($M = 5.84$; SD = 3.0) and avoidant coping ($M = 5.21$, SD = 2.0). The most frequent harms experienced due to substance use exposure were increased work burden (8.6%), caring for a colleague (8.6%), and being called names or insulted (8.6%). No participants identified accidental injury as a harm experienced.

Bivariate analysis

PHQ-9, GAD-7, and types of harm experienced

A Spearman's rho was run to assess the relationship between suspecting someone was under the influence of drugs and alcohol at the work site (i.e., exposure to substance use) and depression and anxiety symptomology. There was a statistically significant, moderate positive correlation between anxiety symptomology and exposure to substance use, r (47) =.337, $p = .018$. There was no statistically significant correlation between depression symptomology and substance use exposure, though it was approaching statistical significance, r (47) =.267, $p = .064$.

A Spearman's rho was run to assess the relationship between anxiety symptomology and types of harm inflicted by a colleague who was under the influence (See Table 2). There was a statistically significant, weak positive correlation between anxiety symptomology and experiencing sexual harassment, r (56) =.292, $p = .026$, and being called names or insulted, r (56) =.258, $p = .05$. There was a statistically significant, moderate positive correlation between anxiety symptomology scores and feeling unsafe, r (56) =.368, $p = .005$, experiencing an increased work burden, r (56) =.417, $p = .001$, and caring for a colleague, r (56) =.453, $p = .001$. There was no statistically significant correlation between anxiety symptomology and physical assault, r (56) =.131, $p = .326$, or accidental injury (could not be computed).

Table 2. Means, standard deviations, and intercorrelations for anxiety symptomology and types of harm.

Variable	*M*	*SD*	Anxiety Symptomology (i.e., GAD 7 scores)
Physical assault	.03	.184	.131
Sexual assault	.07	.256	.292*
Called names or insulted	.09	.283	.258*
Accidental injury	.00	.000	–
Felt unsafe	.07	.256	.368**
Increased work burden	.09	.283	.417**
Care of colleague	.09	.283	.453**

*correlation is significant at the 0.05 level.
**correlation is significant at the 0.01 level.

PHQ-9, GAD-7, and coping strategies

There were statistically significant, moderate positive correlations between depression symptomology and problem-focused coping, r (56) =.421, $p = .001$, emotion-focused coping, r (56) =.480, $p = .001$, and avoidant coping, r (56) =.412, $p = .001$. There was a statistically significant, moderate positive correlation between anxiety symptomology and problem-focused coping, r (56) =.425, $p = .001$, and a statistically significant, strong positive correlation between anxiety symptomology and emotion-focused coping, r (56) =.512, $p = .001$, and avoidant coping, r (56) =.547, $p = .001$. See Table 3.

Linear regression

A linear regression established that increased exposure to substance use could statistically significantly predict depression symptomology, F (1,45) = 7.90, $p = .007$, and substance use exposure accounted for 14.9% of the explained variability, with an adjusted R^2 of 13.1%, a medium size effect according to Cohen.[21] An increase in substance use exposure leads to a 2.32 (95% CI, 2.12 to 5.01) increase in depression symptomology (i.e., PHQ-9 scores). Predictions were made to determine mean depression symptomology for workers who experience no exposure, some exposure, exposure, and a lot of exposure. For no exposure, mean depression symptomology was predicted as 3.56 (95% CI, 2.12 to 5.00); for some exposure, it was predicted as 5.88 (95% CI, 4.20 to 7.27); for exposure it was predicted as 8.21 (95% CI, 5.18 to 11.24) and for a lot of exposure it was predicted as 10.54 (95% CI, 5.95 to 15.13). A linear regression established that increased exposure to substance use could statistically

Table 3. Means, standard deviations, and intercorrelations for anxiety & depression symptomology and coping strategies.

	M	SD	Intercorrelation
Depression symptomology (i.e., PHQ-9)			
Problem-focused coping	5.84	3.01	.421**
Emotion-focused coping	8.86	3.32	.480**
Avoidant coping	5.21	2.08	.412**
Anxiety Symptomology (i.e., GAD-7)			
Problem-focused coping	5.84	3.01	.425**
Emotion-focused coping	8.86	3.32	.512**
Avoidant coping	5.21	2.08	.547**

**correlation is significant at the 0.01 level.

significantly predict anxiety symptomology, F (1,45) = 16.743, $p = .001$, and substance use exposure accounted for 27.1% of the explained variability, with an adjusted R^2 of 25.5%, a large size effect according to Cohen.[21] An increase in substance use exposure leads to a 3.137 (95% CI, 1.59 to 4.68) increase in anxiety symptomology (i.e., GAD-7 scores). Predictions were made to determine mean anxiety symptomology for workers who experience no exposure, some exposure, exposure, and a lot of exposure. For no exposure, mean anxiety symptomology was predicted as 2.48 (95% CI, 1.15 to 3.81); for some exposure, it was predicted as 5.16 (95% CI, 4.05 to 7.18); for exposure, it was predicted as 8.75 (95% CI, 5.95 to 11.56) and for a lot of exposure, it was predicted 11.89 (95% CI, 7.64 to 16.14). See Table 4.

