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Attributions about Addiction among Latina Women

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Abstract

This cross-sectional, secondary analysis study utilizes data from a prior study of intergenerational substance use among Latina women ($n = 316$). We explored the influence of substance use frequency and type, as well as cultural and socioeconomic factors on attributions about addiction among a predominantly immigrant sample of Latina women. Women who were less proficient in English (an indicator of adoption of the receiving culture in the acculturation process) and more proficient in Spanish (an indicator of heritage-culture retention) endorsed more spiritual model attributions than women who were more proficient in English and less proficient in Spanish. Women were more proficient in Spanish more frequently endorsed the disease attribution model. Alcohol, marijuana use and non-medical sedative use were linked with spiritual, moral /character and disease attribution models respectively. Participants reporting higher education levels indicated less agreement with the moral/character model of addiction. Implications for culturally tailored social work interventions for Latina women are discussed.

Keywords

addiction; attributions; immigrant; Latina; women

Latinos are the largest and fastest growing ethnic minority group in the United States. Latinos comprise about 15% of the overall U.S. population, and accounted for half of all U.S. population growth between 2000 and 2007 (Bernstein & Edwards, 2008). The U.S. Census Bureau predicts that, by 2050, nearly one of every three Americans will be of Latino descent (Bernstein & Edwards, 2008). While demographers have observed the rapid growth of the U.S. Latino population, addiction researchers have observed Latinos as being

especially vulnerable to drug and alcohol addiction and its harmful consequences (Compton, Grant, Colliver, Glantz, & Stinson, 2004; Grant et al., 2004; Volkow, 2006). The National Household Surveys on Substance Abuse have revealed that Latino illicit drug use rates have increased steadily since 2002 [Substance Abuse and Mental Health Services Administration (SAMHSA), 2008]. Moreover, compared to other U.S. ethnic groups, Latinos experience disproportionately negative consequences of substance abuse, such as intimate partner violence, incarceration, homelessness, HIV/AIDS, and other medical consequences (Amaro, Arévalo, Gonzalez, Szapocznik, & Iguchi, 2006). Furthermore, a lack of culturally tailored substance abuse interventions often lead Latino clients to perceive culturally insensitive barriers to treatment delivery (Gil & Vega, 2001), and to drop out of drug abuse treatment in greater numbers than individuals from other ethnic groups (Hser, Huang, Teruya, & Anglin, 2004). The substance use problems experienced by Latinos therefore often go untreated. Thus, social work practitioners and researchers are encouraged to better understand the treatment needs of Latinos in the U.S. (Alvarez, Jason, Olson, Ferrari, & Davis, 2007).

Through the examination of attributions about addiction (i.e., beliefs about the causes of, and appropriate treatments for, substance use problems), social work practitioners and researchers can work towards a better understanding of the beliefs surrounding addiction among the U.S. Latino population (Miranda et al., 2005; Wells, Klap, Koike, & Sherbourne, 2001). Addiction research has long benefited from examining attributions about addiction among treatment providers, patients, and non-clinical populations. Attributions about addiction have been found to influence substance use rates, as well as treatment processes and outcomes (Fiorentine & Hillhouse, 2000; Hatgis, Friedmann, & Wiener, 2008; Humphreys, Greenbaum, Noke, & Finney, 1996; Miller, Westerberg, Harris, & Tonigan, 1996; Moyers & Miller, 1993; Ouimette et al., 2001; Luke, Ribisl, Walton, & Davidson, 2002). However, no published studies have examined attributions about addiction specifically among Latinos. Identifying attributions about addiction and their cultural and socioeconomic correlates in a community-based sample of Latino women may facilitate the development of culturally informed prevention and treatment interventions.

The purpose of this secondary analysis study is to explore attributions about addiction among predominantly immigrant, adult Latina women who participated in a larger community-based study of intergenerational substance use (see De La Rosa et al., 2010). Like the parent study, the current study is guided by Bogenschneider's (1996) ecological risk/protective model and Bronfenbrenner's (1986) ecological theory of human development. These theories emphasize multiple contextual influences that shape patterns of human development and behavior. These theoretical perspectives have been increasingly attentive to cultural and socioeconomic factors determining women's health behaviors (e.g., Thurston & Vissandjée, 2005). In accordance with the ecological model, the current study aims to describe potential associations between cultural factors and attributions about addiction among adult Latina women, while examining and controlling for socioeconomic variables and substance use frequency.

The remainder of this section introduces literature that informs our four exploratory research questions: (a) Are cultural factors (nativity and English/Spanish language proficiencies) linked with attributions about addiction among Latina women?, (b) Do socioeconomic indicators (personal income and education) explain differences in attributions about addiction?, (c) Do substance use behaviors influence attributions about addiction?, and (d) Does substance use frequency moderate relations between cultural and socioeconomic factors and attributions about addiction?

