Correlates of Heavy Drinking Behaviors of Latino Mothers and their Adult Daughters[†]

Theophile Niyonsenga, Ph.D.[*], **Patria Rojas, Ph.D.**[**], **Frank Dillon, Ph.D**[***], **Sunny Kim, Ph.D**[****], **Emel N. Ganapati, Ph.D**[*****], and **Mario R. De La Rosa, Ph.D**[******]

[*]Associate Professor, Epidemiology & Biostatistics, Robert Stempel College of Public Health & Social Work, Florida International University, Miami, FL

[**]Research Associate, Center for Research on U.S. Latinos HIV/AIDS and Drug Abuse, School of Social Work, Florida International University, Miami, FL

[***]Assistant Professor, Center for Research on U.S. Latinos HIV/AIDS and Drug Abuse, Robert Stempel College of Public Health & Social Work, Florida International University, Miami, FL

[****]Associate Professor, Orthopaedic Surgery, UC Davis Medical Center, University of California at Davis, Davis, CA

[*****]Assistant Professor, Public Administration, College of Arts and Sciences, Florida International University, Miami, FL

[******]Professor, Center for Research on U.S. Latinos HIV/AIDS and Drug Abuse, Robert Stempel College of Public Health & Social Work, Florida International University, Miami, FL

Abstract

This study explored associations between adult Latina heavy drinking behaviors and potential psychosocial and demographic correlates. It used mother-daughter dyads and a cross-sectional design. Data were drawn from a community-based sample of 158 dyads of adult Latinas (n = 316), age 18 years or older, recruited between 2004 and 2006. Bivariate and multivariate statistical methods, including logistic regression and pathway models, were used to analyze data. The study found that protective factors for heavy drinking behaviors for the mother included daughter's social support and mother's age, while for the daughter, they were mother's attachment and daughter's country of birth. Risk factors for daughter's heavy drinking behaviors were mother's social support and daughter's education. For both mother and daughter, chronic stress and drinking behavior associations were mediated by attachment and social support. Preventive interventions should target increasing levels of mother-daughter attachment and daughter's social support while decreasing stress levels for mothers and daughters.

Keywords

attachment; chronic stress; heavy drinking behaviors; intergeneration relationships; logistic and pathway models; mother-daughter dyads; social support

The drinking patterns of adult women are influenced by the cultural norms and practices of their ethnic and racial group as well as by biological and environmental factors (Collins & McNair 2002). Primarily, research on alcohol use among adult Latinas has focused on documenting the influences that acculturation to mainstream American society and lifestyle have on the drinking patterns of these women (e.g., Karriker-Jaffe & Zemore 2008; Szapocznik et al. 2007; Collins & McNair 2002; Zamboanga, Raffaelli & Horton 2006). Extant research suggests that: (a) acculturation to the general U.S. culture increased the vulnerability for alcohol misuse for adult Latino men and women (Guilamo-Ramos et al. 2004) and (b) higher acculturation was consistently associated with higher odds of drinking among adult Latinas (Zemore 2007, 2005). Secondarily, research on alcohol use and dependence among adult Latinas focused on documenting the influence that family and economic factors, as well as early alcohol initiation, had on their alcohol use and misuse (Galea, Nandi & Vlahov 2004). Indeed, Dawson (2000) found family history of alcoholism to be positively associated with initiation of drinking among adult Latinas and Latinos. Among women, unemployment, less social support, lower socioeconomic status, peer drinking, and family structure were associated with alcohol use and misuse (Thundal, Granbom & Allebeck 1999).

Despite these recent research advances in understanding the etiology of alcohol use and dependence among adult Latinas, significant research gaps continue to exist. These gaps prevent the development of more effective alcohol use interventions that address the growing problem of alcohol dependence among adult Latinas (e.g., Caetano, Ramisetty-Mikler & Rodriguez 2009; Corbin, Vaughan & Fromme 2008; Perreira & Cortes 2006; Galvan & Caetano 2003). Less explored is the role that factors such as attachment between adult mothers and daughters, country of origin, social support, and stress levels have on the heavy drinking behavior of adult Latinas (Brook, Richter & Whiteman 2000). The research that exists on these risk and protective factors in Latino populations has been conducted mostly on adolescent Latinos (e.g., Kassel, Wardle & Roberts 2007; Sale et al. 2005; Wills & Cleary 1996). For example, the higher the youths' scores on the anxious attachment scale, the greater the likelihood that they will smoke (cigarettes and marijuana) and drink alcohol in response to feelings of distress (Kassel, Wardle & Roberts 2007). Studies confirmed as well the importance of family attachment and positive parental influences as protective factors for alcohol use, particularly for Latinas (Sale et al. 2005). The primary objective of the present study is to further add to the growing body of research on adult alcohol dependence by exploring the underlying behavioral factors influencing the drinking behaviors of Latinas within the context of the Latino culture in which traditional family values and norms (e.g., familismo, marianismo, machismo and gender roles) prevail (Gil & Vasquez 1996). In this community based study, the Latino cultural context includes variables such as country of origin and social support, which has been theorized as particularly salient cultural dynamic in the U.S. Latino populations (De La Rosa & White 2001). Specifically,

this study documents the association between Latina mothers and their adult daughters' attachment and the level of social support they perceive from each other and from their families, the chronic stress they experience, and their heavy drinking behaviors.

The study's conceptual framework and hypotheses are based on elements of (a) Bronfenbrenner's ecological theory (Hilarski 2005; Bronfenbrenner & Morris 1998) and (b) Bogenschneider's ecological risk and protective theory (Riesch, Anderson & Krueger 2006; Bogenschneider 1996). According to the Bronfenbrenner's theory, a person is inherently part of many reciprocally influencing systems at different levels: individual, family, and environmental (Hilarski 2005; Bronfenbrenner & Morris 1998). In Bogenschneider's theory, individuals' behaviors are influenced by a wide range of risk and protective factors that exist in his/her environment (Riesch, Anderson & Krueger 2006; Bogenschneider 1996).

