HHS Public Access

Author manuscript

Alcohol Clin Exp Res. Author manuscript; available in PMC 2017 February 01.

Published in final edited form as:

Alcohol Clin Exp Res. 2016 February ; 40(2): 377–384. doi:10.1111/acer.12969.

Alcohol Consumption and Risk for Dependence among Male Latino Migrant Farmworkers Compared to Latino Non-Farmworkers in North Carolina

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Abstract

Aims—To describe alcohol consumption behavior of male Latino migrant farmworkers, compare their alcohol consumption behavior with that of other male Latino immigrants, and determine factors associated with risk for alcohol dependence among Latino immigrant workers.

Methods—Cross-sectional data were drawn from baseline interviews conducted as part of a larger community-based participatory research project examining the cognitive and neurological outcomes of pesticide exposure. A total of 235 farmworkers and 212 non-farmworkers completed interviews between May and August, 2012.

Results—Although 17.5% of the North Carolina Latino farmworkers report never having drunk alcohol, and a total of 34.5% report not having drunk alcohol in the previous three months, 48.5% engaged in heavy episodic drinking (HED) in the previous 3 months, and 23.8% frequently engaged in HED during this period. Farmworkers and non-farmworkers did not differ significantly in alcohol consumption behavior. Farmworkers and non-farmworkers did differ significantly in

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each component of the CAGE scale, with 37.9% of farmworkers and 16.0% of non-farmworkers being at risk for alcohol dependence ($p<0.0001$). Significant factors for being at risk for alcohol dependence were stress (Odds Ratio 1.06, 95% Confidence Interval 1.03, 1.09) and being a farmworker (Odds Ratio 3.58, 95% Confidence Interval 2.12, 6.06). Being married reduced the risk of alcohol dependence (Odds Ratio 0.45, 95% Confidence Interval 0.39, 0.87).

Conclusions—Latino farmworkers and non-farmworkers consume relatively large amounts of alcohol and engage in heavy episodic drinking at relatively high rates. Latino farmworkers have very high rates of risk for alcohol dependence. Policy changes and public health interventions are needed to address these concerns for a population that is vital to the agricultural economy.

Keywords

Farmworkers; immigrant workers; Latinos; heavy episodic drinking; alcohol dependence

Alcohol consumption among migrant and seasonal farmworkers is a serious public health concern (Gracia, 2007). The approximately one-million farmworkers in the United States (US) (Kandel, 2008; USDA, 2013) constitute a vulnerable population, with over 80% being Latino (Carroll et al., 2005). Like other Latino immigrant workers, migrant and seasonal farmworkers experience structural vulnerability (Quesada et al., 2011), which increases their risk for problem drinking (Worby et al., 2014). Structural vulnerability is a social situation that inflicts physical and emotional suffering on specific groups and individuals in patterned ways; structural vulnerability results from economic exploitation and all forms of social discrimination (Quesada et al. 2011). Although many farmworkers in the US live with their partners and children, many, particularly migrant farmworkers, are not accompanied by their families (Carroll et al., 2005). Most farmworkers are immigrants, with limited formal education, low incomes, and limited access to health care, who experience high rates of occupational injury and illness (Carroll et al., 2005; Arcury and Quandt, 2007; Villarejo, 2003; Villarejo and McCurdy, 2010). Half of all farmworkers are undocumented (Carroll et al., 2005). Farmworkers have little control of their workplace, and are reluctant to complain about unsafe work environments due to fear of job loss, harassment from authorities, and deportation (Grieshop et al., 1996; Quandt et al,. 1998; Hunt et al., 1999; Keifer et al., 2009; Arcury et al., 2012a). It is not clear if the structural vulnerability of farmworkers is greater than that of other immigrant Latino workers, or if their alcohol consumption and dependence is greater than that of other immigrant Latino workers.

Alcohol consumption and dependence among farmworkers is a concern due to their direct health effects (Cherry and Rost, 2009). Alcohol consumption and dependence also increase other risky behaviors, such as unsafe sex and violence (Duke et al., 2009, 2011; Brammeier et al., 2008; Kim-Godwin and Fox, 2009), and they impede occupational safety. Alcohol consumption and dependence can reduce the resources of these already economically vulnerable workers, and place them at risk for greater exploitation, such as wage theft (Robinson et al., 2011) and human trafficking (Barrick et al., 2014).

