Published in final edited form as:

J Ethn Subst Abuse. 2018 ; 17(3): 303–323. doi:10.1080/15332640.2016.1201716.

Sociocultural determinants of substance misuse among adult Latinas of Caribbean and South and Central American descent: A longitudinal study of a community-based sample

Mario De La Rosa^a, Hui Huang^a, Judith S. Brook^b, Mariana Sanchez^a, Patria Rojas^a, Mariano Kanamori^a, Miguel Ángel Cano^a, and Marcos Martinez^a

^aFlorida International University, Miami, Florida

^bNew York University, New York, New York

Abstract

Few studies have examined the socio-cultural determinants of alcohol and drug misuse trajectories among adult Latinas. To assess the associations between socio-cultural determinants and alcohol and drug misuse, we used a longitudinal design to follow a sample of adult Latina mother-daughter-dyads (N = 267) for ten years, and collected four waves of data. They were adult Latinas of Caribbean, South and Central American descent. Specifically, this study investigated the effects of the following factors: (1) Individual Determinants (e.g., socioeconomic conditions, mental health, and medical status); (2) Cultural Determinants (e.g., acculturation to US culture); (3) Interpersonal Determinants (e.g., interpersonal support, relationship stress, mother-daughter attachment, intimate partner violence); (4) Community Determinants (e.g., neighborhood related stress); and (5) Institutional Determinants (e.g., religious involvement, involvement with the criminal justice system). Using hierarchical modeling, we found that taking prescribed medication on a regular basis for a physical problem, religious involvement, and mother-daughter attachment were negatively associated with drug misuse, while involvement in criminal activity was positively associated with drug misuse. Regarding alcohol misuse, results showed that age at arrival in the United States, number of years in the United States, and religious involvement were negatively associated with alcohol misuse, while involvement in criminal activity was positively associated with alcohol misuse. Based on our findings, explicit implications are provided for culturally relevant interventions.

Keywords

Adult Latina; drug misuse; alcohol misuse; sociocultural determinant; culturally relevant intervention

Introduction

The past two decades have marked important progress in documenting the sociocultural determinants underlying substance misuse trajectories among Latinas in the United States. *Substance misuse* in this study is defined as heavy alcohol use and/or the misuse of drugs, including illicit drug use and prescription drug misuse. Most research has focused on adolescent Latinas (Brook, Lee, Finch, Koppel, & Brook, 2011; Lopez et al., 2008; Lopez et al., 2009; Martinez, 2006; Prado, Szapocznik, Maldonado-Molina, Schwartz, & Pantin, 2008; Prado et al., 2009; Santisteban et al., 2003; Schwartz, Mason, Pantin, & Szapocznik, 2008; Szapocznik, Prado, Burlew, Williams, & Santisteban, 2007), while studies examining adult Latinas remain rare. The few studies on adult Latinas (Amaro et al., 2005; Canino, Vega, Sribney, Warner, & Alegría, 2008) have utilized cross-sectional designs, thereby offering limited findings on the covariation between sociocultural factors and substance use over time. The present study used data from one of the few existing longitudinal investigations on adult Latinas and examined the link between sociocultural factors and substance misuse. According to the United States Census (2011), “Hispanic or Latino” refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race. We use the term *Latina* to indicate females in this group. Our sample comprises adult Latinas of Caribbean and South and Central American descent. Specifically, we investigate sociocultural determinants of substance misuse trajectories of adult Latinas and provide implications for intervention.

Conceptual framework

Our study incorporates aspects of Bogenschneider’s (1996) ecological risk/protective model as well as a growing body of work on social and cultural influences on health (e.g., Blanco-Vega, Castro-Olivo, & Merrell, 2007; Prado et al., 2009). Bogenschneider’s (1996) model integrated the risk-focused model and the protective model with ecological theory of human development (Bronfenbrenner, 1979, 1986) and developmental contextualism (Lerner, 1991, 1995). Ecological theory suggests to identify risk and protective factors at multiple levels: individual, family, peer, work, community, and culture. Developmental contextualism suggests that these processes change as individuals mature and settings change. Therefore, drawing on the conceptual framework of Bogenschneider and the research literature, we included sociocultural determinants in five domains: individual, cultural, interpersonal, community, and institutional. We used longitudinal research design to measure individual change on each domain over time.

Individual determinants

Previous literature reported that individual determinants, such as age, socioeconomic conditions, and mental and medical health status, are related to substance misuse. In a recent review of studies on Latino substance use, Guerrero, Marsh, Khachikian, Amaro, and Vega (2013) reported that higher rates of unemployment and concentrated poverty among Mexican Americans and Puerto Ricans contribute to their increased risk of illicit drug use relative to other Latino subgroups in the United States. Studying three-wave longitudinal data from a random community sample of women (ages 18–35) in urban areas of high drug

traffic in Puerto Rico, Alegría et al. (2004) reported that unemployment predicts their use of crack, cocaine, or heroine. Savage and Mezuk (2014) used data from the National Latino and Asian American Study and compared individuals with and without substance use disorders on many characteristics. The authors reported that individuals with substance use disorders have significantly higher rates of unemployment, major depressive disorder, and generalized anxiety disorder than those without substance use disorders. Regarding the effects of mental illness on substance use problems, Amaro, Arévalo, Gonzalez, Szapocznik, and Iguchi (2006) reported high prevalence of mental disorders and physical and sexual abuse among Latinas with substance use disorders. Vega, Canino, Cao, and Alegria (2009) also studied dual diagnoses of mental and substance use disorders among Latinos in the United States and reported that among Latinos with dual diagnoses, mental disorders usually occur before onset of substance disorders. The association between mental illness and substance use problems is particularly concerning for Latinas since Latinas were less likely to take prescription medications for their mental illness as compared with Caucasian females (Amaro et al., 2005). Latinas might be more likely to use substances to cope with their mental illness. Medical problems are also prevalent among substance users. Using a sample of 66 Latinas in a residential substance abuse treatment program, Amaro et al. (1999) reported 76% of the sample experienced major health problems in the prior year. Similarly, Robles et al. (2006) studied a sample of 617 out-of-treatment drug users of Puerto Rican descent in New York City and 334 in Puerto Rico and reported 60% of their female sample in the New York City site and 30% in the Puerto Rico site reported chronic health problems.

Cultural determinants

The effect of cultural factors on the substance misuse behaviors of Latinos has been well documented. Utilizing a sample of 6,359 self-reported Hispanics from the National Epidemiological Survey on Alcohol and Related Conditions, Blanco et al. (2013) found that the prevalence of drug use disorders increased across multiple measures of acculturation. Numerous studies have indicated similar findings and suggest that the link between substance use and acculturation is stronger for females than for males (Alegría, Sribney, Woo, Torres, & Guarnaccia, 2007; Caetano, Ramisetty-Mikler, & Rodriguez, 2009; De La Rosa, 2002; De La Rosa, Vega, & Radisch, 2000; Finch, Boardman, Kolody, & Vega, 2000a). Researchers have posited that as Latinas acculturate, they are exposed to U.S. norms that are more tolerant of female substance use behaviors, thereby increasing their prevalence of substance misuse compared to their male counterparts (Canino et al., 2008).

