Etiology of Alcohol Use Among Hispanic Adolescents

Sex-Specific Effects of Social Influences to Drink and Problem Behaviors

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Background: Hispanic adolescents seem to be at greater risk for alcohol use; a greater understanding of the factors that predict alcohol use among Hispanic youth is needed. Social influences to drink and other problem behaviors often predict adolescent alcohol use. However, most past research has concentrated on samples of predominantly white adolescents residing in suburban areas.

Objectives: To determine which demographic factors, social influences, and problem behaviors are associated with alcohol use among Hispanic adolescents and to elucidate the difference in the origins of alcohol use depending on sex.

Design: Cross-sectional study.

Setting: Middle schools in New York City.

Participants: This study focuses on 1410 adolescents in grade 7 from inner-city schools who identified themselves as Hispanic at the baseline assessment of an investigation of alcohol and other drug use.

Main Outcome Measures: Alcohol initiation, alcohol consumption, and future drinking.

Results: The findings showed that social influences to drink and reported problem behaviors were associated with alcohol use across and within sex groups. In particular, friends’ drinking was related to alcohol initiation, consumption, and plans to drink in the future across sexes and within both sex groups. Other predictors (mother’s drinking, siblings’ drinking, ease of obtaining alcohol, deviance, cigarette smoking, and marijuana use) exhibited sex-specific effects.

Conclusion: These findings lend support to teaching social resistance skills to improve Hispanic adolescents’ ability to resist social influences to drink and use other drugs.


Editor’s Note: I guess we shouldn’t be surprised that Hispanic adolescents are also influenced by social factors—bad habits performed emanate from bad habits observed.

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PARTICIPANTS AND METHODS

OVERVIEW

Thirty-seven junior high schools in New York City participated in a longitudinal investigation of the etiology and prevention of adolescent alcohol and other drug use, starting in 1994. Districts and schools were recruited based on the composition of black and Hispanic students as well as the socioeconomic status of the population to focus on black and Hispanic inner-city students who were economically disadvantaged. Moreover, these 2 ethnic groups have the largest representation in New York City schools. Districts from each borough except Staten Island participated. Staten Island was excluded because of the much higher proportion of white adolescents attending these schools. Recruitment was on an ongoing basis until the proper sample size and number of schools were attained. A response deadline was set and the target number of students and schools was reached. Consequently, this sample represents economically disadvantaged inner-city youth. Prior to exposure to any drug abuse prevention programs, students in grade 7 from these schools completed questionnaires in which they reported their patterns of alcohol use and demographic characteristics, along with items assessing other factors relevant to alcohol use. A passive consent procedure was used to obtain parental consent, and less than 1% of the potential participants refused participation. More than 90% of the potential participants took part in the baseline survey.

SAMPLE

The present study focuses on the 1410 adolescents who identified themselves as Hispanic/Latino. The mean age of participants in the current study was 12.9 years (SD, 0.60 years); 51% were female. Most students reported receiving free or subsidized lunches at school (75%). Somewhat more than half of the sample lived in 2-parent households (57%).

PROCEDURE

All grade 7 students in participating schools completed a questionnaire in class during a regular 40-minute period. A team of 3 to 5 data collectors who were members of the same ethnic groups as the participating students administered the questionnaire following a standardized protocol. Teachers were not involved in data collection. Students were assured that their answers would remain confidential because their teachers, parents, and other students would not see their responses. The confidential nature of the students’ responses was stressed in an effort to ensure the quality (validity and higher response rate) of self-reported data. Carbon monoxide breath samples were collected using a procedure that enhances the validity of self-reported data regarding substance use.9 Students completed a questionnaire that included items regarding sex, age, family structure, social influences to drink, alcohol use, and other behavioral measures. Data collectors returned on at least one occasion to survey students who had been absent during the first data collection.