Anecdotal information about farmworker alcohol consumption abounds. At the same time, little research documents actual alcohol consumption or dependence among migrant and seasonal farmworkers (Grzywacz et al., 2007; Sánchez, 2015), and almost no research has

compared alcohol consumption or dependence of farmworkers with other Latino immigrants not engaged in farm work (Daniel-Ulloa et al., 2014). Current (2011) Behavior Risk Factor Surveillance System (BRFSS) results indicate that Hispanics are similar to non-Hispanic whites in heavy episodic drinking (HED) (four or more alcoholic drinks for women, five or more alcoholic drinks for men); 21.1% of non-Hispanic whites report HED in the previous month, with an average of 4.1 episodes at which they consumed an average of 6.8 drinks, and 17.7% of Hispanics report HED, with an average of 3.3 episodes at which they consumed 6.8 drinks (Kanny et al., 2013). Research on alcohol consumption and dependence among Latino immigrant workers in general indicates that consumption increases with time in the US, that they engage in HED, and that their alcohol consumption is associated with their low socioeconomic status and opportunities, and mental health, including stress and depression (Worby and Organista, 2007).

Prior studies focused on drinking behaviors of Latinos in North Carolina show higher levels of HED than those observed by BRFSS. Among Latino men living in rural North Carolina communities, 54% reported HED in the previous month, with 78% of those who reported drinking the past 12 months reporting HED (Daniel-Ulloa et al., 2014). About one-quarter of North Carolina Latino farmworkers did not consume alcohol, but about 40% of all participants and over half of participants who drank reported HED, and about a third of all North Carolina farmworkers and over half of those who drank met the criteria for being at risk for alcohol dependence or abuse (Grzywacz et al., 2007). Similar high levels of HED have been reported among Latino migrant workers in South Florida. Although 5.6% did not consume alcohol, a third of all participants and half of those who drank reported HED; 8.6% of all participants and 13.4% of drinkers abused or were dependent on alcohol (Sánchez, 2015). Other research in North Carolina (Kim-Goodwin and Fox, 2009) and Florida (Cherry and Rost, 2009) indicates high levels of potential alcohol abuse among farmworkers. Garcia (2007, 2008) argues that relatively high levels of alcohol abuse and dependence among farmworkers result from nontraditional and crowded living arrangements, social isolation, and the absence of kin and family.

More information is needed about alcohol consumption and dependence among Latino farmworkers, the degree to which farmworkers differ from other Latino immigrants in alcohol consumption, and factors associated with farmworker being at risk for alcohol dependence so that culturally appropriate interventions can be developed. This analysis uses data collected from Latino farmworker and non-farmworker adult men in North Carolina to address three specific aims. It describes alcohol consumption behavior of male Latino migrant farmworkers. It compares alcohol consumption behavior of male Latino migrant farmworkers with that of other male Latino immigrants. It determines factors associated with being at risk for alcohol dependence based on research on alcohol consumption and dependence among Latino immigrant workers in general (Worby and Organista, 2007), including age and education, depressive symptoms, stress, and being a farmworker.

MATERIALS AND METHODS

Data for this analysis were collected by PACE4 (Preventing Agriculture Chemical Exposure 4), a community-based participatory research project examining the cognitive and

neurological outcomes of pesticide exposure. PACE4 compares Latino migrant farmworkers with Latino non-farmworker migrants in North Carolina. The primary community partners for the project are the North Carolina Farmworkers Project (Benson, NC) and El Buen Pastor Latino Community Services (Winston-Salem, NC). Latino farmworkers were recruited from three counties (Harnett, Johnston, Sampson) in east central NC that are served by the NC Farmworkers Project. Latino non-farmworkers were recruited from Forsyth County in the west central region of the state. PACE4 was reviewed and approved by the Wake Forest School of Medicine Institutional Review Board. All participants gave signed informed consent.

