

8-29-2023

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Jesus Sanchez

Nova Southeastern University, js2769@nova.edu

Jodi-Ann Hibbert

Nova Southeastern University, jh3527@mynsu.nova.edu

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Sanchez, Jesus and Hibbert, Jodi-Ann, "Alcohol use and High-Risk Sexual Behaviors among Members of a Latino Migrant Worker Community in Central Florida" (2023). *HPD Articles*. 295.

https://nsuworks.nova.edu/hpd_facarticles/295

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Published: August 31, 2023

Citation: Sánchez J and Hibbert J, 2023. Alcohol use and High-Risk Sexual Behaviors among Members of a Latino Migrant Worker Community in Central Florida, *Medical Research Archives*, [online] 11(7). <https://doi.org/10.18103/mra.v11i8.3875>

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DOI
<https://doi.org/10.18103/mra.v11i8.3875>

ISSN: 2375-1924

RESEARCH ARTICLE

Alcohol use and High-Risk Sexual Behaviors among Members of a Latino Migrant Worker Community in Central Florida

Jesús Sánchez¹, Jodi-Ann Hibbert¹

¹ Department of Sociobehavioral and Administrative Pharmacy, College of Pharmacy, Nova Southeastern University

Correspondence: Jesús Sánchez
E-mail address: js2769@nova.edu

ABSTRACT

Background: Latino and Latina migrant workers constitute a vast amount of the agricultural workforce within the United States. A few studies indicate that a significant segment of the Latino migrant worker population in the United States is at high risk for alcohol abuse and related high-risk behaviors. Information about the prevalence of alcohol use and abuse and its association with high-risk sexual behaviors is needed to design effective prevention strategies in this underserved population.

Aims: To assess the association between alcohol use and high-risk sexual behaviors in this population.

Methods: Cross-sectional data was obtained from March 2018 through December 2019 as part of a study entitled “Project Salud: HIV Prevention among Latino Migrant Workers in Florida.” Study participants were recruited from neighborhoods and migrant camps in the Immokalee area in Central Florida by means of a stratified network-based (snowball) sampling design. Of the 782 screened participants, 671 (86%) met eligibility criteria and consented to participate in the study. Participants were grouped based on “no alcohol use” “alcohol use” and “binge drinking.”

Results: More than one-third (36.2%) of the sample reported no alcohol use during the last 30 days prior to the interview. The rest of study participants reported alcohol use (28.5%) and binge drinking (35.3%). Binge drinking was more common among male participants compared to their female counterparts (41.6% vs 29.6%). Among Latino migrant workers, rates of high-risk sexual behaviors in the last 30 days were generally high and did not vary as a function of alcohol use. Among Latina migrant workers, rates of vaginal sex were high for all study participants, but this behavior did not vary as a function of alcohol use. However, binge drinking was found to be significantly associated with increase rates of anal sex and multiple sex partners.

Conclusion: High-risk sexual behaviors are prevalent in the Latino migrant worker community. Among Latina migrant workers, these behaviors significantly increase among those who engage in binge drinking. Further research on the intersection of alcohol use and high-risk behaviors in the Latino migrant worker community, especially among Latina migrant workers, is necessary to develop and implement appropriate interventions.

1. Introduction

The US Department of Labor defines an agricultural migrant worker as “seasonal farmworker who had to travel to do the farm work so that he/she was unable to return to his/her permanent residence within the same date.”¹ The composition of the migrant labor force in the United States has changed profoundly over the last four decades. Only 10% of the farmworker labor force was foreign born as of 1989. As of 2020, the National Center for Farmworker Health² reports that over three million migrant and seasonal farmworkers live and work in the US and that 72% of them are foreign born. Approximately, 150,000 to 200,000 migrant and seasonal farm workers and their families annually travel and work in Florida.³ They come from various countries; in general, large numbers come from Mexico and Central America.³

Despite the importance of their contribution to the U.S. economy, several studies³⁻⁶ have indicated that the life of adult Latino migrant workers (LMWs) is characterized by poverty, inadequate housing, nutritional deficiencies, pesticide exposure, inadequate access to quality health care services, and oral health deficiencies. Agricultural migrant workers also face many social and cultural challenges. They may be isolated from their families and communities, and they may face language barriers and discrimination^{4,5,7}. Moreover, according to two studies conducted by the US Department of Labor and the Center for Migration Studies, approximately 50-70% of agricultural workers in the US are estimated to be undocumented immigrants whose working and living conditions are even more challenging.^{8,9}