Interpersonal determinants

Interpersonal support and attachment

Social support is critical in the lives of adult Latinas, especially given traditional Latino values such as *personalismo* (a personal connection), *familismo* (a sense of family connection), and *confianza* (confiding in others) (Bordes, Sand, Arredondo, Kurpius, & Rayle, 2006; Santiago-Rivera, Arredondo, & Gallardo-Cooper, 2001). Yet, empirically based studies of social support among Latina adults are scarce (Cruza-Guet, Spokane, Caskie, Brown, & Szapocznik, 2008). The few existing studies report that Latinas who receive

tangible and emotional support and have strong attachments to their families cope better with stress and report less alcohol and illicit drug use compared to Latinas with no support (Barrera, Biglan, Ary, & Li, 2001; Canino et al., 2008; De La Rosa et al., 2015; Lopez et al., 2008; Schwartz et al., 2008; Vega & Sribney, 2003).

Intimate partner violence

Among Latinas, the relationship with the intimate partner is critical to their well-being. Unfortunately, existing national studies indicate that Latinas are disproportionately affected by intimate partner violence (IPV) (Jennings, Reingle, Staras, & Maldonado-Molina, 2012). IPV has been linked to substance use behaviors and other traumas among poor, urban adult Latinas (Amaro & Raj, 2000; Campbell, Miller, Cardwell, & Belknap, 1994; Wingood & DiClemente, 1997; Wu, El-Bassel, Witte, Gilbert, & Chang, 2003; Wyatt et al., 2002).

Chronic stress

Chronic stress is another significant factor associated with the substance misuse behaviors of Latinas. Much of this stress can be directly attributed to negative life circumstances (e.g., Arévalo, Prado, & Amaro, 2008; Barrett & Turner, 2006; Lara, Gamboa, Kahramanian, Morales, & Hayes Bautista, 2005; Martinez, 2006; Turner & Lloyd, 2003; Turner, Lloyd, & Taylor, 2006; Vega, Zimmerman, Gil, Warheit, & Apospori, 1997; Wagner, Myers, & McIninch, 1999), including poor socioeconomic conditions, experiences of discrimination, undocumented immigration status, lack of health insurance, and limited access to social/medical services and educational opportunities due to cultural and language barriers (Farley, Galves, Dickinson, & Perez, 2005; Finch, Kolody, & Vega, 2000b; Finch & Vega, 2003; Loue, Faust, & Bunce, 2000).

Community determinants

The effects that neighborhoods have on overall individual health, including health risk behaviors, have received increased attention in the literature over the past decade. Previous studies have reported that neighborhood organizational resources such as churches are associated with decreased substance misuse, while neighborhood crime is associated with increased substance misuse (Latkin & Curry, 2003; see also Chaves & Tsitsos, 2001; Franzini, Caughy, Spears, & Esquer, 2005; Koenig, McCullough, & Larson, 2001; Molnar & Trends, 2004). Researchers have posited that residents exposed to neighborhood crime are more likely to perceive themselves as potential victims of crime and, in turn, more likely to engage in substance use as a means of coping with their stress. Studying a sample of Latinos, Kulis et al. (2007) found that living in a neighborhood with fewer institutional supports and a higher level of crime led to poorer health outcomes.

Institutional determinants

Religious involvement

Religion plays an important role in Latino culture (Magaña & Clark, 1995; Plante, Manuel, Menendez, & Marcotte, 1995). Yet, with two notable exceptions (Sanchez, Dillon, Concha, & De La Rosa, 2015; Sanchez, Dillon, Ruffin, & De La Rosa, 2012;), few studies have

documented the influence of religious involvement on substance misuse trajectories of Latinos—much less Latinas (Ellison, Finch, Ryan, & Salinas, 2009; Finch & Vega, 2003; Martinez, Marsiglia, Ayers, & Nuno-Gutierrez, 2015; Sanchez et al., 2012). Using a sample of 415 recent Latino immigrants, Sanchez et al. (2015) reported that positive (adaptive) religious coping (e.g., sought help from God in letting go of my anger) was associated with lower levels of alcohol misuse while negative (maladaptive) religious coping (e.g., wondered what I did for God to punish me) led to higher levels of alcohol misuse in study participants.

Criminal justice involvement

Previous research has shown that involvement in the criminal justice system leads to higher levels of substance misuse (Amaro et al., 2005). Substance-abusing Latinas report higher involvement with the criminal justice system than their non-Latino White counterparts (Amaro et al., 2005, 2006; Wyatt et al., 2002). Examining heroin addicts in methadone maintenance in Southern California, Hser, Prendergast, Anglin, Chen, & Hsieh (1998) found that Latinas had more pretreatment involvement in the criminal justice system than non-Latino White women.

Significance of study

Our proposed study will add to the current literature by using a longitudinal design to study alcohol and drug misuse among adult Latinas of Caribbean and South and Central American descent. We assessed the association between sociocultural determinants and their alcohol and drug misuse. We hypothesized that five domains of factors are associated with alcohol and drug misuse. More specifically, among individual determinants, lower socioeconomic status, mental illness, and medical problems are positively associated with alcohol and drug misuse; among cultural determinants, age at arrival in the United States, number of years in the United States, and level of English proficiency are positively associated with alcohol and drug misuse; among interpersonal determinants, interpersonal support and mother–daughter attachment are negatively associated with alcohol and drug misuse while relationship stress and intimate partner violence are positively associated with alcohol and drug misuse; among community determinants, neighborhood related stress is positively associated with alcohol and drug misuse; and among institutional determinants, religious involvement is negatively associated with alcohol and drug misuse while involvement with the criminal justice system is positively associated with alcohol and drug misuse.

Method

Data for the present analyses were obtained from a longitudinal study of intergenerational substance use and related health behavior problems among Latina mother–daughter dyads in Miami-Dade County, Florida. Adult Latinas of Caribbean and South and Central American descent made up our sample (De La Rosa et al., 2010). The study was approved by, and conducted in compliance with, the Institutional Review Board at a large southeastern university and obtained an NIH Certificate of Confidentiality.

Participants and procedures

Four waves of data were collected in this longitudinal study. At baseline (T1), a community-based convenience sample ($N = 316$) of substance-using and nonusing participants were recruited via the snowball sampling (chain referral) method (McCracken et al., 1997). The sample was designed to include similar numbers of drug-using and nonusing mothers and daughters. Participants were recruited at community health fairs, health clinics, drug court programs, and Alcoholics Anonymous and Narcotics Anonymous meeting sites and through Spanish radio stations and television channels and a local newspaper. All consenting study participants completed a face-to-face interview guided by a structured questionnaire. Participants had the option of being interviewed in either Spanish or English. At baseline, the average age was 52.51 ($SD = 10.36$) among mothers, and 27.35 ($SD = 9.18$) among daughters. The average age of the entire sample was 39.88 ($SD = 15.95$). Forty-three percent of the daughters ($n = 57$) and 13% of the mothers ($n = 17$) were U.S. born.

Five years after baseline (T1), the first follow-up (T2) was conducted; two subsequent waves of data spaced 12 months apart were collected as well. Among the 316 baseline participants, 295 (93%) were interviewed at T2, followed by 292 (92%) at T3 and 278 (88%) at T4. If a dyadic member was lost at follow-up due to death or deportation, data collection was continued with the extant member. Our study sample included 267 participants who participated in all four waves, which we compared with 49 participants who participated in less than three waves of data collection. The two groups did not show significant differences in alcohol misuse and drug misuse nor did they significantly differ in most sociocultural characteristics, with the following exceptions: retained participants reported older age at arrival in the United States, fewer years in the United States, and lower levels of English-speaking skills.