Participants

Participants were men, aged 30 to 70 years, who self-identified as Latino or Hispanic, and did not have a diagnosis of diabetes. Farmworkers had to be currently employed as farmworkers and to have worked in agriculture for at least three years; non-farmworkers could not have been employed for the past 3 years in jobs that expose workers to pesticides, including farm work, forestry, landscaping, grounds keeping, lawn maintenance, and pest control. The inclusion and exclusion criteria reflect the needs of the parent study, which examined subclinical cognitive and neurological outcomes of pesticide exposure (Arcury et al., 2014). The inclusion and exclusion criteria limit the representativeness of the sample. Specifically, younger adults below the age of 30 were excluded. Women were also excluded. Farmworkers who were new to working in US agriculture were excluded. These younger adults, women, and recent farmworkers may have had different patterns of alcohol consumption than those included in this research.

Community partners helped with recruitment. NC Farmworkers Project staff approached farmworker camps that they served, explained the project to the residents, including the inclusion and exclusion criteria, time commitments, and asked for volunteers. Volunteers were screened to ensure that they met the inclusion criteria. Winston-Salem staff worked with El Buen Pastor Latino Community Services and other community organizations to identify potential participants who were contacted by project staff. Project staff explained the project, including the inclusion and exclusion criteria, time commitments, and asked if the individual wanted to volunteer. Volunteers were screened to ensure that they met the inclusion criteria.

A total of 235 farmworkers and 212 non-farmworkers completed the baseline interviews. Groups of farmworkers were asked to volunteer; only the number who agreed to volunteer is available (the denominator is not known). Generally, all of the farmworkers in a camp who met the inclusion criteria volunteered. Individual farmworkers who did not want to participate could have avoided contact with the project staff or may have indicated that they did not meet the inclusion criteria to avoid refusal. Among the non-farmworkers, 101 individuals were contacted and found not to meet the inclusion criteria. Of those contacted and meeting the inclusion criteria, 87 individuals refused to participate for a participation rate of 70.9% (212/(87+212)). Reasons given for refusing included the time commitment and length of the study (51), blood draws (27), need to come to a clinic for data collection

(31), and providing contact information (30) (individuals could give more than one reason for refusing).

Data collection

Participants completed baseline interviews from May through August, 2012. This interview contained items used to construct measures of alcohol behavior and dependence, and personal characteristics. The interview questionnaire was developed in English and translated into Spanish. Existing Spanish items and scales were used when available. The Spanish and English versions were checked for comparable meaning for each item, and item wording was adjusted as needed. The questionnaire was pre-tested with several native Spanish speakers, and final corrections were made.

Interviewers were native Spanish speakers. They completed training that addressed questionnaire content and proper interview technique. Baseline interviews with farmworkers were conducted in their camps, and baseline interviews with non-farmworkers were conducted in their homes or in a neutral site, such as a church. Participants were provided with a $30 cash incentive for completing the baseline interview. Study data were collected and managed using Research Electronic Data Capture (REDCap) hosted at Wake Forest School of Medicine (Harris et al., 2009). REDCap is a secure, web-based application designed to support data capture for research studies.

Measures

Measures of alcohol use and dependence are based on Spanish language items used in previous research (Grzywacz et al., 2007). *Never drank alcohol* is a dichotomous measure. *Drink beer* is a categorical variable describing how frequently participants consumed beer in the past three months: not at all, once a month or less, 2–3 times per month, weekly/daily. The same information was collected on frequency of consuming wine and liquor, but so few participants reported consuming either that they are reported as the dichotomous measures: *drink wine* in last three months, and *drink liquor* in last 3 months. *Any alcohol consumption* uses the maximum frequency of drinking beer, wine, or liquor in the past 3 months, and has the values: not at all, once a month or less, 2–3 times per month, weekly/daily. *Typical alcohol consumption* in the past 3 months examines the consumption of beer, wine, and/or liquor, and has the values: did not drink, 1 to 4 drinks per day, 5 to 8 drinks per day, and 9 or more drinks per day. Participants were told that a drink was a “12 ounce can or bottle of beer, or malt beverage; a 5 ounce glass of wine; 1 wine cooler; or 1 shot of liquor.” *Heavy episodic drinking* (HED) in the past 3 months examines the consumption of beer, wine, and/or liquor, and has the values: no HED (did not drink; never 5 or more drinks at one time), seldom HED (5 or more drinks at one time once per month or less), and frequent HED (5 or more drinks at one time 2–3 times per month or more). The Spanish version (4M) of the CAGE questionnaire was used to screen for alcohol abuse and dependence (Cherpitel, 1999; Saitz et al., 1999). It consists of 4 questions about perceptions of drinking behavior: (1) Have you ever had the impression that you should drink less? (2) Have you ever been bothered by people’s criticism about your drinking habits? (3) Have you ever felt bad or guilty for your drinking habits? (4) Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover? Positive responses coded 1. Scores range

