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Alcohol Use Among Hispanic Early Adolescents in the United States: An Examination of Behavioral Risk and Protective Profiles

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Abstract

Few studies have examined the behavioral and protective correlates of alcohol use among young Hispanics. Using a national sample (N = 7,606), logistic regression and latent profile analysis (LPA) are employed to examine the relationships between alcohol use, psychosocial factors, and externalizing behavior among Hispanics during early adolescence. Early drinkers are more likely to report truancy, fighting, smoking, and drug use. LPA results revealed a three class solution. Classes identified included: *psychosocial risk* (41.11%), *moderate protection* (39.44%), and *highly religious* (19.44%). Alcohol use is clearly associated with externalizing behavior; however, an important degree of psychosocial and behavioral heterogeneity nevertheless exists.

Keywords

Hispanic; alcohol; adolescence; externalizing behavior; protective factors

INTRODUCTION

Hispanic adolescents in the United States are disproportionately more likely than their peers to use and abuse alcohol (CDC, 2012; Johnston, O'Malley, Bachman, & Schulenberg, 2013) and to subsequently develop alcohol use disorders as adults (Grant et al., 2012). Compared to non-Hispanic whites and African-Americans, Hispanics initiate alcohol use at younger ages (CDC, 2012) and tend to use alcohol and become intoxicated with substantially greater frequency during early and middle adolescence (Johnston et al., 2013). While these rates tend to level off by the time Hispanics reach the 12th grade (Johnston et al., 2013), such

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early and frequent use is noteworthy given that research has repeatedly identified early use as an important predictor of the development of alcohol and other substance use disorders during subsequent developmental periods (Dawson, Goldstein, Chou, Ruan, & Grant, 2008; Grant et al., 2006). Additionally, research in the general population suggests that alcohol use and abuse are associated with a variety of negative behavioral outcomes, including: tobacco use and the use of illicit substances (Barnes, Welte, & Hoffman, 2002), the enactment of violent and aggressive behavior (Chan, Dennis, & Funk, 2008; Krug, Mercy, Dahlberg, & Zwi, 2002), and involvement in truancy and school dropout (Maynard, Salas-Wright, Vaughn, & Peters, 2012), and a slew of additional delinquent and antisocial behaviors (Bennett, Holloway, & Farrington, 2008; White, Loeber, & Farrington, 2008). Simply, not only is early adolescent alcohol use an important health-risk behavior in and of itself, but, in studies among the general population, it has been found to function as a risk factor for involvement in additional manifestations of adolescent problem behavior that are equally, if not more, consequential to youth development.

Surprisingly, however, although research among the general population has examined the various elements of these important relationships, few studies have systematically examined the behavioral and protective correlates of alcohol use among young Hispanics in the United States. As such, important questions remain unanswered, such as: How is alcohol use associated with externalizing behavior and relevant psychosocial factors? Is there heterogeneity that can be identified in terms of the psychosocial profiles of early adolescent Hispanic drinkers? These questions have yet to be adequately addressed in studies using nationally representative samples. Given that Hispanics represent the largest and fastest growing minority group in United States (U.S. Census Bureau, 2011), early and frequent alcohol use among Hispanic adolescents, as well as the associated psychosocial and behavioral correlates of such use, are of phenomena that are of great importance to public health and, as such, warrant in-depth examination.

Prevalence of Alcohol Use Among Early Adolescent Hispanics

Prevention scientists have repeatedly highlighted the racial/ethnic disparities experienced by Hispanics with respect to alcohol use during early adolescence (Prado, Szapocznik, Maldonado-Molina, Schwartz, & Pantin, 2008; Szapocznik, Prado, Burlew, Williams, & Santisteban, 2007). For instance, according to data from Monitoring the Future, compared to non-Hispanic whites and African Americans, Hispanic adolescents in the eighth grade have consistently reported higher rates of current alcohol use, greater frequency of heavy episodic drinking, and higher lifetime rates of alcohol intoxication (Johnston et al., 2013). These figures are convergent with findings from the Centers for Disease Control and Prevention's Youth Risk Behavior Survey (YRBS) (2012) which indicate that a greater proportion of Hispanics (25.2%) initiate alcohol use before the age of 13 compared to African-Americans (21.8%) and non-Hispanic whites (18.1%). Importantly, scholars have noted that such disparities are not without consequence in terms of the developmental health and wellbeing of Hispanics (Arias, Anderson, Kung, Murphy, & Kochanek, 2003). As noted by Prado and colleagues (2008), the disproportionate rates of alcohol and related substance use among Hispanic adolescents are believed to "contribute considerably to the disparities observed between Hispanics and non-Hispanic whites in the prevalence of HIV, assault/homicides,

intentional harm/suicides, and chronic lower respiratory disease" (p. 6). Further, epidemiological, psychosocial, and biomedical research suggests that, as adults, Hispanics have increased rates of alcohol use disorders, greater alcohol-related health problems, and higher death rates from alcohol-related trauma than non-Hispanic whites (Caetano & Clark, 1998; US Department of Transportation, 2002).

Alcohol Use and Adolescent Development

Adolescence marks a period of rapid development involving complex social, biological, and psychological changes. According to important age-related patterns noted in alcohol use rates, alcohol use onset and escalation during adolescence is a developmentally normative behavior and may be related to specific developmental tasks (Masten, Faden, Zucker, & Spear, 2009). For instance, identity formation is a key developmental task during adolescence. Consequently, adolescents begin to explore their long-term goals, career choices, friendships, sexual orientation and behavior, religion, values and beliefs, and group loyalties, including identification with their racial and ethnic groups (Erikson, 1968). Their experimentation with new behaviors, attitudes, and ways of defining themselves brings new opportunities, but also increases risk and heightens vulnerabilities for alcohol use. Adolescents may begin using alcohol through curiosity and experimentation, or as an expression of a maladaptive or antisocial identity (White & Jones, 1996).