Discussion

The mental health of vulnerable working populations, such as farmworkers, is an established and ongoing concern for occupational health and safety efforts. Our study sought to understand the impact of substance use exposure on depression and anxiety symptomology and coping strategies among Hispanic/Latino migrant farmworkers in two highly productive California counties. Our study produced three main findings:

Table 4. Substance use exposure predicting depression and anxiety symptomology (i.e., PHQ-9 and GAD-7 scores).

	B	SE B	β	t	95% CI	p
Depression symptomology	2.32	.828	.387	2.81	[2.12, 5.01]	.007**
Anxiety symptomology	3.13	.767	.521	4.09	[1.59, 4.68]	.001**

*correlation is significant at the 0.05 level.
**correlation is significant at the 0.01 level.

(1) Exposure to substance use at work was associated with higher anxiety symptomology, but not depression symptomology. Mild to moderate positive associations were found between anxiety symptomology and sexual harassment, being called names or insulted, feeling unsafe, increased work burden, and caring for a colleague.
(2) Increased exposure to substance use predicted higher levels of depression and anxiety symptomology. In other words, the more exposure a farmworker had to substance use at work, the higher depression and anxiety symptomology the worker had.
(3) Emotion-focused coping was utilized the most among participants. However, all forms of coping (avoidant, problem-focused, emotional-focused) were found to be positively associated with depression and anxiety symptomology.

Our findings complement and extend the research on behavioral health outcomes and coping strategies among farmworker populations in the United States. Specifically, our novel findings demonstrate the harm and risks associated with being exposed to substance use at agricultural work sites. Research has indicated that foreign-born farmworkers are suspectable to increased substance use, and problematic drinking is strongly associated with depression in migrant and seasonal farmworkers.[2–4] Interestingly, we found that exposure to substance use is associated with higher levels of anxiety symptomology and not depression symptomology. We speculate that substance use exposure at the work site may be more anxiety symptomology-producing than depression symptomology-producing, given the unpredictability of those under the influence. Further, harms associated with the substance use of others are prevalent and well-established in non-work environments.[5] As such, heightened awareness of those using substances could increase the levels of stress and uneasiness experienced during the workday, thus having the potential to significantly impact the health and safety of those workers despite not engaging in substance use themselves.

Sexual harassment, being called names or insulted, feeling unsafe, increased work burden, and caring for a colleague were among the most

identified harms that farmworkers experienced as a result of working with others under the influence. For some Hispanic/Latino farmworkers, exposure to substance use is a significant part of their physical working environment, contributing to high levels of occupational stress comparable to environmental exposures like air quality.[1] This is particularly concerning given that farmworkers already experience higher incidences of stress when compared to other occupations.[12,13,22] Research has found that a worker's substance abuse can impact an employer's bottom line when considering lost productivity, absenteeism, turnover, and worker's compensation.[23,24] We speculate that the indirect effects of others' substance use could be just as impactful on not only an employer's bottom line but also for overall occupational safety and health efforts. Because we found that the more exposure a farmworker had to substance use at work, the higher depression and anxiety symptomology was, there is an urgency to universally address substance use in farming communities to protect the health and safety of all workers.

Of interest is that avoidant and emotionally focused coping strategies were positively associated with increased depression and anxiety symptomology, which is consistent with the existing literature. However, in contrast to prior research, which suggests that problem-focused coping is adaptive, our study found that it was associated with the farmworkers' distress. It appears that farmworkers in our sample were actively attempting to cope with the stress present in their lives. However, we cannot assert that the stress is solely related to exposure to substance use at work or if it is also indicative of the known compounding stressors farmworkers experience daily. Cognitive restructuring practices such as "thinking positively" and engaging in activities such as watching TV, listening to music, and sleeping to distract oneself from intrusive thoughts have been found among immigrant farmworker populations.[25,26]

