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Alcohol use and problems among Latinas at risk of an alcohol-exposed pregnancy: The role of acculturation and interpersonal factors

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Abstract

Path analysis was used to examine the role of acculturation, helping relationships, partner status, age, and education on heavy drinking and alcohol problems among 119 Latina adults at risk of an alcohol-exposed pregnancy (AEP). Greater acculturation was positively related to more helping relationships and heavy drinking, and there was an indirect positive relationship between acculturation and alcohol problems. There was also a positive relationship between helping relationships and alcohol problems, and a negative relationship between helping relationships and being partnered. Knowledge of the mechanisms by which acculturation and interpersonal factors influence behavior change can inform potential targets for intervention among Latinas with AEP risk.

Keywords

acculturation; alcohol-exposed pregnancy; interpersonal relationships; Latinas

Introduction

Fetal alcohol spectrum disorders (FASDs) are lifelong neurodevelopmental disorders that severely affect individuals and society (Velasquez, Ingersoll, Sobell, & Sobell, 2015). Prevalence rates of these disorders in the United States range from 1.1% to 5.0%, thus representing a substantial public health concern (May et al., 2018; Tan, Denny, Cheal, Sniezek, & Kanny, 2015). Helping relationships and social support are important for behavior change and may be relevant when examining risk of alcohol-exposed pregnancies (AEP). For example, studies have found that having a supportive social network can facilitate and reinforce positive changes associated with substance use behavior (DiClemente, 2018; McCrady, 2006). Most research and treatment efforts addressing

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substance use and AEP have focused on individual-level factors of behavior change, and less is known about interpersonal factors such as helping relationships (Graham, Young, Valach, & Alan Wood, 2008; Hunter-Reel, McCrady, & Hildebrandt, 2009), especially among racial and ethnic minorities such as Latinas.

Examining risky alcohol use among Latinas is critical given that Latinas may experience more negative outcomes related to risky alcohol use and treatment (Zemore et al., 2014). As the largest ethnic minority group in the United States, comprising 18.3% of the population (U.S. Census Bureau, 2019), Latinx experience significant disparities in access to and quality of treatment for substance misuse (Alegria et al., 2006; Vaeth, Wang-Schweig, & Caetano, 2017; Zemore et al., 2014). Compared to Whites and African Americans, Latinx receive less frequent substance use treatment services, and when they do receive services, they are more likely to be served by programs with fewer on-site resources (Marsh, Cao, Guerrero, & Shin, 2009). In addition, Latina women with alcohol use disorder access substance use treatment at a lower rate than Latino men (2.5% vs. 6.8%, respectively; Zemore et al., 2014). Learning about helping relationships among Latinas at risk of an AEP may lead to better understanding of the behavior change process; this knowledge could augment treatment and help address treatment disparities in this potentially high-risk population.

Although helping relationships are shaped by sociocultural context, little is known about sociocultural factors associated with helping relationships and alcohol use among Latinas. Social contextual factors such as helping relationships may be particularly relevant among Latinx, given this population's collectivistic orientation (Caetano, Vaeth, & Canino, 2017; Canino, Vega, Sribney, Warner, & Alegria, 2008; Cano et al., 2018; Fish, Maier, & Priest, 2015; Sabogal, Marín, Otero-Sabogal, Marín, & Perez-Stable, 1987). Notably, due to the salience of family in the social context of Latinx people, studies examining helping relationships in this population have focused primarily on family cohesion and support (Almeida, Subramanian, Kawachi, & Molnar, 2011; Caetano et al., 2017; Cano et al., 2018; Fish et al., 2015; Rodriguez, Mira, Paez, & Myers, 2007). These studies generally found that family support is protective and conducive to better substance use outcomes. For instance, Cano and colleagues (2018) found that social support mediated the relationship between family cohesion and alcohol use severity among Latinx immigrants, such that high levels of family cohesion were related to more social support and lower levels of alcohol use severity.