Empirical research studies have found associations between drinking behaviors, sociodemographic characteristics, and parental behaviors in the past. Parental drinking behaviors, especially among same-sex family members, have been consistently linked to the drinking behaviors of offspring (Corbin, Vaughan & Fromme 2008; White & Jackson 2004–2005). Corbin and colleagues (2008) also found that socioeconomic status, defined by education, occupation, and income, was significantly and positively associated with alcohol use. Among Latino adolescents, levels of alcohol use among U.S.-born adolescents were found to be higher compared to those of foreign-born adolescents (Gil, Wagner & Vega 2000). Being U.S.-born was also found to be among the risk factors for alcohol dependence among adult Latinos (Caetano, Ramisetty-Mikler & Rodriguez 2009).

Other empirical research studies evidenced the relationships between social support, attachment, chronic stress and drinking behaviors. One influential social support theory hypothesizes that support reduces the effects of stressful life events on health through either the supportive actions of others or the belief that support is available (e.g., Zimmerman, Bingenheimer & Notaro 2002; Lakey & Cohen 2000). Indeed, in a general population survey of adults (19 years and older), two of the facets of social support, namely, belonging support and tangible support, have been found to be negatively associated with alcohol involvement, including drinking to cope with stress, heavy drinking, and alcohol use problems (Pierce et al. 1996).

A theory that consistently explains the attachment-drinking association is the social control theory, which posits that deviant behavior is produced by low levels of attachment and weak commitment to institutions such as the family (Barrett & Turner 2006; Hirschi 1969). Indeed, in a sample of college students who had consumed an alcoholic beverage at least once in the past year, McNally and colleagues (2003) found a significant relationship between adult attachment and alcohol drinking problems. Golder and colleagues (2005) tested a hypothesis about the usefulness of attachment theory in a sample of high-risk older adolescent women. They found that women with high levels of attachment insecurity were more likely to engage in substance use than women with more secured attachment. In an ethnographic study with primarily African-American mothers and daughters, low levels of attachment were found to be significantly associated with alcohol use (Dunlap et al. 2004). Finally, the stress-alcohol use association is based on the stress-coping model, which posits

that stress-coping mechanisms induce substance use as a coping response to stressful life events (Wagner, Meyers & McIninch 1999; Hawkins 1992). Wagner and colleagues (1999) found that stress-coping accounted for statistically unique and significant variance in teenagers' substance use. The association between substance use and stress was also evidenced by Barrett and Turner (2006) in a sample of young adults. They observed high levels of substance use, including alcohol drinking, among adolescents exposed to high levels of stress.

The conceptual framework of this study considers the Latina drinking behavior within a meditational process that accounts for associations between drinking behavior and risk/protective factors at both the individual level (i.e. country of origin, age, education, employment) and the micro-system level (i.e., social support, attachment, chronic stress; see Figure 1). As such, this study hypothesized that: (a) mother and daughter drinking behaviors may provide a model in which each may be influenced by the other's drinking behavior (i.e. a mother's drinking behavior could influence her daughter's drinking and vice versa); (b) social support may be positively or negatively associated with the likelihood of heavy drinking; (c) attachment may be positively associated with social support and negatively associated with drinking propensity; (d) chronic stress may be negatively associated with both attachment and social support, and positively associated with the likelihood of drinking; and (e) individual characteristics, such as country of origin, age, education, employment, and length of stay in the U.S. may be significantly associated with the probability of drinking as well as to chronic stress, attachment, and social support (not shown in Figure 1 for clarity). Given the strong relationships between mothers and their daughters in the Latino culture, we expected to observe significant relationships between: (a) mother and daughter attributes; (b) mothers' drinking behaviors and their adult daughters' drinking behaviors; (c) mothers' attributes and daughters' drinking behaviors; and (d) daughters' attributes and mothers' drinking behaviors. To our knowledge, no studies have documented drinking behaviors and related risk and protective factors among adult Latino mothers and daughters. Due to the lack of studies that extensively examine drinking behaviors in adult Latinas, this study will contribute to the body of literature on substance use among adult Latinas.

METHODS

Participants

The study is based on a community-based convenience sample of Latinas residing in Miami, Florida, between the years 2004 and 2006. It is a cross-sectional study examining substance use and other health risk behaviors of Latino mothers and daughters (De La Rosa et al. 2010). The study sample consisted of 158 mother and daughter dyads of adult Latinas recruited within the Latino community. Women were approached using local radio ads and newspaper ads in Spanish. They were mostly approached and informed about the study through outreach to community organizations and health fairs, drug court programs, women and children programs as well as outpatient substance abuse treatment centers. Data were collected using face-to-face interviews. Interviews were conducted by female interviewers mostly in Spanish and at the participants' homes. Women in each dyad were interviewed separately, following a structured questionnaire in either Spanish or English collecting data

on mother-daughter attachment to one another, substance use behaviors including alcohol drinking, social support levels, chronic stress, and demographic characteristics. Mothers and daughters were included in the study if: (a) they consented to be interviewed for at least two to three hours; (b) were 18 years old or older; (c) identified themselves as Latinas; (d) were living in Miami-Dade County, Florida; and (e) were willing to provide two phone numbers where they could be reached during the study. The study was reviewed and approved by the Florida International University Institutional Review Board.

