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The Role of Parenting in Alcohol and Tobacco Use Among Latino Adolescents

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Abstract

Parents can impact adolescent substance use, but it is unclear which substances are most affected. This study compared associations between parenting behaviors and alcohol and tobacco use to see if parenting was equally related to both behaviors. Alcohol and tobacco use data were collected from 252 Latino adolescents living along the San Diego-Tijuana border. Logistic regression was used to test parenting behaviors' impact. Parenting was protective against alcohol use, but not related to tobacco use. Substance using peers affected both alcohol and tobacco use. Alcohol prevention efforts among Latino adolescents should target parenting behaviors.

Keywords

adolescents; alcohol; tobacco; Latinos; parental influence

INTRODUCTION

Despite decreasing rates of alcohol and tobacco use over the past two decades, Latino adolescents still report the highest rates of lifetime use of both substances (Centers for Disease Control and Prevention, 2008). As they transition into adulthood, they are also more likely than non-Hispanic whites to suffer from substance dependency (Substance Abuse and Mental Health Services Administration, 2009). Studying the impact of parenting on Latino adolescents' use of alcohol and tobacco is important because Latinos are disproportionately socioeconomically disadvantaged in ways that may increase vulnerability to substance use (Warner et al., 2006).

Whereas research has demonstrated parents' impact on adolescent substance use (Hawkins, Catalano, & Miller, 1992; Latendresse et al., 2008; Montgomery, Fisk, & Craig, 2008; Parsai, Voisine, Marsiglia, Kulis, & Nieri, 2009; Substance Abuse and Mental Health Services Administration, 2009; Szapocznik, Prado, Burlew, Williams, & Santisteban, 2007), their specific role is not uniformly defined across research studies (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003). For example, recent studies of parenting and adolescent substance use in the literature have defined parenting as monitoring (Borawski, et al., 2003; Guilamo-Ramos, Jaccard, Turrisi, & Johansson, 2005; Rai et al., 2003), acceptance and trust (Borawski, et al., 2003; van der Vorst, Engels, Meeus, & Dekovic, 2006), cohesion and bonding (Wu, Chong, Cheng, & Chen, 2007), communication (Guilamo-Ramos, et al., 2005; Huver, Engels, & de Vries, 2006; van der Vorst, Engels, Meeus, Dekovic, & Van Leeuwe, 2005), behavioral expectations for the adolescent (Gau et al., 2007; Huver, et al., 2006), and family structure (e.g., 2-parent household) (Gau, et al., 2007).

In addition to numerous classifications of parenting, the many ways in which substance use is operationalized makes comparisons regarding parents' impact difficult. The term substance use has been used to refer to a combination of substances (e.g., alcohol, tobacco, and illicit drugs) (Borawski, et al., 2003; Gau, et al., 2007; Rai, et al., 2003; West et al., in press; West et al., 2010; Wu, et al., 2007), just alcohol (van der Vorst, et al., 2006; van der Vorst, et al., 2005) or tobacco (Huver, et al., 2006), or even a specific behavior related to a substance (e.g., binge drinking) (Guilamo-Ramos, et al., 2005).

Whereas many studies identify risk factors for alcohol and tobacco use, parents' impact on Latino adolescents' adoption of these substances remains understudied, as few studies are specific to Latino adolescents (Elder et al., 2000; Flores et al., 2002). Utilizing a sample of Latino adolescents living along the San Diego-Tijuana border, the purpose of this study was to compare parenting and other factors that influence adolescents' risk for alcohol and tobacco use. Based on previous research (Beal, Ausiello, & Perrin, 2001), we hypothesized that parenting would be most important for alcohol use. Advancements to this end may inform future health promotion efforts to curb rates of risk behaviors in adolescents, especially among Latino adolescents living in a border region.