Acculturation is a multidimensional process whereby individuals experience changes in beliefs and behaviors due to exposure and adaptation to a new social context (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). Acculturation can be a factor for risky alcohol use due to its potential to increase stress and expose individuals, particularly Latinas, to more permissive norms regarding substance use (Castro & Coe, 2007; Rote & Brown, 2013). Numerous studies have found an association between acculturation and alcohol use, with acculturation having a stronger influence on Latinas' alcohol use behavior compared to that of Latino men (Amaro, Whitaker, Coffman, & Heeren, 1990; Lee, Almeida, Colby, Tavares, & Rohsenow, 2016; Vega, Alderete, Kolody, & Aguilar-Gaxiola, 1998). Moreover, binge drinking, which has been found to be comparable among racial and ethnic minority groups (Substance Abuse and Mental Health Services Administration, 2014) and is a risk

factor for FASDs, is more prevalent among highly acculturated Latinas (Ramisetty-Mikler, Caetano, & Rodriguez, 2010). Although alcohol use during pregnancy is more common among native-born Latinas, studies found that foreign-born Latinas were also at high risk of alcohol use during pregnancy (Perreira & Cortes, 2006). Compared to White women, Latinas who binge drink months before pregnancy were less likely to stop drinking while pregnant (Tenkku, Morris, Salas, & Xaverius, 2009). Combined with disparities in access and quality of health care, Latinas with risky alcohol use are a vulnerable group. Therefore, more research is needed to understand the role of risk and protective factors such as helping relationships in the process of changing alcohol behavior.

Researchers have reported mixed findings related to acculturation and helping relationships. A study by Rodriguez and colleagues (2007) using a multilevel measure of acculturation found that although lower levels of acculturation were associated with more perceived well-being and family support, higher acculturation was not associated with more family conflict, as might be expected. Most studies, however, have found that stress related to acculturation is associated with loss of social support. Individuals may experience a disruption or loss of social cohesion and support as they acculturate, whereas lack of familiarity with formal support systems in newer environments may lead less acculturated individuals to rely on family social networks for support (Miranda, Estrada, & Firpo-Jimenez, 2000).

The role of helping relationships in alcohol use and problems among women at risk of an AEP can also be examined in the context of marital status. Among Latinas, low levels of acculturation and younger age at marriage were related to lower levels of substance use (Rote & Brown, 2013). Another study found that compared to Whites and African Americans, Latinas who had a supportive relationship with their partner were less likely to engage in substance use during pregnancy (Perreira & Cortes, 2006). Rodriguez and colleagues (2007) found higher perceptions of family support among Latinx who were married or partnered and among Latinas compared to Latino men. It is important to consider that interpersonal relationships may not only facilitate but could also hinder behavior change related to problematic alcohol use among women at risk of an AEP (Canino et al., 2008; McCrady, 2006; Rodriguez et al., 2007). Little is known, however, about the relationship of marital status with helping relationships and alcohol problems among Latinas at risk of an AEP.

The relationship of age and years of education with heavy alcohol use and problems among Latinas at risk of an AEP should also be considered. A recent study among Latinas at risk of an AEP found that alcohol consumption and alcohol-related problems were positively associated with age (Hernandez, von Sternberg, Castro, & Velasquez, 2019). In addition, participants with fewer years of education had more alcohol-related problems. Examining these demographic characteristics in the context of helping relationships can provide further insight regarding the role of these correlates in alcohol use and problems among Latina adult women at risk of an AEP.

This study sought to examine the role of acculturation, helping relationships, partner status, age, and education on heavy drinking and alcohol problems among adult Latinas at risk of an AEP. We hypothesized that: (a) more days of heavy drinking would be predicted by

higher levels of acculturation, fewer helping relationships, not being partnered, older age, and fewer years of education; (b) greater alcohol problems would be predicted by higher levels of acculturation, fewer helping relationships, not being partnered, older age, fewer years of education, and more days of heavy drinking; (c) more helping relationships would be predicted by lower levels of acculturation and being partnered; and (d) acculturation would have an indirect effect on alcohol problems through helping relationships.