A number of studies have also shown that the manner in which adolescents approach this developmental task can either increase or decrease risk for alcohol use. For instance, adolescents that diffuse or avoid identity exploration or commitments are at increased risk for early alcohol use (Adams, Munro, Munro, Doherty-Poirer, & Edwards, 2005). Alternatively, adolescents that actively engage in exploration and make commitments, including religious commitments, are at a decreased risk for engaging in these risk behaviors (Adams et al., 2005). Further, identification with one's ethnic/racial group is associated with decreased risk for alcohol use (Vega, Alderete, Kolody, & Aguilar-Gaxiola, 1998) and anti-use norms (Holley, Kulis, Marsiglia, & Keith, 2006). Developmental changes embedded in adolescents' peer and parent relationships also influence their risk for alcohol involvement (Steinberg, Dahl, Keating, Kupfer, Masten, & Pine, 2006). For instance, research indicates that deviant peer affiliations and delinquent behaviors among deviant peers, both of which are key risk factors for alcohol use, increase during early adolescence. Further, parental monitoring, a protective factor, often decreases during adolescence, as unmonitored time increases (Dishion, Nelson, & Kavanagh, 2003). Findings such as these strongly suggest that both the emergence and progression of drinking behavior are influenced by development.

Adolescent Alcohol Use and Externalizing Behavior

Co-morbidity of alcohol use and externalizing problems is highly prevalent in adolescents (Chan et al., 2008), with a severe group of approximately 5% of adolescents in the general population characterized by markedly and consistently elevated levels of substance use, delinquency, and violence (Vaughn, Salas-Wright, Maynard, & DeLisi, 2014). Externalizing behaviors, characterized by general disinhibition and what are commonly termed "acting out" behaviors, include aggression and violence, theft, property destruction and substance use. Externalizing converges with constructs such as low self-control, psychopathy,

impulsivity, and conduct disorder (Barratt, 1994; Krueger, Hicks, Patrick, Carlson, Iacono, & McGue, 2002; Krueger, Markon, Patrick, & Iacono, 2005; Olate, Salas-Wright, & Vaughn, 2012; Vaughn & DeLisi, 2008; Vaughn, Perron, Beaver, DeLisi, & Wexler, 2010; Yu, Lombe, Nebbitt, Pitner, & Salas-Wright, 2012). The developmental course of externalizing behavior problems is generally found to onset in childhood or adolescence and decrease with age; however, many externalizing behaviors persist into adulthood (Chan et al., 2008).

Cross-sectional and longitudinal research over the past 30 years has provided consistent evidence of strong and positive correlational and predictive relationships between alcohol use and externalizing behavior problems (Barnes et al., 2002; D'Amico, Edelen, Miles, & Morral, 2008; Donovan, Jessor, & Costa, 1988; Jessor & Jessor, 1977; Mason & Windle, 2002). Moreover, many of the key risk and protective factors associated with substance use have also been found to be predictive of externalizing behavior problems and status offenses (Hawkins, Catalano, & Arthur, 2002; Maynard et al., 2012). Although there is a strong relationship between alcohol use and externalizing behaviors, these relationships have been found to vary by age, gender, and race/ethnicity. The age of alcohol initiation has been shown to be differentially linked to delinquency and illicit drug use, with earlier age of first use strongly associated with increased delinquency and illicit drug use (Barnes et al., 2002; Swahn, Bossarte, & Sullifent, 2008). Externalizing behaviors have been found to be more strongly related to alcohol use among males than females (Webb, Bray, Getz, & Adams, 2002). The relationship between alcohol consumption and illicit drug use has also been found to vary across racial and ethnic groups. Barnes and colleagues (2002) found a stronger relationship between alcohol consumption and illicit drug use for African American and Asian adolescents than other groups, while American Indian adolescents were found to have the highest levels of delinquency for each level of alcohol consumption (Barnes et al., 2002).

Psychosocial Factors Associated With Adolescent Substance Use

Psychosocial Factors—Research on risk and protective factors associated with the onset and maintenance of alcohol use in adolescence has highlighted a variety of relevant psychosocial correlates in the domains of academic engagement, parental involvement, and normative beliefs. With respect to academic engagement, truancy and related behavioral problems (Mounteney, Haugland, & Skutle, 2010); suspension from school (Bryant, Schulenberg, Bachman, O'Malley, & Johnston, 2000), and deficits in attention (King, Fleming, Monaha, & Catalano, 2011) have been found to be associated with the increased risk of alcohol consumption in adolescence. In terms of parental factors, parental monitoring (Van der Vorst, 2012) and parental expectations of academic achievement (Bryant & Zimmerman, 2002) have both been found to be inversely associated with substance use initiation during adolescence. As for normative beliefs, adolescents who believe that the use of substances is not appropriate behavior for young people tend to be less likely to use and abuse substances (Hansen & Graham, 1991). For instance, perceived permissive parental attitudes toward the use of alcohol have been found to be associated with the earlier onset of substance use, and continued use throughout adolescence (Komro, Maldonado-Molina, Tobler, Bonds, & Muller, 2007). Similarly, the perception of peer substance use has been

found to be an important risk factor for substance use during adolescence (Bryant & Zimmerman, 2002; Cordova et al., 2011; Cruz, Emery, & Turkheimer, 2012).

Religiosity and Alcohol Use—A robust body of literature suggests that religious service attendance and religious salience function as protective factors for alcohol use in the general population of adolescents in the United States (Salas-Wright, Vaughn, Hodge, & Perron, 2012; Smith & Denton, 2005). Moreover, a growing number of studies have specifically examined religiosity as a protective factor for alcohol use among Hispanic adolescents in the Southwestern United States and in Latin America (Hodge, Cardenas, & Montoya, 2001; Hodge, Marsiglia, & Nieri, 2011; Marsiglia, Ayers, & Hoffman, 2012; Marsiglia, Kulis, Tieri, & Parsai, 2005; Parsai, Marsiglia, & Kulis, 2010; Salas-Wright, Olate, & Vaughn, 2013a). In all, evidence suggests that religious engagement is protective for Hispanic alcohol use as well as a variety of delinquent and violent behaviors (Salas-Wright et al., 2013a; Salas-Wright, Olate, & Vaughn, 2013b; Salas-Wright, Olate, Vaughn, & Tran, 2013; Salas-Wright, Vaughn, & Maynard, in press-a; Salas-Wright, Vaughn, & Maynard, in press-b).