METHOD

Design

This cross-sectional study was nested in a larger randomized controlled trial which involved a parent training intervention designed to increase medication adherence in a sample of Latino adolescents infected with latent tuberculosis infection (LTBI) (West & Hovell, 2009). Studying substance use in this sample was very important due to the potential health complications resulting from concurrent use of alcohol and isoniazid (Kopanoff, Snider, & Caras, 1978). For the present study, baseline data from adolescent participants were used to

create a multivariate model comprised of variables representing parenting, while controlling for other demographic, academic and peer factors.

Recruitment and Informed Consent—The researchers' University Institutional Review Board approved the study. Adolescents were ineligible to participate in the study if they had plans to relocate from the area within 12 months and/or to receive LTBI treatment in Mexico. Tuberculosis (TB) screenings were offered in 7 predominantly Latino schools closest (all within 10 miles) to the US-Mexico border to increase the likelihood of positive LTBI results.

Participants—Whereas study participants were recruited from a sample of LTBI infected adolescents, it is important to note that LTBI is an asymptomatic condition and there is no evidence that it compromises the generalizability of findings to other Latino adolescents. No significant demographic differences were observed between LTBI infected participants ($n = 252$) and the 2,795 LTBI negative Latino students that were screened for TB as part of the larger controlled trial. Only LTBI positive adolescents were recruited to participate in the clinical trial, resulting in a study sample of 252 participants. Forty-eight percent were male and 42.1% were foreign born (see Table 1). Adolescent participants' mean age was 15.9 years ($SD = 1.21$).

Measurement

Dependent variables—Alcohol and tobacco use were the two dependent variables assessed. Respondents' use was assessed for three time periods: lifetime, during the past 6 months, and during the past 30 days. The construction of the dependent variables in this study and their respective time periods was an adaptation of approaches employed in previous studies (Fleming, Leventhal, Glynn, & Ershler, 1989; Rai, et al., 2003), where alcohol use included beer, wine, and liquor, and cigarettes represented tobacco use. Adolescents' use of alcohol was determined by asking if they had consumed beer, wine, or hard liquor (yes/no). This question was repeated for each of the three time frames. Use of cigarettes was the only item representing tobacco use. Respondents were asked if they had ever used cigarettes (yes/no), repeated in separate questions for the past 6 months and past 30 days.

Independent variables—Adapting from a landmark publication on risk and protective factors for adolescent substance use (Hawkins, et al., 1992), covariates were selected to represent risk factors from distinct domains: school and peer influences, with an additional dimension encumbering demographic related characteristics. In order to fully test the role of parenting, variables were selected from these domains and controlled for.

Parenting influence: Poor parenting practices, including inappropriate use of consequences, may encourage risk behaviors (Marchant, Young, & West, 2004). Parents' child management procedures were selected for this study to represent parenting because of their importance in published literature and because they represent an aspect of parenting that can be targeted through training. The specific measures for this study included adolescents' perceived reports of the parents' consistent use of rewards and punishment. The authors' previous community research efforts informed the creation of these parenting items (Hovell, 1996), and their adaptation to a scaled variable has been significant in previous research (West, et al., 2010). This scale included three questions about the level of consistent use of parental rules, punishment, and rewards (Cronbach's $\alpha = .7$). Individual item responses were based on a 5-point scale, 1 = very inconsistent to 5 = very consistent, resulting in a parental consistency scale ranging from 3 to 15.

Demographic variables: Age, level of acculturation and gender were selected to represent demographic characteristics. Acculturation was measured using the bidimensional acculturation scale for Hispanics (Marin & Gamba, 1996). The acculturation scale consisted of 24 questions regarding language use (e.g., How often do you speak English/Spanish?), linguistic proficiency (e.g., How well do you read in English/Spanish?), electronic media use (e.g., How often do you listen to music in English/Spanish?), and had a Cronbach's α equal to .8, for this sample. Following recommendations for administering the instrument, each question had four possible responses: very poorly, poorly, well, or very well. The questions were separated into 2 domains, Hispanic (all items about Spanish usage) and non-Hispanic (all items about English usage), with 12 items in each. For each cultural domain, an average of the 12 items was calculated, obtaining a mean range of scores between 1 and 4. Scores on both domains were used to determine the level of acculturation. Acculturation categories were computed using a 2.5 cutoff score to indicate low or high level of adherence to each cultural domain. An individual scoring higher than 2.5 in both domains was considered bicultural.