Measures

Drug misuse—We used the Drug Use Frequency measure (DUF; O’Farrell, Fals-Stewart, & Murphy, 2003) to assess drug misuse in the past 12 months. DUF covers a variety of drugs and asks questions on their frequency of use. Our measure of drug misuse is a dichotomous variable. A participant was considered to misuse drugs if she reported at least one of the following: (a) marijuana use at least 3 days a week; (b) cocaine use at least 2 times per week; (c) heroin use at least one time per week; (d) ecstasy use at least 3 times per month; (e) nonmedical use of prescription medications (e.g., sedatives, tranquilizers, sleeping pills, antidepressants), defined as use of prescription medication for a longer time than prescribed, in greater amounts than prescribed, or without a doctor’s authorization or prescription.

Alcohol misuse—We used the Health and Daily Living Form (Billings, Cronkite, & Moos, 1983) to assess alcohol misuse in the past 12 months. Our measure of alcohol misuse indicates problematic alcohol use rather than binge drinking. We did not use binge drinking for two reasons: first, at the time of our baseline data collection, the NIAAA’s definition of binge drinking was not available. NIAAA approved their definition of binge drinking on February 5, 2004 (NIAAA, 2004), while data collection of this study started in 2003. Second, since our sample is a community sample, we used the Health and Daily Living

Form (HDL) as our alcohol misuse measure, which can be used with both patient and community populations (Moos, 1988). HDL showed a high degree of internal consistency (Moos, Cronkite, Billings, & Finney, 1984) and was one of the alcoholism treatment assessment research instruments in the NIAAA treatment handbook series. To define alcohol misuse, in HDL, we used questions about both frequency of alcohol use and typical number of drinks per day when alcohol is used. A participant was considered to misuse alcohol if, “several times a month” or more often, the participant reported drinking at least one of the following amounts: (a) 4–5 glasses of wine or more; (b) 3–4 cans/bottles of beer or more; (c) 3–4 drinks or more with 4 oz. of alcohol in each drink; (d) 5–7 drinks or more with 2 oz. of alcohol in each drink.

Demographics—Participants reported employment status and country of birth (United States vs. outside of the United States).

Medical and mental health status—We used the Addiction Severity Index (ASI; McLellan et al., 1992) to assess medical and mental health status. Regarding medical health, participants answered two questions: (a) Do you have any chronic medical problems that continue to interfere with your life? (b) Are you taking any prescribed medication on a regular basis for a physical problem? Regarding mental health, participants reported their experience of symptoms for each of the following: (a) depression, (b) anxiety, (c) hallucination, (d) trouble understanding, concentrating, or remembering, (e) trouble controlling violent behavior including episodes of rage or violence, (f) serious thoughts of suicide, and (g) suicide attempts. We used the total count of mental disorder symptoms and depression in the analysis.

Acculturation—Three variables assessed acculturation: age at arrival in the United States, number of years in the United States, and level of English proficiency, measured on 4-point Likert scale (1 = *not at all* to 4 = *excellent*).

Social support level—The Interpersonal Support Evaluation List (Cohen & Hoberman, 1983) assessed two distinct dimensions of social support: Tangible Support (i.e., the perceived availability of material aid when needed) and Belonging Support (i.e., the perceived availability of people with whom participants can do activities). At baseline, for the Tangible Support scale, Cronbach’s alphas were .81 (total sample), .85 (daughters), and .76 (mothers); for the Belonging Support scale, Cronbach’s alphas were .76 (total sample), .74 (daughters), and .78 (mothers).

Attachment—We used the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) to assess attachment. IPPA contains 25 items in three dimensions: trust, communication, and alienation. Each item is answered on a 5-point Likert scale (1 = *almost never or never true* to 5 = *almost always or always true*). We used a total score in our analyses. At baseline, Cronbach’s alphas were .93 (total sample), .93 (daughters), and .92 (mothers).

Intimate partner violence—We used the ASI to assess whether participants experienced emotional, physical, and/or sexual abuse. If a participant reported sexual partner or spouse as the perpetrator of abuse, we coded the person “1” for the variable *intimate partner violence*.

Chronic stress—We used a measure of chronic stress from a survey designed for a past study of adult health risk behaviors (Life Course and Health Research Center, 1997) to assess four stress subscales: Employment, Relationships, Social Life & Recreation, and Neighborhood (Turner, 2011). The present study used three sub-scales, omitting the employment subscale given that half the sample was unemployed throughout the duration of the study. At baseline, for the Relationships subscale, Cronbach’s alphas were .87 (total sample), .87 (daughters), and .87 (mothers); for the Social Life & Recreation subscale, Cronbach’s alphas were .49 (total sample), .47 (daughters), and .52 (mothers); for the Neighborhood subscale, Cronbach’s alphas were .70 (total sample), .71 (daughters), and .69 (mothers).

Religious involvement—We used the Santa Clara Strength of Religious Faith Questionnaire (Plante & Boccaccini, 1997) to measure religious involvement. In the analysis, we used participants’ average responses to two statements: “I pray daily” and “I consider myself active in my faith.” The assessment was a 4-point Likert scale (1 = *strongly disagree* to 4 = *strongly agree*).

Criminal activity involvement—The ASI also assessed criminal activity involvement. If a participant answered “Yes” to the question “Have you been involved in any criminal activity in the last 12 months? (PROBE: Include offenses such as major driving violations.),” the person was coded “1” for criminal activity involvement. We used major driving violation as the probe of criminal activity involvement since traffic offense is a criminal offense. Federal Justice Statistics (FJS) (Motivans, 2015) describes criminal case processing in the federal justice system and covers eight types of offense: violent offenses, property offenses, drug offenses, public-order offenses, weapons offenses, immigration offenses, supervision violations, material witness. Traffic offense is a public-order offenses. In FJS (Motivans, 2015), *traffic offense* refers to a violation of statutes relating to the operation, maintenance, use, ownership, licensing, and registration of self-propelled road vehicles, including driving under the influence, hit and run, and violations of law not requiring appearance in court.

Data analytic plan

Descriptive statistics were used to show the characteristics of the sample. Hierarchical modeling was used to examine effects of sociocultural determinants on alcohol and drug misuse over time. We used PROC GLIMMIX in SAS 9.3 as it allows for modeling data with a nested structure. Our decision to use hierarchical modeling was based upon our exploration of data structure. Our data contains two levels of a nested structure: First, four waves of data are nested within the same individual; second, mother and daughter data are nested within the family. Initially, we hypothesized that each individual has a different rate of change over time and tested an unconditional individual growth curve model. To do so, we included both intercept and time in the random statement in PROC GLIMMIX. However, the results of the unconditional model showed that the estimate of variance of the time slope was not

significantly different from 0. Therefore, we did not include time in the random statement in the final reported models. However, we still modeled the two levels of nested structure and included time as an independent variable. More specifically, we used individual reports on the number of years in the United States at each wave as the time variable, as an increased number of years in the United States was consistent with time gaps between data collection waves.

We modeled two binary variables: drug and alcohol misuse. Exponential values of all results are reported in the tables. An exponential value less than 1 indicates decreased drug or alcohol misuse, while greater than 1 indicates increased drug or alcohol misuse. The specific steps were as follows: First, we added each of the time-varying sociocultural determinants to the model. Second, we simultaneously included all of the time-varying sociocultural determinants of statistical significance in Step 1. Given the nested structure of data, in all models we included three variables: number of years in the United States at each wave, age of arrival in the United States, and generational status (i.e., mother or daughter).