The Present Study

This study employs a national data set [National Survey on Drug Use and Health 2006-2010 (NSDUH)] to examine the externalizing behavior and psychosocial protective factors of Hispanic early adolescents reporting alcohol consumption in the previous 30 day period. The NSDUH is an advantageous data source not only because of its national representativeness, but also because it includes a wide range of behavioral and psychosocial variables that allow for a multifaceted examination of the externalizing and protective correlates of alcohol use. To this end, four primary questions guide this study: First, what are the behavioral correlates of alcohol use among early adolescent Hispanics in terms of substance use, delinquency, and violence? Second, what protective psychosocial factors are associated with alcohol use in the domains of normative beliefs, academics, self-control, and religiosity? Third, can distinct psychosocial profiles be identified among early Hispanic drinkers? And finally, if so, can behavioral differences be observed between adolescents in these distinct psychosocial profiles? These questions extend prior research that has documented the prevalence of substance use among early adolescent Hispanics by systematically examining the how alcohol use is associated with various manifestations of externalizing behavior and relevant psychosocial protective factors. In all, the goal of this study is to describe the direct behavioral and psychosocial associations with alcohol use and to explore the psychosocial and behavioral profiles of early adolescent Hispanic drinkers in the United States.

METHOD

Sample and Procedures

This study examines public-use data collected between 2006 and 2010 as part of the National Survey on Drug Use and Health (NSDUH) (SAMHSA, 2011). The NSDUH provides population estimates of drug use and health-related behaviors in the U.S. general population. It utilizes multistage area probability sampling methods to select a representative sample of the U.S. civilian, non-institutionalized population aged 12 years or older for

participation in the study. Study participants include household residents; civilians residing on military bases; and residents of shelters, rooming houses, and group homes. A more detailed description of the NSDUH sampling and data collection procedures are documented in greater detail elsewhere (SAMHSA, 2011).

The current study restricted analyses to Hispanic adolescents (N = 7606) between the ages of 12 and 14. The mean age of respondents was 13.03 years. Respondents were evenly distributed in terms of gender (boys = 50.5%, girls = 49.5%), but were unevenly distributed in terms of family income, county population density, and language preference. In terms of family income, many respondents were from low income families as over one quarter (28.8%) of the sample lived in households earning less than $20,000 per year and the vast majority of the sample lived in households earning less than $50,000 per year (71.09%). Only one in every seven participants (14.5%) resided in a household earning more than $75,000 per year. In terms of county population density, roughly half of respondents reported living in large metropolitan areas (55.5%) while the remainder resided in either small metropolitan areas (32.1%) or non-metropolitan areas (12.4%). Finally, with respect to linguistic acculturation, which can be conceptualized as a proxy of acculturation (Marsiglia et al., 2011; Marsiglia, Nagoshi, Parsai, & Castro, 2012), most adolescents elected to complete the survey in the English language (89.2%), but a significant minority elected to use a Spanish-language survey (10.8%).

Measures

Alcohol Use—Respondents were queried about the use of alcohol by means of the following question: “On how many days in the last 30 days did you drink an alcoholic beverage?” In order to categorize respondents into alcohol users and non-users, adolescents who reported that they had not used alcohol on any days were coded as 0 and all other adolescents were coded as 1.

Externalizing Behavior

Substance Use—Besides alcohol use, three variables measured respondent use of substances over the previous 12 months, including: tobacco (8.7%), marijuana (5.4%), and “hard drugs” (6.7%) such as cocaine/crack, hallucinogens (including ecstasy), stimulants (including methamphetamine), tranquilizers, and heroin or Oxycontin. The “hard drug” variable was coded to include the use of a variety of substances due to low base rates for most substances besides tobacco and marijuana. Respondents who reported using the aforementioned illicit substances one or more times during the previous 12 months were coded as 1, while those who reported no use of the substances were coded as 0.

Delinquency and Violence—Six variables measured respondent involvement in delinquent and violent behaviors over the previous 12 months, including: truancy (9.6%), theft of an item worth more than $50 (3.9%), drug selling (1.2%), physical fighting (26.8%), group fighting (17.6%), and severe violent attacks intended to cause serious harm (7.7%). Respondents who reported involvement with the aforementioned behaviors on one or more occasions during the previous 12 months were coded as 1, while those who reported no involvement were coded as 0.

Substance Use Related Factors

Normative Beliefs—Two scales examined items related to normative beliefs: youth (α = 0.91) and parental (α = 0.90) substance use disapproval. *Youth disapproval* of the use of substances was measured by means of four items tapping adolescent attitudes toward the use of cigarettes, marijuana (initiation and frequent use), and alcohol. For example, adolescents were asked, "How do you feel about someone your age having one or two drinks of an alcoholic beverage nearly every day?" With respect to parental disapproval, adolescents were asked about how they believed their parents would feel about adolescent substance use. For example, adolescents were asked, "How do you think your parents would feel about you trying marijuana or hashish once or twice?" Response items for both include: "neither approve nor disapprove" (1), "somewhat disapprove" (2), and "strongly disapprove" (3).

Low Peer Substance Use—Peer substance use was measured by four items assessing the magnitude of adolescent peer use of cigarettes, marijuana, alcohol (consumption and intoxication) (α = .87). For instance, adolescents were queried, "How many of the students in your grade at school would you say smoke cigarettes?" and "How many of the students in your grade at school would you say get drunk at least once a week?" Response items included "all of them" (1), "most of them" (2), "a few of them" (3), and "none of them" (4) such that higher scores indicated lower peer use.

School/Academic Related Factors

Parental Academic Support—Parental academic support was measured by a single-item, ordinal measure. Adolescents were asked, "During the past 12 months, how often did your parents help you with your homework?" This item had the response format of: never (7.9%), seldom (9.6%), sometimes (27.6%), and always (54.8%) with higher values representing greater parental academic support.

Interest in School—The measure of interest in school is comprised of five items relating to respondents' feelings toward school during the previous 12 month period (α = 0.74). Example items include: "How often did you feel that the school work you were assigned to do was meaningful and important?" and "How interesting do you think most of your courses at school have been?" Response options for all five items were coded so that lower values represented lower levels of school interest and higher values represented elevated levels of school interest.