Methods

Participants

The study used baseline data from a randomized controlled trial testing the efficacy of CHOICES Plus, an intervention targeting risky alcohol and tobacco use among women at risk of an AEP in primary care clinics (Velasquez et al., 2017). Women (N = 261) were recruited from primary care clinics operated by Harris Health, a large urban safety-net health care system in Houston, Texas. Data were collected by trained research assistants in the participants' preferred language (i.e., English or Spanish) at 12 participating primary care clinics. Further information on data collection procedures in the parent study can be found elsewhere (Velasquez et al., 2017). Participants met the following inclusion criteria: (a) aged 18–44; (b) not sterile; (c) not pregnant or planning to become pregnant in the next 9 months; (d) had vaginal intercourse with a man with no known fertility problems during the past 3 months without using effective contraception; (e) drank at risky levels (more than three drinks per day on any day or more than seven drinks per week on average) in the previous 3 months. All participants provided written informed consent under protocols approved by the institutional review boards of the University of Texas at Austin, Baylor College of Medicine, and Harris Health System.

Measures

Alcohol problems.—Alcohol problems were measured using items from the Alcohol Use Disorder Identification Test (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993). The measure has been validated with Latinx and found to have good validity for this group (Cherpitel & Borges, 2000). The self-rated screening instrument consists of 10 items examining harmful alcohol consumption, drinking behaviors, and alcohol problems. Only items related to drinking behaviors and problems (Items 4–10) were included in the model, creating a range of 0–28. A systematic review found seven studies that indicated that a two-factor solution (Items 1–3 regarding consumption, Items 4–10 regarding problems) is preferable for this measure (de Meneses-Gaya, Zuardi, Loureiro, & Crippa, 2009). Items 4–10 included in the model had moderate internal consistency (α = .79).

Heavy drinking days.—The Timeline Follow-back was used to measure heavy drinking days (Sobell & Sobell, 1992). This approach is widely used to examine alcohol consumption among diverse groups including Latinx (Dillon, Turner, Robbins, & Szapocznik, 2005). Specifically, the number of standard alcoholic drinks (i.e. drinks containing 0.6 fluid ounces or 14 grams of pure alcohol) the participant consumed each day for the 30 days prior to baseline was recorded. A heavy drinking day was defined as a day when more than three drinks were consumed, consistent with federal guidelines for women (National Institute

on Alcohol Abuse and Alcoholism, 2018). The variable exhibited moderate skewness and kurtosis; therefore, a square root transformation was applied. The transformation improved the variable's distribution, as seen in *z*-score values and graphical methods (Tabachnick & Fidell, 2007).

Acculturation.—Participants' acculturation was assessed using the Short Acculturation Scale for Hispanics (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). This instrument has been used extensively in studies examining alcohol use among Latinx. The 12-item measure examines three components of acculturation—language, media, and ethnic relations—using a 5-point Likert scale ranging from 1 (*low acculturation*) to 5 (*high acculturation*) regarding American culture. Items include "What language(s) do you usually speak at home?" for the language subscale; "In what language(s) are the T.V. programs you usually watch?" for the media subscale; and "The persons you visit or who visit you are?" for the ethnic relations subscale. Average scores range from 1 to 5, with scores 2.99 and below representing low acculturation and those above this cutoff indicating higher levels of acculturation. The internal consistency was excellent ($\alpha = .95$).

Helping relationships.—The helping relationships variable was examined using the Process of Change measure (Prochaska, Velicer, DiClemente, & Fava, 1988). This measure consists of experiential and behavioral domains measured on a 5-point Likert scale ranging from 1 (*low*) to 5 (*high*). Helping relationships is part of the behavioral processes domain. It consists of two items: "I can talk to at least one special person about my drinking experiences" and "I have someone who listens when I want to talk about my drinking." The internal consistency of these items was good ($\alpha = .82$).

Analysis

Bivariate analyses included Pearson correlations for continuous variables and independent samples *t*-tests when examining the mean differences between two groups. Primary analyses were conducted using path analysis with maximum likelihood estimation to test our hypothesized model examining acculturation, helping relationships, partner status, age, and education as predictors of heavy drinking and alcohol problems. Three participants had missing items in the acculturation measure. One participant had two missing items and two participants had one missing item. For these participants, we used the remaining 10 items and 11 items, respectively, to calculate the mean. Three other participants had missing data; one had all items missing for acculturation, one had all items missing for helping relationships, and another had all items missing for alcohol problems. Therefore, these data were casewise deleted. In addition, the distribution of the outcome variable, alcohol problems, indicated an outlier that was removed. Model fit statistics included the comparative fit index (CFI; target $\geq .95$) and the root mean square error of approximation (RMSEA; target $\leq .05$; Kline, 2011). Bootstrapping included 10,000 resamples to obtain confidence intervals for indirect effects. Analyses were performed using Mplus 8.1.