MEASURES

Students completed 1 of 2 randomly distributed questionnaire forms containing the same items, with the order reversed for the measures on the last half of the questionnaire. Half the sample completed each form, maximizing the amount of data collected within the available time and minimizing data loss caused by fatigue, boredom, or inadequate time. Included on the questionnaires were items about race/ethnicity, sex, and age; self-reported items assessing the alcohol use behavior of respondents and their friends; and items assessing other factors relevant to alcohol use. All of the items/scales used were derived from psychometrically valid instruments used widely in previous research. Past research has indicated that these items are suitable for our targeted minority population. For example, earlier studies30,31 demonstrated that these measures had high validity (construct, discriminant, and criterion) with predominantly Hispanic and black samples. Furthermore, the measures have been cross-validated by their use in other studies with predominantly Hispanic and/or black adolescents.32,34

Alcohol Measures

Three self-report items assessed alcohol use. To determine frequency of drinking, students indicated “how often (if ever) they drank alcohol” on a 9-point scale anchored by “never” (1) and “more than once a day” (9). Another item measured alcohol consumption by asking, “If you drink alcohol, how much do you usually drink each time you drink?” Students signified their response on a 6-point scale ranging from “I don’t drink” (1) to “more than 6 drinks” (6). A final item measured future drinking behavior regarding behavior regarding beer, wine, wine coolers, or hard liquor (excluding use during religious ceremonies) within the next year. Responses ranged from “definitely not” (1) to “definitely will” (5).
Demographic Variables

Students self-reported data regarding sex, family structure (2-parent family, not 2-parent family), age, ethnicity, and socioeconomic status (receiving vs not receiving free or subsidized lunches in school) using standard survey items.

Behavioral Measures

Students rated how often (if ever) they smoked cigarettes and marijuana on the same 9-point scale used for the frequency of drinking alcohol measure. They also rated how often they got into trouble (in school, at home, and with police) on a 5-point scale ranging from “never” (1) to “more than 4 times” (5). Students indicated how often they attended religious services on an 8-point scale ranging from “never” (1) to “more than once a week” (8). They also indicated about how many days they had been absent from school in the last year on a 5-point scale ranging from “none” (1) to “16 or more days” (5).

Social Influences to Drink Alcohol

Normative expectations related to alcohol use were assessed by perceived prevalence of alcohol use among peers (peer norms) and perceived prevalence of alcohol use among adults (adult norms). Friends’ use was assessed by asking how many friends drink beer, wine, or liquor. Friends’ use, peer norms, and adult norms were measured on a 5-point scale ranging from “none” (1) to “all or almost all” (5). Perceived use by mother or stepmother, father or stepfather, and older sibling(s) was measured on a 4-point scale with response categories of “no,” “used to but quit,” “yes,” or “not sure.” Availability was assessed with an item about how difficult it would be to obtain beer, wine, or liquor on a 4-point scale ranging from “very hard” (1) to “very easy”(4).35

DATA ANALYSIS PLAN

A series of logistic regression analyses were run to determine which variables were the most important predictors of patterns of alcohol use among this large sample of Hispanic students in grade 7. Logistic regressions were conducted because the distributions were skewed because of the low level of alcohol use and intentions for this age group. Furthermore, dichotomous alcohol measures were created to correspond to the measures used in national surveys and our own past etiologic research.37 One criterion variable of drinking status was derived from the drinking index: the experimental drinking (ever used) measure was dichotomized into 2 categories to identify students who never drank alcohol or students who had tried alcohol. Alcohol consumption per drinking occasion was recoded to compare students who drank 1 or no drinks with those who had 2 or more drinks. Finally, the intention-to-drink scale was collapsed into 2 categories: intention to definitely abstain from drinking vs intention to drink or expressed doubts about abstaining in the future.

The independent variables were recoded to create categories that were less skewed and more meaningful. For age, students were split into those who were younger than age 13 years and those age 13 years and older. Perceived family drinking (mother, father, and siblings) was divided into 2 categories: family members did not drink vs family members who had engaged in any lifetime use (ie, used to but quit and current drinker). Both peer drinking and friends’ drinking were divided into 2 categories: none vs less than half to all. Students’ perceptions of adult drinking were divided into 2 categories: none to less than half of adults drink vs about half to all of adults drink. Perceived availability of alcohol was dichotomized into easy vs hard to obtain alcohol. Religious attendance was divided into groups who attended more than once a month vs those who attended once a month or less. For levels of absenteeism, students were categorized as either being absent 6 days or less vs absent 7 days or more. The trouble scale was dichotomized based on a median split. Both cigarette and marijuana smoking were construed as experimental use measures comparing students who never smoked with students who had tried smoking.