Binge drinking according to the Substance Abuse and Mental Health Services Administration (SAMHSA)¹⁰ refers to consuming five (5) or more alcoholic beverages for men and four (4) more for women on a single occasion. An increasing body of literature has established a link between alcohol consumption and a wide array of risky behaviors in different populations.^{11,12,13} Many of these studies indicate that alcohol abuse and binge drinking lead to decreased inhibitions and fear of negative consequences of high-risk sexual behavior.^{11,12,13}

The relationship between alcohol use and sexual behaviors has been studied extensively by researchers and public health professionals. Alcohol use can lead to impaired judgment and decision-making, increasing the likelihood of engaging in risky sexual behaviors, such as unprotected sex,

multiple sexual partners, and sexually transmitted infections.¹³

Additionally, cultural and social factors can contribute to the relationship between alcohol use and sexual behaviors. In some cultures, alcohol is used as a social lubricant and is associated with sexual liberation and pleasure. These beliefs can contribute to heavy alcohol use and high-risk sexual behaviors, particularly among disadvantaged populations.¹³⁻¹⁶

Several studies suggest that the link between alcohol use and high-risk sexual behavior tends to be more prevalent among migrant workers.^{14, 15, 17} Alcohol use among agricultural migrant workers is multifaceted and is not due to a single identifiable cause. Some factors contributing to alcohol use/abuse and risky sexual behavior among migrant workers includes depression, loneliness, conforming to social beliefs, and low health literacy. Also, there are limited intervention programs available to assist these minority groups in mitigating the issue of alcohol use and high-risk sexual behavior.^{18, 19, 20}

Agricultural migrant workers are considered a hard-to-reach population. This is because they often work in remote or isolated areas, making it difficult for health and social service providers to reach them. They may also have limited access to healthcare, education, and other essential services, and may face language and cultural barriers that can make it challenging to communicate with them effectively.^{14, 15, 21} Additionally, agricultural migrant workers may have irregular schedules and may move frequently from one location to another, making it difficult to establish a consistent relationship with them. They may also be undocumented or fear deportation, which can make them hesitant to seek out services or assistance.^{14, 15, 21}

As a result, although many studies have examined the effects of alcohol use and high-risk sexual behaviors in different US populations and communities—including Latinos in general—very little is known about the confluence of these behaviors among Latino migrant workers in the US. This gap is particularly relevant in light of existing literature that reveals that Latino migrant workers are an extremely vulnerable population who are at an increased risk of experiencing negative health outcomes due to various factors such as social, economic, or environmental disadvantage.

2. Methods

The present cross-sectional data is based on the data collected as part of a study entitled “Project Salud: HIV Prevention among Latino Migrant Workers in Florida” which employed a community-based participatory research approach.²² From March 2018 through December 2019, outreach workers screened 782 Latino Migrant Workers (LMWs) who were recruited by means of a stratified network-based (snowball) sampling design²³ from neighborhoods and migrant camps in the Immokalee area in Central Florida, which is known for its high concentration of LMWs. This study was approved by the Institutional Review Board (IRB) Human Subjects Office at Nova Southeastern University. In order to be eligible for the study, potential participants had to meet the following eligibility criteria: (1) be of Latino origin; (2) 18 years of age or older; (3) have a “farm card”; (4) willing to discuss sensitive topics regarding alcohol use, other drug use, and sexual behaviors; (5) likely to be in the general geographic area for six months; and (6) able to understand and provide written informed consent.

Out of the 782 screened LMWs, 671 (86%) LMWs met eligibility criteria and consented to participate in the study. The other 111 screened LMWs did not make it into the study for several reasons. Forty eligible LMWs declined to participate in the study over different reasons (e.g., mistrust). The remaining 71 LMWs were not eligible based on eligibility criteria. Based on eligibility criteria, screened LMWs who refused participation or were not eligible did not differ from those LMWs who participated in the study. All data collection took place in the locales of different farmworkers associations around the Immokalee area.

Institutional Review Board approval was obtained from Nova Southeastern University and prior to any data collection, informed consent was obtained. Data was collected using the Risk Behavior Assessment (RBA), a structured interview developed by the National Institute on Drug Abuse.²⁴ The RBA collects information on demographics, alcohol and other drugs use and related risk behaviors, and sexual behaviors. Questions in the RBA use either a 30 day or ever/never lifetime recall period. Data were collected via an Audio Computer Assisted Self-interview (ACASI) with the purpose of enhancing confidentiality among participants as well as increasing comprehension among participants with low literacy. A project staff member was always available during data

collection to assist participants with any questions and/or technical difficulties. Each assessment was conducted in Spanish and took approximately 45 minutes. A project staff member secured the interviews data as soon as participants had finished the assessment. Reliability checks were embedded into the ACASI software to detect discordant entries, allowing participants to make corrections as needed. Upon completing the interview, participants received a monetary incentive as approved by IRB protocol.