from 0 to 4, with higher scores indicating greater likelihood of problem drinking; a score of 2 or more is used to indicate *risk for alcohol dependence* (Mayfield et al., 1974; Grzywacz et al., 2007). Participants who reported ever consuming alcohol completed the CAGE items. Those who reported never having consumed alcohol were given a score of 0 for the CAGE; they were included in the analysis to provide estimates of risk for alcohol dependence and factors related to alcohol dependence for the entire population.

Personal characteristics include *age* (30 to 34 years, 35 to 44 years, and 45 years or older), *married or living as married*, formal *education* (0 to 6 years, 7 to 11 years, 12 or more years), and *Mexico* as country of birth. *Dominant language of Spanish* is a dichotomous measure. *H-2A visa* status is a dichotomous measure that applies to farmworkers. An H-2A visa is a temporary work permit limited to agricultural workers. Those with an H-2A visa must return to their country of origin each year. Some farmworkers with H-2A visas stay in North Carolina from April through October (seven months), but most are in North Carolina from May or June through October (five or six months). Therefore, these farmworkers live with their families for five to seven months each year. Depressive symptoms were measured with a validated Spanish language version of the Center for Epidemiologic Studies Depression Scale Short Form (CES-D 10) (Kohout et al., 1993; Grzywacz et al., 2006). Participants ranked experiences in the past week on a 4-point scale of 0 (rarely or none of the time) to 3 (most or all of the time). *Depression caseness* was determined to be a sum greater than or equal to 10 out of a possible score of 30. The Cronbach's α was 0.70. *Stress* was measured using items from the Spanish language Migrant Farmworker Stress Inventory (Hiott et al., 2008; Hovey & Seligman, 2005). The 17-question self-reported measure assesses the exposure and the severity of stress intrinsic to immigrants. Responses were based on a 5-point scale (have not experienced to extremely stressful). Possible scores spanned 0 to 68; Cronbach's α was 0.73. Specific o*ccupations* include farm work, construction, manufacturing, food preparation /restaurant, maintenance/cleaning, sales, transportation /truck driver, mechanic, other, and unemployed.

Statistical Analysis

Frequencies and percentages were calculated for participant characteristics of interest and alcohol behaviors by farmworker status. For each of these variables, Chi-Square or Fisher's Exact tests were used as appropriate to test for significant differences between farmworkers and non-farmworkers. A multiple logistic regression model was used to examine the association between farmworker status and risk for alcohol dependence, adjusting for age, education, depression caseness, and stress. All analyses were performed using SAS 9.4 (SAS Institute, Cary, NC) and p-values of less than 0.05 were considered statistically significant.

RESULTS

Participant Characteristics

Farmworkers and non-farmworkers were similar in age, with about one-third in each of the age groups of 30 to 34 years, 35 to 44 years, and 45 years and older (Table 1). More farmworkers than non-farmworkers were married. More farmworkers than non-farmworkers

have low formal education, with 44.4% of the farmworkers having 0 to 6 years, compared to 34.6% of the non-farmworkers, and 46.6% of the farmworkers compared to 33.6% of the non-farmworkers having 7 to 11 years. All of the farmworkers were born in Mexico, with 70.3% of the non-farmworkers being born in Mexico. Spanish was the dominant language for almost all farmworkers and non-farmworkers. Most of the farmworkers had H-2A visas. Farmworkers and non-farmworkers did not differ in the percentage of those with depression caseness, or mean stress level. Many (44.3%) of the non-farmworkers worked in construction and 16.5% worked in manufacturing. Fewer than 10% of the non-farmworkers were employed in each of the other occupations.