Grades—Grades were measured by asking respondents: "What were your average grades for the last semester or grading period you completed?" Response categories were coded into four ordinal groups, including: "A" (23.9%), "B" (44.8%), "C" (24.3%), and "D or lower" (6.9%). Response categories were coded to range from 1-4 with higher values representing greater academic achievement and lower values representing academic difficulty.

Individual/Religious Factors

Self-control—Self-control was assessed by summing two items related to the frequency of adolescent enjoyment of participation in dangerous or risky behaviors (α = 0.76). These

items measured the frequency of respondent agreement with the following statements, "How often do you get a real kick out of doing things that are a little dangerous?" and "How often do you like to test yourself by doing something a little risky?" Both items had the response format of "sometimes/always" (1), "seldom" (2), or "never" (3), with higher scores indicating greater adolescent self-control.

Religious Salience—Religious salience was assessed by summing two items measuring the degree to which respondents considered religious beliefs to be important to their life and decision making (α = .80). More precisely, these two items were measured by asking respondents the degree to which they agreed with the following statements: "Your religious beliefs are a very important part of your life" and "Your religious beliefs influence how you make decisions in your life." Both items had the response format of "strongly disagree" (1), "disagree" (2), "agree" (3), and "strongly agree" (4) with higher scores indicating greater religious salience.

Religious Service Attendance—Frequency of religious service attendance was measured by asking respondents: "During the past 12 months, how many times did you attend religious services (excluding special occasions such as weddings, funerals, etc.)". In keeping with the original NSDUH coding scheme, respondents were categorized into six ordinal groups ranging from no religious service attendance (40.4%) to attendance at more than 52 religious services in the previous year (14.0%).

Sociodemographic Factors and Control Variables

Sociodemographic Factors—The following sociodemographic variables were used: age, gender, language preference (English or Spanish), total annual family income (less than $20,000, $20,000 to $49,999, $50,000 to $74,999, and $75,000 or more), metropolitan population density (classified as large metropolitan area, greater than 1 million; small metropolitan area, less than 1 million; and nonmetropolitan), and the absence of the biological father in the household.

Lifetime Depression and Anxiety—Additionally, we also examined lifetime history of depression and anxiety. Both of these factors have been identified as important covariates for adolescent problem behavior (Hobbs, Kushner, Lee, Reardon, & Maurer, 2011; Kofler et al., 2011). Determination of lifetime depression and anxiety were based on whether respondents were told by a doctor or medical professional that they had either of these disorders.

STATISTICAL ANALYSES

Logistic Regression

A series of logistic regression analyses were carried out to examine the associations between early adolescent alcohol use and problem behavior and protective correlates. All adjusted models controlled for the influences of age, gender, language preference, family income, county population density, the absence of a father in the household, and lifetime depression and anxiety. Prevalence estimates and standard errors were computed using Stata 12.1 SE

survey data functions (StataCorp, 2011). This system implements a Taylor series linearization to adjust standard errors of estimates for complex survey sampling design effects including clustered multistage data.

Latent Profile Analysis and Multinomial Regression

Latent profile analysis (LPA) and multinomial regression analyses were executed in successive steps in order to identify and distinguish latent subgroups of early adolescent Hispanic alcohol users. Only cases corresponding to adolescents who reported having recently consumed alcohol were included in these analyses ($N = 540$). LPA is a statistical procedure designed to assign individual cases to their most likely latent subgroups on the basis of observed data (McLachlan & Peel, 2000). Multinomial regression is a statistical procedure designed for nominal outcomes that contain categories that can be assumed to be unordered (Long & Freese, 2006). In this two-part analysis, LPA was carried out in order to identify latent subgroups and multinomial regression was utilized in order to extend the modeling of the subgroups on the basis of behavioral outcomes. Thus, the odds of substance use, delinquency, and violence being associated with membership in a particular latent class are assessed.

Latent Profile Analysis—Beginning with the LPA, a series of latent profile models were identified between 1 and 4 classes using Latent GOLD ^{R} 4.5 (Vermunt & Magidson, 2008). Four statistical criterions were used to identify the best fitting model: the Bayesian Information Criterion (BIC), Akaike's Information Criterion (AIC), Consistent Akaike's Information Criterion (CAIC) and Log Likelihood. In interpreting these criteria, lower BIC, AIC, and CAIC values and higher log likelihood values reflect better model fit (McLachlan & Peel, 2000). Importantly, in addition to these quantitative criteria, the parsimony and substantive interpretability of the latent class solutions also function as key criteria for the selection of the final model.

Multinomial Regression—After identifying latent behavioral subgroups using LPA and assigning subjects to classes on the basis of the probability of membership, multinomial regression is used to predict class membership on the basis of behavioral outcomes. As is typically practiced, the class containing the greatest number of respondents was identified as the reference category. Using multinomial regression, relative risk ratios and confidence intervals were estimated. In the case of multinomial regression with latent classes, relative risk ratios refer to the likelihood of membership in one particular class versus a specified reference class and are interpretably similar to odds ratios (Zhang & Yu, 1998). Statistical procedures involving multinomial regression models were conducted using Stata 12.1SE (StataCorp, 2011).

RESULTS

Logistic Regression

Demographic Characteristics—Table 1 presents estimates of the associations between alcohol use and sociodemographic factors among early adolescent Hispanics. Approximately 6.31% of the Hispanic early adolescents surveyed reported having used

alcohol in the previous 30 day period. Controlling for other demographic factors, alcohol use was only significantly associated with two factors: age (AOR = 2.03, CI = 1.56–2.62) and the absence of a biological father in the household (AOR = 1.55, CI = 1.04–2.31). These associations suggest that early adolescents in the sample who are slightly older are more likely to use alcohol than younger adolescents and early adolescents Hispanics without a father in the home are more likely to use alcohol than those with fathers in the home. No other significant sociodemographic differences were observed between early adolescents who use alcohol and those who do not.