Results

Descriptive analysis

Table 1 shows the descriptive analysis of the sample. Rates of alcohol misuse decreased over time while rates of drug misuse were stable over time. The mean attachment score slightly increased over time. No significant changes were found in the participants' English-speaking proficiency over time. Decreases in several social/health problems and behaviors were found, including depression, intimate partner violence, criminal activity involvement, number of mental health symptoms, and perception of relationship, social, and neighborhood stress.

Drug misuse

As shown in Table 2, we reported the bivariate relationship between each predictor and drug misuse, respectively. Five variables were significantly associated with drug misuse: (a) number of mental health symptoms and (b) criminal activity involvement were positively associated with drug misuse, while (c) taking prescribed medication on a regular basis for a physical problem, (d) religious involvement, and (e) attachment were negatively associated with drug misuse. As a result, we decided to include the five variables in the next multivariate analysis.

Table 3 reports results from the multivariate analysis of hierarchical modeling of drug misuse. Findings indicate taking prescribed medication on a regular basis for a physical problem, religious involvement, and mother–daughter attachment were negatively associated with drug misuse, while criminal activity involvement was positively associated with drug misuse. Specifically, compared with individuals not taking prescribed medications, participants who were taking prescribed medications were less likely to report drug misuse (OR = .50, p .05). A higher score in self-reported religious involvement was associated with decreased odds of drug misuse (OR = .59, p .001). Compared with individuals not involved in criminal activities, participants who are involved are more likely to report drug

misuse (OR = 2.66, $p = .01$); a higher level of mother-daughter attachment was associated with a decreased likelihood of engaging in drug misuse (OR = .98, $p = .05$). The p value of the number of mental health symptoms approached near significance (OR = 1.17, $p = .06$).

Alcohol misuse

In Table 2, we report the bivariate relationship between each predictor and alcohol misuse, respectively. Two variables were significantly associated with drug misuse: religious involvement and criminal activity involvement. Religious involvement was negatively associated, while criminal involvement was positively associated with alcohol misuse. As a result, these two variables were included in the next multivariate analysis.

Table 3 also reports on results from our multivariate analysis of hierarchical modeling of alcohol misuse. Findings indicated that later age at arrival in the United States, number of years in the United States, and religious involvement were negatively associated with alcohol misuse, while criminal activity involvement was positively associated with alcohol misuse. Specifically, one year older at the time of arrival was associated with decreased odds of engaging in alcohol misuse (OR = .93, $p = .001$). More time in the United States was associated with decreased odds of alcohol misuse (OR = .96, $p = .05$). Religious involvement was associated with decreased odds of alcohol misuse (OR = .66, $p = .001$). Compared with individuals not involved in criminal activities, those who were involved were more likely to report alcohol misuse (OR = 2.03, $p = .05$).

Discussion

The conceptual model of the present research is based on Bogenschneider's (1996) ecological risk/protective theory for developing interventions, policies, and community capacity to support individuals. A major principle of Bogenschneider's research and our study is a delineation of domains of influence, such as culture, and the family. Our research is based on five major domains: (a) social determinants, (b) cultural determinants, (c) individual determinants, (d) interpersonal support and attachment, and (e) institutional determinants.

Results from the present study revealed significant associations between several sociocultural determinants of health and the alcohol and drug misuse of adult Latinas of Caribbean and South and Central American descent. Our findings indicate that religious involvement had a significant long-term protective effect, suggesting that religious involvement should be incorporated into intervention programs targeting adult Latinas (Sanchez et al., 2012; Sanchez et al., 2015). For example, substance misuse treatment providers should collaborate with faith-based institutions and incorporate religious beliefs, practices, and coping mechanisms in their treatment plans when applicable.

Consistent with previous literature (Cepeda et al., 2012), our findings indicate that criminal activity involvement was associated with increased substance misuse among adult Latinas. Thus, substance misuse prevention and interventions need to target Latinas who are either "at risk" of becoming involved or already involved with criminal activities. These efforts are particularly timely and necessary given that Latinas represent the largest racial/ethnic group

among female criminal offenders (United States Sentencing Commission, 2014). Further, using data from the 2002 Survey of Inmates in Local Jails, Karberg, James, and BJS Statisticians (2005) indicated that Latinos/as were less likely than Caucasians to have ever received any type of substance treatment or program (58% vs. 72%).

The finding that using prescribed medications due to a physical problem is associated with decreased drug misuse might suggest that Latinas with physical problems are concerned that other drugs can interact with their prescription medications and result in negative consequences. Physicians often warn their patients about the consequences of drug interactions. Since adult Latinas tend to comply with their physicians, whom they perceive as authority figures in health care, they are likely to discontinue misuse of drugs to avoid negative consequences.

Consistent with prediction, the protective effects of attachment on drug misuse highlight the importance of familial factors in adult Latinas (Amaro et al., 2006; Santisteban, Muir-Malcolm, Mitrani, & Szapocznik, 2002) and suggest that family-oriented interventions would be effective in this population. Previous studies have found family-oriented interventions more effective than non-family-oriented interventions among Latino/Latinas (Santisteban et al., 2003; Szapocznik et al., 2007). Treatment providers should be aware of Latinos' cultural preference of turning to familial relationships for emotional support (Amaro et al., 2006; Santisteban et al., 2002).

We also found that the effects of symptoms of mental disorders were marginally significant. These results suggest that more symptoms of mental disorder are associated with an increased risk of drug misuse, a finding that is in line with previous studies (Amaro et al., 1999; Brook et al., 2011; Vega, Sribney, & Achara-Abrahams, 2003) that found that some individuals take nonprescribed sedatives to cope with problems such as major depressive disorder. Results support ongoing efforts to reduce substance misuse through addressing mental disorders among adult Latinas (Ritsher, McKellar, Finney, Otilingam, & Moos, 2002).

Finally, both age of arrival in the United States and number of years living in the United States were inversely associated with alcohol misuse. Previous acculturation research has found that being in the United States for a longer period of time is associated with greater alcohol misuse (Canino et al., 2008; De La Rosa et al., 2000; Prado et al., 2008). The inverse relationship between length of time in the United States and alcohol use in our study may be explained by the unique sample characteristics; specifically, the mean participants' age being nearly 40 years old. Regarding the high rate of alcohol misuse at baseline compared to Wave 4, the decrease in alcohol misuse may be a result of a maturation effect; women drink less as they age. Regarding the inverse association between age of arrival to the United States and alcohol misuse, individuals who immigrate to the United States at a later age may have less intense exposure to American culture, which may promote stronger retention of native cultural norms (Alegría et al., 2007; Elder, Broyles, Brennan, de Nuncio, & Nader, 2005). Traditional cultural norms from participants' countries of origin often stigmatize and discourage women from drinking alcohol (Alvarez, Jason, Olson, Ferrari, & Davis, 2007;

Castro & Coe, 2007; Martinez et al., 2015) and, in addition to the aforementioned maturation effect, may be driving these inverse associations.

Limitations

Our findings should be interpreted in light of several limitations. First, we used a community-based nonclinical sample of convenience from Miami-Dade County. The sample comprised adult Latinas of Caribbean and South and Central American descent. Although efforts were undertaken to include participants from major Latina subgroups, some groups were underrepresented in Miami-Dade County (e.g., Latinas of Mexican and Puerto Rican origin). As a result, the present sample was not representative of all Latinas in the United States. Second, all data were collected via self-report measures, which may lead to participant misrepresentation or error. For example, substance use behaviors are usually stigmatized among Latinas (Mora, 2002). Although interviewers were trained to detect and address inconsistencies in participants' responses, socially desirable responding to questions may have occurred.