Measures

Mother and daughter drinking behaviors were assessed based on the quantity and frequency of alcohol consumed during the past three months. Items of alcohol consumption, scored as quantity and frequency, were taken from the Health and Daily Living Form (HDL), a structured assessment of health-related factors such as alcohol consumption, drinking problems, and depression (Billings & Moos 1984; Billings, Cronkite & Moos 1983). This quantity-frequency typology has been used in large survey questionnaires such as the Behavioral Risk Factor Surveillance System questionnaire (Naimi et al. 2003; Gentry et al. 1985) and the Youth Risk Behavior Survey questionnaire (Hlaing, De La Rosa & Niyonsenga 2007; Brener et al. 2002). According to Miller and Munoz (1982), one drink is considered to be: 10 to 12 oz of beer at 4% to 5 % alcohol, 8 to 12 oz of wine cooler at 4% to 6% alcohol, 4 to 5 oz of table wine at 9% to 12% alcohol, 2.5 oz of fortified wine at 20% alcohol, 1.25 oz of 80-proof distilled spirits at 40% alcohol, or 1 oz of 100 proof distilled spirits at 50% alcohol. This definition matches the Centers for Disease Control (CDC 2010) definition, which states that a standard drink has about half an ounce of pure alcohol. Indeed, this amount of pure alcohol is generally found in 12 oz of regular beer or wine cooler (i.e., a bottle), in 8 oz of malt liquor, in 5 oz of wine (a glass of wine), and in 1.5 oz of 80-proof distilled spirits or liquor (e.g., gin, rum, vodka, or whiskey). For this study, the outcome variable, *heavy drinking status*, was defined as consuming: (a) three beers or more per day; or (b) three wine coolers or more per day; or (c) four glasses of wine or more per day; or (d) three drinks or more per day of liquor. This definition has been successfully used in other studies (e.g., Naimi et al. 2003; Enoch & Goldman 2002).

Mother and daughter attributes were assessed as follows. *Social Support* scores were obtained from the Interpersonal Support Evaluation List scale (ISEL; Cohen & Hoberman 1983), used to assess the support from mother, daughter, other family members and friends. Items from this scale included, "I often meet or talk with family or friends" and "If I were sick I could easily find someone to help me with my daily chores." Participants' total scores were used, with high scores indicating high levels of social support. Cronbach's alpha reliability estimates of 0.86 (mothers) and 0.88 (daughters) were found for the total social support scale.

Attachment was obtained from a 25-item revised version of the Inventory of Parent and Peer Attachment scale (IPPA; Armsden & Greenberg 1987), which has been used to measure mother-daughter attachment to one another. Items in this scale included, "I feel my mother does a good job as a mother" and "I get upset easily around my mother." Participants' total scores were used in the current study, with high scores indicating high levels of attachment.

For the attachment scale, Cronbach's alpha coefficients for the total scale score used in the current study were 0.93 for daughters and 0.92 for mothers.

Chronic Stress was obtained from a modified version of the chronic stress scale used to measure chronic stressors in the individuals' lives (Turner et al. 2001; Life Course and Health Research Center 1997). Examples of the items were, "You are trying to take too many things at once" and "The place you live is too noisy or too polluted." Participants' total scores were used, with high scores indicating high levels of chronic stress. Cronbach's alpha coefficients for the total chronic stress scale score used in the current study were 0.82 for the daughter sample and for the mother sample.

Finally, *demographic variables* included women's age in years, education status (low, defined as education level of high school or less, versus high, defined as education level of more than high school), employment status (employed: yes versus no), nativity or birthplace (foreign-born versus U.S. born), and length of stay in the U.S., a proxy variable for the acculturation levels defined as the percentage of years spent in the U.S. relative to the women's age.

Data Analysis Plan

Univariate and bivariate data analyses were performed using SAS software (SAS Institute Inc. 2004). For multivariate analyses, the Mplus software (Muthén & Muthén 1998–2007) was chosen for its simplicity and ability to handle pathway models with both numeric and nonnumeric variables. Summary statistics were compiled for all variables in terms of proportions (for nonnumeric variables) and means and standard deviations (SD) for numeric variables. Bivariate analyses included logistic regression models, reporting crude and adjusted odds ratios as well as their confidence intervals (90% CI). Multivariate analyses involved pathway models following the conceptual framework shown in Figure 1 (e.g., Muthén & Muthén 1998–2007; Kline 2005). For pathway models, the following goodness-of-fit indices were reported: (a) chi-square test along with its p-value; (b) comparative fit index (CFI) and Tucker-Lewis index (TLI); (c) root mean square error of approximation (RMSEA); and (d) coefficient of determination or R-square (R^2) for latent variables. The specific criteria of acceptable goodness of fit were values: (a) to be small and nonsignificant for chi-square (χ^2); (b) to be 0.95 for CFI and TLI; and (c) to be 0.05 for RMSEA (Muthén & Muthén 1998–2007; Kline 2005).

RESULTS

Descriptive statistics are summarized in Table 1. More than half of daughters in the sample were heavy drinkers, foreign-born, employed, and had higher education. Mothers were mostly not heavy drinkers, foreign-born, generally Caribbean (41.1 %) or from South America (30.4%), unemployed, and had low education.

Table 2 summarizes relationships between heavy drinking outcomes and other attributes (bivariate and multivariable analyses). Bivariate analyses showed that mother's heavy drinking status was a statistically significant risk factor for daughter's heavy drinking behavior and vice versa. That is, if a mother was a heavy drinker, her daughter would be 2.6

times more likely to be a heavy drinker, and vice versa. Mother's education and length of stay in the U.S. were also found to be significant risk factors for mother's heavy drinking behaviors, while mother's birthplace (being foreign-born), age, and attachment were statistically significant protective factors for mother's involvement in heavy drinking. Daughter's education (high educational level) and length of stay in the U.S. were found to significantly increase daughter's risk of engaging in heavy drinking behavior, while daughter's birthplace (foreign born) and age were significant protective factors. Multivariate analyses revealed, however, that only maternal age and daughter's social support remained significant protective factors for mother's heavy drinking behavior, while daughter's education and mother's social support appeared to be the only significant risk factors for daughter's heavy drinking behavior.