Nativity, Spanish/English Language Proficiency and Attributions about Addiction

Substance abuse tends to increase as Latinos acculturate to the United States (e.g., Alegría et al., 2007; Caetano, Ramisetty-Mikler, & Rodriguez, 2009). The effect of acculturation on substance abuse is particularly powerful for Latinas (Zenmore, 2007). This effect is potentially due to loss of heritage-cultural practices, values, and identifications; and the adoption of receiving-cultural practices, values, and identifications during the acculturation process (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). For instance, Latinas acculturating to life in the U.S. are often exposed to values that are more tolerant of female substance abuse as compared to traditional norms and attitudes in their countries of origin (Alegría et al., 1998). Thus, the current study investigates whether attributions about addiction vary based on participants' nativity, Spanish language proficiency (as an indicator of heritage-culture retention), and English language proficiency (as an indicator of receiving-culture adoption). Should attributions differ between U.S. born and foreign participants and vary based on Spanish language proficiency, then this would imply that loss of heritage culture (e.g., traditional Latino cultural norms and attitudes) may be responsible for differences in attributions about addiction. If attributions vary based on English language proficiency, then the adoption of the receiving culture may influence attributions. Such findings could inform which aspect of culture is more important in influencing attributions about addiction. Findings could also benefit social work practitioners and researchers interested in developing and implementing culturally tailored substance abuse interventions.

Socioeconomic Status and Attributions about Addiction

Decades of research have established links between socioeconomic variables and substance use among U.S. Latinos. Although higher income is linked with more alcohol use among U.S. Latinos (Alvarez et al., 2007; Nielsen, 2001); poverty, unemployment, and low levels of education have been found to predict heavy alcohol use and alcohol use disorders (Alvarez et al., 2007; Caetano et al., 2009) as well as illicit drug use (Alegría et al., 2004). While Latina women are less likely than Latino men to develop substance use problems, there are ethnic disparities among substance-using women in terms of socioeconomic status. Specifically, Latina women who abuse alcohol and illicit drugs tend to report higher rates of poverty and lower educational attainment compared to non-Latino White substance abusing women (Amaro et al., 2006). Because of established relations between socioeconomic status and substance use among Latinos, we explored whether differences in income and education may also be associated with varying attributions about addiction among Latina women.

Substance Use and Attributions about Addiction

Attributions about addiction seem to vary by experience with substance use. Hatgis et al. (2008) found that participants with personal histories of addiction were less likely to believe that people are personally responsible for substance abuse problems. Beliefs about addiction also have been suggested to vary depending on type and amount of substance use (Hatgis et al., 2008). Such findings suggest a need to examine (a) whether commonly held attributions about addiction differ based on substance use frequency and type of substance among adult Latinas, and (b) the potential moderating role of substance use frequency on relations between cultural and socioeconomic variables and attributions about addiction among adult Latinas.

Method

This present study was conducted using data from a study of intergenerational substance use and related problems among adult Latina women in Miami-Dade County, Florida (see 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.

Procedure

A community-based, convenience sample of Latina women was recruited to participate in the parent study. Different recruitment sites were used to maximize the likelihood that we would be able to recruit licit and illicit substance-using and non-substance using participants. Recruitment was achieved through announcements at community health fairs, health clinics, drug court programs, Spanish language radio stations and television channels, and a local newspaper. The inclusion criteria for participants were: (a) consent to be interviewed for at least 2-3 hours; (b) 18 years old or older; (c) self-identifying as Latina; (c) living in Miami-Dade County, Florida; and (d) willing to provide two telephone numbers for correspondence during participation in the study.

All consenting study participants were administered a single, face-to-face interview guided by a structured questionnaire, which included the instruments used in the current study. The interviews took place at locations convenient for participants. The majority of interviews occurred in participants' homes (69%) or at researchers' university offices (19%). Interviews were conducted in either Spanish (65%) or English (35%) by eleven trained and supervised female assessors. All but one of the assessors self-identified as Latina and were bilingual in English and Spanish. The non-Latina assessor was Haitian-American and conducted interviews with English-speaking participants. Eight interviewers were master's-level graduate students, and three were bachelor's-level students. Interviewer training and supervision included more than four hours of didactic instruction using a training manual to teach interviewers about each of the measures used in the study. Interviewers received intensive supervision by the study director to ensure data quality. Interviews were audio-recorded and reviewed by the study director to determine the completeness and accuracy of data collection.

Participants

Participants were 316 Latina women in Miami-Dade County, Florida. The average age was 39.89 years ($SD = 15.57$, range of 18 to 88 years). The majority of women (68.7%, $n = 217$) were born outside the U.S. Approximately 34% of non-US born participants had immigrated to the U.S. from Cuba ($n = 73$) and 20.3 % from Colombia ($n = 44$). The remaining participants were from various Latin American countries and regions: Peru (7.8%); Dominican Republic (6.5%); Nicaragua (6%); Honduras (5.5%); Puerto Rico (4.6%); Venezuela (4.1%); Mexico (3.7%); Argentina, Bolivia, Brazil, Ecuador, Chile, Panama, and Guatemala each represented less than 3%.