3. Data Analysis

Study participants were classified into three mutually exclusive groups based on their responses to the two alcohol questions on the RBA: “In the past 30 days, on how many days have you had one or more drinks of alcohol?” and “In the past 30 days, on how many days have you had 5 or more drinks of alcohol?” If alcohol was not consumed in the past 30 days, participants were placed in the “no alcohol use” group. Study participants who consumed alcohol in the past 30 days but did not report any binge drinking episodes were placed in the “alcohol use” group. Finally, study participants who reported any day in which they consumed five or more drinks were classified in the “binge drinking” group. Demographic and substance use variables were compared by gender. Categorical variables were examined using chi-square tests and continuous variables were examined using t-tests for independent samples.

Five dichotomous sexual behavior variables occurring in the last 30 days were originated from the RBA: (1) engaged/ did not engage in vaginal sex; (2) engaged/ did not engage in anal sex; (3) had two or more sex partners/ had one sex partner; (4) had unprotected sex / had protected sex (e.g., condom use); and (5) traded sex for money or drugs/ did not trade sex for money or drugs. Multivariate logistic regression modeling was used to examine the main effects of alcohol use and gender on the outcome measures in the last 30 days. Covariates entered into all models were: age, employment status, marijuana use, and heroin/cocaine use. Female and male LMWs were combined in a multivariate logistic regression to evaluate the interaction of the alcohol use with gender. Given the exploratory nature of the study, interaction effects were considered significant at the 0.10 alpha level and effects that were not revealed significant were removed from the modeling to produce a main-effects only model. Multivariate logistic regression also tested the

significant main effects of alcohol use and adjusted odds ratios (AOR) were generated controlling for all other covariates concurrently entered into the models. Next, similar modeling was used to examine the main effects of alcohol use for the subgroups of female and male participants. In the case of small cell sizes, exact logistical regression was used. Statistical analyses were performed using IBM SPSS version 26.

4. Results

As Table 1 shows, more than half of study participants were women. Average age among study participants was 31.3 years old, although women were younger than their male counterparts (28.9 vs 34). Binge drinking was more common among male participants compared to their female counterparts (41.6% vs 29.6%). A large majority of study participants were not in a relationship and had some formal education. More than half of the study sample reported full-time employment, but such employment decreased as participants engaged in binge drinking. A large majority of the sample indicated that they were heterosexual. More than one-third (36.2%) of the

sample reported no alcohol use during the last 30 days prior to the interview. The rest of study participants reported alcohol use (28.5%) and binge drinking (35.3%). Use of marijuana was low among study participants who did not use alcohol but increased considerably among alcohol users and binge drinkers. Use of heroin and/or cocaine was very low among study participants who did not use alcohol but, although still low, was more pronounced among alcohol users and binge drinkers.

As Table 1 shows, Latino migrant workers who drank alcohol without binges or who engaged in binge drinking were younger than those who did not drink alcohol ($F = 5.9, df = 2; p < 0.01$). Also, male binge drinkers featured lower levels of full-time employment ($\chi^2 = 5.5; p < 0.10$). Latina migrant workers who drank alcohol without binges were younger than women who either did not consume alcohol or engaged in binge drinking ($F = 3.2, df = 2; p < 0.05$). Female binge drinkers were less likely to be employed compared to women who abstained from alcohol or drank alcohol without binges ($\chi^2 = 6.4; p < 0.05$).

Table 1: Sociodemographic and Substance Use Characteristics by Gender as a Function of Recent Alcohol Use

	No Alcohol Use		Alcohol Use		Alcohol Abuse Binge Drinking	
	Men (N=109%)	Women (N=134%)	Men (N=78%)	Women (N=113%)	Men (N=133%)	Women (N=104%)
CHARACTERISTICS						
Age \bar{x} (SD)	33.2 (7.1)	29.6 (9.1)	30.6 (7.1)*	27.1 (7.1)	29.2 (8.7)	29.6 (8.6)
RELATIONSHIP STATUS						
Not in a relationship	71.6	73.1	71.8	76.1	73.7	72.1
EDUCATION						
Some formal education	78.9	76.9	70.5	68.1	82.6	80.8
EMPLOYMENT						
Full-time employed	68.8	60.4	64.1	55.8	54.5	44.2*
SEXUAL ORIENTATION						
Heterosexual	86.2	78.4	89.7	83.0	85	77.9
MARIJUANA USE						
Yes	11	11.2	39.7	29.2	53.4	49
HEROIN/ COCAINE USE						
Yes	6.4	3.7	15.4	9.7	1.5	22.1
\bar{x} , Mean, SD, Standard Deviation						
*p < 0.05						