Following the conceptual model in Figure 1, the path model retained was the best model fitting the sample data (Figure 2). As previously observed in bivariate analyses, mother's and daughter's drinking behaviors were found to be significantly correlated. Other significant correlations were observed between mother and daughter attachment attributes as well as between mother and daughter chronic stress measures. The multivariate analysis showed that for mother's heavy drinking behavior, maternal age and daughter's social support were significant protective factors. For daughter's heavy drinking behavior, mother's social support and daughter's education were again significant risk factors. Moreover, the path analysis (Figure 2) revealed that daughter's nativity or birthplace (significant in bivariate analysis) and mother's attachment (nonsignificant in bivariate analysis) were two protective factors for daughter's heavy drinking behavior.

Results in Figure 2 showed as well that the patterns of relationships between stress, attachment and social support[for mothers and daughters were similar. In these patterns, chronic stress was significantly and negatively associated with both attachment and social support. Attachment positively affected social support. Considering the attachment outcome again, mother and daughter employment status (being employed) positively affected mother's attachment, while daughter's education (high education) was negatively related to daughter's attachment. Finally, when considering the chronic stress outcome, mother's chronic stress was positively affected by daughter's education, while daughter's chronic stress was positively affected by both daughter's education and age.

DISCUSSION

Study results supported most of our hypotheses regarding the relationships among social support, attachment, chronic stress, demographic characteristics, and mother-daughter heavy drinking behaviors. As expected, statistically significant relationships were observed between: (a) the drinking behaviors of mothers and the drinking behaviors of their daughters; (b) mother and daughter attachment and chronic stress; (c) mother's social support and attachment and daughter's drinking behavior, as well as daughter's attributes (social support) and mother's drinking behaviors; (d) mother and daughter heavy drinking behaviors and demographic characteristics (age, education and birthplace). As hypothesized, mediation patterns were also observed among chronic stress, attachment, social support, and mother/daughter heavy drinking behaviors. The following paragraphs discuss results of the

current study and their interpretation in light of the extant literature and its methodological limitations.

The protective effect of social support and country of origin (foreign born) for women's heavy drinking behaviors have been reported elsewhere in the literature. Perreira & Cortes (2006), studying alcohol use during pregnancy, found that foreign-born women were less likely to use alcohol compared to those who were U.S. born, and that social support was most protective among Latino women. Caetano and colleagues (2009) also observed the protective effect of birthplace for alcohol dependency among Latino groups. Family attachment and positive parental influences were also reported as protective factors for early alcohol use by youths in Latino youth studies (Sale et al. 2005). In a sample of high-risk adolescent women, Golder and colleagues (2005) reported the protective effect of attachment on engaging in risky behaviors such as substance use.

The mother-daughter relationship, although reported as a protective factor for daughter's alcohol use, may also become a risk factor. This finding may be explained by the mother being part of a potentially powerful enabling social support system that places the daughter at risk of alcohol abuse (e.g., Falkin & Strauss 2003). Corbin and colleagues (2008) reported that drinking behaviors of same-sex family members may influence one's drinking behaviors. Galea and colleagues (2004) observed that drinking among social networks increased the likelihood of alcohol abuse and dependence. Mother's attachment was found to be a protective factor for daughter's heavy drinking behaviors. Indeed, the closeness of a healthy and functional relationship may reduce the stress and increase daughter's commitment to her relationships with her mother, thereby decreasing her drinking behaviors to relieve stress and disengagement. Furthermore, as Golder and colleagues (2005) reported, higher levels of attachment in adult relationships can result in lower alcohol use.

The relationships between chronic stress and women's heavy drinking behaviors were buffered by attachment and social support. Similar to our result, Pierce and colleagues (1996) were the first to report the buffering influence of tangible support on financial stress-alcohol relationships. Other sources of stress, namely, acculturation-related stress and social environment, have been pointed out in the literature as potential risk factors for increased alcohol consumption (Zemore 2005). The observed role of higher education as a risk factor for women's heavy drinking behaviors in the current study is consistent with the extant literature. Indeed, Collins and McNair (2002) reported that having higher incomes and education were independent predictors of heavier drinking among Mexican-American women. In our study, we observed that daughter's education increased chronic stress for both mothers and daughters, which may be a result of both culture conflicts and social environment as more educated women may have been trying to take on more responsibilities. As Caetano and colleagues (2009) noted, it is the acculturation to the U.S. society, more present among the U.S. born, that brings an increased risk for substance abuse and other health risk behaviors. Indeed, highly acculturated women drink more than those in low and medium acculturation levels. It is believed that the U.S. born may have a higher socioeconomic status and thus more disposable income to buy alcohol. Collins and McNair (2002) pointed out as well that, although acculturation represents positive personal and

social changes for Latinas, including improved socioeconomic status, independence, and empowerment, it may also serve as a risk factor for heavy drinking.

The cross-sectional nature of the current study precludes making definitive statements about causal paths and relationships, but it takes a useful and effective first step towards a more in-depth comprehensive understanding of the processes linking social support, attachment, chronic stress, and heavy drinking behaviors. It clarifies the role of each factor in the associations between these correlates and the risk for heavy drinking. However, future work will be needed to specifically address and enhance all the directional relationships drawn in the conceptual model (Figure 1) using longitudinal study designs.