The majority of participants reported some post high school training (32%, $n = 101$). Approximately 28% ($n = 88$) of participants reported having completed less than a high school education. Twenty percent ($n = 64$) of participants had received a high school diploma or equivalent, while another 20% ($n = 62$) had received a bachelor's or graduate degree. Fifty-one percent of participants reported personal incomes of less than \$10,000 per year.

Measures

Demographics—A demographic form asked participants to report: their age (in years), nativity (coded as 0 = *U.S. born*, 1 = *immigrant*), education level (coded as 1 = *less than high school*, 2 = *high school diploma or equivalent*, 3 = *post high school training*, 4 = *bachelor's degree*, 5 = *graduate degree*), and personal income (coded as 1 = \$0 to 4,999, 2 = \$5,000 to 9,999, 3 = \$10,000 to 14,999, 4 = \$15,000 to 19,999, 5 = \$20,000 to 24,999, 6 = \$25,000 to 29,999, 7 = \$30,000 to 34,999, 8 = \$35,000 to 39,999, 9 = \$40,000 to 49,999, 10 = \$45,000 to 49,999, 11 = \$50,000 or more)

Alcohol Use Frequency—Alcohol consumption items from the *Health and Daily Living Form* (Billings, Cronkite, & Moos, 1983) were used to assess participant alcohol use frequency during three months prior to assessment. Three questions assessed how frequently participants had consumed beer, liquor, and/or wine during the three months prior to assessment, using an 8-point Likert scale ranging from 1 (*never used*) to 8 (*used every day*). An overall 3-month alcohol use frequency score was calculated by multiplying responses to the three separate questions asking about beer, liquor, and wine consumption; yielding a potential total scale range of 1 to 512.

Drug Use Frequency—The *Drug Use Frequency* measure (*DUF*; O'Farrell, Fals-Stewart, & Murphy, 2003) was used to assess the frequency of illicit drug use and non-medical use of prescription drugs (e.g., sedatives) during the three months prior to assessment. Nonmedical use of prescription drugs is defined as use of medication without a prescription, or when one uses medication solely for the feeling or experience caused by the drug (SAMHSA, 2009). The DUF measure assesses frequency of use for each illicit or prescription drug (sedatives, hypnotics or tranquilizers; marijuana; stimulants; heroin; opioids; cocaine; PCP; hallucinogens; inhalants) using an 8-point Likert scale ranging from 1 (*never uses*) to 8 (*uses every day*). Marijuana and nonmedical use of prescription drugs were used in the current study because they evidenced sufficient prevalence and variability for analyses. Past research (O'Farrell et al., 2003) indicates that DUF scores correlate closely with collateral reports of drug use frequency and self-reported use on other drug use measures suggesting evidence of convergent validity.

Attributions about Addiction—Items from the *Understanding of Alcoholism Scale-3AC* (*UAS-3AC*; Miller & Moyers, 2001) were used to assess participants' attributions about addiction. We adapted UAS-3AC items by changing items to refer to *addiction* or *addicts* instead of *alcoholism* and *alcoholics*. UAS-3AC items ask participants to indicate their agreement or disagreement on a 5-point Likert scale (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Not Sure*, 4 = *Agree*, 5 = *Strongly Agree*) in response to attribution statements about addiction. To arrive at a reliable and valid measure of attributions about addiction, we first examined the factor structure and reliability estimates of the UAS-3AC because (a) it had not been factor analyzed to date (particularly with Latina women), and (b) because we adapted original UAS-3AC items by changing items to refer to *addiction* or *addicts* instead of *alcoholism* and *alcoholics*. Principal-axis factor extraction analysis was performed using varimax rotation to determine the underlying factor structure of the UAS-3AC items. A four-factor solution yielded the most interpretable solution. The 17 retained items and their item loadings and communality coefficients are presented in Table 1. The final four factors included: (a) *Psychosocial Attributions*, consisting of six items and explaining 20.31% of variability (Cronbach's alpha = .75), (b) *Disease Attributions*, consisting of seven items and explaining 12.81% of variability (Cronbach's alpha for = .65), (c) *Spiritual Attributions*, consisting of two items and explaining 9.06% of variability (Cronbach's alpha = .77), and (d) *Moral/Character Attributions*, consisting of two items and explaining 7.80% of variability (Cronbach's alpha = .70).