Farmworker Alcohol Consumption

About one-in-six (17.5%) farmworkers never had drunk alcohol (Table 2). Over one-third (34.5%) did not drink any beer in the previous three months, while one-quarter drank beer at least weekly. Few drank wine (5.5%) or liquor (6.0%). One-third of the farmworkers had no alcohol consumption, and one-quarter had weekly alcohol consumption in the previous three months. Almost one-third (30.6%) of the farmworkers drank 1 to 4 drinks on the days they drank, with 17.9% consuming 5 to 8 drinks, and 17.0% consuming 9 or more drinks. About a quarter (24.7%) of the farmworkers seldom engaged in HED, and another quarter (23.8%) frequently engaged in HED.

Over half (52.3%) of the farmworkers had the impression they should drink less, with 25.5% stating that they were bothered by criticism of their drinking, 30.2% feeling bad or guilty about their drinking, and 14.9% drinking first thing in the morning. Over one-third (37.9%) of the farmworkers had a score of 2 or higher on the CAGE, indicating that they were at risk for alcohol dependence.

Farmworker and Non-Farmworker Alcohol Consumption Compared

Farmworkers and non-farmworkers were similar in the frequency and consumption of alcohol, with about the same percentage that never had drunk alcohol, had not drunk alcohol in the previous 3 months, and had drunk beer at least once per week. About the same percentage drank wine in the previous 3 months. More non-farmworkers (11.3%) than farmworkers (6.0%) drank liquor in the previous 3 months, but the absolute numbers were small. Any alcohol consumption was similar for farmworkers and non-farmworkers, as was typical alcohol consumption. Farmworkers and non-farmworkers did not differ in the percent who seldom (24.7% versus 20.1%) or frequently (23.8% versus 21.1%) engaged in HED.

Farmworkers and non-farmworkers differed consistently in their response to the CAGE items. More farmworkers than non-farmworkers indicated that they had the impression they should drink less (52.3% versus 24.5%; $p<0.0001$), that they were bothered by criticism of their drinking (25.5% versus 10.4%; $p<0.0001$), that they felt bad or guilty about their drinking habits (30.2% versus 15.6%; $p=0.0003$), and that they drank first thing in the morning to calm down or treat a hangover (14.9% versus 7.6%; $p=0.0147$). The percentage of farmworkers at risk for alcohol dependence is over twice that of non-farmworkers (37.9% versus 16.0%; $p<0.0001$).

The odds of being at risk for alcohol dependence for farmworkers were 3.58 times the odds (95% confidence interval 2.12, 6.06) for non-farmworkers when controlling for age, education, depression caseness, and stress (Table 3). For a one point increase in stress, there is a 6% increase in the odds of being at risk for alcohol dependence. Being married reduced the risk of alcohol dependence (Odds Ratio 0.45, 95% Confidence Interval 0.39, 0.87).

DISCUSSION

Although 17.5% of the North Carolina Latino farmworkers in this study report never having drunk alcohol, and a total of 34.5% report not having drunk alcohol in the previous three months, almost half engaged in HED in the previous 3 months, and almost a quarter engaged in HED frequently during this period. Beer was the alcoholic beverage that farmworkers usually drank. Farmworkers and Latino non-farmworkers in this study did not differ in these alcohol consumption behaviors. Farmworkers and non-farmworkers did differ in rates of risk for alcohol dependence. Significantly more farmworkers than non-farmworkers agreed with each of the four CAGE items, and 37.9% of farmworkers compared to 16.0% of non-farmworkers met the criteria for risk for alcohol dependence.

Considerably more of the Latino farmworkers and non-farmworkers reported HED in the previous three months (48.5% and 41.2%, respectively) than the 17.7% the BRFSS found for Hispanics in the previous month (Kanny et al., 2013). The number of farmworkers and non-farmworkers reporting HED is also greater than the number of Non-Hispanic whites (21.1%) and Non-Hispanic Blacks (14.2%) reporting HED in the BRFSS. The percent of all rural North Carolina Latinos (54%) and percent of rural North Carolina Latinos who drank (78%) reporting HED (Daniel-Ulloa et al., 2014) is similar to the numbers for all farmworkers and non-farmworkers reporting HED (48.5% and 41.2%, respectively), and farmworkers and non-farmworkers who drank and reported HED (74.0% and 64.0%, respectively). The alcohol consumption characteristics for the farmworkers in this study are very similar to those reported for farmworkers in an earlier North Carolina study (one-quarter non-drinkers, 40% engaged in HED; Grzywacz et al., 2007), and a more recent study with Florida farmworkers (over one-third non-drinkers, one-third engaging in HED; Sánchez 2015).