The study results have implications for social work and public health interventions and prevention programs targeting Latinas. The country of birth (U.S. versus foreign born for daughters), age (for mothers) and education (for daughters) findings highlight the time spent in the U.S. culture and the impact of the acculturation among adult Latinas. While these findings are informative, it remains unclear which specific cultural values or beliefs protect the foreign-born women. Social support and attachment findings prove that, for Latina women, the value placed upon family relationships may be protective against heavy drinking behaviors, thereby making prevention efforts that strengthen existing relationships (except enabling social networks) particularly useful (Corbin, Vaughan & Fromme 2008). The findings of this study imply as well that interventions tailored on lowering levels of chronic stress would result in increased attachment and social support, therefore strengthening mother-daughter relationships. However, further investigation of the different aspects of acculturation-related stress among Latina women and different dimensions of social support and attachment are needed. Finally, the study findings have implications for future research and public health programs designed to reach Latina women and deal fully with available emerging knowledge.

There are other known correlates of alcohol use such as abuse, neglect, and maltreatment that were not considered in the analyses. This was due to our desire to focus only on the relationships between social support and alcohol use, and the role of attachment and chronic stress in these relationships. Furthermore, the limited sample size did not allow for the extensive exploration of potential associations between all the available correlates, drinking and drug use behaviors.

The self-reported nature of the data is prone to limit the interpretation and generalizability of the observed findings. The information may be under- and/or over-reported, and more likely to have social desirability bias as well as recall bias. Participants could have been less likely to report antisocial behavior; however, the face to face interview facilitated the clarification of questions and helped overcome the low literacy levels of participants. Additionally, interviewers were well trained to detect any inconsistencies in participants' responses. We believe that the use of qualified personnel increased the quality of the collected data and served to minimize any systematic errors. The current study was conducted among Latinas living in urban south Florida, and given that there is some difference between Latino subgroups (e.g., Mexicans, Cubans, and Puerto Ricans) these results may not be generalizable to predict mother-daughter heavy alcohol use among other subgroups from

rural areas. These findings apply to heavy alcohol use and caution must be exercised before generalizing the findings to other forms of drug use. Before taking into consideration the clinical implications of this study, more longitudinal research is needed in order to clarify the possible implementation of results and help adult mother/daughter relationships as well as future generations of Latinas.

References

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; 16:427–54. [PubMed: 24277469]

Barrett AE, Turner RJ. Family structure and substance use in adolescence and early adulthood: Examining explanations for the relationship. Addiction. 2006; 101:109–20. [PubMed: 16393197]

Billings A, Moos R. Chronic and nonchronic unipolar depression: The differential role of environmental stressors and resources. Journal of Nervous and Mental Diseases. 1984; 172:1–11.

Billings A, Cronkite R, Moos R. Social-environmental factors in unipolar depression: Comparisons of depressed patients and nondepressed controls. Journal of Abnormal Psychology. 1983; 92:119–33. [PubMed: 6863728]

Bogenschneider K. An ecological risk/protective theory for building prevention programs, policies, and community capacity to support youth. Family Relations. 1996; 45:127–38.

Brener ND, Kann L, McManus T, Kinchen SA, Sundberg EC, Ross JG. Reliability of the 1999 youth risk behavior survey questionnaire. Journal of Adolescent Health. 2002; 31(4):336–42. [PubMed: 12359379]

Bronfenbrenner, U., Morris, PA. The ecology of developmental processes. In: Lerner, RM., editor. Handbook of Child Psychology. Fifth. New York: Wiley; 1998.

Brook J, Richter L, Whiteman M. Effects of parent personality, upbringing and marijuana use on the parent-child attachment relationship. Journal of American Academy of Child and Adolescent Psychiatry. 2000; 39(2):240–46.

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; 99:215–21. [PubMed: 18945554]

Centers for Disease Control and Prevention (CDC). Alcohol and Public Health: Fact Sheets. 2010. Available at http://www.cdc.govlalcohol/fact-sheetslalcohol-use.htm

Cohen S, Hoberman HM. Positive events and social supports as buffers of life change stress. Journal of Applied Social Psychology. 1983; 13:99–125.

Collins RL, McNair L. Minority women and alcohol use. Alcohol Research and Health. 2002; 26(4): 251–56. [PubMed: 12875034]

Corbin WR, Vaughan EL, Fromme K. Ethnic differences and the closing of the sex gap in alcohol use among college-bound students. Psychology of Addictive Behaviors. 2008; 22(2):240–48. [PubMed: 18540721]

Dawson DA. The link between family history and early onset alcoholism: Earlier initiation of drinking or more rapid development of dependence? Journal of Studies on Alcohol and Drugs. 2000; 61:637–46.

De La Rosa M, White M. A review of the role of social support systems in the drug use behavior of Hispanics. Journal of Psychoactive Drugs. 2001; 33:233–41. [PubMed: 11718316]

De La Rosa M, Dillon FR, Ganapati E, Rojas P, Pinto E, Guillermo P. Mother-daughter attachment and substance abuse among Latinas in the United States. Journal of Drug Issues. 2010; 40(2):379–404.

Dunlap E, Johnson B, Stürzenhofecker G, Sanabria H. Mothers and daughters: The intergenerational reproduction of violence and drug use in home and street life. Journal of Ethnicity and Substance Abuse. 2004; 3(2):1–23.

Enoch MA, Goldman D. Problem drinking and alcoholism: Diagnosis and treatment. American Family Physician. 2002; 65:441–48. [PubMed: 11858627]

Falkin GP, Strauss SM. Social supporters and drug use enablers: A dilemma for women in recovery. Addictive Behaviors. 2003; 28:141–55. [PubMed: 12507533]

Galea S, Nandi A, Vlahov D. The social epidemiology of substance use. Epidemiologic Reviews. 2004; 26:36–52. [PubMed: 15234946]

Galvan, FH., Caetano, R. Alcohol Use and Related Problems among Ethnic Minorities in the United States. National Institute on Alcohol Abuse and Alcoholism NIAAA publication; 2003. Available at http://pubs.niaaa.nih.gov/publications/arh27-1/87-94.htm

Gentry EM, Kalsbeek WO, Hagelin GC, Jones JT, Gaines KL, Forman MR, Marks JS, Trowbridge FL. The behavioral risk factor surveys. II. Design, methods, and estimates from combined state data. American Journal of Preventive Medicine. 1985; 1(6):9–14. [PubMed: 3870927]

Gil AG, Wagner EF, Vega WA. Acculturation, familism, and alcohol use among Latino adolescent males: Longitudinal relations. Journal of Community Psychology. 2000; 28:443–58.