English and Spanish Language Proficiency—The *English and Spanish Language Proficiency* scales from the *Multidimensional Measure of Cultural Identity Scales for Latinos* (*MMCISL*; Félix-Ortiz, Newcomb, & Myers, 1994) were administered to participants to assess Spanish language proficiency (as an indicator of heritage-culture retention) and English language proficiency (as an indicator of receiving-culture adoption). The items from both the English and Spanish language proficiency scales ask respondents to rate their agreement with statements on a 4-point Likert scale (1 = *not at all*, 2 = *fair*, 3 = *good*, 4 = *excellent*), with a total scale range of 3 to 12. High scores indicate more

proficiency in the English and Spanish language on each scale, respectively. Items from both scales ask how well a participant speaks, reads, and writes English and Spanish, respectively. The alpha reliability coefficients for both scales have been reported as satisfactory (Dillon et al., 2009; Félix-Ortiz et al., 1994). Cronbach's alpha values for the English Language Proficiency scale is .96. Cronbach's alpha values for the Spanish Language Proficiency scale is .91. Criterion validity has been evidenced for both scales by correlations with (a) an existing acculturation scale (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987), (b) immigrant generation status, (c) number of years educated in the U.S., and (d) length of time spent in the U.S. (Dillon et al., 2009; Félix-Ortiz et al., 1994).

Data Analysis

The analytic plan for the present study consisted of three steps. First, continuous variables were analyzed to determine whether they violated the assumption of normality. To ensure relatively normally distributed variables, Kline (2005) suggests cutoff of absolute values of 3.0 and 8.0 for skewness and kurtosis, respectively. A positively skewed distribution was found for alcohol use frequency scores. A square root data transformation was used to arrive at an approximately normal distribution. The transformed alcohol use frequency variable was used in subsequent analyses.

Second, a bivariate correlation matrix was computed to assess potential multicollinearity (i.e., when two or more predictors are highly correlated) among cultural and socioeconomic predictor variables. Tabachnick & Fidell (2007) suggest correlation coefficients of less than .70 between predictors to avoid multicollinearity. Bivariate correlations also allowed us to explore relationships among predictors, and between predictors and dependent variables, without controlling for effects of additional variables.

Next, four hierarchical regression analyses were conducted to examine the hypothesized socioeconomic and cultural predictors of psychosocial, disease, spiritual and moral/character attributions about addiction. In each regression analysis, predictors were entered sequentially into the equation in five blocks. Participant age was entered first to control for potential differences in attributions due to large age range among participants. Socioeconomic variables (personal income, education level) were entered second to determine whether socioeconomic indicators explain differences in attributions about addiction. Cultural factors (nativity, English and Spanish language proficiencies) were entered third to assess whether cultural factors were linked with attributions. Substance use frequency variables were entered fourth to determine their influence on attributions. Finally, interaction terms were calculated and entered into the equation to assess if substance use frequency moderated relations between cultural and socioeconomic factors and attributions about addiction. Interaction terms were calculated by multiplying predictor and moderator variables. All predictor and moderator variables were centered (i.e., put into deviation units by subtracting their sample means to produce revised sample means of zero) before calculating interaction terms. Centering is recommended because predictor and moderator variables generally are highly correlated with the interaction terms created from them. Thus, centering reduces problems associated with multicollinearity among the variables in regression equations (Frazier, Tix, & Barron, 2004).

Results

Descriptive Statistics and Correlations

Means, standard deviations or proportions for all variables are presented in Table 2. A bivariate correlation matrix, including all variables used in the hierarchical regression analyses, also is included in Table 2. Multicollinearity was not evidenced by correlation

coefficients as no predictor variables exceeded the recommended cutoff of .70 (Tabachnick & Fidell, 2007).

Hierarchical Regression Analyses

Table 3 presents the associations between (a) hypothesized predictors (age, personal income, education, nativity, English and Spanish language proficiency, and substance use frequency); (b) interaction terms; and (c) disease, psychosocial, spiritual, and moral/character attribution subscales in the final step of each regression model.

Spiritual Attributions

The total set of predictors was significantly related to spiritual attributions, accounting for 26% of variability, $F(27, 281) = 3.38, p < .01$. Spanish ($\beta = .14, p < .05$) and English language proficiency ($\beta = -.23, p < .01$) and alcohol use frequency ($\beta = -.17, p < .01$) were significant direct effects in the model. Participants who were less proficient in English and more proficient in Spanish endorsed more spiritual attributions. A significant interaction, nativity $\times$ marijuana use frequency, suggested that the relationship between nativity and spiritual attributions varied based on marijuana use frequency. Participants reporting marijuana use endorsed more spiritual attributions when they were non-U.S. born in comparison to marijuana using women born in the U.S. Another significant interaction indicated that the association between education and spiritual attributions varied based on marijuana use frequency. Women reporting marijuana use endorsed more spiritual attributions when they were less educated when compared with marijuana using women who reported higher levels of education.