Results

Participant Characteristics

Of the 261 participants, 123 (47%) self-identified as Latinas. As noted, data for four participants were removed, resulting in 119 participants. On average, participants were 29 (*SD* = 6.84) years old and had 10.91 (*SD* = 3.25) years of education (Table 1). Fifty-four (45%) participants were foreign born. Specifically, 48 (89%) were born in Mexico, five (9%) in Central America, and one in the Caribbean (2%). On average, these 54 women had been living in the United States for 15 years (*SD* = 5.69) and had an average age of 30 years (*SD* = 6.95).

Marital status was dichotomized as partnered (i.e., married or cohabitating) or not partnered. Most participants were partnered (*n* = 68; 57%). Given that marital status was grouped into partnered and not partnered, independent samples *t*-tests were conducted instead of Pearson correlations to examine mean differences between partner status and study variables. Results indicated that participants who were partnered (*M* = 2.60, *SD* = 1.07) had lower levels of acculturation compared to those who were not partnered (*M* = 3.31, *SD* = 0.75), $t(117) = 4.25$, $p < .001$. In addition, those who were partnered (*M* = 2.04, *SD* = 1.16) had lower levels of helping relationships compared to those who were not partnered (*M* = 3.07, *SD* = 1.23), $t(117) = 4.68$, $p < .001$. There was no significant relationship between being partnered and heavy drinking. Similarly, there was no significant relationship between being partnered and alcohol problems. Table 1 presents correlations for continuous variables, and as can be seen several significant relationships were found.

Model Evaluation

Given the nonsignificant relationships between being partnered and heavy drinking and alcohol problems, these paths were not included in the model. Similarly, education was not included in the model, given the nonsignificant relationship between this variable and variables of interest (Table 1). Age was significantly related to alcohol problems; therefore, this path was included in the model. The model had a good fit: $\chi^2(5) = 4.61$, $p = .47$, CFI = 1.00, RMSEA = .00 and explained a small amount of variance in heavy drinking ($R^2 = .07$) and a moderate amount of variance in alcohol problems ($R^2 = .42$).

Figure 1 presents the model with standardized estimates. Greater acculturation was related to more heavy drinking (β = .26, $p < .01$) and more helping relationships (β = .22, $p = .01$). There was a positive indirect relationship between acculturation and alcohol problems (β = .04, 95% CI = .01, .12). Heavy drinking was associated with more alcohol problems (β = .57, $p < .001$). There was a positive relationship between helping relationships and alcohol problems (β = .20, $p = .01$) and age and alcohol problems (β = .22, $p = .02$). Further, there was a negative relationship between being partnered and helping relationships (β = −.32, $p < .01$) and an indirect negative relationship between being partnered and alcohol problems (β = −.06, 95% CI = −.15, −.02).

Discussion

We examined the role of acculturation, helping relationships, partner status, age, and education on heavy drinking and alcohol problems. The first hypothesis was only partially supported; acculturation was related to more days of heavy drinking. Helping relationships, partner status, age, and education, however, were not related to days of heavy drinking. The second hypothesis was also only partially supported. Although acculturation was significantly associated with alcohol problems in the bivariate analyzes, it was no longer significant in the path model. Helping relationships was associated with more, not fewer, alcohol problems. In addition, although being partnered was not directly related to alcohol problems, it was indirectly related to fewer alcohol problems through helping relationships. Further, age was associated with more alcohol problems, whereas years of education was not associated with more alcohol problems. As hypothesized, heavy drinking was associated with more alcohol problems. The third hypothesis was not supported. Acculturation was related to more, not fewer, helping relationships, and being partnered was associated with fewer, not more, helping relationships. The fourth hypothesis was supported; there was an indirect effect of acculturation on alcohol problems through helping relationships.