Farmworkers in this study report much higher rates of risk for alcohol dependences than the non-farmworkers. The rates of farmworker risk for dependence found in this study (37.9%) are similar to those reported in earlier studies of North Carolina farmworkers (Grzywacz et al., 2007; Kim-Godwin and Fox, 2009), as well as the 44% of farmworker clinic patients in Florida who screened positive for harmful and hazardous alcohol use. However, these rates are much higher than the rates of 8.5% for all participants and 13.4% for drinkers reported for farmworkers in South Florida (Sánchez, 2015).

The high level of risk for alcohol dependence among these Latino farmworkers reflects their structural vulnerability (Quesada et al., 2011). Garcia (2007, 2008) argues that the relatively high levels of alcohol abuse and dependence among farmworkers result from nontraditional and crowded living arrangements, social isolation, and the absence of family. These are the living conditions of the North Carolina farmworkers who participated in this study (Arcury

et al., 2012b, 2012c). Almost all of the participants had H-2A visas. These visas provide farmworkers with some protections, but at the same time they may experience intimidation from their employers (Bauer, 2007; Arcury et al., 2015). Although most of these farmworkers are married or living as married, none would be living with their wives and families as they could not afford to bring them to the US, and their employers would not provide room and board for them while living in the farmworker camps. Other research has shown that migrant farmworker housing in North Carolina is substandard and crowded (Arcury et al., 2012b; Quandt et al., 2013a, 2013c), and often does not provide for farmworker privacy or security (Arcury et al., 2012b). Although farmworker housing for workers with H-2A visas is often better than that for other migrant farmworkers, it often does not meet the requirements of housing regulation (Arcury et al., 2012b).

Stress, in addition to being a farmworker, had a significant association with risk for alcohol dependence in the multivariate analysis. Earlier analyses (Kim-Godwin and Bechtel, 2004; Hiott et al., 2008) found high levels of stress among Latino farmworkers in North Carolina. Specific attributes of stress among farmworkers were the legality and logistics, mobile lifestyle, social isolation, and work conditions. These stressors reflect the factors identified by Garcia (2007, 2008) that lead to high levels of alcohol abuse and dependence.

These results should be interpreted in the context of this study's limitations. Although the samples are large and representative of Latino farmworkers and non-farmworker men in North Carolina, they were not randomly selected. Participants were recruited from a few counties in a single state. Caution should be used in generalizing results. Standard items and validated scales were used to collect information on alcohol consumption and dependence, but these data are based on self-reports.

These results do have implications for public health intervention and policy, the limitations notwithstanding. The production of agricultural products in North Carolina and other states in the Southeast is dependent on the labor of Latino migrant farmworkers. Health outreach workers and health care providers should include alcohol screening in their standard activities, and implement education programs addressing the direct risks of alcohol consumption and the indirect risks of unsafe sex, and violence (Duke et al., 2009, 2011; Brammeier et al., 2008; Kim-Godwin and Fox, 2009). Policy should be implemented that may reduce HED among migrant farmworkers. These policies should reduce the substandard housing in which farmworkers live, the harsh work conditions which they endure, and the social isolation that they experience. Culturally-appropriate interventions to reduce alcohol dependence need to be developed (Garcia, 2007, 2008). These interventions should increase communications of farmworkers with their families. They should reduce social isolation among migrant farmworkers in their labor camps, and make recreational activities other than alcohol consumption available to these workers.

Acknowledgments

Source of Support

This work was supported by the National Institute of Environmental Health Sciences (Grant R01 ES008739).

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Table 1

Participant Characteristics PACE4 Project, 2012, n=447.