Moral/Character Attributions

The overall set of predictors was related to moral/character attributions, accounting for 24% of variability, $F(27, 281) = 2.94, p < .01$. Education level ($\beta = -.23, p < .01$) and marijuana use frequency ($\beta = -.17, p < .01$) were significant direct effects in the model. Women who reported higher education levels reported less endorsement of moral/character attributions. Women who reported more marijuana use also indicated less endorsement of moral/character attributions. No interaction terms were significant in the model.

Disease Attributions

Results indicated that the overall set of predictors was related to disease attributions, accounting for 19% of variability, $F(27, 280) = 2.20, p < .01$. Spanish language proficiency ($\beta = .16, p < .05$) and sedative use frequency ($\beta = .13, p < .05$) were significant direct effects in the model. Women who indicated more Spanish language proficiency and women reported more sedative use endorsed more disease attributions. No interaction terms were significant in the model.

Psychosocial Attributions

The overall set of predictors was not related to psychosocial attributions, accounting for only 8% of variability, $F(27, 147) = 0.76, p = .80$. No hypothesized predictors or interaction terms were significant in the model.

Discussion

The purpose of the current study was to examine whether (and how) attributions about addiction in a community-based sample of predominantly immigrant Latina women are associated with socioeconomic and cultural factors, as well as substance use frequency and type. Several important findings emerged. First, a factor analysis indicated that the factor

structure of the UAS-3AC items was explained by four underlying types of attributions about addiction. These included (a) psychosocial attributions – beliefs suggesting that addiction is a learned behavior influenced by psychological, environmental, familial, and other contextual influences; (b) disease attributions - reflecting the view that addiction is a progressive and incurable disease that can only be treated by abstinence and treatment; (c) spiritual attributions – beliefs emphasizing powerlessness over one's substance use and the need to rely on faith and God or a higher power to recover from addiction; and (d) moral/character attributions – beliefs that suggest “addicts” have a weak character and lack moral values.

English and Spanish Language Proficiency, Nativity, and Attributions about Addiction

Women who were less proficient in English (an indicator of adoption of the receiving culture in the acculturation process; Schwartz et al., 2010) and women who were more proficient in Spanish (an indicator of heritage-culture retention; Schwartz et al., 2010) endorsed more spiritual model attributions than those who were more proficient in English and less proficient in Spanish. Furthermore, women more frequently agreed with disease attributions about addiction when they were more proficient in Spanish. Thus, Latinas in the U.S. who have not adopted the receiving culture and who have retained their heritage culture seem to endorse the spiritual and disease models of addiction more than those who do adopt U.S. culture. Because these findings are based on a community-based sample of Latina women, future research is needed to investigate if these types of attributions persist among clinical samples of substance abusing or dependent Latina adults. Perhaps such attributions influence their treatment choice, therapy processes, and treatment outcomes? For instance, a potential congruence between less acculturated, substance abusing adult Latinas' spiritually and disease model based beliefs and 12-step models may suggest that self-help group attendance could be a culturally congruent treatment component for less acculturated Latina women.

While nativity did not directly relate with attributions, women who reported marijuana use endorsed more spiritual attributions when they were foreign born than when they were born in the U.S. This finding may be a result of marijuana using, U.S. born Latina women retaining less of a heritage-cultural value (i.e., spirituality) in comparison to their foreign born counterparts.

Substance Use and Attributions about Addiction

In general, Latina women are more likely than Latino men to abstain from using alcohol and illicit drugs, and are less likely to drink heavily and become dependent on alcohol (Alvarez et al., 2007; Caetano et al., 2009; SAMHSA, 2008). Cultural norms, thought to discourage substance use by women, may protect Latinas from substance abuse and dependence by promoting abstinence (Canino, Burnam, Caetano, & Helzer, 1992; Canino, 1994; Welte & Barnes, 1995). The current study similarly found that, on average, Latina adults sporadically used alcohol, marijuana, and sedatives non-medically during a three month time period.

Nevertheless, marijuana use, alcohol and non-medical sedative use were linked with several attribution models. Higher frequencies of marijuana use were associated with disagreement with the moral/character models of addiction. It is unlikely for frequent marijuana users to hold beliefs suggesting addiction is an indicator of weak character and immorality because such a belief may be overly self-critical. More frequent alcohol use was inversely related to agreement with the spiritual models of addiction. Women who frequently used alcohol appeared to disagree with statements suggesting powerlessness over substance use, and a reliance on faith and God (or a higher power) to recover from addiction. Past research has similarly suggested a negative association between alcohol use and spirituality (Grodzicki &

Galanter, 2006). Non-medical sedative use unexpectedly was positively associated with endorsement of disease model attributions. Sedative abusing women may have a higher awareness of withdrawal syndromes, dependence, and tolerance due the toxic effects of misuse of sedatives (Becker, Fiellin, & Desai, 2007). Such adverse consequences may sedative abusers to view their use in terms of a disease in need of a medical treatment.