Externalizing Behavior—Table 2 presents estimates of the associations between past 30-day alcohol use and a variety of past 12-month externalizing behaviors in the domains of substance use, delinquency, and violence. Across the board, early adolescent Hispanics who consumed alcohol during the previous 30 days were significantly more likely to report tobacco (AOR = 2.55, CI = 1.30–5.00), marijuana (AOR = 3.31, CI = 1.55–7.05), and hard drug (AOR = 3.55, CI = In terms of 1.90–6.61) use during the previous 12 months. delinquency, while no significant associations were identified with respect to theft or drug selling, early adolescent Hispanics who consume alcohol were significantly more likely to skip school (AOR = 1.96, CI = 1.02–3.77). In the realm of violence, alcohol using early adolescents were also more likely to report having been in a fight (AOR = 2.35, CI = 1.45–3.79) or in a group fight (AOR = 1.87, CI = 1.09–3.21) in the last year.

Protective Factors—Table 3 displays the estimates of the associations between alcohol use and a variety of protective factors. With respect to substance use, compared to nonusers, early adolescent Hispanic alcohol users were significantly less likely to disapprove of adolescent substance use (AOR = 0.68, CI = 0.48–0.95) and significantly less likely to report having few peers who use substances (AOR = 0.41, CI = 0.27–0.62). In terms of school-related factors, while no significant associations were identified in terms of academic engagement or grades, early adolescent Hispanic alcohol users were significantly less likely than their alcohol abstinent counterparts to report parental academic support (AOR = 0.80, CI = 0.65–0.99). Finally in terms of individual and religious factors, early adolescent Hispanic alcohol users were more likely to report lower levels of self-control (AOR = 0.68, CI = 0.57–0.82) and lower levels of religious salience (AOR = 0.73, CI = 0.55–0.96).

Latent Profile Analysis

Identifying Latent Subgroups using LPA—An examination of the statistical and substantive criteria indicated that a three class solution was the optimal modeling of the data for early adolescent Hispanic alcohol users (N = 540). As seen in Table 4, while the criterion and entropy values for the four class model are slightly superior to those of the three class model, the small differences between the three and four class models suggest that the addition of a fourth class may not be parsimonious. Additionally, the clear conceptual interpretability of the three class solution suggests that this solution offers both a statistically sound and a conceptually coherent modeling of the data.

The interpretability of the three class models was examined by plotting the standardized mean values of the nine protective factors across each of the latent classes. As seen in Figure

1, the three class solution was comprised of a "*psychosocial risk class*" (41.11%), a "*moderate protection class*" (39.44%), and a "*highly religious class*" (19.44%). The psychosocial risk class is characterized by a pattern of low scores on all protective factors examined in the study. The moderate protection class is characterized by moderately elevated scores on all protective factors examined in the study, with the exception of religious salience and service attendance. The highly religious class is characterized by very high scores on religious salience and service attendance in combination with low to moderate scores for all other protective factors. Simply, these three classes represent: [1] early adolescents who are afforded few protective factors, [2] those who are moderately protected, and [3] those for whom religiosity stands out as a singularly prominent protective factor. This three class solution is a conceptually clear modeling of the heterogeneity of protective factors in the lives of early adolescent Hispanic alcohol users.

Behavioral Characteristics of the Latent Classes—Table 5 displays the associations between sociodemographic and behavioral characteristics and membership in the three latent classes. In terms of sociodemographic variables, the only significant association identified was that of age among the highly religious class (RR = 1.75, CI = 1.09–2.81). This suggests that, compared to the reference class, members of the highly religious class were significantly more likely to be older. With regards to substance use, compared to members of the reference class, members of the moderate protection and highly religious classes were approximately 2 times less likely to report cigarette use. Differential effect sizes were observed in terms of marijuana use as members of the highly religious and moderate protection classes were approximately 2 and 4 times less likely to report marijuana use, respectively. Members of the moderate protection class were also significantly less likely to report other illicit drug use (RR = 0.36, CI = 0.23–0.55). In addition to the substance use results from the multinomial regression equation, Figure 2 presents convergent evidence with respect to the mean days of alcohol use over the previous 30 days across each of the three classes. With respect to the mean number of days of alcohol use, significant differences were observed between the psychosocial risk (M = 4.46, SD = 5.37) and moderate protection classes (M = 2.59, SD = 3.67).

In terms of delinquency and violence, members of the moderate protection and highly religious classes were significantly less likely to skip school (Moderate Protection: RR = 0.37, CI = 0.22–0.62; Highly Religious: RR = 0.30, CI = 0.15–0.60) and to steal (Moderate Protection: RR = 0.19, CI = 0.10–0.37; Highly Religious: RR = 0.40, CI = 0.23–0.85) compared to members of the reference class. Members of the moderate protection class were also significantly less likely to have sold drugs compared to members of the reference class (RR = 0.22, CI = 0.10–0.49). With respect to violence, compared to the reference class, members of the moderate protection and highly religious classes were both significantly less likely to report fighting (Moderate Protection: RR = 0.41, CI = 0.28–0.61; Highly Religious: RR = 0.59, CI = 0.37–0.95). Members of the moderate faction class were also significantly less likely to report group fighting (RR = 0.38, CI = 0.25–0.58) and severe attacks (RR = 0.29, CI = 0.16–0.50).

DISCUSSION

Evidence suggests that, during the critical developmental period of early adolescence, Hispanics are more likely to use alcohol and to do so with greater frequency than their non-Hispanic white and African American peers (CDC, 2012; Johnston et al., 2013). This trend is particularly disconcerting given that research in the general population suggests that adolescent alcohol use is associated with a variety of externalizing behaviors (Vaughn et al., 2014) as well as the development of substance use disorders during subsequent developmental periods (Dawson et al., 2008; Grant et al., 2006). However, although research among the general population has examined the various elements of these important relationships, evidence on the behavioral and protective correlates of alcohol use among young Hispanics is remarkably thin. Indeed, this study is among the first to systematically examine both the direct relationships between early adolescent Hispanic alcohol use, externalizing behavior, and protective correlates as well as the psychosocial and behavioral heterogeneity that exists among this important population.