School influence variables: School truancy is an established measure of school attachment and commitment (Hallfors et al., 2002) and was used to represent the school influence. Respondents were asked how many times in the last year they had skipped or ditched school. This variable ranged from 0 to 60 and was dichotomized (yes/no) to correct a positive skew.

Peer influence variables: Around the onset of puberty, peer social reinforcement becomes a powerful socializing influence (Dishion, Nelson, & Kavanagh, 2003). Indeed, peer substance use greatly increases risk for use of alcohol and tobacco (Gau, et al., 2007; Kandel, Kiros, Schaffran, & Hu, 2004). Peer modeling of alcohol and tobacco was measured by querying, "How many of your close friends have ever used cigarettes?" and then repeating the same format worded for alcohol. Both variables were entered into the model because of research related to risk behavior clustering (Burke et al., 1997; Petridou et al., 1997; Valois, Oeltmann, Waller, & Hussey, 1999; Wiefferink et al., 2006).

Analyses

All statistical analyses were performed using SPSS 15.0 for Windows. Pearson correlation coefficients were computed to assess the relationships among independent variables (Table 2). Based on the weak correlations, no variables were excluded from the regression analyses, which was confirmed through examinations of collinearity statistics. Logistic regression was used to calculate adjusted odds ratios to test the predictive model separately with lifetime use of alcohol and use during the past 6 months, after controlling for the other variables in the model. This was repeated for tobacco use, for the same time periods. In each case, adolescents' use was regressed on the same 7 independent variables representing parents' child management practices, demographics, school influence, and peer influence. Correlates of alcohol and tobacco use during the past 30 days could not be tested because the sample's prevalence of tobacco use during the past 30 days was too low (4.4%), which is consistent with previous research involving younger adolescents (Beal, et al., 2001). An interaction between parental consistency and acculturation was tested, but removed from the model because it was not significant.

RESULTS

Table 3 presents alcohol and tobacco use data. History and frequency of alcohol use was greater than that of tobacco. Respondents also reported having more friends that used alcohol than tobacco.

Four variables were significantly related to lifetime alcohol use. Lifetime use of alcohol (Table 4) was negatively associated with parental consistency, and positively associated with having skipped school in the previous 12 months and peer use of both alcohol and tobacco. The model significantly explained 35% of the variance in alcohol use (based on Nagelkerke R^2), $\chi^2(7, N = 251) = 70.93, p < .05$.

The same variables were also significantly related to alcohol use during the previous 6 months; parental consistency, skipping school during the previous 12 months, and peer use of alcohol and tobacco. The same variables explained 44% of the variance (based on Nagelkerke R^2), $\chi^2(7, N = 251) = 100.70, p < .05$.

Three demographic variables were significantly related to lifetime use of tobacco (Table 5), age, being female and acculturation. Friends' use of alcohol and tobacco were also significantly related. This model explained 29% of the variance in lifetime use of tobacco (based on Nagelkerke R^2), $\chi^2(7, N = 251) = 49.43, p < .05$. Two variables were related to tobacco use at 6 months, acculturation and friends' use of tobacco. This model explained 22% of the variance (based on Nagelkerke R^2), $\chi^2(7, N = 251) = 29.18, p < .05$.

DISCUSSION

The purpose of this study was to compare the association of parenting with alcohol and tobacco use. After controlling for the other variables in the model, parental consistency was significantly protective and decreased the likelihood of lifetime and past 6-month alcohol use by 19% and 14%, respectively. This variable represented parents' consistent use of rules and consequences and was only related to alcohol use. The observed relationship between parental consistency and alcohol use is supported by previous research (Ary et al., 1999) and underscores the important influence that parents can have in preventing alcohol use. The finding that parental consistency was only related to alcohol use and not tobacco may highlight some inherent differences in the nature of tobacco use versus alcohol use. A variant of this finding has been demonstrated previously, (Beal, et al., 2001) but not in a border region with an exclusively Latino sample.