Socioeconomic Status, Age, and Attributions about Addiction

Past studies indicate positive relations between income and substance abuse among Latinos (Nielsen, 2001). Yet, personal income was not directly linked to attributions about addiction in the current study. The relatively low personal income levels among participants may not have provided enough variability to detect direct effects on attributions. Educational level was inversely related to extent of agreement with the moral/character models of addiction. More educated Latina women may not see addiction as a character flaw or moral issue because they may be more knowledgeable about factors outside of an individual's control that contribute to addiction (e.g., social, biological, psychological). In addition, marijuana using women disagreed with spiritual attributions when they were more educated in comparison to marijuana using women who reported lower levels of education. Thus, it may be important for social workers to consider the wide range of educational levels among Latinas, and how varying levels of education and drug use may influence beliefs about drug use.

Limitations

Findings from this cross-sectional study should be interpreted in light of several limitations. First, although participant recruitment involved many local venues, we did not collect data identifying the recruitment sites in which participants learned about the study. Thus, potential differences in participants' attributions could not be explored based on recruitment site. Second, although efforts were undertaken to include participants from major Latino subgroups, some subgroups (e.g., Mexican American and Puerto Rican) were not well represented due to their underrepresentation in the Miami-Dade County area in general. According to recent U.S. Census Bureau data (U.S. Census Bureau, 2008), Latinos as a group constituted 61.7% of the county's total population. The representation of each subgroup was estimated by the U.S. Census Bureau as Cuban (32.6%), Other Latino (23.5%), Puerto Rican (3.7%), and Mexican (1.9%). Thus, the current sample was representative of Latinas living in Miami-Dade County, but not of the larger U.S. Latino population. Future studies are needed with nationally representative samples to validate and enhance the generalizability of results.

Implications for Social Work

Given the growing Latino population in the U.S. and the high percentage of social workers involved in the treatment of addiction (Smith, Whitaker, & Weismiller, 2006), social workers are increasingly likely to encounter adult Latina clients. The current study's findings help social work practitioners and researchers begin to better understand beliefs about addiction and their cultural and socioeconomic correlates among adult Latinas. Although the current study is preliminary, our hope is that current findings are confirmed in clinical samples, and will facilitate the development of culturally informed interventions needed to address the increasing rates of addiction related problems among Latino adults. The present results offer new knowledge to confirm in future social workers practice and research with Latino populations. For example, social workers treating Latina immigrants could assess the efficacy of matching women with spiritually based treatment modalities to facilitate treatment engagement, retentions and positive outcomes. Disease model and spiritually based interventions also may be suitable for hard-to-reach Latina adults who live in Latino ethnic enclaves, and who retain their heritage culture while not adopting U.S. culture. Social

workers should also be cognizant of misuse of prescription drugs among Latina adults, as suggested by our findings and emerging research (Ford & Rivera, 2008). Finally, it is worth noting that a greater understanding of attributions about addiction among clinical and community-based populations may improve the efficacy treatment for not only Latinos in the U.S., but also for other racial and ethnic groups experiencing drug use related health disparities.

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Table 1

Factor Loadings and Communalities for the UAS-3AC Items

Items	Factor Loadings				h ²
	1	2	3	4	
The society or culture in which one grows up has a significant influence on whether or not someone becomes an addict.	0.65	0.04	0.03	0.05	.42
Addiction is caused, in part, by what one learns about drugs/alcohol from the behavior of one's family and friends.	0.63	-0.01	0.09	0.01	.41
Addiction is caused, in part, by growing up in a troubled family.	0.62	-0.06	0.05	0.21	.43
A person's environment plays an important role in determining whether he or she develops an addiction.	0.57	0.08	0.01	0.06	.33
A person can develop an addiction because of underlying psychological problems.	0.47	0.21	-0.08	-0.06	.28
Addiction is often caused, at least in part, by underlying emotional problems.	0.44	0.21	0.04	-0.02	.24
Every addict is one hit away (one step away) from a relapse (going back to their addiction).	0.07	0.64	0.15	0.01	.44
There are no shades of gray either you are an addict or you aren't.	0.14	0.55	0.04	0.08	.33
The more a person uses drugs, the greater the chances of becoming an addict.	0.15	0.46	0.10	-0.01	.24
Some addicts recover without any kind of treatment.	0.07	-0.45	-0.08	-0.08	.22
Addicts must be treated by trained professionals to recover.	0.13	0.42	0.02	0.20	.23
Denial is part of the personality of addicts.	0.09	0.40	0.07	0.11	.18
Once a person is an addict, he or she will always be an addict.	-0.04	0.32	0.09	-0.20	.14
Unless addicts rely on God or a higher power, they will not recover.	0.02	0.17	0.80	0.03	.67
The development of a spiritual faith is crucial (very important) for recovery from substance abuse.	0.10	0.29	0.74	0.09	.65
Addicts tend to be weak in morals or character.	0.06	0.22	0.06	0.71	.56
Compared to other people, addicts often show a lack of strong moral values, even before they become addicted.	0.06	0.07	0.06	0.69	.49