Gil, RM., Vasquez, CI. The Maria Paradox: How Latinas can Merge Old World Traditions with New World Self-Esteem. New York: G.P Putnam's Sons; 1996.

Golder S, Gillmore MR, Spieker S, Morrison D. Substance use, related problem behaviors and adult attachment in a sample of high risk older adolescent women. Journal of Child and Family Studies. 2005; 14:181–93.

Guilamo-Ramos Y, Jaccard J, Johansson M, Turrisi R. Binge drinking among Latino youth: Role of acculturation-related variables. Psychology of Addictive Behaviors. 2004; 18:135–42. [PubMed: 15238055]

Hawkins, RC, II. Substance abuse and stress-coping resources: A life contextual clinical viewpoint. In: Wallace, BC., editor. The Chemically Dependent: Phases of Treatment and Recovery. New York: Brunner/Mazel; 1992.

Hilarski C. Exploring predictive factors for substance use in African American and Hispanic youth using an ecological approach. Journal of Social Service Research. 2005; 32:65–85.

Hirschi, T. Causes of Delinquency. Berkeley, CA: University of California Press; 1969.

Hlaing WM, De La Rosa M, Niyonsenga T. Human immunodeficiency virus (HIV) and substance use risk behaviors among tri-ethnic adolescents in Florida. AIDS and Behavior. 2007; 11:239–51. [PubMed: 16783534]

Karriker-Jaffe KJ, Zemore SE. Associations between acculturation and alcohol consumption of Latino men in the Unites States. Journal of Studies on Alcohol and Drugs. 2008; 70:27–31.

Kassel JD, Wardle M, Roberts JE. Adult attachment security and college student substance use. Addictive Behaviors. 2007; 32:1164–76. [PubMed: 16996225]

Kline, RB. Principles and Practices of Structural Equation Modeling. Second. New York: Guilford Press; 2005.

Lakey, B., Cohen, S. Social support theory and measurement. In: Cohen, S.Underwood, LG., Gottlieb, BH., editors. Social Support Measurement and Intervention: A Guide for Health and Social Scientists. London: Oxford University Press; 2000.

Life Course and Health Research Center. Wave I questionnaire. Miami: Florida International University; 1997. Transitions: A study of stress and well being in young adulthood. Available at www.fiu.edu/~lchrc/transitions.htm

McNally AM, Palfai TP, Levine RY, Moore BM. Attachment dimensions and drinking-related problems among young adults: The meditational role of coping motives. Addictive Behaviors. 2003; 28:1115–27. [PubMed: 12834654]

Miller, WR., Munoz, RF. How to Control Your Drinking. Albuquerque: University of New Mexico Press; 1982.

Muthén, LK., Muthén, BO. Mplus User's Guide: Statistical Analysis with Latent Variables. Fifth. Los Angeles, CA: Muthén & Muthén; 1998–2007.

Naimi TS, Brewer RD, Mokdad A, Denny C, Serdula MK, Marks JS. Binge drinking among US adults. Journal of the American Medical Association. 2003; 289(1):70–75. [PubMed: 12503979]

Perreira KM, Cortes KE. Race/ethnicity and nativity differences in alcohol and tobacco use in pregnancy. American Journal of Public Health. 2006; 96(9):1629–36. [PubMed: 16873756]

Pierce RS, Frone MR, Russell M, Cooper ML. Financial stress, social support, and alcohol involvement: A longitudinal test of the buffering hypothesis in a general population survey. Health Psychology. 1996; 15(1):38–47. [PubMed: 8788539]

Riesch SK, Anderson LS, Krueger HA. Parent-child communication processes: preventing children's health-risk behavior. Journal for Specialists in Pediatric Nursing. 2006; 11:41–56. [PubMed: 16409505]

Sale E, Sambrano S, Springer JF, Peña C, Pan W, Kasim R. Family protection and prevention of alcohol use among Hispanic youth at high risk. American Journal of Community Psychology. 2005; 36:195–205. [PubMed: 16389495]

SAS Institute Inc. SAS 9.1.3 2000–2004 Help and Documentation. Cary, NC: SAS Institute Inc; 2004.

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.

Thundal KL, Granbom S, Allebeck P. Women's alcohol dependence and abuse: The relation to social network and leisure time. Scandinavian Journal of Public Health. 1999; 27:30–37. [PubMed: 10847668]

Turner BJ, Fleishman JA, Wenger N, London AS, Burnam MA, Shapiro MF, Bing EG, Stein MD, Longshore D, Bozzette SA. Effects of drug abuse and mental disorders on use and type of antiretroviral therapy in HIV-infected persons. Journal of General Internal Medicine. 2001; 16:625–33. [PubMed: 11556944]

Wagner EF, Myers MG, McIninch JL. Stress-coping and temptation-coping as predictors of adolescent substance use. Addictive Behaviors. 1999; 24(6):769–79. [PubMed: 10628511]

White HR, Jackson KM. Social and psychological influences on emerging adult drinking behavior. Alcohol Research & Health. 2004–2005; 28(4):182–90.

Wills TA, Cleary SD. How are social support effects mediated? A test with parental support and adolescent substance use. Journal of Personality and Social Psychology. 1996; 71(5):937–52. [PubMed: 8939042]

Zamboanga BL, Raffaelli M, Horton NJ. Acculturation status and heavy alcohol use among Mexican American college students: Investigating the moderating role of gender. Addictive Behaviors. 2006; 31:2188–98. [PubMed: 16603321]

Zemore SE. Acculturation and alcohol among Latino adults in the United States: A comprehensive review. Alcoholism: Clinical and Experimental Research. 2007; 31:1968–90.