Whereas gender, age and acculturation were all unrelated to alcohol use, females were 60% less likely to ever smoke, and each year older in age resulted in increased risk, a finding consistent with the literature (Elder, et al., 2000). Becoming fully acculturated resulted in a greater than twofold increased risk for lifetime use of tobacco. The effects of age and gender were not observed for tobacco use during the past 6 months. Acculturation remained significant and almost amounted to a threefold increased risk, indicating that it becomes more important as tobacco use becomes more frequent, which coincides with previous reports (Cheever & Weiss, 2009; Kaplan, Napoles-Springer, Stewart, & Perez-Stable, 2001; Landrine, Richardson, Klonoff, & Flay, 1994). The association between alcohol use and acculturation approached significance, which has been shown in previous research (Cheever & Weiss, 2009). The difference reported here might be attributable to different measures of acculturation, this being an exclusively Latino sample and the high percentage of foreign-born participants.

Friend's use of alcohol and tobacco were associated with an average twofold increased risk for reported lifetime use of alcohol, and an average two and a half fold increased risk for use during the past 6 months. Similar to alcohol use, peer use of both alcohol and tobacco were associated with increased risks, although peer use of alcohol was no longer significant at 6-month use. It is plausible that most adolescents using tobacco also consume alcohol, whereas many users of alcohol do so without also experimenting with tobacco. Indeed, the observed finding in this study suggests that peers' use of alcohol does not influence frequent

tobacco use, but peers' use of tobacco does. The significant findings related to peer influence are consistent with previous reports (Almodovar, Tomaka, Thompson, McKinnon, & O'Rourke, 2006; Beal, et al., 2001; Brown, 2004; Burke, et al., 1997; Dishion, et al., 2003; Elder, et al., 2000; Kandel, et al., 2004; Mason, Cheung, & Walker, 2004; Mowery, Farrelly, Haviland, Gable, & Wells, 2004; Petridou, et al., 1997; Valois, et al., 1999).

Truancy was included in this study because of its association with adolescent substance use, and research has shown it is a better indicator of school attachment than other common measures, such as grade point average (Hallfors, et al., 2002). It might also be an indicator of more intense peer pressure to engage in recreation instead of attending class. Whereas in previous studies truancy has been related to various types of drug use, in this study it was only associated with frequent use of alcohol. Therefore it is difficult to interpret, but could relate to inherent differences in how and where adolescents use substances. For example, tobacco can be consumed with relative quickness in proximity to school, whereas students may travel off campus to consume alcohol, thereby leading to truancy. This finding should be tested in future studies of Latino adolescents.

Limitations

Although findings from this study provide potential directives for future substance use prevention, some limitations must be noted. Parents' substance use impacts their adolescents' use (van der Vorst, et al., 2006). The authors were unable to control for this because no such parenting variables were measured. Future studies would benefit from incorporating these measures. These additional measures might also include parents' perspectives of their own parenting, which was not a part of this study. Related to measures of parenting, the measure of parental consistency could be improved for future studies. In this study, consistency could have included parents' consistent use of harsh or punishing tactics, which are generally undesirable despite being used consistently. Additionally, the adolescent measures used for analyses in this study reflect lifetime use and use during the past 6 months. Preferable analyses would include use during the past 30 days, and quantity of use at each episode. Furthermore, future studies along international borders should attempt to control for the social and legal influences related to alcohol and tobacco accessibility and acceptability. Study participants lived in very close proximity to Tijuana, Mexico, with more accessibility and acceptance of substance use (Martinez-Donate et al., 2008), it is unclear how rates of alcohol and tobacco use were affected in this study. This study employed a cross-sectional design, so the results should be interpreted with caution as no causality can be established. Lastly, this study was part of a larger controlled trial involving adolescents infected with LTBI. Whereas there is no evidence to suggest the adolescents' infection with LTBI would alter their responses in a meaningful way, additional studies of border adolescents would help to confirm these relationships.