Summary

Notwithstanding these limitations, our study expands scientific knowledge on the sociocultural determinants of alcohol and drug misuse of adult Latinas of Caribbean and South and Central American descent. Findings provide implications for developing culturally relevant substance misuse prevention and treatment programs that are based on ecological systems theory. The development of culture-specific interventions can, in turn, lead to decreased substance misuse and improved overall health among adult Latinas of Caribbean and South and Central American descent. While future research is needed on the relationship between community-level factors and alcohol and drug misuse of adult Latinas, our study provides a foundation for such investigations in the years to come.

References

- Alegría M, Sribney W, Woo M, Torres M, Guarnaccia P. Looking beyond nativity: The relation of age of immigration, length of residence, and birth cohorts to the risk of onset of psychiatric disorders for Latinos. *Research in Human Development*. 2007; 4(1–2):19–47. DOI: 10.1080/15427600701480980 [PubMed: 19412354]
- Alegría M, Vera M, Shrout P, Canino G, Lai S, Albizu C, Rusch D. Understanding hard-core drug use among urban Puerto Rican women in high-risk neighborhoods. *Addictive Behaviors*. 2004; 29(4): 643–664. DOI: 10.1016/j.addbeh.2003.08.009 [PubMed: 15135547]
- Alvarez J, Jason LA, Olson BD, Ferrari JR, Davis MI. Substance abuse prevalence and treatment among Latinos and Latinas. *Journal of Ethnicity in Substance Abuse*. 2007; 6(2):115–141. DOI: 10.1300/j233v06n02_08 [PubMed: 18192207]
- Amaro H, Arévalo S, Gonzalez G, Szapocznik J, Iguchi MY. Needs and scientific opportunities for research on substance abuse treatment among Hispanic adults. *Drug and Alcohol Dependence*. 2006; 84:S64–S75. DOI: 10.1016/j.drugalcdep.2006.05.008 [PubMed: 16766137]
- Amaro H, Larson MJ, Gampel J, Richardson E, Savage A, Wagler D. Racial/ethnic differences in social vulnerability among women with co-occurring mental health and substance abuse disorders: Implications for treatment services. *Journal of Community Psychology*. 2005; 33(4):495–511. DOI: 10.1002/jcop.20065

- Amaro H, Nieves R, Wolde Johannes S, Labault Cabeza N. Residential substance abuse treatment with Latinas: Critical issues and challenges. *Hispanic Journal of Behavioral Sciences*. 1999; 21(3):266–282.
- Amaro H, Raj A. On the margin: Power and women's HIV risk reduction strategies. *Sex Roles*. 2000; 42(7–8):723–749.
- Arévalo S, Prado G, Amaro H. Spirituality, sense of coherence, and coping responses in women receiving treatment for alcohol and drug addiction. *Evaluation and Program Planning*. 2008; 31(1): 113–123. DOI: 10.1016/j.evalprogplan.2007.05.009 [PubMed: 17825910]
- Armsden GC, Greenberg MT. The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*. 1987; 16(5):427–454. DOI: 10.1007/bf02202939 [PubMed: 24277469]
- Barrera M, Biglan A, Ary D, Li F. Replication of a problem behavior model with American Indian, Hispanic, and Caucasian youth. *The Journal of Early Adolescence*. 2001; 21(2):133–157. DOI: 10.1177/0272431601021002001
- Barrett AE, Turner RJ. Family structure and substance use problems in adolescence and early adulthood: Examining explanations for the relationship. *Addiction*. 2006; 101(1):109–120. DOI: 10.1111/j.1360-0443.2005.01296.x [PubMed: 16393197]
- Billings AG, Cronkite RC, Moos RH. Social-environmental factors in unipolar depression: Comparisons of depressed patients and nondepressed controls. *Journal of Abnormal Psychology*. 1983; 92(2):119–133. DOI: 10.1037/0021-843x.92.2.119 [PubMed: 6863728]
- Blanco C, Morcillo C, Alegría M, Dedios MC, Fernández-Navarro P, Regincos R, Wang S. Acculturation and drug use disorders among Hispanics in the US. *Journal of Psychiatric Research*. 2013; 47(2):226–232. DOI: 10.1016/j.jpsychires.2012.09.019 [PubMed: 23128062]
- Blanco-Vega CO, Castro-Olivo SM, Merrell KW. Social-Emotional needs of Latino immigrant adolescents: A sociocultural model for development and implementation of culturally specific interventions. *Journal of Latinos and Education*. 2007; 7(1):43–61. DOI: 10.1080/15348430701693390
- Bogenschneider K. An ecological risk/protective theory for building prevention programs, policies, and community capacity to support youth. *Family Relations*. 1996; 45(2):127–138. DOI: 10.2307/585283
- Bordes V, Sand JK, Arredondo P, Kurpius SER, Rayle AD. Validation of four measures of social support with Latina/o and non-Hispanic white undergraduates. *Hispanic Journal of Behavioral Sciences*. 2006; 28(1):65–83. DOI: 10.1177/0739986305283299
- Bronfenbrenner U. *The ecology of human development* Cambridge, MA: Harvard University Press; 1979
- Bronfenbrenner U. Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*. 1986; 22:723–742. DOI: 10.1037/0012-1649.22.6.723
- Brook JS, Lee JY, Finch SJ, Koppel J, Brook DW. Psychosocial factors related to cannabis use disorders. *Substance Abuse*. 2011; 32(4):242–251. DOI: 10.1080/08897077.2011.605696 [PubMed: 22014255]
- Caetano R, Ramisetty-Mikler S, Rodriguez LA. The Hispanic Americans baseline alcohol survey (HABLAS): The association between birthplace, acculturation and alcohol abuse and dependence across Hispanic national groups. *Drug and Alcohol Dependence*. 2009; 99(1):215–221. DOI: 10.1016/j.drugalcdep.2008.08.011 [PubMed: 18945554]
- Campbell JC, Miller P, Cardwell MM, Belknap RA. Relationship status of battered women over time. *Journal of Family Violence*. 1994; 9(2):99–111. DOI: 10.1007/bf01531957
- Canino G, Vega WA, Sribney WM, Warner LA, Alegría M. Social relationships, social assimilation, and substance use disorders among adult Latinos in the US. *Journal of Drug Issues*. 2008; 38(1): 69–101. DOI: 10.1177/002204260803800104 [PubMed: 20011228]
- Castro FG, Coe K. Traditions and alcohol use: A mixed-methods analysis. *Cultural Diversity and Ethnic Minority Psychology*. 2007; 13(4):269–284. DOI: 10.1037/1099-9809.13.4.269 [PubMed: 17967095]