Zemore SE. Re-examining whether and why acculturation relates to drinking outcomes in a rigorous, national survey of Latinos. Alcoholism: Clinical and Experimental Research. 2005; 29:2144–53.

Zimmerman MA, Bingenheimer JB, Notaro PC. Natural mentors and adolescent resiliency: A study with urban youth. American Journal of Community Psychology. 2002; 30(2):221–43. [PubMed: 12002244]
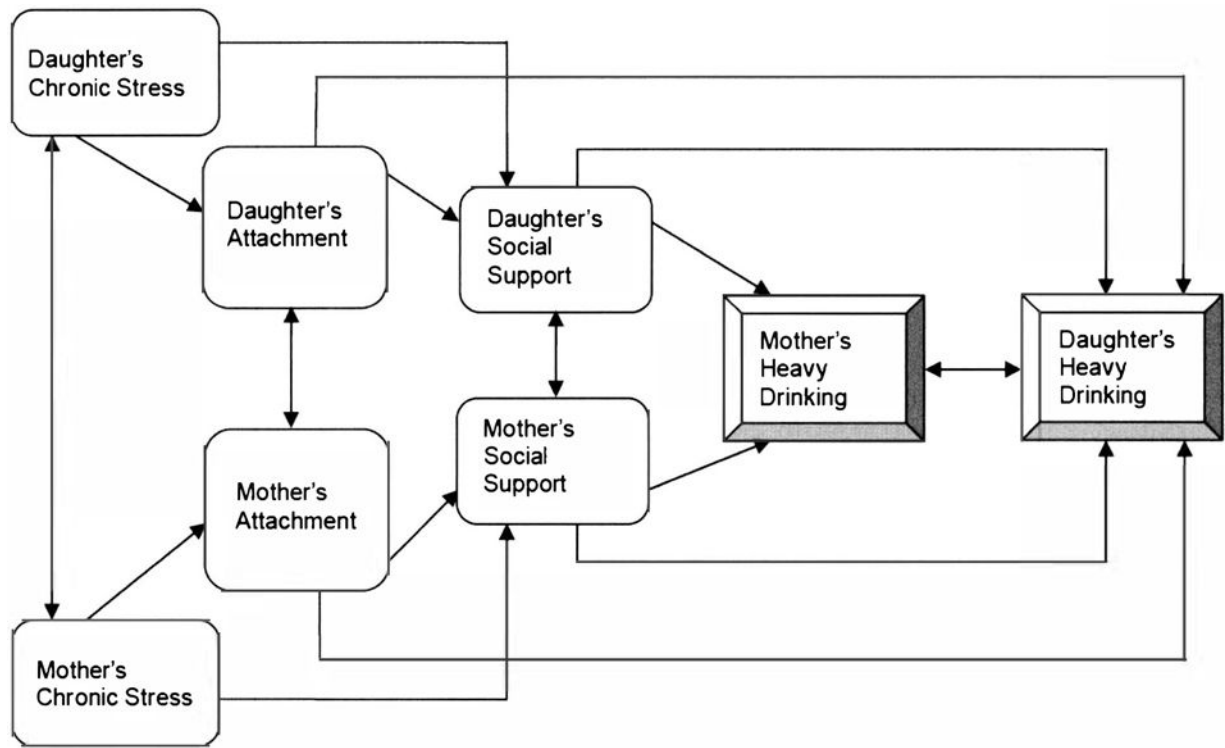
FIGURE 1. Conceptual Framework for Heavy Drinking: Direct and Mediation Effect Models
Notes:

• Social support was assumed to mediate associations between (a) drinking behaviors and attachment; (b) drinking behaviors and chronic stress.

• Attachment was assumed to mediate associations between social support and chronic stress. Both attachment and social support were assumed to mediate associations between drinking behaviors and chronic stress.

• Individual characteristics, such as age, education, employment, country of origin, and length of stay in the United States were omitted from the graph for the sake of simplifying the figure; they would have been placed at the left side of mother's and daughter's chronic stress.
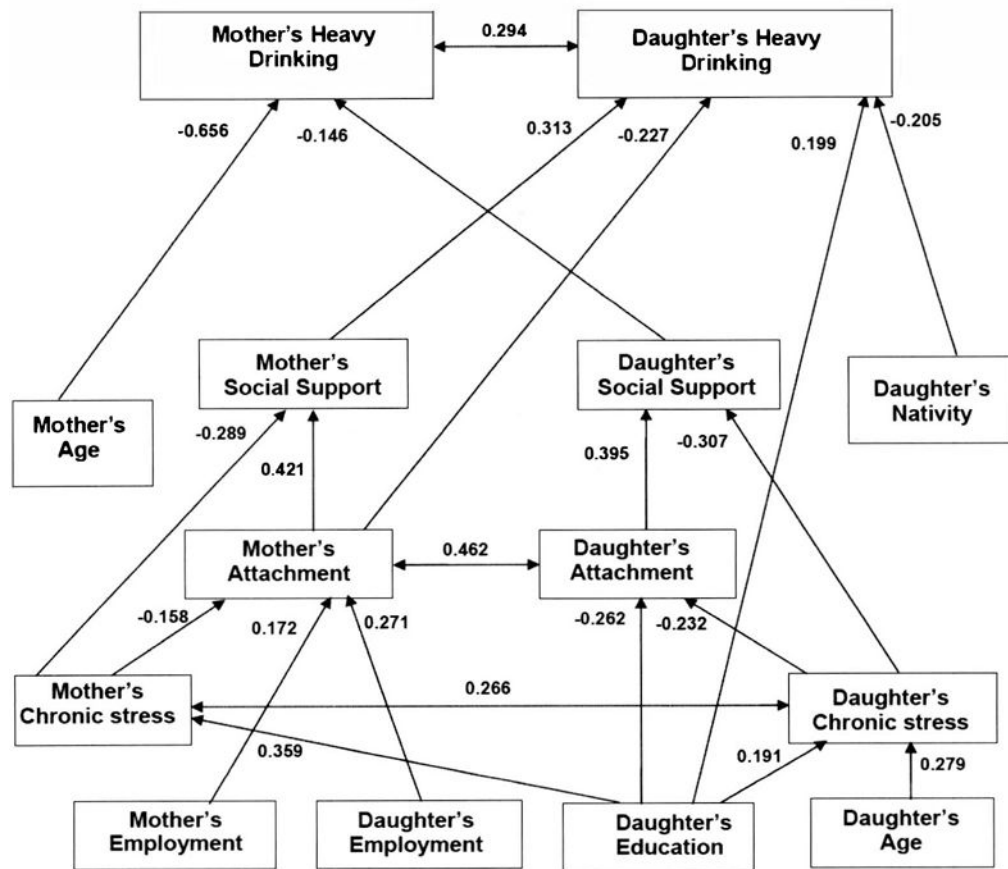
FIGURE 2. Pathway Model for Heavy Drinking Behaviors: Direct and Mediation Effects