Logistic regressions were computed for each alcohol outcome measure (experimental drinking, alcohol consumption, and future drinking). It would not be possible to run a model testing all potential variables simultaneously in one logistic regression because of the large number of variables. Therefore, 3 separate logistic regressions consisting of background variables, behavioral measures, and social influences to drink variables were run for the 3 alcohol outcome measures. The significant predictors from each of the 3 logistic regressions were then included in a final logistic regression model for each of the alcohol outcome measures. Individuals for whom any of the variables in the equation was missing were omitted from the analysis. The number of respondents included in each analysis is indicated below. This procedure was followed for the entire Hispanic sample and then again for girls only and boys only.
ment with alcohol. Empirical studies demonstrated that cigarette smoking predicted alcohol use among a large sample of students in grades 5 through 12 residing in Indiana and among Hispanic middle school students living in California. Problem behavior theory conceptualizes adolescent experimentation with cigarettes, alcohol, and marijuana as part of a deviant lifestyle that includes delinquency, truancy, and dropping out of school. Most research demonstrating evidence of a problem behavior syndrome focused on white adolescents, with only a few studies examining this relationship among black and Hispanic youth.

Hispanic boys tend to start drinking at younger ages and engage in heavier drinking than girls, but the sex gap in alcohol use has been narrowing. Recent research showed that Hispanic boys have been more likely to try alcohol and drink at least once a month than Hispanic girls, controlling for social influences to drink and other demographic variables. In addition to any sex differences in alcohol use, the predictors of alcohol use may not be the same for boys and girls, highlighting the need to examine etiology separately by sex. Family, friends, and peers may influence boys and girls differently. Problem behaviors could also cluster based on sex.

The major goal of this study was to determine which demographic factors, social influences to drink (family members, friends, peers, adults, and availability of alcohol), and problem behaviors (cigarette smoking, marijuana use, deviance, and absenteeism) are associated with alcohol use among Hispanic adolescents. The study was also designed to test these factors separately for boys and girls to elucidate the sex differences in the etiology of alcohol use. The current investigation included 3 alcohol outcome measures (lifetime use, consumption, and behavioral intention) because distinct etiologic pathways to various patterns of drinking among adolescents seem to exist. Critical aspects of this investigation include its focus solely on Hispanic adolescents, the wide range of potential predictors based on theoretical constructs, examination of etiology separately by sex, and consideration of several patterns of alcohol use. Moreover, the identification of which factors predict specific patterns of drinking provides the basis for evaluating the appropriateness of prevention approaches and developing new approaches for Hispanic adolescents.

### RESULTS

#### EXPERIMENTAL DRINKING

Table 1 shows the final logistic regression model for experimental drinking. For the overall Hispanic sample, significant predictors in the final model (n = 962) included a variety of social influences (mother’s drinking, siblings’ drinking, friends’ drinking, and peer drinking norms) and problem behaviors (trouble in past month and cigarette smoking). The significant predictors of experimental drinking among girls (n = 580) included those found for the overall sample, with the exception of siblings’ drinking and getting into trouble. Significant predictors of experimental drinking among boys (n = 516) included siblings’ drinking, friends’ drinking, getting into trouble in the past month, and experimental smoking.

#### ALCOHOL CONSUMPTION PER DRINKING OCCASION

Table 2 shows the final logistic regression models for alcohol consumption. In the overall Hispanic sample, significant predictors were siblings’ drinking, friends’ drinking, ease of acquiring alcohol, getting in trouble, ever smoking, and ever using marijuana (n = 1006). Significant predictors of amount consumed per drinking occasion for girls (n = 646) included friends’ drinking and experimental smoking. Significant predictors of alcohol consumption per drinking occasion for boys (n = 511) were siblings’ drinking, friends’ drinking, ease of acquiring alcohol, getting into trouble, and experimental marijuana use.

#### FUTURE DRINKING

Table 3 presents the final logistic regressions for future drinking. Mother’s drinking, friends’ drinking, ease of acquiring alcohol, getting into trouble, and ever smoking were all significant predictors for the overall sample (n = 1067). Mother’s drinking, friends’ drinking, peer drinking norms, and experimental smoking were all related to intentions to drink in the future among girls (n = 567). Significant predictors of intentions to drink in