- Cepeda A, Kaplan C, Neaigus A, Cano MÁ, Villarreal Y, Valdez A. Injecting transition risk and depression among Mexican American non-injecting heroin users. *Drug and Alcohol Dependence*. 2012; 125:S12–S17. DOI: 10.1016/j.drugalcdep.2012.05.035 [PubMed: 22749681]
- Chaves M, Tsitsos W. Congregations and social services: What they do, how they do it, and with whom. *Nonprofit and Voluntary Sector Quarterly*. 2001; 30(4):660–683. DOI: 10.1177/0899764001304003
- Cohen S, Hoberman HM. Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology*. 1983; 13(2):99–125. DOI: 10.1111/j.1559-1816.1983.tb02325.x
- Cruza-Guet M, Spokane AR, Caskie GI, Brown SC, Szapocznik J. The relationship between social support and psychological distress among Hispanic elders in Miami, Florida. *Journal of Counseling Psychology*. 2008; 55(4):427–441. DOI: 10.1037/a0013501 [PubMed: 22017550]
- De La Rosa M. Acculturation and Latino adolescents' substance use: A research agenda for the future. *Substance Use & Misuse*. 2002; 37(4):429–456. DOI: 10.1081/ja-120002804 [PubMed: 12064428]
- De La Rosa M, Dillon FR, Ganapati NE, Rojas P, Pinto E, Prado G. Mother-Daughter attachment and drug abuse among Latinas in the United States. *Journal of Drug Issues*. 2010; 40(2):379–404. DOI: 10.1177/002204261004000206
- De La Rosa M, Huang H, Rojas P, Dillon FR, Lopez-Quintero C, Li T, Ravelo GJ. Influence of mother-daughter attachment on substance use: A longitudinal study of a Latina community-based sample. *Journal of Studies on Alcohol and Drugs*. 2015; 76(2):307–316. DOI: 10.15288/jsad.2015.76.307 [PubMed: 25785806]
- De La Rosa M, Vega R, Radisch MA. The role of acculturation in the substance abuse behavior of African-American and Latino adolescents: Advances, issues, and recommendations. *Journal of Psychoactive Drugs*. 2000; 32(1):33–42. DOI: 10.1080/02791072.2000.10400210 [PubMed: 10801066]
- Elder JP, Broyles SL, Brennan JJ, de Nuncio MLZ, Nader PR. Acculturation, parent-child acculturation differential, and chronic disease risk factors in a Mexican-American population. *Journal of Immigrant Health*. 2005; 7(1):1–9. DOI: 10.1007/s10903-005-1385-x [PubMed: 15744472]
- Ellison CG, Finch BK, Ryan DN, Salinas JJ. Religious involvement and depressive symptoms among Mexican-origin adults in California. *Journal of Community Psychology*. 2009; 37(2):171–193. DOI: 10.1002/jcop.20287
- Farley T, Galves A, Dickinson LM, Perez MDJ. Stress, coping, and health: A comparison of Mexican immigrants, Mexican-Americans, and non-Hispanic whites. *Journal of Immigrant Health*. 2005; 7(3):213–220. DOI: 10.1007/s10903-005-3678-5 [PubMed: 15900422]
- Finch BK, Boardman JD, Kolody B, Vega WA. Contextual effects of acculturation on perinatal substance exposure among immigrant and native-born Latinas. *Social Science Quarterly*. 2000a; 81(1):421–438. [PubMed: 18041174]
- Finch BK, Kolody B, Vega WA. Perceived discrimination and depression among Mexican-origin adults in California. *Journal of Health and Social Behavior*. 2000b; 41(3):295–313. DOI: 10.2307/2676322 [PubMed: 11011506]
- Finch BK, Vega WA. Acculturation stress, social support, and self-rated health among Latinos in California. *Journal of Immigrant Health*. 2003; 5(3):109–117. [PubMed: 14512765]
- Franzini L, Caughy M, Spears W, Esquer MEF. Neighborhood economic conditions, social processes, and self-rated health in low-income neighborhoods in Texas: A multilevel latent variables model. *Social Science & Medicine*. 2005; 61(6):1135–1150. DOI: 10.1016/j.socscimed.2005.02.010 [PubMed: 15970226]
- Guerrero EG, Marsh JC, Khachikian T, Amaro H, Vega WA. Disparities in Latino substance use, service use, and treatment: Implications for culturally and evidence-based interventions under health care reform. *Drug and alcohol dependence*. 2013; 133(3):805–813. DOI: 10.1016/j.drugalcdep.2013.07.027 [PubMed: 23953657]
- Hser YI, Prendergast M, Anglin MD, Chen JK, Hsieh SC. A regression analysis estimating the number of drug-using arrestees in 185 US cities. *American Journal of Public Health*. 1998; 88(3):487–490. DOI: 10.2105/ajph.88.3.487 [PubMed: 9518991]

- Jennings WG, Reingle JM, Staras SA, Maldonado-Molina MM. Substance use as a risk factor for intimate partner violence overlap: Generational differences among Hispanic young adults. *International Criminal Justice Review*. 2012; 22(2):139–152. DOI: 10.1177/1057567712442943 [PubMed: 25125930]
- Karberg JC, , James DJ. , BJS Statisticians Substance dependence, abuse, and treatment of jail inmates, 2002 Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; 2005
- Koenig HG, , McCullough ME, , Larson DB. *Handbook of religion and health* New York, NY: Oxford University Press; 2001
- Kulis S, Marsiglia FF, Sicotte D, Nieri T. Neighborhood effects on youth substance use in a southwestern city. *Sociological Perspectives*. 2007; 50(2):273–301. DOI: 10.1525/sop.2007.50.2.273 [PubMed: 21339890]
- Lara M, Gamboa C, Kahramanian MI, Morales LS, Hayes Bautista DE. Acculturation and Latino health in the United States: A review of the literature and its sociopolitical context. *Annual Review of Public Health*. 2005; 26:367–397. DOI: 10.1146/annurev.publhealth.26.021304.144615
- Latkin CA, Curry AD. Stressful neighborhoods and depression: A prospective study of the impact of neighborhood disorder. *Journal of Health and Social Behavior*. 2003; 44(1):34–44. DOI: 10.2307/1519814 [PubMed: 12751309]
- Lerner RM. *America's youth in crisis challenges and choices for programs and policies* Thousand Oaks, CA: Sage; 1995
- Lerner RM. Changing organism-context relations as the basic process of development: A developmental contextual perspective. *Developmental Psychology*. 1991; 27:27–32.
- Life Course and Health Research Center Title of project: Drug Use Trajectories—Ethnic/Racial Comparisons Florida International University; Miami, FL: 1997 Transitions: A study of stress and well being in young adulthood. Wave I questionnaire. NIDA Grant Number DA10772
- Lopez B, Schwartz SJ, Prado G, Huang S, Rothe EM, Wang W, Pantin H. Correlates of early alcohol and drug use in Hispanic adolescents: Examining the role of ADHD with comorbid conduct disorder, family, school, and peers. *Journal of Clinical Child & Adolescent Psychology*. 2008; 37(4):820–832. DOI: 10.1080/15374410802359676 [PubMed: 18991132]
- Lopez B, Wang W, Schwartz SJ, Prado G, Huang S, Brown CH, Szapocznik J. School, family, and peer factors and their association with substance use in Hispanic adolescents. *The Journal of Primary Prevention*. 2009; 30(6):622–641. DOI: 10.1007/s10935-009-0197-5 [PubMed: 19949868]
- Loue S, Faust M, Bunce A. The effect of immigration and welfare reform legislation on immigrants' access to health care, Cuyahoga, and Lorain counties. *Journal of Immigrant Health*. 2000; 2(1):23–30. [PubMed: 16228729]
- Magaña A, Clark NM. Examining a paradox: Does religiosity contribute to positive birth outcomes in Mexican American populations? *Health Education & Behavior*. 1995; 22(1):96–109. DOI: 10.1177/109019819502200109
- Martinez CR. Effects of differential family acculturation on Latino adolescent substance use. *Family Relations*. 2006; 55(3):306–317. DOI: 10.1111/j.1741-3729.2006.00404.x
- Martinez MJ, , Marsiglia FF, , Ayers SL, , Nuno-Gutierrez B. Substance use, religion, and Mexican adolescent intentions to use drugs. In: Friedman BD, , Merrick J, editors *Public health, social work, and health inequalities* Hauppauge, NY: Nova Science Publishers; 2015 131146
- McCracken CF, Boneham MA, Copeland JR, Williams KE, Wilson K, Scott A, Cleave N. Prevalence of dementia and depression among elderly people in black and ethnic minorities. *The British Journal of Psychiatry*. 1997; 171(3):269–273. [PubMed: 9337983]
- McLellan AT, Kushner H, Metzger D, Peters R, Smith I, Grissom G, Argeriou M. The fifth edition of the addiction severity index. *Journal of Substance Abuse Treatment*. 1992; 9(3):199–213. DOI: 10.1016/0740-5472(92)90062-s [PubMed: 1334156]
- Molnar A, , Trends F. *Who conserves the world's forests?: Community-driven strategies to protect forests and respect rights* Washington, DC: Forest Trends; 2004
- Moos RH. Health and daily living form the HDL is printed. In: Lettieri DJ, Nelson JE, , Sayers MA, editors *NIAAA treatment handbook series: Vol. II. Alcoholism treatment assessment research*