TABLE 1

Descriptive Statistics

	Mothers (n = 158)		Daughters (n = 158)	
	n	%	n	%
Heavy Drinking Indicators				
Beer	32	20.3	47	29.7
Liquor	29	18.4	62	39.2
Wine	8	5.1	6	3.8
Wine Cooler	5	3.2	3	1.9
Alcohol Heavy Use				
(At least one the above indicators)	49	31.0	88	55.7
Demographic Variables				
Employment: Yes (versus No)	70	44.3	93	58.9
Education: Low (versus High)	49	31.0	39	24.7
Birthplace: Foreign (versus U.S. born)	132	83.5	85	53.8

	Range	Mean	SD	Range	Mean	SD
Total Score Scales						
Attachment	41.0–124.0	92.48	17.70	43.0–125.0	89.96	19.13
Social Support	25.0–80.0	65.75	10.47	24.0–80.0	67.39	10.40
Chronic Stress	26.0–66.2	40.64	9.08	26.0–63.1	39.19	9.04
Other Demographics						
Age in Years	33.0–88.0	52.30	9.87	18.0–55.0	27.71	9.21
% of Time in US	0.7–100.0	47.29	34.14	2.6–100.0	64.87	36.79

Notes:

One drink is defined as: 10 to 12 *oz* of beer at 4 to 5% alcohol, or 8 to 12 oz of wine cooler at 4 to 6% alcohol, or 4 to 5 oz of table wine at 9 to 12% alcohol, or 1.25 oz of SO-proof distilled spirits at 40% alcohol, or 1 oz of 100 proof distilled spirits at 50% alcohol. The outcome variable, *heavy drinking status*, is defined as consuming: (a) three drinks or more per day of beer, or (b) three drinks or more per day of wine cooler, or (c) four drinks or more per day of wine, or (d) three drinks or more per day of liquor.

Education (Low versus High): Low is defined as high school or less; High is defined as more than high school, that is, training post high school, college and more.

Birth Place (Foreign born versus U.S. born): Foreign born is defined as born in the Caribbean, Central America and South America.

SD: Standard deviation (square root of the variance)

TABLE 2

Correlates of Heavy Drinking Behavior: Bivariate and Multivariable Relationships

Mother's Variables	Mother's Heavy Drinking (n = 158)			Daughter's Heavy Drinking (n = 158)		
	cOR	aOR	aOR-90% CI	cOR	aOR	aOR-90% CI
Heavy Drinking	-----	-----	-----	2.642 ***	-----	-----
Birthplace	0.375 **	NS	0.461–5.664	NS	NS	0.397–4.039
Education	1.902 *	NS	0.696–3.908	NS	NS	0.704–3.235
Employment	NS	NS	0.312–1.350	NS	NS	0.765–2.669
Age	0.888 ***	0.862 ***	0.804–0.924	0.967 **	NS	0.956–1.059
Length of Stay	1.018 ***	NS	0.992–1.043	1.011 **	NS	0.971–1.015
Chronic Stress	NS	NS	0.971–1.056	NS	NS	0.944–1.020
Social Support	NS	NS	0.977–1.054	NS	1.046 **	1.009–1.084
Attachment	0.984 *	NS	0.954–1.003	NS	NS	0.959–1.001
Daughter's Variables						
Heavy Drinking	2.642 ***	-----	-----	-----	-----	-----
Birthplace	0.413 **	NS	0.174–3.233	0.415 ***	NS	0.091–1.154
Education	NS	NS	0.203–1.351	2.139 *	2.461 *	1.044–5.804
Employment	NS	NS	0.654–3.084	NS	NS	0.389–1.377
Age	0.927 ***	NS	0.967–1.114	0.958 **	NS	0.907–1.015
Length of Stay	1.011 **	NS	0.975–1.013	1.010 **	NS	0.986–1.018
Chronic Stress	NS		0.916–1.005	NS	NS	0.959–1.034
Social Support	NS	0.946 **	0.908–0.986	NS	NS	0.958–1.029
Attachment	NS	NS	0.983–1.031	NS	NS	0.980–1.020

Notes:

OR: Odds ratio; cOR: Crude Odds ratio; aOR: Adjusted Odds ratio; 90% CI: 90% Confidence interval limits

***
p ≤ 0.01;

**
0.01 < p ≤ 0.05;

*
0.05 < p ≤ 0.10; NS: p > 0.10