Overall, results show that more than 6% of Hispanics between the ages of 12 and 14 in the United States are current alcohol users. Importantly, compared to their abstinent counterparts, early adolescent Hispanic alcohol users enjoy fewer psychosocial protections and are more likely to take part in a variety of externalizing behaviors. More precisely, early adolescent Hispanic alcohol users receive less academic support from their parents, report less self-control and lower religiosity, and are less likely to express protective normative beliefs around substance use. In terms of externalizing behavior, early Hispanic alcohol users were found to be more likely to use a variety of additional substances, skip school, and take part in both individual and group fighting. Simply, Hispanic adolescents who use alcohol during their early adolescent years tend to benefit from fewer protective factors, tend to experiment with other substances besides alcohol, and tend to exhibit a variety of antisocial and high-risk behaviors.

Despite these trends, however, results also suggest that not all early adolescent Hispanic drinkers are alike. Indeed, an important degree of psychosocial and behavioral heterogeneity can be identified among this population. For instance, roughly two in five (41.11%) early Hispanic drinkers were found to experience a consistent dearth of protective factors across multiple domains and were thus classified as comprising a “psychosocial risk class”. Roughly the same proportion of youth were found to benefit from a consistently elevated pattern of protective factors in terms of academics, self-control, and normative beliefs and were therefore classified as a falling into a “moderate protection class” (39.44%). A third and final class, deemed the “highly religious class” (19.44%), was defined by markedly elevated levels of religious service attendance and religious salience in combination with low to moderate protection in all other domains. A comparison of the adolescent drinkers in each class suggested that Hispanic youth in the moderate protection and highly religious classes tended to demonstrate fewer behavioral problems than those in the psychosocial risk class. In a word, not all early Hispanic drinkers face the same set of psychosocial factors and, in turn, not all take part in related risk behaviors to the same degree.

While specified for Hispanics, findings from this study are in keeping with previous research suggesting that early adolescent alcohol use is associated with a variety of externalizing behaviors (Chan et al., 2008; Vaughn et al., 2014, Vaughn, Salas-Wright, & Maynard, 2013). Indeed, previous studies in the general population have found that early alcohol use initiation is linked with various manifestations of delinquency and the use of other illicit substances (Barnes et al., 2002; Swahn et al., 2008). However, the novelty of this study is that it examines these relationships among a population that we know to be highly involved in alcohol use (CDC, 2012; Johnston et al., 2013), but for whom the evidence for associations between such use and other behavioral risk and protective factors was previously quite limited. The absence of such evidence is particularly important given that research suggests that variation across racial and ethnic groups can be identified in terms of the relationship between alcohol use and externalizing behavior (Barnes et al., 2002). Findings from this study provide evidence that alcohol use certainly is associated with a variety of externalizing behaviors among the underresearched population of Hispanic early adolescents. Moreover, study findings also add a level of nuance to the understanding of the relationship between alcohol use and externalizing behavior inasmuch as evidence was identified suggesting an important degree of psychosocial and behavioral heterogeneity among early Hispanic drinkers. Simply, consistent with the concerns previously expressed by Hispanic prevention scientists (Prado et al., 2008), alcohol use among young Hispanics does seem to be a salient contributing factor for a variety of important health risk behaviors, particularly among those who are deficient in a variety of psychosocial protective factors.

Findings from this study also shed light on the role of religiosity as a protective factor in the lives of Hispanic adolescents. As noted previously, two of the three classes of early Hispanic drinkers identified in this study were marked by the presence of two or more protective factors. Specifically, the moderate protection class (39.44%) was comprised of adolescents who enjoyed a variety of protective factors in multiple domains while the highly religious (19.44%) class was comprised of adolescents for whom religiosity – that is, both religious salience and religious service attendance – stood out as a singularly robust protective factor. It is perhaps somewhat unsurprising that adolescents in the moderate protection class were significantly less likely to take part in a variety of substance use, delinquent, and violent behaviors as it is now well-established that the presence of multiple protective factors tends to offer cumulative benefits (Frasier, 2004). However, the findings relating to the highly religious class are particularly noteworthy in as much as they suggest that religion in and of itself may have important protective benefits for young Hispanics. Indeed, members of the highly religious class, that is, adolescents who only reported substantial protection in the domain of religiosity, were markedly less likely to use tobacco and marijuana, skip school and steal, and fight than their peers in the psychosocial risk class. While recent studies have shown that religious service attendance alone does not appear to be sufficient to protect adolescents from problem behavior (Salas-Wright, Lombe, Maynard, & Vaughn, in press), findings from this study are in keeping with research suggesting that elevated levels of religiosity in multiple domains do tend to be associated with a decreased likelihood of externalizing behavior in multiple domains (Hodge, Andereck, & Montoya, 2007; Salas-Wright et al., 2012; Smith & Denton, 2005). However, findings from this study remain unique in as much as the aforementioned studies have examined religiosity alone and have

not examined the protective effect of religiosity in the absence of other protective factors. In all, while further research is necessary to understand the protective nature religiosity, findings from this study suggest that religiosity may serve to protect some early adolescents in situations of psychosocial and behavioral risk.

Study Limitations

Findings from this study should be interpreted in light of several limitations. First, while NSDUH data between 2006 and 2010 were pooled to expand the sampling frame, all data were nevertheless cross-sectional. This limitation prevented not only an assessment of the temporal relationships between variables, but also a temporal examination of the unfolding of identified groups over time including their stability. Second, while alcohol users were classified as those who had consumed alcohol on at least one day in the previous 30 day period, the externalizing behavioral correlates were in reference to the previous 12-months. While this approach facilitates the precise identification of current alcohol users, the lack of uniformity in the timeframes of alcohol use and other externalizing behaviors raises some questions about the temporal ordering of these behaviors. Third, while the NSDUH includes a variety of relevant psychosocial factors, data on culture-specific protective factors found to be relevant to Hispanic adolescent substance use (e.g., familismo, respeto, acculturation) was not collected and therefore could not be analyzed. Indeed, while many protective factors have been identified for substance use and problem behavior, our analysis was limited to the relevant factors included in the NSDUH. Finally, the NSDUH relies on respondent recall and is therefore subject to under-reporting, over-reporting, and social desirability biases (Holden, 2010) relating to risk behaviors such as substance use and delinquent behavior.