instruments Washington, DC: U.S. Government Printing Office; 1988 275292 DHHS Publication No. ADM 85-1380

Mora J. Latinas in cultural transition: Addiction, treatment and recovery. In: Straussner SLA, , Brown S, editors *The handbook of addiction treatment for women: Theory and practice* San Francisco, CA: Jossey-Bass; 2002 323347

Motivans M. Federal justice statistics, 2011-statistical tables 2015 Retrieved from www.bjs.gov/index.cfm?ty=pbdetail&iid=5196 <http://www.bjs.gov/index.cfm?ty=pbdetail&iid=5196>

National Institute on Alcohol Abuse, & Alcoholism (NIAAA). NIAAA council approves definition of binge drinking. NIAAA Newsletter No. 3, Winter 2004 2004 Available at: http://pubs.niaaa.nih.gov/publications/Newsletter/winter2004/Newsletter_Number3.pdf

O'Farrell TJ, Fals-Stewart W, Murphy M. Concurrent validity of a brief self-report drug use frequency measure. *Addictive Behaviors*. 2003; 28(2):327–337. DOI: 10.1016/s0306-4603(01)00226-x [PubMed: 12573682]

Plante TG, Boccaccini MT. The Santa Clara strength of religious faith questionnaire. *Pastoral Psychology*. 1997; 45(5):375–387. DOI: 10.1007/bf02230993

Plante TG, Manuel GM, Menendez AV, Marcotte D. Coping with stress among Salvadoran immigrants. *Hispanic Journal of Behavioral Sciences*. 1995; 17(4):471–479. DOI: 10.1177/07399863950174004

Prado G, Huang S, Schwartz SJ, Maldonado-Molina MM, Bandiera FC, De La Rosa M, Pantin H. What accounts for differences in substance use among US-born and immigrant Hispanic adolescents? Results from a longitudinal prospective cohort study. *Journal of Adolescent Health*. 2009; 45(2):118–125. DOI: 10.1016/j.jadohealth.2008.12.011 [PubMed: 19628137]

Prado G, Szapocznik J, Maldonado-Molina MM, Schwartz SJ, Pantin H. Drug use/abuse prevalence, etiology, prevention, and treatment in Hispanic adolescents: A cultural perspective. *Journal of Drug Issues*. 2008; 38(1):5–36. DOI: 10.1177/002204260803800102

Ritsher JB, McKellar JD, Finney JW, Otilingam PG, Moos RH. Psychiatric comorbidity, continuing care and mutual help as predictors of five-year remission from substance use disorders. *Journal of Studies on Alcohol*. 2002; 63(6):709–715. DOI: 10.15288/jsa.2002.63.709 [PubMed: 12529071]

Robles RR, Matos TD, Deren S, Colón HM, Sahai H, Marrero CA, Shepard EW. Drug treatment disparities among Hispanic drug-using women in Puerto Rico and New York City. *Health Policy*. 2006; 75(2):159–169. DOI: 10.1016/j.healthpol.2005.03.004 [PubMed: 16338479]

Sanchez M, Dillon FR, Concha M, De La Rosa M. The impact of religious coping on the acculturative stress and alcohol use of recent Latino immigrants. *Journal of Religion and Health*. 2015; 54(6): 1986–2004. DOI: 10.1007/s10943-014-9883-6 [PubMed: 24859922]

Sanchez M, Dillon FR, Ruffin B, De La Rosa M. The influence of religious coping on the acculturative stress of recent Latino immigrants. *Journal of Ethnic and Cultural Diversity in Social Work*. 2012; 21(3):171–194. DOI: 10.1080/15313204.2012.700443

Santiago-Rivera AL, , Arredondo P, , Gallardo-Cooper M. *Counseling Latinos and la familia: A practical guide* Thousand Oaks, CA: Sage Publications; 2001

Santisteban DA, Coatsworth JD, Perez-Vidal A, Kurtines WM, Schwartz SJ, LaPerriere A, Szapocznik J. Efficacy of brief strategic family therapy in modifying Hispanic adolescent behavior problems and substance use. *Journal of Family Psychology*. 2003; 17(1):121–133. DOI: 10.1037/0893-3200.17.1.121 [PubMed: 12666468]

Santisteban DA, , Muir-Malcolm JA, , Mitrani VB, , Szapocznik J. Integrating the study of ethnic culture and family psychology intervention science. In: Liddle H, Levant R, Santisteban DA, , Bray J, editors *Family psychology: Science based interventions* Washington, DC: American Psychological Association; 2002 331352

Savage JE, Mezuk B. Psychosocial and contextual determinants of alcohol and drug use disorders in the National Latino and Asian American study. *Drug and alcohol dependence*. 2014; 139:71–78. DOI: 10.1016/j.drugalcdep.2014.03.011 [PubMed: 24742864]

Schwartz SJ, Mason CA, Pantin H, Szapocznik J. Effects of family functioning and identity confusion on substance use and sexual behavior in Hispanic immigrant early adolescents. *Identity: An*