Note. 1 = Psychosocial Attributions, 2 = Disease Attributions, 3 = Spiritual Attributions, 4 = Moral / Character Attributions

Table 2
Descriptive Statistics and Correlations among Predictor and Criterion Variables

Variable	M (SD) or %	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Disease Attributions ^a	3.16 (0.50)	1.00												
2. Psychosocial Attributions ^a	3.02 (0.52)	.22**	1.00											
3. Spiritual Attributions ^a	2.78 (0.81)	.31**	.12*	1.00										
4. Moral / Character Attributions ^a	2.69 (0.72)	.19**	.15**	.15**	1.00									
5. Age	39.89 (15.57)	.25**	-.01	.29**	.14*	1.00								
6. Personal Income ^c	3.19 (2.13)	-.09	-.02	-.04	-.12*	-.14*	1.00							
7. Education Level ^d	2.47 (1.16)	.09	.08	-.07	-.22**	.02	-.01	1.00						
8. Nativity ^e	68.7% non-US 31.3% US	.29**	.06	.30**	.15**	.41**	-.13*	.13*	1.00					
9. Spanish Language Proficiency	9.65 (2.34)	.26**	.09	.19**	.05	.25**	-.14*	.31**	.46**	1.00				
10. English Language Proficiency	8.23 (3.30)	-.26**	-.08	-.38**	-.21**	-.47**	.12*	.18**	-.56**	-.19**	1.00			
11. Alcohol Use Frequency – Past 3 months ^f	3.05 (2.46)	-.08	-.01	-.18**	-.15*	-.17**	.04	.07	.01	.08	.14*	1.00		
12. Marijuana Use Frequency – Past 3 months ^b	1.67 (1.75)	-.18**	.06	-.07	-.24**	-.26**	.17**	-.01	-.29**	-.22**	.21**	.24**	1.00	
13. Non-medical Sedative Use – Past 3 months ^b	2.11 (2.38)	.17**	.05	.03	.04	.31**	-.11	.04	.08	.03	-.10	.01	-.05	1.00

Note.

* $p < .05$,

** $p < .01$.

^a 1 = Strongly Disagree to 5 = Strongly Agree.

^b 1 = Never, 2 = Several times, 3 = About once a month, 4 = Several times a month, 5 = 1 to 2 days a week, 6 = 3 to 4 days a week, 7 = 5 to 6 days a week, 8 = Everyday.

^c 1 = \$0 to 4999, 2 = \$5000 to 9999, 3 = \$10000 to 14999, 4 = \$15000 to 19999, 5 = \$20000 to 24999, 6 = \$25000 to 29999, 7 = \$30,000 to 34,999, 8 = \$35,000 to 39,999, 9 = \$40,000 to 49,999, 10 = \$45,000 to 49,999, 11 = \$50,000 or more.

^d 1 = less than high school, 2 = high school diploma or equivalent, 3 = post high school training, 4 = bachelor's degree, 5 = graduate degree.

^e 0 = U.S. born, 1 = non-U.S. born.

^f values based on square root transformed data to correct for positive skewness.

Table 3
Regression Analyses Summary for Predictors of Disease, Psychosocial, Spiritual and Moral / Character Attributions about Addiction