Despite limitations, this study demonstrates clear strengths. First, this sample of Latino adolescents was over 40% foreign-born and came from an area of high transition. Tijuana and San Diego share the busiest land border crossing in the world (United States Department of Transportation, 2001), with 45.9 million northbound legal border crossings in 2006 alone (US Department of Transportation, 2006). This is important, especially considering reports of increased risk behaviors in border communities (Maxwell & Wallisch, 1998). Second, these findings may help to inform future health promotion efforts, and indicate that targeting parents may be an effective approach to address alcohol use among Latino adolescents living in a border region.

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References

- Almodovar A, Tomaka J, Thompson S, McKinnon S, O'Rourke K. Risk and protective factors among high school students on the US/Mexico border. *Am J Health Behav.* 2006; 30(6):745–752. [PubMed: 17096630]
- Ary DV, Duncan TE, Biglan A, Metzler CW, Noell JW, Smolkowski K. Development of adolescent problem behavior. *J Abnorm Child Psychol.* 1999; 27:141–150. [PubMed: 10400060]
- Beal AC, Ausiello J, Perrin JM. Social influences on health-risk behaviors among minority middle school students. *J Adolesc Health.* 2001; 28(6):474–480. [PubMed: 11377991]
- Borawski EA, Ievers-Landis CE, Lovegreen LD, Trapl ES. Parental monitoring, negotiated unsupervised time, and parental trust: The role of perceived parenting practices in adolescent health risk behaviors. *J Adolesc Health.* 2003; 33(2):60–67. [PubMed: 12890596]
- Brown, BB. Adolescents' relationships with peers. In: Lerner, RM.; Steinberg, L., editors. *Handbook of adolescent psychology*. 2. Hoboken, NJ: John Wiley & Sons Inc; 2004. p. 363–394.
- Burke V, Milligan RAK, Beilin LJ, Dunbar D, Spencer M, Balde E, et al. Clustering of Health-Related Behaviors among 18-Year-Old Australians. *Prev Med.* 1997; 26(5):724–733. [PubMed: 9327483]
- Centers for Disease Control and Prevention . Youth Risk Behavior Surveillance-United States, 2007. *MMWR.* 2008; 57(SS-4)
- Cheever A, Weiss J. Alcohol use among adolescents. *Cal J Health Prom.* 2009; 7(1):86–98.
- Dishion TJ, Nelson SE, Kavanagh K. The family check-up with high-risk young adolescents: Preventing early-onset substance use by parent monitoring. *Behav Ther.* 2003; 34:553–571.
- Elder JP, Campbell NR, Litrownik AJ, Ayala GX, Slymen DJ, Parra-Medina D, et al. Predictors of cigarette and alcohol susceptibility and use among Hispanic migrant adolescents. *Prev Med.* 2000; 31(2 Pt 1):115–123. [PubMed: 10938211]
- Fleming R, Leventhal H, Glynn K, Ershler J. The role of cigarettes in the initiation and progression of early substance use. *Addict Behav.* 1989; 14(3):261–272. [PubMed: 2787584]
- Flores G, Fuentes-Afflick E, Barbot O, Carter-Pokras O, Claudio L, Lara M, et al. The health of Latino children: Urgent priorities, unanswered questions, and a research agenda. *JAMA.* 2002; 288:82–90. [PubMed: 12090866]
- Gau S, Chong M, Yang P, Yen C, Liang K, Cheng A. Psychiatric and psychosocial predictors of substance use disorders among adolescents -Longitudinal study. *Br J Psychiatry.* 2007; 190:42–48. [PubMed: 17197655]
- Guilamo-Ramos V, Jaccard J, Turrissi R, Johansson M. Parental and school correlates of binge drinking among middle school students. *Am J Public Health.* 2005; 95(5):894–899. [PubMed: 15855471]
- Hallfors D, Vevea JL, Iritani B, Cho H, Khatapoush S, Saxe L. Truancy, grade point average, and sexual activity: A meta-analysis of risk indicators for youth substance use. *J Sch Health.* 2002; 72(5):205–211. [PubMed: 12109176]
- Hawkins JD, Catalano RF, Miller JY. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychol Bull.* 1992; 112(1):64–105. [PubMed: 1529040]
- Hovell, MF. Teaching youth social skills: An AIDS prevention trial (Project STARRT). National Institutes of Health; 1996. p. R01 HD25021
- Huwer RME, Engels RCME, de Vries H. Are anti-smoking parenting practices related to adolescent smoking cognitions and behavior? *Health Educ Res.* 2006; 21(1):66–77. [PubMed: 16000325]
- Kandel DB, Kiros GE, Schaffran C, Hu MC. Racial/ethnic-differences in cigarette smoking initiation and progression to daily smoking: A multilevel analysis. *Am J Public Health.* 2004; 94(1):128–135. [PubMed: 14713710]