As Table 2 shows, 81% of men (N = 259/320) and 75% of women (N = 264/351) reported being sexually active in the last 30 days. There were no statistically significant differences in sociodemographic or substance use variables between Latina migrant workers who reported or did not report to being sexually active in the last 30 days. On average, sexually active Latino migrant workers consumed alcohol on more days (6.5; SD = 7.8) and smoked marijuana on more days (6.2; SD = 10.3) than Latino migrant workers who were not sexually active in the last 30 days (alcohol: 2.4; SD = 5.1) ($F = 10.4$; $p < 0.01$) (marijuana: 2.7; SD = 3.3; $F = 5.4$, $p < 0.05$).

Among participants who were sexually active in the last 30 days, anal sex showed a significant interaction between alcohol and gender ($\chi^2 = 5.44$; $p = 0.0658$). Further analysis showed that anal sex among women increased linearly with increased alcohol use (no alcohol use: 11.1%, alcohol use without binges: 15.6%, and binge drinking: 33.3%) whereas men reported similar rates of anal sex across all three alcohol use groups (no alcohol use: 20.3%, alcohol use: 12.3%, and binge drinking: 20.4%). No other interactions between alcohol use group and gender were shown to be statistically significant.

Table 2 indicates that gender was associated with having unprotected sex, multiple sex partners, and trading sex for money or drugs. Compared to Latino migrant workers, Latina migrant workers were more likely to have unprotected sex (91.7% vs. 85.7%) and had 4 times the rate of trading sex

for money and/or drugs (6.1% vs. 1.5%). On the other hand, Latino migrant workers had twice the rate of multiple sex partners (58.3% vs. 29.2%).

Also shown in Table 2 is gender subgroup analysis which depicts the association between sexual behaviors in the last 30 days and alcohol use. Among Latino migrant workers, rates of sexual behaviors—except for anal sex—in the last 30 days were high and did not vary as a function of alcohol use. Slightly less than 86% of Latino migrant workers had unprotected sex, 78.4% had vaginal sex, 15.7% had anal sex, 58.3% had multiple sex partners, and 1.6% traded sex for money or drugs.

Among Latina migrant workers, rates of vaginal sex were high for all study participants, but this behavior did not vary as a function of alcohol use (Table 2). However, significant differences were found in the likelihood of having anal sex and multiple sex partners. Binge drinkers were more than twice as likely to have anal sex compared to those who drank alcohol but did not binge (33.3% vs 15.9%; AOR=2.51; 95% CI, 1.3-5.7) and three times more likely to have anal sex compared to women who did not drink alcohol (33.3% vs 11.1%; AOR=3.9; 95% CI, 1.4-9.2). Latina migrant workers who binged were also twice as likely to have multiple sex partners compared to those who did not drink (40.5% vs 16.8%; AOR=3.1; 95% CI, 1.2-6.3). Although trading sex for money and/or drugs was more prevalent among binge drinkers (11.4%) compared to women who drank (4.4%) or abstained (3.2%), these differences were not statistically significant.

Table 2: Sexual Behaviors Associated with Alcohol Use by Gender in the Past 30 days