Among our farmworker sample, emotion-focused coping was the most utilized coping strategy. Emotion-focused coping is employed to regulate emotions such as fear, anger, and anxiety,[27] whereas problem-focused coping aims to eliminate the source of stress themselves. Avoidant and emotion-focused coping has been found to be associated with poor health and mental health outcomes within adult populations.[28] Our findings extend this concern further. We found the strongest positive correlations between higher levels of anxiety symptomatology and emotional and avoidant coping strategies. These types of coping are often utilized when one feels they have little control over the stressor. Given the social context and systematic barriers that farmworkers face, we are not surprised if the farmworkers in our sample feel unable to meaningfully solve precarious employment and farm-related stressors (e.g., colleagues' substance use, long working hours, lack of worker protections) and therefore, rely more on strategies to regulate the emotions associated with these stressful situations.

Practice and policy implications

Our findings have several practice and policy implications. We make the following recommendations to support farmworkers' overall occupational health and safety, particularly about mental health impacted by substance use exposure:

(1) Develop and provide culturally and linguistically appropriate informative and educational flyers to migrant farmworkers about available local behavioral health resources, strategies on harm reduction, practical coping skills, and how to keep safe at work and housing sites. Though this approach is passive, it allows help-seeking to be individually driven and discreet. For example, migrant housing can have strict substance use rules, which could make some of the most vulnerable workers very reluctant to seek help. Therefore, normalizing the resources available and dialogue around help-seeking at familiar points (e.g., work and housing sites) could be meaningful in supporting workers actively engaged in substance use or those workers who are exposed to others engaged in substance use.
(2) Community-Based Organizations (CBOs) or healthcare partners should offer skill-based training tailored to migrant farmworker

populations that teach people how to initiate a supportive interaction for someone they notice may be struggling with their mental health. For example, the Changing Our Mental and Emotional Trajectory (COMET) training is a two-hour training that teaches people how to intervene when they encounter someone who is in a "vulnerable space" by utilizing simple, conversationally driven techniques.[29] Moreover, employers or contracting agencies could also work with CBOs to provide this training on-site as part of their worker safety training and initiatives. These skills could be vital for reducing stress and promoting help-seeking behavior among workers who are systematically excluded from social programs and may be reluctant to seek formalized help.

(3) Develop and implement peer-led support groups to increase coping strategies for farm-dependent families. For example, collaborating with migrant serving programs (e.g., migrant education) to implement research-informed interventions like Conversation Cafes[30] could improve coping strategies. Monroy and colleagues[31] found that daily adaptive coping strategies (aggregate of acceptance, active coping, emotional support, humor, positive reframing, and planning) predicted greater daily well-being in a sample of Latinx immigrant farmworkers. We suggest evaluating the effectiveness of such programs as Conversation Cafes in building social support and reducing farm-related stress in migrant farmworker populations.

Limitations

Our study has limitations that readers should consider when interpreting the findings. First, our study included a small sample of the migrant farmworker population in Imperial and Riverside Counties. Therefore, our findings may not be generalizable to all migrant farmworkers or the migrant farmworkers in the region of our study's focus. Second, the surveys were implemented in-person, and some were verbally read aloud to participants. Response bias could have occurred, especially given the sensitive nature of behavioral health-related topics. Third, our study relied solely on quantitative measures. As such, some of the lived experiences related to being exposed to substance use at work and coping strategies from the perspective of migrant farmworkers were undoubtedly not captured. Lastly, the measures related to mental health in this study were narrow in scope (focused only on depression and anxiety symptomology) and not comprehensive of the range of mental health issues that could potentially exist (e.g., bipolar, psychosis). Additional research is warranted.

Conclusions

Mitigating the stress and behavioral health burden among vulnerable farmworkers is imperative for agriculture occupational health and safety efforts. This study provides a needed baseline of the harm farmworkers can experience when exposed to substance use at the work site. Given the stigma associated with help-seeking and the systematic exclusion from formalized systems of care, addressing and supporting the behavioral health of the entire farming community is warranted, not just those who are actively engaging and using substances. A universal harm reduction approach to substance use at the work site could be meaningful in helping workers feel safer at work, improving worker relations, and creating awareness of community-based resources. Further, "normalizing" resources and dialogue around mental health concerns can help build social support and improve coping strategies among migrant workers and their families. We encourage employers or contracting agencies to take an active role by collaborating with trusted community-based organizations to help address substance use exposure at the work site and improve occupational health and safety efforts.

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ORCID

Annie J. Keeney http://orcid.org/0000-0002-0318-9772

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