Our results have notable implications. More acculturated Latinas may be more comfortable seeking support for their alcohol problems compared to those who are less acculturated. Surprisingly, less acculturated Latinas did not report having someone in their social network upon whom they could rely to support their interest in changing their drinking behavior. It may be that these less acculturated women did not seek this support because of cultural norms regarding alcohol problems that prevented them from discussing their concerns with others (Perrotte & Zamboanga, 2019). Although the Latinx population is considered collectivistic (Rinderle & Montoya, 2008; Schwartz, Weisskirch, et al., 2010), providers working with this population should be aware that other sociocultural factors may prevent them from seeking and receiving support (Canino et al., 2008). As such, these individuals may lack the social resources to help them as they consider changing their risky alcohol use behavior, which may affect treatment outcomes.

We also found that women who were partnered reported having fewer helping relationships and support related to their alcohol problems. It could be that participants may not have believed that they could discuss their concerns and be supported by their partners. In addition, we do not know about the quality of their relationship with their partner. According to Perreira and Cortes (2006), the quality of the partner relationship may play a significant role in alcohol use. Conversely, it may be that those who were partnered did not believe that they needed to talk to others about their alcohol use because they did not consider their drinking to be problematic. We found that although being partnered was not directly associated with alcohol problems, this variable had an indirect negative relationship through helping relationships. Further, although acculturation was not directly related to alcohol problems, it was associated with more alcohol use, particularly more heavy drinking days, which is similar to other studies examining Latinas (Amaro et al., 1990; Lee et al., 2016; Vega et al., 1998). In our study, low acculturation was associated with being partnered, and it is possible that these women reported lesser alcohol problems because they drank less, as seen in the positive relationship between acculturation and heavy drinking days.

Age was related to more alcohol problems but not number of heavy drinking days. This finding highlights the importance of examining alcohol-related problems among adult Latinas; most studies examining alcohol use and problems in the Latinx population have focused on adolescents and young adults. Years of education was not found to be related to heavy alcohol use or problems. Perhaps because participants had an average of 10.91 (*SD* = 3.25) years of education, there was not much variability to examine in this relationship.

The positive association between helping relationships and alcohol problems is contrary to expectations. However, because the data were collected at baseline, the women had not yet received the CHOICES Plus intervention; in addition, these women were not seeking treatment, so they may not have perceived their drinking as problematic. Moreover, helping relationships are part of the behavioral process of change that takes place once individuals are in the later stages of change and closer to taking action (DiClemente, 2018). Participants may have needed to undergo earlier experiential processes to develop awareness of their risky alcohol behaviors before seeking support from others.

The Latinx population is heterogenous. As such, our study may not be generalizable to all Latinas in the United States. However, findings may be relevant to other minority women at risk of an AEP. In addition, we were not able to determine direction or causation due to the use of cross-sectional data. It is also important to note that although the acculturation measure in our study has been widely used, it is a unidimensional measure of acculturation that may not capture the complexity of this construct (Gamst, Liang, & Der-Karabetian, 2011). Despite these limitations, our study contributes to the literature by examining the relationship of interpersonal and sociocultural factors with alcohol problems among Latinas at risk of an AEP. This knowledge is critical to understanding possible modifiable factors involved in change processes in this understudied and underserved group.

Given our findings, future studies should examine how couple functioning could influence Latinas' AEP behavior and help seeking. Due to cultural factors, couple dynamics may differ among Latinx compared to other groups (Orengo-Aguayo, 2015). Examining these dynamics in the context of behaviors that put women at risk of an AEP may provide insight regarding relevant factors that may inform treatment. In addition, future studies should consider examining other sociocultural factors that may explicate the low levels of helping relationships found in our study among less acculturated Latinas and how these may be associated with help seeking and treatment engagement in this vulnerable group.