Sexual behaviors in the preceding 30 days	All participants (N=523)				Men (N=259)				Women (N=264)			
	n (%)	AOR	95% Cis	p-value	n (%)	AOR	95% Cis	p-value	n (%)	AOR	95% Cis	p-value
Unprotected sex												
Alcohol use												
No Alcohol use	173 (90.1)			0.317	78 (89.5)			0.317	95 (90.5)			0.496
Alcohol use without binges	157 (88.5)	0.93	0.45, 1.91		67 (80.6)	0.55	0.20, 1.53		90 (94.4)	1.8	0.56, 5.89	
Binge drinking	194 (87.6)	0.82	0.92, 1.80		114 (86.0)	1.5	0.65, 3.40		79 (89.9)	0.43	0.43, 1.45	
Gender												
Males	259 (85.6)			0.044								
Females	264 (91.7)	1.8	1.0, 3.20									
Vaginal sex												
Alcohol use												
No Alcohol use	173 (91.9)			0.3518	78 (91.0)			0.9284	95 (92.6)			0.1236
Alcohol use without binges	157 (93.0)	1.35	0.57, 3.23		67 (89.6)	0.79	0.26, 2.71		90 (95.6)	2.85	0.70, 11.63	
Binge drinking	193 (93.3)	1.94	0.79, 4.74		114 (90.4)	1.06	0.35, 3.20		79 (97.5)	6.46	0.96, 38.28	
Gender												
Males	259 (90.9)			0.0563								
Females	264 (95.1)	2.01	0.98, 4.13									
Anal sex												
Alcohol use												
No Alcohol use	164 (15.2)			0.0131	74 (20.3)			0.3561	90 (11.1)			0.0053
Alcohol use without binges	153 (14.4)	0.94	0.49, 1.79		65 (12.3)	0.59	0.24, 1.53		88 (15.9)	2.51	1.31, 5.72	
Binge drinking	186 (25.9)	2.02	1.12, 3.64		108 (20.4)	1.08	0.48, 2.42		78 (33.3)	3.91	1.42, 9.23	
Gender												
Males	247 (18.2)			0.5223								
Females	256 (19.5)	1.16	0.73, 1.86									
Multiple sex partners												
Alcohol use												
No Alcohol use	173 (33.5)			0.1038	78 (53.8)			0.8399	95 (16.8)			0.0233
Alcohol use without binges	157 (42.7)	1.38	0.85, 2.24		67 (56.7)	0.96	0.55, 1.96		90 (32.2)	2.17	0.92, 5.18	
Binge drinking	193 (53.4)	1.68	1.04, 2.71		114 (62.3)	1.17	0.62, 2.21		79 (40.5)	3.12	1.20, 6.30	
Gender												
Males	259 (58.3)			<0.0001								
Females	264 (29.2)	0.30	0.21, 0.44									
Sex for money or drugs												
Alcohol use												
No Alcohol use	173 (2.3)			0.8253	78 (1.3)			N/A	95 (3.2)			0.1121
Alcohol use without binges	157 (3.2)	0.92	0.20, 4.13		67 (1.5)				90 (4.4)	0.91	0.15, 6.11	
Binge drinking	193 (5.7)	1.32	0.34, 5.19		114 (1.8)				79 (11.4)	1.26	0.22, 6.38	
Gender												
Males	259 (1.5)			0.0186								
Females	264 (6.1)	4.24	1.27, 14.09									

Logistic regression analyses adjusted for covariates of participant's age, employment, relationship status, education, sexual orientation, marijuana use and heroin/ cocaine use.

Due to small cell sizes, main effects (p-values) were tested using exact logistic regression analyses.

5. Discussion

This study sought to expand the limited literature examining alcohol use and related high-risk sexual behaviors among LMWs in the US by examining self-reported alcohol drinking and sexual behaviors among a cohort of LMWs in Central Florida. The results of this study illustrate considerable variation in alcohol use in this population. More than one-third (36.2%) of LMWs reported completely abstaining from alcohol. Nevertheless, we found that rates of binge drinking were high among both male and female LMWs. This rate is about twice as high as the 25% rate of binge drinking in adults reported by the CDC in its Behavioral Risk Factor

Surveillance System.²⁵ High levels of alcohol use and binge drinking among migrant workers have been previously reported. In a study conducted by Kissinger and colleagues²⁶ among migrant workers who migrated to New Orleans after Hurricane Katrina, a large majority (67%) of the study population was binge drinkers. More recently, in a study conducted by McCoy and colleagues¹⁵ among African American and Hispanic migrant workers in Florida, study participants reported an average of 120 alcoholic drinks in the last 30 days. In a study conducted by Sanchez¹⁴ among Latino migrant workers in South Florida, about one-third (32%) of study participants engaged in heavy drinking on a daily basis.

Overall, our findings are comparable to those previously reported by other studies conducted in Latino—mostly Mexican—migrant populations.¹⁴ These findings are inconsistent with the widespread belief that a majority of LMWs are frequent and heavy alcohol users; a belief that has been driven by the absence of research on this topic. However, it is important to acknowledge that a segment of this population engages in binge drinking on a regular basis. Moreover, rates of marijuana use among binge drinkers—both men and women—in the study are high (51.2%) and surpass those in a study conducted by the National Institute on Alcohol Abuse and Alcoholism.²⁷ According to this study, approximately 40% of individuals who reported binge drinking in the past month also reported using marijuana during the same period.²⁷ We also found that, although overall rates of heroin and/or cocaine use were not particularly high, binge drinkers in our study reported using these substances at a rate considerably higher than that reported for the overall binge drinking population in the US which is estimated at approximately 2% for heroin and 3% for cocaine.²⁸