CONCLUSIONS AND IMPLICATIONS

Overall, the findings of the present study suggest that early adolescent Hispanic alcohol users are more likely than their abstinent peers to use other illicit substances and to be involved in a variety of delinquent and violent behaviors. Additionally, early Hispanic drinkers tend to be less likely to benefit from a variety of important psychosocial factors related to parental support, self-control, religiosity, and protective normative beliefs. Simply, when examined in the aggregate, early adolescent Hispanics who drink alcohol are more likely to be involved in other problem behaviors and are less likely to benefit from relevant protective factors. However, study findings also suggest that not all early Hispanic drinkers are alike. Indeed, while a substantial minority (40.11%) of the sample was classified as experiencing elevated psychosocial risk due to the relative lack of protective factors in multiple domains, the remainder benefited from a variety of important protective factors. These adolescents, classified as either moderately protected (39.44%) or highly religious (19.44%), reported important differences in terms of involvement in substance use, delinquency, and violence. In all, these findings suggest that early adolescent alcohol use is associated with the increased likelihood of taking part in a variety of externalizing behaviors and a decreased likelihood of experiencing a variety of psychosocial protective factors, but that not all early Hispanic drinkers experience the same level of risk or are involved in the same degree of substance use, delinquency, or violent behavior.

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GLOSSARY

Externalizing Behavior	Characterized by general disinhibition and what are commonly termed “acting out” behaviors, including aggression and violence, theft, property destruction and substance use.
Religiosity	Conceptualized as a multidimensional construct referring to an individual’s behavioral and attitudinal religious fervor.

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FIGURE 1.
Psychosocial profiles of Hispanic early adolescent substance users in the United States.

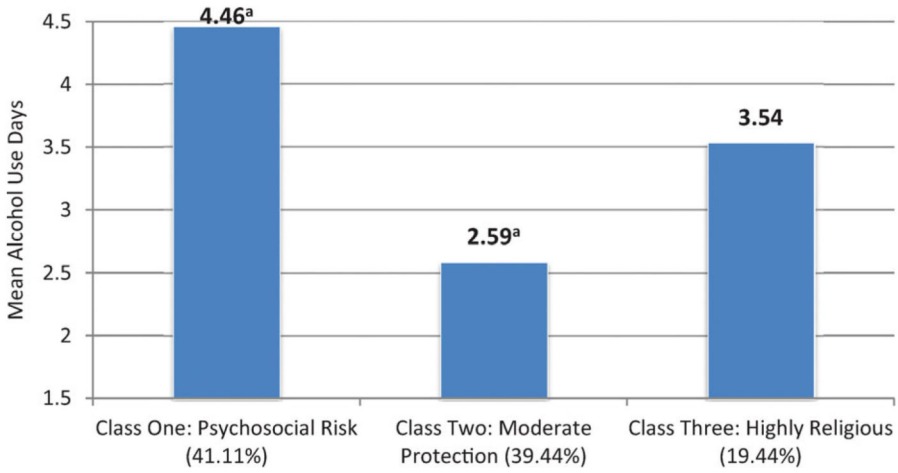

FIGURE 2.

Mean number of days of alcohol use over the previous 30-day period across three psychosocial profiles of Hispanic early adolescent substance users. *Note*. Superscripts identify classes that are statistically different ($p < .05$) based on post hoc comparisons.

TABLE 1

Demographic characteristics of Hispanic early adolescent alcohol users between 12 and 14 years of age in the United States

	Drank alcohol in last 30 days					
	No (*N* = 7066, 93.69%)		Yes (*N* = 540,6.31%)		Adjusted OR	
	Row%	95% CI	Row%	95% CI	AOR	(95% CI)
Sociodemographic factors						
Age (mean)	13.00	(0.81)	13.47	(0.69)	**2.03**	**(1.56–2.62)**
Gender						
Female	93.32	(92.2–94.3)	6.68	(5.7–7.8)	1.00	
Male	94.05	(92.9–95.0)	5.95	(5.0–7.1)	1.11	(0.78–1.59)
Language preference						
English	93.51	(92.7–94.3)	6.49	(5.7–7.3)	1.00	
Spanish	95.09	(92.3–96.9)	4.91	(3.1–7.7)	0.67	(0.33–1.35)
Family income						
<$20,000	93.96	(92.4–95.2)	6.04	(4.8–7.5)	1.00	
$20,000-$49,000	93.28	(92.0–94.4)	6.72	(5.6–8.0)	1.36	(0.87–2.12)
$50,000–74,999	94.58	(92.3–96.2)	5.42	(3.8–7.7)	1.07	(0.54–2.11)
>$75,000	93.50	(91.3–95.2)	6.50	(4.8–8.7)	1.57	(0.87–2.83)
County						
Large metro	94.16	(92.8–95.3)	5.84	(4.7–7.2)	1.00	
Small metro	93.81	(91.9–95.3)	6.18	(4.7–8.1)	1.15	(0.78–1.69)
Non-metro	95.98	(93.7–97.5)	4.02	(2.5–6.3)	0.76	(0.44–1.32)
No father in household						
No	94.37	(93.5–95.1)	5.63	(4.9–6.5)	1.00	
Yes	91.58	(89.7–93.2)	8.42	(6.8–10.3)	**1.55**	**(1.04–2.31)**
Lifetime depression						
No	93.91	(93.1–94.6)	6.09	(5.3–6.9)	1.00	
Yes	88.32	(81.2–92.9)	11.68	(7.0–18.8)	1.78	(0.79–4.01)
Lifetime anxiety						
No	93.81	(92.9–94.5)	6.19	(5.5–7.0)	1.00	
Yes	91.76	(80.0–96.9)	8.24	(3.1–20.0)	1.03	(0.32–3.34)

Note. Adjusted odds ratios adjusted for age, gender, language preference, family income, county population density, father in household, and lifetime depression and anxiety.

Odds ratios and confidence intervals in bold are statistically significant ($p < .05$).