Participant Characteristics	Farmworkers n=235		Non-farmworkers n=212		p-value
	n	%	n	%	
Age					0.2418
30 to 34 years	86	36.6	65	30.7	
35 to 44 years	87	37.0	77	36.3	
45 years and older	62	26.4	70	33.0	
Married/living as married	221	94.0	150	70.8	<.0001
Education*					<.0001
0 to 6 years	104	44.4	73	34.6	
7 to 11 years	109	46.6	71	33.6	
12 or more years	21	9.0	67	31.8	
Country of Birth – Mexico	235	100.0	149	70.3	<.0001
Dominant Language – Spanish	232	98.7	211	99.5	0.6253
H-2A Visa	218	92.8			
Depression Caseness	21	8.9	14	6.6	0.3594
Stress (mean, SD)	17.3	7.3	15.8	9.7	0.0535
Occupation					
Farm work	235	100.0			
Construction			94	44.3	
Manufacturing			35	16.5	
Food preparation/restaurant			14	6.6	
Maintenance/cleaning			18	8.5	
Sales			14	6.6	
Transportation/Truck driver			9	4.3	
Mechanic			13	6.1	
Other			4	1.9	
Unemployed			11	5.2	

*missing observations for 1 farmworker and a non-farmworker

Table 2

Alcohol Behavior and Dependence, Latino Farmworkers and Non-Famworkers, PACE4 Project, 2012, n=447.

Alcohol Behavior and Dependence	Farmworkers n=235		Non-farmworkers n=212		p-value*
	n	%	n	%	
Never Drank Alcohol	41	17.5	35	16.5	0.7922
Drink Beer					0.3884
Not at all	81	34.5	87	41.0	
Once a month or less	46	19.6	40	18.9	
2–3 times per month	49	20.9	33	15.6	
At least once per week or daily	59	25.1	52	24.5	
Drink Wine	13	5.5	17	8.0	0.2940
Drink Liquor	14	6.0	24	11.3	0.0423
Any Alcohol Consumption**					0.3367
Not at all	81	34.5	86	40.6	
Once a month or less	44	18.7	41	19.3	
2–3 times per month	51	21.7	33	15.6	
At least once per week or daily	59	25.1	52	24.5	
Typical Alcohol Consumption***					0.4585
Did not drink	81	34.5	86	41.7	
1 to 4 drinks per day	72	30.6	55	26.7	
5 to 8 drinks per day	42	17.9	35	17.0	
9 or more drinks per day	40	17.0	30	14.6	
Heavy Episodic Drinking (HED)†					0.3084
No HED	121	51.5	114	58.8	
Seldom HED	58	24.7	39	20.1	
Frequent HED	56	23.8	41	21.1	
CAGE					
Impression should drink less	123	52.3	52	24.5	<0.0001
Bothered by criticism	60	25.5	22	10.4	<0.0001
Felt bad or guilty	71	30.2	33	15.6	0.0003

Alcohol Clin Exp Res. Author manuscript; available in PMC 2017 February 01.

Alcohol Behavior and Dependence	Farmworkers n=235		Non-farmworkers n=212		p-value*
	n	%	n	%	
Drink first thing in the morning	35	14.9	16	7.6	0.0147
Sum					<0.0001
0	95	40.4	144	67.9	
1	51	21.7	34	16.0	
2	46	19.6	17	8.0	
3	26	11.1	13	6.1	
4	17	7.2	4	1.9	
Alcohol Dependence	89	37.9	34	16.0	<0.0001

*Chi-Square or Fisher's Exact test

**Maximum frequency of beer, wine, or liquor

***Missing 6 observations for non-farmworkers

†Missing 18 observations for non-farmworkers

Table 3

Logistic Regression Analysis of Alcohol Dependence, Latino Farmworkers and Non-Farmworkers, PACE4 Project, 2012, n=445.

	Adjusted Odds Ratio	95% Confidence	Interval	p-value
Age				
35 to 44 years versus 30 to 34 years	0.85	0.49	1.45	0.54
45 or more years versus 30 to 34 years	1.12	0.63	1.98	0.70
Education				
0 to 6 years versus 12 or more years	1.80	0.86	3.75	0.12
7 to 11 years versus 12 or more years	1.74	0.83	3.64	0.14
Married/living as married (versus Not married)	0.45	0.23	0.87	0.01
Depression Caseness	0.88	0.39	1.96	0.75
Stress	1.06	1.03	1.09	0.0001
Farmworker	3.58	2.12	6.06	<0.0001