Binge drinking was found to be significantly associated with various high-risk sexual behaviors among female LMWs. Women who engaged in binge drinking were significantly more likely to engage in high-risk sexual behaviors in the last 30 days compared to female LMWs who did not drink alcohol. Among binge drinkers, the rate of anal sex (33.3%) was twice (15.9%) the rate of women who drank alcohol without bingeing, and three times (11.1%) the rate of women who did not drink alcohol. Female LMWs who engaged in binge drinking were also twice as likely to have had multiple partners in the last 30 days compared to women who did not drink alcohol (40.5% vs 16.8%). Our study showed considerably higher rates of anal sex and multiple sex partners among female LMWs who engaged in binge drinking compared to other studies that have looked into the same intersection of behaviors in other female populations in the US.^{29, 30, 31} Although trading sex for money or drugs was not statistically significant, it is important to continue to pay attention to this issue. Several studies have documented frequent use of female sex workers among Latino migrant workers in the US, yet little is known about the context in which sex work takes place, or the women who provide these services.^{32,33,34}

By contrast, no association was found between alcohol use and sexual behaviors among male

LMWs. However, it is important to acknowledge that high-risk sexual behaviors are generally high among Latino migrant workers across the three alcohol use groups. In a study conducted among Hispanic and African American male migrant workers in Florida, McCoy and colleagues¹⁵ reported a significant association between alcohol use and high-risk sexual behaviors among Hispanic migrant workers. However, among African Americans, rates of alcohol use and high-risk sexual behaviors were lower compared to their Hispanic counterparts and there was no association between them.

Our findings document an intersection between two significant and prevalent health problems in the LMW community: binge drinking and high-risk sexual behaviors. Similar associations have been found in a number of different populations and communities and, although they may differ in some respects, the common link is that increasing levels of alcohol use correspond to an increase likelihood of engaging in high-risk sexual behaviors. Our study, however, highlights some gender differences not observed in other studies. As a matter of fact, there is a robust body of public health literature which indicates that women, in general, drink less alcohol and have less alcohol-related problems than men.^{35, 36} Consistent with other studies,^{14, 15} Latina migrant workers in our study were less likely to engage in binge drinking but, when they do, they experienced an increased likelihood of engaging in high-risk sexual behaviors.

6. Conclusions

Evidence of the relation between alcohol use and high-risk sexual behaviors has been mixed and researchers have suggested that inconsistent findings are related to the diverse methodological approaches^{37,38}. Improving our understanding of this relation in the Latino migrant worker community will require that we learn more about the type of sexual relationships they engage in while under the influence of alcohol and whether, for instance, impairment reduces their ability to negotiate safe sex or refuse sex altogether.³⁸ Further research is needed that implements prospective designs that clarify the important temporal relationship between binge drinking and high-risk sexual behaviors. Also important are studies that look into pre-immigration characteristics of migrant populations and compare pre- and post-immigration socioenvironmental factors, alcohol use, and sex behaviors.

This study is one of the first to document the strong association between binge drinking and high-risk sexual behaviors among Latina migrant workers. The findings from the study suggest a need for interventions that address alcohol use and related high-risk sexual behaviors in the LMW community, and that are particularly tailored to focus on the role of gender in the intersection of these behaviors. Female-oriented alcohol and HIV prevention models are needed and that requires further research that will provide a clear understanding of the problem and provide effective approaches that address issues such as sexual violence, unintended pregnancy, and sexually transmitted infections.

Future interventions should consider broadening its scope to encompass more comprehensive approaches that address not only the traditional individual risk factors but also incorporate the structural, environmental, and cultural contexts that create risk environments for the LMW community. As previously discussed, Latino migrant workers are an extremely vulnerable population who are at an increased risk of experiencing negative health

outcomes due to various factors such as social, economic, or environmental disadvantage.

In conclusion, only further research of the intersection of alcohol use and high-risk sexual behaviors in the LMW community with a specific focus on Latinas will provide the necessary knowledge to address one of the many problems that affect one of the most disadvantaged populations in the US.

Conflict of Interest Statement

No conflict declared.

Funding Statement

This research was funded by a Nova Southeastern University's President's Faculty Research & Development Grant.

Acknowledgement

The authors thank the Latino migrant worker community in Immokalee Florida. This study could not have been conducted without their generous support and collaboration.