	Disease					Psychosocial					Spiritual					Moral / Character				
	B	SE	B	β	t	B	SE	B	β	t	B	SE	B	β	t	B	SE	B	β	t
Age	.01	.01	.01	.07	0.87	-.01	.01	-.06	-.072	.01	.01	.10	1.38	-.01	0.01	-.02	-.02	-.029		
Personal Income ^a	.01	.01	.01	.01	0.05	.01	.01	.01	0.14	.02	.02	.07	1.07	-.02	0.02	-.06	-.06	-.098		
Education Level ^b	.01	.03	.01	0.01	0.20	.03	.03	.08	1.09	-.07	.04	-.09	-1.53	-.15	0.04	-.23	-3.84**			
Nativity ^c	.19	.15	.01	0.18	1.22	.01	.18	.01	0.05	.40	.24	.23	1.66	.36	0.22	.23	1.64			
Spanish Language Proficiency	.03	.02	.01	0.16	2.09*	.02	.02	.11	1.39	.04	.02	.14	2.16*	-.01	0.02	-.01	-.008			
English Language Proficiency	-.02	.01	-.01	-.014	-1.79	-.02	.01	-.15	-1.73	-.06	.02	-.23	-3.06*	-.02	0.02	-.08	-1.06			
Alcohol Use Frequency – Past 3 months ^f	-.02	.04	-.01	-.011	-.062	-.01	.04	-.03	-.018	-.11	.06	-.17	-2.92**	.07	0.05	.22	1.31			
Marijuana Use Frequency – Past 3 months ^d	.01	.04	.01	0.04	0.31	.02	.04	.08	0.54	.03	.03	.07	1.11	-.06	0.05	-.17	-2.71**			
Non-medical Sedative Use – Past 3 months ^d	.03	.03	.01	0.13	2.16*	.07	.04	.34	1.96	-.02	.05	-.07	-.044	-.01	0.05	-.01	-.002			
Age × Alcohol Use	-.01	.01	-.01	-.001	-.003	-.01	.01	-.01	-.018	.01	.01	-.03	-.042	-.01	0.01	-.04	-.057			
Age × Marijuana Use	.01	.01	.01	0.10	1.24	.01	.01	.14	1.64	.01	.01	.11	1.38	-.01	0.01	-.11	-1.43			
Age × Sedative Use	.01	.01	.01	0.10	1.18	-.01	.01	-.02	-.023	-.01	.01	-.05	-.062	.01	0.01	.12	1.94			
Income × Alcohol Use	.01	.01	.01	0.03	0.37	-.01	.01	-.03	-.041	.01	.01	.04	0.59	.01	0.01	.04	0.58			
Income × Marijuana Use	.01	.01	.01	0.06	0.98	.01	.02	.02	0.28	.01	.01	-.01	-.007	-.01	0.01	-.12	-1.94			
Income × Sedative Use	-.01	.10	-.03	-.003	-.052	.01	.01	.03	0.43	.01	.01	.07	1.12	-.01	0.01	-.12	-1.87			
Education × Alcohol Use	-.01	.02	-.005	-.005	-.075	-.01	.01	-.03	-.041	.01	.02	.03	0.44	-.01	0.02	-.01	-.003			
Education × Marijuana Use	.03	.02	.01	0.12	1.67	-.01	.02	-.01	-.011	.05	.03	.14	2.01*	-.01	0.02	-.04	-.060			
Education × Sedative Use	.01	.16	.01	0.01	0.12	.01	.01	.08	1.08	-.01	.02	-.01	-.022	-.02	0.02	-.08	-1.29			
Spanish Language Proficiency × Alcohol Use	.01	.01	.01	0.04	0.49	.01	.01	.09	1.15	-.01	.01	-.08	-1.02	-.01	0.01	-.02	-.023			
Spanish Language Proficiency × Marijuana Use	.01	.01	.01	0.02	0.20	-.01	.01	-.09	-1.09	-.01	.01	-.02	-.033	.01	0.01	.02	0.26			
Spanish Language Proficiency × Sedative Use	-.01	.11	-.002	-.002	-.025	.01	.01	.06	0.74	.01	.01	.04	0.06	.01	0.01	.05	0.75			
English Language Proficiency × Alcohol Use	.01	.01	.01	0.09	1.15	.01	.01	.01	0.17	-.01	.01	-.02	-.033	-.01	0.01	-.11	-1.40			
English Language Proficiency × Marijuana Use	-.01	.01	-.003	-.003	-.033	-.01	.01	-.02	-.018	-.01	.01	-.03	-.040	.01	0.01	.02	0.25			
English Language Proficiency × Sedative Use	.01	.07	.01	0.04	0.53	.01	.01	.03	0.39	-.01	.01	-.04	-.051	.01	0.01	.04	0.61			
Nativity × Alcohol Use	.01	.04	.005	0.005	0.25	-.01	.05	-.03	-.018	.07	.06	.18	1.07	-.09	0.06	-.27	-1.58			

	Disease				Psychosocial				Spiritual				Moral / Character			
	B	SE	B	t	B	SE	B	t	B	SE	B	t	B	SE	B	t
Nativity × Marijuana Use	-.06	.05	-.014	-1.16	.04	.06	.09	0.71	-.16	.08	-.24	-2.20*	-.11	0.07	-.18	-1.58
Nativity × Sedative Use	-.02	.04	-.08	-0.41	-.08	.01	-.05	-0.72	.05	.07	.13	0.70	-.03	0.06	-.11	-0.57

Note.

* $p < .05$,
** $p < .01$.

^a 1 = \$0 to 4999, 2 = \$5000 to 9999, 3 = \$10000 to 14999, 4 = \$15000 to 19999, 5 = \$20000 to 24999, 6 = \$25000 to 29999, 7 = \$30,000 to 34,999, 8 = \$35,000 to 39,999, 9 = \$40,000 to 49,999, 10 = \$45,000 to 49,999, 11 = \$50,000 or more.

^b 1 = less than high school, 2 = high school diploma or equivalent, 3 = post high school training, 4 = bachelor's degree, 5 = graduate degree.

^c 0 = U.S. born, 1 = non-U.S. born.

^d 1 = Never, 2 = Several times, 3 = About once a month, 4 = Several times a month, 5 = 1 to 2 days a week, 6 = 3 to 4 days a week, 7 = 5 to 6 days a week, 8 = Every day.

^f values based on square root transformed data to correct for positive skewness.