- International Journal of Theory and Research. 2008; 8(2):107–124. DOI: 10.1080/15283480801938440
- Szapocznik J, Prado G, Burlew AK, Williams RA, Santisteban DA. Drug abuse* in African American and Hispanic adolescents: Culture, development, and behavior. *Annual Review of Clinical Psychology*. 2007; 3:77–105. DOI: 10.1146/annurev.clinpsy.3.022806.091408
- Turner J. Drug use trajectories: Ethnic/Racial comparisons, 1998–2002 United-States 2011 Retrieved from <http://www.icpsr.umich.edu/icpsrweb/NAHDAP/studies/30862>
- Turner RJ, Lloyd DA. Cumulative adversity and drug dependence in young adults: Racial/ethnic contrasts. *Addiction*. 2003; 98(3):305–315. DOI: 10.1046/j.1360-0443.2003.00312.x [PubMed: 12603230]
- Turner RJ, Lloyd DA, Taylor J. Stress burden, drug dependence and the nativity paradox among US Hispanics. *Drug and Alcohol Dependence*. 2006; 83(1):79–89. DOI: 10.1016/j.drugalcdep.2005.11.003 [PubMed: 16330158]
- United States Census. Overview of race and Hispanic Origin: 2010 2011 Retrieved from <http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>
- United States Sentencing Commission. Quick facts: Women in the federal offender population 2014 Retrieved from http://www.ussc.gov/sites/default/files/pdf/research-and-publications/quick-facts/Quick_Facts_Female_Offenders.pdf
- Vega WA, Canino G, Cao Z, Alegria M. Prevalence and correlates of dual diagnoses in US Latinos. *Drug and alcohol dependence*. 2009; 100(1):32–38. DOI: 10.1016/j.drugalcdep.2008.08.018 [PubMed: 19028025]
- Vega WA, Sribney W. Parental risk factors and social assimilation in alcohol dependence of Mexican Americans. *Journal of Studies on Alcohol*. 2003; 64(2):167–175. DOI: 10.15288/jsa.2003.64.167 [PubMed: 12713189]
- Vega WA, Sribney WM, Achara-Abrahams I. Co-occurring alcohol, drug, and other psychiatric disorders among Mexican-origin people in the United States. *American Journal of Public Health*. 2003; 93(7):1057–1064. DOI: 10.2105/ajph.93.7.1057 [PubMed: 12835179]
- Vega WA, Zimmerman R, Gil A, Warheit GJ, Apospori E. Acculturation strain theory: Its application in explaining drug use behavior among Cuban and other Hispanic youth. *Substance use & Misuse*. 1997; 32(12–13):1943–1948. DOI: 10.3109/10826089709035608
- Wagner EF, Myers MG, McIninch JL. Stress-coping and temptation-coping as predictors of adolescent substance use. *Addictive Behaviors*. 1999; 24(6):769–779. DOI: 10.1016/s0306-4603(99)00058-1 [PubMed: 10628511]
- Wingood GM, DiClemente RJ. The effects of an abusive primary partner on the condom use and sexual negotiation practices of African-American women. *American Journal of Public Health*. 1997; 87(6):1016–1018. DOI: 10.2105/ajph.87.6.1016 [PubMed: 9224187]
- Wu E, El-Bassel N, Witte SS, Gilbert L, Chang M. Intimate partner violence and HIV risk among urban minority women in primary health care settings. *AIDS and Behavior*. 2003; 7(3):291–301. [PubMed: 14586191]
- Wyatt GE, Myers HF, Williams JK, Kitchen CR, Loeb T, Carmona JV, Presley N. Does a history of trauma contribute to HIV risk for women of color? Implications for prevention and policy. *American Journal of Public Health*. 2002; 92(4):660–665. DOI: 10.2105/ajph.92.4.660 [PubMed: 11919068]

Table 1Descriptive analysis of the whole sample ($N = 267$).

	<u>Wave 1</u>		<u>Wave 2</u>		<u>Wave 3</u>		<u>Wave 4</u>	
	N	%	N	%	N	%	N	%
Employed	141	53	137	51	135	51	144	54
Health								
Chronic medical problem	80	30	92	34	79	30	77	29
Prescription medications	87	33	101	38	96	36	93	35
Depression	85	32	60	22	52	19	25	9
U.S. born	74	28	74	28	74	28	74	28
English-speaking level								
Not at all	60	22	56	21	53	20	55	21
Fair	46	17	49	18	54	20	43	16
Good	75	28	70	26	67	25	83	31
Excellent	85	32	83	31	93	35	86	32
Intimate partner violence	106	40	47	18	31	12	17	6
Criminal involvement	38	14	11	4	3	1	1	0
Alcohol misuse	65	24	48	18	40	15	44	17
Drug misuse	34	13	34	13	35	13	29	11

	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age at arrival in United States	20.53	19.02	20.53	19.02	20.53	19.02	20.53	19.02
Years in United States	19.33	13.71	25.09	13.77	26.14	13.79	27.25	13.75
Age at Interview	39.88	15.95	45.60	15.98	46.67	15.98	47.79	15.95
Number of mental health symptoms	1.19	1.38	0.84	1.28	0.75	1.20	0.45	0.91
Tangible support	34.21	5.65	23.85	2.57	24.05	2.43	23.63	2.81
Belonging support	32.90	5.31	23.35	2.81	23.73	2.53	23.40	2.93
Relationship stress	12.87	4.79	11.09	4.11	10.76	4.09	9.89	3.39
Social stress	4.57	1.62	3.98	1.43	3.82	1.25	3.60	1.07
Neighborhood stress	7.05	2.00	6.85	2.05	6.84	2.05	6.63	1.82
Religious involvement	2.82	0.94	2.94	0.94	2.88	1.02	2.90	1.00
Attachment	91.98	17.78	92.81	19.32	94.10	20.36	95.73	19.69

Note. *SD* = standard deviation. The possible value of number of mental health symptoms ranged from 0 to 7; the possible value of tangible support ranged from 10 to 40; the possible value of belonging support ranged from 10 to 40; the possible value of relationship stress ranged from 8 to 24; the possible value of social stress ranged from 3 to 9; the possible value of neighborhood stress ranged from 6 to 18; the possible value of religious involvement ranged from 2 to 8; the possible value of attachment ranged from 25 to 125.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2Bivariate analysis between predictors and drug and alcohol misuse ($N = 267$).

	Drug misuse			Alcohol misuse		
	β	SE (β)	Exp (β)	β	SE (β)	Exp (β)
U.S. born	0.66	0.40	1.93	-0.24	0.37	0.79
Employed	-0.37	0.24	0.69	-0.17	0.21	0.84
Health						
Chronic medical problem	-0.37	0.28	0.69	-0.16	0.27	0.85
Prescription medications	-0.58 [*]	0.29	0.56	-0.17 [*]	0.26	0.84
Mental health						
Depression	0.38	0.25	1.46	0.01	0.24	1.01
Number of mental health symptoms	0.17 [*]	0.08	1.19	0.06	0.08	1.06
English-speaking level	0.12	0.15	1.13	-0.05	0.14	0.95
Tangible support	-0.01	0.02	0.99	0	0.02	1.00
Belonging support	0.01	0.02	1.01	0.01	0.02	1.01
Intimate partner violence	0.14	0.26	1.15	0.34	0.23	1.40
Relationship related stress	-0.01	0.03	0.99	0	0.02	1.00
Social stress	-0.13	0.09	0.88	0.01	0.07	1.01
Neighborhood stress	0	0.06	1.00	-0.01	0.05	0.99
Religious involvement	-0.48 ^{***}	0.13	0.62	-0.41 ^{***}	0.12	0.66
Criminal activity involvement	0.81 [*]	0.38	2.25	0.67 [*]	0.35	1.95
Attachment	-0.01 [*]	0.01	0.99	-0.01	0.01	0.99

SE = standard error.

^{*} $p < .05$;^{**} $p < .01$;^{***} $p < .001$.

Table 3Hierarchical modeling of drug and alcohol misuse ($N = 267$).

	Drug misuse			Alcohol misuse		
	β	SE (β)	Exp (β)	β	SE (β)	Exp (β)
Intercept	-1.18*	0.58	0.31	1.26	0.54	3.53
Age at arrival in United States	0	0.01	1.00	-0.07***	0.01	0.93
Years in United States	0.01	0.02	1.01	-0.04*	0.02	0.96
Mother (reference: daughter)	0.28	0.43	1.32	0.6	0.4	1.82
Prescription medications	-0.69*	0.3	0.50			
Number of mental health symptoms	0.16	0.09	1.17			
Religious involvement	-0.52***	0.13	0.59	-0.42***	0.12	0.66
Criminal activity involvement	0.98*	0.39	2.66	0.71*	0.35	2.03
Attachment	-0.02*	0.01	0.98			

*
 $p < .05$;**
 $p < .01$;***
 $p < .001$.