References

1. Migrant and seasonal agricultural worker protection act (MSPA). Department of Labor. <https://www.dol.gov/agencies/whd/agriculture/mspa>. Accessed March 28, 2023.
2. Agricultural Worker Fact Sheets & Reports. National Center for Farmworker Health. <http://www.ncfh.org/fact-sheets--reports.html>. Accessed March 28, 2023.
3. Sánchez J, Silva-Suarez G, Serna CA, De La Rosa M. The Latino Migrant Worker HIV Prevention Program. *Family & Community Health*. 2012;35(2):139-146. doi:10.1097/fch.0b013e3182465153
4. Magaña, C.G., Hovey, J.D. Psychosocial Stressors Associated with Mexican Migrant Farmworkers in the Midwest United States. *Journal of Immigrant Health* 2003; 5, 75–86. <https://doi.org/10.1023/A:1022955825650>
5. López Ann Aurelia. *The Farmworkers' Journey*. Berkeley: University of California Press; 2007
6. Serna CA, Sanchez J, Arevalo O, et al. Self-reported factors associated with dental care utilization among Hispanic migrant farmworkers in South Florida. *Journal of Public Health Dentistry*. 2020;80(3):186-193. doi:10.1111/jphd.12364
7. Sanchez, J. The Status of Latino Migrant Workers in the United States. In *Latinos in the 21st Century: Their Voices and Lived Experiences*. Ed.: Agnes Ragone. Nova Science Publishers 2018. *Faculty Books and Book Chapters*. 34. https://nsuworks.nova.edu/hpd_cox_facbooks/34
8. National Agricultural Workers Survey Public Data. Department of Labor. <https://www.dol.gov/agencies/eta/national-agricultural-workers-survey/data>. Accessed March 28, 2023.
9. A profile of undocumented agricultural workers in the United States. The Center for Migration Studies of New York (CMS). <https://cmsny.org/agricultural-workers-rosenbloom-083022/>. Published February 14, 2023. Accessed March 28, 2023.
10. Understanding binge drinking. National Institute on Alcohol Abuse and Alcoholism. <https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/binge-drinking>. Accessed March 28, 2023.
11. Halpern-Felsher BL, Millstein SG, Ellen JM. Relationship of alcohol use and risky sexual behavior: A review and analysis of findings. *Journal of Adolescent Health*. 1996;19(5):331-336. doi:10.1016/s1054-139x(96)00024-9
12. Thompson JC, Kao T-C, Thomas RJ. The relationship between alcohol use and risk-taking sexual behaviors in a large behavioral study. *Preventive Medicine*. 2005;41(1):247-252. doi:10.1016/j.ypmed.2004.11.008
13. Martins-Fonteyn EM, Sommerland N, Meulemans H, Degomme O, Raimundo I, Wouters E. Targeting vulnerable populations: A synthetic review on alcohol use and risky sexual behaviour among migrant populations. *AIDS Research and Therapy*. 2016;13(1). doi:10.1186/s12981-016-0117-8
14. Sánchez J. Alcohol use among Latino migrant workers in South Florida. *Drug and Alcohol Dependence*. 2015;151:241-249. doi:10.1016/j.drugalcdep.2015.03.025
15. McCoy HV, Shehadeh N, Rubens M. Alcohol use and sexual risk behaviors in a migrant worker community. *Journal of Immigrant and Minority Health*. 2015;18(3):561-567. doi:10.1007/s10903-015-0240-y
16. Kalichman SC, Simbayi LC, Kaufman M, Cain D, Jooste S. Alcohol use and sexual risks for HIV/AIDS in Sub-Saharan africa: Systematic review of empirical findings. *Prevention Science*. 2007;8(2). doi:10.1007/s11121-006-0061-2
17. Verma RK, Saggurti N, Singh AK, Swain SN. Alcohol and sexual risk behavior among migrant female sex workers and male workers in districts with high in-migration from four high HIV prevalence states in India. *AIDS and Behavior*. 2010;14(S1):31-39. doi:10.1007/s10461-010-9731-y
18. Cook RL, Clark DB. Is there an association between alcohol consumption and sexually transmitted diseases? A systematic review. *Sexually Transmitted Diseases*. 2005;32(3):156-164. doi:10.1097/01.olq.0000151418.03899.97
19. Rhodes SD, Hergenrather KC, Griffith DM, et al. Sexual and alcohol risk behaviours of immigrant Latino men in the south-eastern USA. *Culture, Health & Sexuality*. 2009;11(1):17-34. doi:10.1080/13691050802488405
20. Worby PA, Organista KC, Kral AH, Quesada J, Arreola S, Khoury S. Structural vulnerability and problem drinking among Latino migrant day laborers in the San Francisco Bay Area. *Journal of Health Care for the Poor and Underserved*. 2014;25(3):1291-1307. doi:10.1353/hpu.2014.0121
21. Apostolopoulos Y, Sonmez S, Kronenfeld J, Castillo E, McLendon L, Smith D. STI/HIV risks for Mexican migrant laborers: Exploratory