TABLE 2

Externalizing behavioral correlates with alcohol use among Hispanic early adolescents between 12 and 14 years of age in the United States

	Drank alcohol in last 30 days					
	No (*N* = 7066, 93.69%)		Yes (*N* = 540,6.31%)		Adjusted OR	
	Row%	95% CI	Row%	95% CI	AOR	(95% CI)
Substance use						
Tobacco						
No	96.01	(95.3–96.6)	3.99	(3.4–4.7)	1.00	
Yes	68.10	(62.7–73.0)	31.90	(26.9–37.3)	**2.55**	**(1.30–5.00)**
Marijuana						
No	95.28	(94.5–95.9)	4.72	(4.1–5.4)	1.00	
Yes	63.77	(56.8–70.2)	36.23	(29.8–43.2)	**3.31**	**(1.55–7.05)**
Hard drugs						
No	95.11	(94.4–95.8)	4.89	(4.2–5.6)	1.00	
Yes	71.99	(66.1–77.2)	28.01	(22.8–33.9)	**3.55**	**(1.90–6.61)**
Delinquency						
Truancy						
No	95.13	(94.3–95.8)	4.87	(4.2–5.7)	1.00	
Yes	84.88	(80.3–88.6)	15.12	(11.4–19.7)	**1.96**	**(1.02–3.77)**
Theft > $50						
No	94.51	(93.7–95.2)	5.49	(4.8–6.3)	1.00	
Yes	74.82	(67.0–81.3)	25.18	(18.7–32.9)	0.52	(0.16–1.73)
Sold drugs						
No	94.34	(93.6–95.0)	5.65	(5.0–6.4)	1.00	
Yes	45.60	(31.0–61.0)	54.40	(39.0–69.0)	2.15	(0.66–7.01)
Violence						
Fight						
No	96.08	(95.3–86.7)	3.92	(3.3–4.7)	1.00	
Yes	86.97	(84.7–88.9)	13.03	(11.1–15.3)	**2.35**	**(1.45–3.79)**
Group fight						
No	95.32	(94.5–96.0)	4.68	(4.0–5.5)	1.00	
Yes	86.00	(83.2–88.4)	14.00	(11.6–16.8)	**1.87**	**(1.09–3.21)**
Severe attack						
No	94.63	(93.9–95.3)	5.36	(4.7–6.1)	1.00	
Yes	82.16	(76.9–86.4)	17.84	(13.6–23.0)	0.74	(0.37–1.47)

Note. Adjusted odds ratios adjusted for age, gender, language preference, family income, county population density, father in household, lifetime depression and anxiety, and all other externalizing behaviors in model.

Odds ratios and confidence intervals in bold are statistically significant ($p < .05$).

TABLE 3

Psychosocial associations with alcohol use among Hispanic early adolescents between 12 and 14 years of age in the United States

	Drank alcohol in Last 30 days					
	No (*N* = 7066, 93.69%)		Yes (*N* = 540, 6.31%)		Adjusted OR	
	M	(SD)	M	(SD)	AOR	(95% CI)
Normative factors						
Youth substance use Disapproval	2.69	(0.56)	2.22	(0.70)	**0.68**	**(0.48–0.95)**
Perceived parental substance Use disapproval	2.91	(0.34)	2.79	(0.43)	1.04	(0.61–1.79)
Low peer substance use	2.29	(0.58)	1.76	(0.56)	**0.41**	**(0.27–0.62)**
School-related factors						
Parental academic support	3.32	(0.91)	2.88	(1.10)	**0.80**	**(0.65–0.99)**
Academic engagement	3.25	(0.51)	2.90	(0.54)	0.91	(0.59–1.38)
Grades	2.89	(0.85)	2.52	(0.88)	0.79	(0.60–1.03)
Individual/religious Factors						
Self-control	3.53	(1.49)	4.74	(1.43)	**0.68**	**(0.57–0.82)**
Religious salience	3.02	(0.76)	2.67	(0.82)	**0.73**	**(0.55–0.96)**
Religious service attendance	2.74	(1.86)	2.65	(1.77)	1.07	(0.95–1.21)

Note. Adjusted odds ratios adjusted for age, gender, language preference, family income, county population density, father in household, lifetime depression and anxiety, and all other risk/protective factors in model.

Odds ratios and confidence intervals in bold are statistically significant ($p < .05$).

TABLE 4

Fit indices for latent classes

Class solution	BIC	AIC	CAIC	Log likelihood	Entropy
1 Class	12633.62	12457.66	12674.62	−6187.83	–
2 Classes	12462.23	12234.78	12515.23	−6064.39	0.91
3 Classes	12465.53	12186.57	12530.53	−6028.29	0.86
4 Classes	12483.24	12152.79	12560.24	−5999.40	0.86

Note. AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, CAIC = Consistent Akaike's Information Criterion.

TABLE 5

Externalizing behavioral characteristics of Hispanic early adolescent substance users across 3 latent classes

	Class 2: Moderate protection (*N* = 213, 39.44%)		Class 3: Highly religious (*N* = 105, 19.44%)	
Variables	**RR**	**95% CI**	**RR**	**95% CI**
Sociodemographic variables				
Age	0.88	(0.61–1.27)	**1.75**	**(1.09–2.81)**
Sex (1 = Male)	1.40	(0.85–2.31)	1.12	(0.62–2.02)
Spanish dominant	1.66	(0.69–4.00)	1.02	(0.32–3.20)
Family income	1.04	(0.81–1.34)	1.09	(0.81–1.46)
Substance use				
Cigarettes	**0.45**	**(0.30–0.67)**	**0.46**	**(0.28–0.74)**
Marijuana	**0.23**	**(0.14–0.36)**	**0.49**	**(0.30–0.81)**
Other drugs	**0.36**	**(0.23–0.55)**	**0.73**	(0.45–1.20)
Delinquency				
Truancy	**0.37**	**(0.22–0.62)**	**0.30**	**(0.15–0.60)**
Theft > $50	**0.19**	**(0.10–0.37)**	**0.44**	**(0.23–0.85)**
Sold drugs	**0.22**	**(0.10–0.49)**	0.50	(0.23–1.13)
Violence				
Fight	**0.41**	**(0.28–0.61)**	**0.59**	**(0.37–0.95)**
Group fight	**0.38**	**(0.25–0.58)**	0.65	(0.40–1.05)
Severe attack	**0.29**	**(0.16–0.50)**	0.74	(0.42–1.30)

Note. Risk ratios adjusted for age, sex, language preference, and family income.

Risk ratios and confidence intervals in bold are statistically significant.

Reference = Class 1 (Psychosocial Risk).