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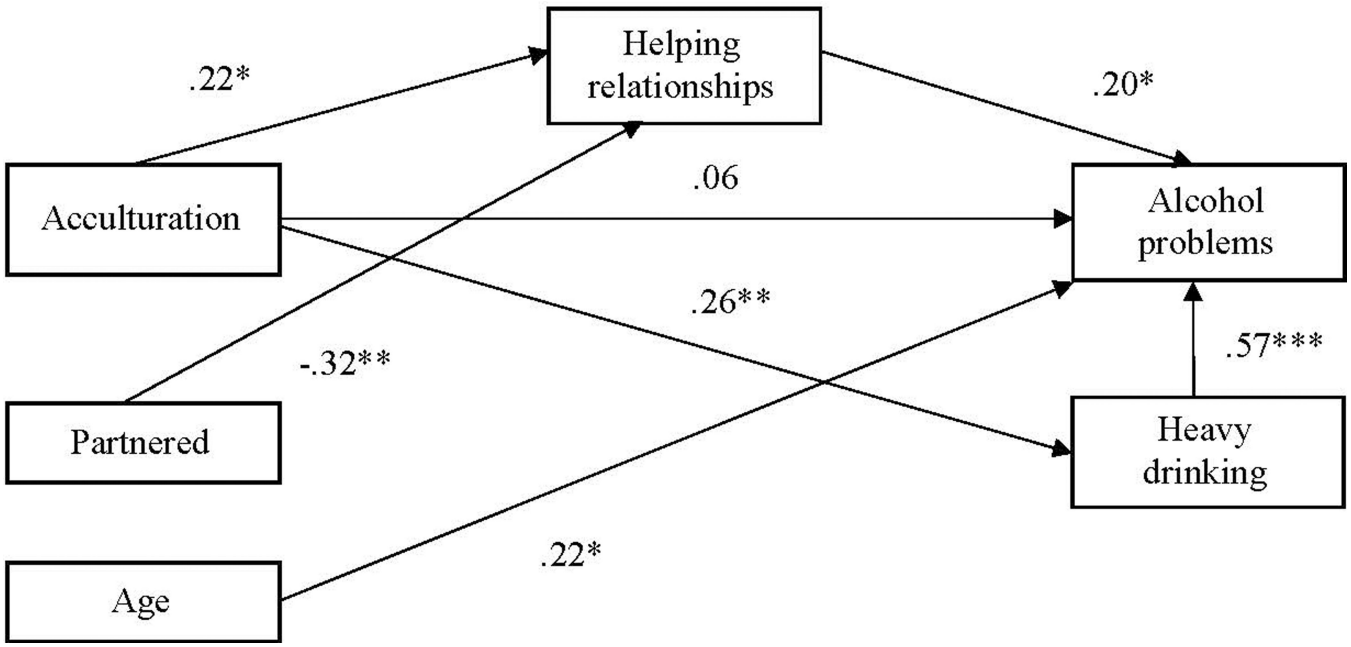

Figure 1.

Model examining role of acculturation, helping relationships, partner status, and age on heavy drinking mid alcohol problems ($N = 119$).

Note: Standardized estimates. *$p < .05$; **$p < .01$; ***$p < .001$.

Acculturation = Short Acculturation Scale for Hispanics; Helping relationships = Process of Change (items 6 and 16) summed; Alcohol Problems = Alcohol Use Disorder Identification Test (items 4–10) summed; Heavy drinking = based on timeline follow-back, defined as a day when more than 3 drinks were consumed 30 days prior to baseline assessment; Partnered = marital status dichotomized as partnered (i.e. married or cohabitating) or not partnered; Age = participants' age in years.

Table 1

Descriptive and correlation results ($N = 119$)

	1	2	3	4	5	6
1. Age	1					
2. Education	−.30**	1				
3. Acculturation[a]	−.24*	.35***	1			
4. Helping relationships[b]	−.10	.14	.33***	1		
5. Heavy drinking days[c]	.09	−.01	.26*	.10	1	
6. Alcohol problems[d]	.23*	−.17	.21*	.25*	.61***	1
M	29	10.91	2.90	2.48	4.90	4.43
SD	6.84	3.25	1.01	1.29	6.10	5.26

[a]Short Acculturation Scale for Hispanics

[b]Process of Change (items 6 and 16) summed

[c]Based on timeline follow-back, defined as a day when more than 3 drinks were consumed 30 days prior to baseline assessment

[d]Alcohol Use Disorder Identification Test (items 4–10) summed; two-tailed probability

*$p < .05$

**$p < .01$

***$p < .001$.