- Kaplan CP, Napoles-Springer A, Stewart SL, Perez-Stable E. Smoking acquisition among adolescents and young Latinas. The role of socioenvironmental and personal factors. *Addict Behav.* 2001; 26(4):531–550. [PubMed: 11456076]
- Kopanoff D, Snider D, Caras G. Isoniazid-related Hepatitis-United States Public Health Service Cooperative Surveillance Study. *Am Rev Respir Dis.* 1978; 117(6):991–1001. [PubMed: 666111]
- Landrine H, Richardson JL, Klonoff EA, Flay BR. Cultural diversity in the predictors of adolescent cigarette smoking: The relative influence of peers. [Print]. *Journal of Behavioral Medicine.* 1994; 17(3):331–346. [PubMed: 7932684]
- Latendresse S, Rose R, Viken R, Pulkkinen L, Kaprio J, Dick D. Parenting mechanisms in links between parents' and adolescents' alcohol use behaviors. *Alcohol Clin Exper Res.* 2008; 32(2): 322–330. [PubMed: 18162066]
- Marchant M, Young KR, West RP. The effects of parental teaching on compliance behavior of children. *Psychol Sch.* 2004; 4:337–350.
- Marin G, Gamba R. A new measurement of acculturation for Hispanics: The bidimensional acculturation scale for Hispanics (BAS). *Hisp J Behav Sci.* 1996; 18(3):297–316.
- Martinez-Donate AP, Hovell MF, Hofstetter CR, Gonzalez-Perez GJ, Kotay A, Adams MA. Crossing borders: The impact of the California Tobacco Control Program on both sides of the US-Mexico border. *Am J Public Health.* 2008; 98(2):258. [PubMed: 18172154]
- Mason M, Cheung I, Walker L. Substance use, social networks, and the geography of urban adolescents. *Subst Use Misuse.* 2004; 39(10):1751–1777. [PubMed: 15587950]
- Maxwell, JC.; Wallisch, LS. Texas school survey of substance use among students on the border, Grades 4–12. Texas Commission on Alcohol and Drug Abuse; Austin, TX: 1998. 2000
- Montgomery C, Fisk J, Craig L. The effects of perceived parenting style on the propensity for illicit drug use: The importance of parental warmth and control. *Drug Alcohol Rev.* 2008; 27(6):640–649. [PubMed: 18821098]
- Mowery PD, Farrelly MC, Haviland ML, Gable JM, Wells HE. Progression to established smoking among US youths. *Am J Public Health.* 2004; 94(2):331–337. [PubMed: 14759951]
- Parsai M, Voisine S, Marsiglia F, Kulis S, Nieri T. The protective and risk effects of parents and peers on substance use, attitudes, and behaviors of Mexican and Mexican-American female and male adolescents. *Youth Soc.* 2009; 40(3):353. [PubMed: 19478992]
- Petridou E, Zavitsanos X, Dessypris N, Frangakis C, Mandyla M, Doxiadis S, et al. Adolescents in high-risk trajectory: Clustering of risky behavior and the origins of socioeconomic health differentials. *Prev Med.* 1997; 26(2):215–219. [PubMed: 9085390]
- Rai A, Stanton B, Wu Y, Li X, Galbraith J, Cottrell L, et al. Relative influences of perceived parental monitoring and perceived peer involvement on adolescent risk behaviors: An analysis of six cross-sectional data sets. *J Adolesc Health.* 2003; 33(2):108–118. [PubMed: 12890602]
- Substance Abuse and Mental Health Services Administration. Results from the 2008 National Survey on Drug Use and Health: National Findings (Office of Applied Studies, NSDUH Series H-36, HHS Publication No. SMA 09-4434). Rockville, MD: 2009.
- Szapocznik J, Prado G, Burlew AK, Williams RA, Santisteban DA. Drug abuse in African American and Hispanic adolescents: Culture, development, and behavior. *Annu Rev Clin Psychol.* 2007; 3:77–105. [PubMed: 17716049]
- United States Department of Transportation. North American Trade and Travel Trends. 2001. November 14, 2008, from http://www.bts.gov/publications/north_american_trade_and_travel_trends
- US Department of Transportation. Research and Innovative Technology Administration, Bureau of Transportation Statistics, Border Crossing/Entry Data, Based on data from US Department of Homeland Security, Customs and Border Protection, OMR database. 2006. November 14, 2008, from <http://www.transtats.bts.gov/bordercrossing.aspx>
- Valois RF, Oeltmann JE, Waller J, Hussey JR. Relationship between number of sexual intercourse partners and selected health risk behaviors among public high school adolescents. *J Adolesc Health.* 1999; 25:328–335. [PubMed: 10551663]