- ethnographies. *Journal of Immigrant and Minority Health*. 2006;8(3):291-292. doi:10.1007/s10903-006-9334-2
22. Sánchez J, Serna CA. Project Salud: Using community-based participatory research to culturally adapt an HIV prevention intervention in the Latino migrant worker community. *International public health journal*. 2012 Jul 1;4(3):301.
23. Watters JK, Biernacki P. Targeted sampling: Options for the study of hidden populations. *Social Problems*. 1989;36(4):416-430. doi:10.1525/sp.1989.36.4.03a00070
24. Hien DA, Campbell AN, Killeen T, et al. The impact of trauma-focused group therapy upon HIV sexual risk behaviors in the NIDA Clinical Trials Network "Women and Trauma" multi-site study. *AIDS and Behavior*. 2009;14(2):421-430. doi:10.1007/s10461-009-9573-7
25. CDC - 2020 BRFSS survey data and Documentation. Centers for Disease Control and Prevention. https://www.cdc.gov/brfss/annual_data/annual_2020.html. Published October 27, 2022. Accessed March 28, 2023.
26. Kissinger P, Liddon N, Schmidt N, Curtin E, Salinas O, Narvaez A. HIV/STI Risk behaviors among Latino migrant workers in New Orleans post-Hurricane Katrina disaster. *Sexually Transmitted Diseases*. 2008 Nov 1:924-9.
27. Simultaneous Alcohol and Marijuana Use Among Young Adults: A Scoping Review of Prevalence, Patterns, Psychosocial Correlates, and Consequences. *Alcohol Research*, Vol. 42, Issue 1, 2022. <https://arcr.niaaa.nih.gov/volume/42/1/simultaneous-alcohol-and-marijuana-use-among-young-adults-scoping-review-prevalence>. Accessed March 28, 2023.
28. Key Substance Use and Mental Health Indicators in the United States: Results from the 2018 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration (SAMHSA). <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHNationalFindingsReport2018/NSDUHNationalFindingsReport2018.htm>. Accessed March 28, 2023.
29. Erikson P, Bastani R, Maxwell AE, Marcus A, Capell F, Yan K. Prevalence of anal sex among heterosexuals in California and its relationship to other AIDS risk behaviors. *AIDS Education Prevention*. 1995; 7:477-493.
30. Gross M, Holte SE, Marmor M, Mwatha A, Koblin BA, Mayer KH. Anal sex among HIV-seronegative women at high risk of HIV exposure. *Journal of Acquired Immune Deficiency Syndromes*. 2000;24(4):393-398. doi:10.1097/00042560-200008010-00015
31. Hutton HE, Lesko CR, Li X, et al. Alcohol use patterns and subsequent sexual behaviors among women, men who have sex with men and men who have sex with women engaged in routine HIV care in the United States. *AIDS and Behavior*. 2018;23(6):1634-1646. doi:10.1007/s10461-018-2337-5
32. Painter TM. Connecting the dots: when the risks of HIV/STD infection appear high but the burden of infection is not known--the case of male Latino migrants in the southern United States. *AIDS Behav*. 2008 Mar;12(2):213-26. doi: 10.1007/s10461-007-9220-0. Epub 2007 Mar 21. PMID: 17373586.
33. Sangaramoorthy T, Kroeger K. Mobility, Latino Migrants, and the Geography of Sex Work: Using Ethnography in Public Health Assessments. *Hum Organ*. 2013 Fall;72(3):263-272. doi: 10.17730/humo.72.3.q1m53143x42p0653. PMID: 29731518; PMCID: PMC5931722.
34. Valentine JA, Delgado LF, Haderxhanaj LT, Hogben M. Improving Sexual Health in U.S. Rural Communities: Reducing the Impact of Stigma. *AIDS Behav*. 2022 Jan;26(Suppl 1):90-99. doi: 10.1007/s10461-021-03416-4. Epub 2021 Aug 26. PMID: 34436713; PMCID: PMC8390058.
35. Gender differences in the epidemiology of alcohol use and related harms in the United States. National Institute on Alcohol Abuse and Alcoholism. <https://arcr.niaaa.nih.gov/volume/40/2/gender-differences-epidemiology-alcohol-use-and-related-harms-united-states>. Accessed March 28, 2023.
36. Are women more vulnerable to alcohol's effects? -alcohol alert no. 46-1999. National Institute on Alcohol Abuse and Alcoholism. <https://pubs.niaaa.nih.gov/publications/aa46.htm>. Accessed March 28, 2023.
37. Cooper ML. Alcohol use and risky sexual behavior among college students and youth: Evaluating the evidence. *Journal of Studies on Alcohol, Supplement*. 2002;(s14):101-117. doi:10.15288/jsas.2002.s14.101
38. Scott-Sheldon LA, Carey MP, Carey KB. Alcohol and risky sexual behavior among heavy drinking college students. *AIDS and Behavior*. 2010;14(4):845-853. doi:10.1007/s10461-008-9426-9