- Van der Vorst H, Engels R, Meeus W, Dekovic M. The impact of alcohol-specific rules, parental norms about early drinking and parental alcohol use on adolescents' drinking behavior. *J Child Psychol Psychiatry*. 2006; 47(12):1299–1306. [PubMed: 17176385]
- Van der Vorst H, Engels R, Meeus W, Dekovic M, Van Leeuwe J. The role of alcohol-specific socialization in adolescents' drinking behaviour. *Addiction*. 2005; 100(10):1464–1476. [PubMed: 16185208]
- Warner L, Valdez A, Vega W, de la Rosa M, Turner R, Canino G. Hispanic drug abuse in an evolving cultural context: An agenda for research. *Drug Alcohol Depend*. 2006; 84:S8–S16. [PubMed: 16750335]
- West J, Blumberg E, Hovell M, Hill L, Kelley N, Sipan C, et al. A comparison between parents' and children's reports of parenting practices. *J Ethnicity in Substance Abuse*. in press.
- West JH, Blumberg EJ, Kelley NJ, Hill L, Sipan CL, Schmitz KE, et al. Does Proximity to Retailers Influence Alcohol and Tobacco Use Among Latino Adolescents? *J Immigr Minor Health*. 2010; 12(5):626–633. [PubMed: 19936923]
- West JH, Hovell MF. Project FIESTA: Use of parent training to increase adolescent adherence to a treatment regimen for tuberculosis infection. In *Practice notes: Strategies in health education*. *Health Educ Behav*. 2009; 36(5):805–809.
- Wiefferink C, Peters L, Hoekstra F, Dam G, Buijs G, Paulussen T. Clustering of health-related behaviors and their determinants: Possible consequences for school health interventions. *Prev Sci*. 2006; 7(2):127–149. [PubMed: 16596470]
- Wu G, Chong M, Cheng A, Chen T. Correlates of family, school, and peer variables with adolescent substance use in Taiwan. *Soc Sci Med*. 2007; 64(12):2594–2600. [PubMed: 17433511]

Table 1

Characteristics of the study sample (N = 252)

Skipped school during past year, n (%)	Gender, n (%)
Yes 97 (38.5%)	Male 122 (48.4%)
No 155 (61.5%)	Female 130 (51.6%)
Peers/Friends, M (SD)	Country of birth, n (%)
# friends use tobacco 2.0 (3.6)	U.S. 144 (57.9%)
# friends use alcohol 3.6 (5.1)	Non-U.S. 106 (42.1%)
Family, M (SD)	Acculturation, n (%)
Participant age 15.9 (1.2)	Hispanic 70 (27.8%)
Parental consistency 11.0 (2.4)	Bicultural 160 (63.5%)
	Assimilated 22 (8.7%)

Table 2

Correlations among independent and dependent variables used in the regression analyses (N = 251)

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Alcohol-Lifetime	-										
2. Alcohol-6 months	0.67**	-									
3. Tobacco-Lifetime	0.32**	0.41**	-								
4. Tobacco-6 months	0.32**	0.41**	1.00***	-							
5. Age	0.19**	0.28**	0.21**	0.20**	-						
6. Female	0.05	0.08	-0.05	-0.05	0.08	-					
7. Acculturation	0.06	0.074	0.10	0.11	-0.03	0.07	-				
8. Parental consistency	-0.13*	-0.07	-0.07	-0.07	-0.05	0.02	-0.02	-			
9. Skipped school	0.26**	0.32**	0.15*	0.15*	0.31**	0.08	0.05	-0.03	-		
10. Friends use alcohol	0.41**	0.49**	0.31**	0.31**	0.27**	0.10	-0.09	0.10	0.25***	-	
11. Friends use tobacco	0.31**	0.42**	0.33**	0.33**	0.17**	0.20**	-0.01	0.09	0.19**	0.56**	-

Note:

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

Table 3

Use of Alcohol and Tobacco (N = 251)

Substance	n	%
Alcohol- lifetime	175	69.4
Alcohol- past 6 months	128	50.8
Alcohol- past 30 days ^a	66	26.2
Tobacco- lifetime	47	18.7
Tobacco- past 6 months	27	10.7
Tobacco- past 30 days ^a	11	4.4

^aNot included in analyses because the prevalence of tobacco use was too low.

Table 4

Correlates of Alcohol Use, Adjusted Odds Ratios (n=251)

Variable	Alcohol-Lifetime			Alcohol-6 Months		
	OR	95% CI	p-value	OR	95% CI	p-value
Age	1.06	0.79, 1.41		1.26	0.96, 1.65	
Female	0.88	0.47, 1.65		0.93	0.50, 1.74	
Acculturation	1.59	0.91, 2.79		1.60	0.92, 2.78	
Parental consistency	0.81	0.69, 0.93	**	0.86	0.75, 0.98	*
Skipped school	2.34	1.13, 4.86	*	2.71	1.40, 5.23	**
Friends use alcohol	2.67	1.69, 4.22	***	2.42	1.61, 3.62	***
Friends use tobacco	1.77	1.02, 3.05	*	2.23	1.38, 3.59	**
R^2		0.35			0.44	
<i>Chi-square</i>		7, 70.93 ***			7, 100.70 ***	

Note: R^2 refers to the overall regression for each model; *Chi-square* refers to the summary statistics for each model;

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5

Correlates of Tobacco Use, Adjusted Odds Ratios (n=251)

Variable	Tobacco-Lifetime			Tobacco-6 Months		
	OR	95% CI	p-value	OR	95% CI	p-value
Age	1.39	1.02, 1.90	*	1.40	0.96, 2.03	
Female	0.41	0.19, 0.88	*	0.71	0.29, 1.76	
Acculturation	2.19	1.13, 4.24	*	2.73	1.17, 6.36	*
Parental consistency	0.90	0.77, 1.04		0.89	0.75, 1.07	
Skipped school	1.16	0.54, 2.47		0.88	0.35, 2.25	
Friends use alcohol	1.62	1.03, 2.54	*	1.24	0.71, 2.14	
Friends use tobacco	2.38	1.46, 3.88	***	2.65	1.44, 4.87	**
R^2		0.29			0.22	
<i>Chi-square</i>		7, 49.43 ***			7, 29.18 ***	

Note: R^2 refers to the overall regression for each model; *Chi-square* refers to the summary statistics for each model;

* $p < .05$.

** $p < .01$.

*** $p < .001$.