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**Table 1. Predictors of Experimental Drinking**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Reference Groups</th>
<th>Indicator Groups</th>
<th>Overall</th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family structure</td>
<td>2-Parent</td>
<td>Not 2-parent</td>
<td></td>
<td></td>
<td>1.21 (0.79-1.86)</td>
</tr>
<tr>
<td>Mother’s drinking</td>
<td>None</td>
<td>Ever drink</td>
<td>2.09 (1.46-2.98)</td>
<td>2.51 (1.61-3.92)</td>
<td></td>
</tr>
<tr>
<td>Siblings’ drinking</td>
<td>None</td>
<td>Ever drink</td>
<td>1.90 (1.19-3.02)</td>
<td></td>
<td>2.39 (1.35-4.22)</td>
</tr>
<tr>
<td>Friends’ drinking</td>
<td>None</td>
<td>&lt;Half to all</td>
<td>3.64 (2.53-5.25)</td>
<td>4.47 (2.75-7.28)</td>
<td>4.44 (2.74-7.20)</td>
</tr>
<tr>
<td>Peer drinking norms</td>
<td>None</td>
<td>&lt;Half to all</td>
<td>2.49 (1.52-4.06)</td>
<td>4.27 (1.93-9.46)</td>
<td></td>
</tr>
<tr>
<td>Ease of obtaining alcohol</td>
<td>Hard</td>
<td>Easy</td>
<td>1.33 (0.95-1.85)</td>
<td></td>
<td>1.30 (0.84-1.99)</td>
</tr>
<tr>
<td>Trouble in past month</td>
<td>Low</td>
<td>High</td>
<td>1.51 (1.09-2.10)</td>
<td>1.09 (0.71-1.68)</td>
<td>2.13 (1.37-3.32)</td>
</tr>
<tr>
<td>Smoking</td>
<td>Never</td>
<td>Ever</td>
<td>4.02 (2.72-5.95)</td>
<td>8.23 (4.97-13.61)</td>
<td>2.23 (1.33-3.72)</td>
</tr>
<tr>
<td>Marijuana use</td>
<td>Never</td>
<td>Ever</td>
<td>1.81 (0.86-3.80)</td>
<td></td>
<td>2.10 (0.92-4.79)</td>
</tr>
</tbody>
</table>

*OR indicates odds ratio; CI, confidence interval; and ellipses, that the variable was not included in the final model."
Adolescent alcohol use among Hispanic youth seems to be influenced by a social learning process. In particular, friends’ drinking behavior was a major social influence for all 3 alcohol measures (experimental drinking, alcohol consumption, and future drinking). This was true both across and within sexes. Other social influences to drink, including peer drinking norms, mother’s drinking, siblings’ drinking, and ease of obtaining alcohol, predicted at least 2 drinking measures for the overall sample and/or within 1 of the sex groups. Cigarette smoking was related to experimental drinking across and within sex groups and was linked with alcohol consumption and future drinking for the overall sample and for girls. Marijuana use predicted greater alcohol consumption for the overall sample and for boys. Deviance (getting into trouble in the past month) was associated with all 3 alcohol measures across sexes and for boys. These findings lend support to a gateway theory of drug use and the problem behavior theory. The limitations of the study should be acknowledged. It is not possible to draw conclusions about causality because the data were cross-sectional. For example, although friends’ alcohol use predicted all 3 drinking measures, it is conceivable that adolescents who experiment with alcohol seek out friends who drink as opposed to alcohol-using friends influencing adolescents to drink. Further research with longitudinal data will help disentangle these relationships. However, this study does suggest which factors would be expected to predict adolescent alcohol use among Hispanics longitudinally. The findings may not be generalizable to Hispanic youth in other inner-city regions because of the focus on Hispanic adolescents residing in New York City. As the Hispanic subgroups predominantly represented in New York City and the northeastern United States are Puerto Ricans and Dominicans, studies conducted in the northeastern cities should most closely resemble the current findings. Future research could confirm the generalizability of the theoretical constructs posited here with other Hispanic subgroups residing in other regions.
social influences and to have problem behaviors that clustered based on sex.

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In general, social influences to drink played a role in alcohol use both across and within sexes among Hispanic adolescents. Of all the social influences, only alcohol-using friends predicted respondents' experimental drinking, alcohol consumption, and future drinking for the entire Hispanic sample and for the individual sex groups. Prior studies have highlighted the importance of friends' drinking as a social influence to drink, including those conducted with white adolescents and Hispanic and black adolescents. In another study conducted with Hispanic adolescents, friends' drinking predicted experimental drinking both across and within sexes.

Consequently, the drinking behavior of friends seems to be the most universal predictor of adolescent drinking for different ethnic groups and for both sexes. This seems reasonable because adolescents of all ethnic groups and both sexes spend significant amounts of time with their friends. Although the cross-sectional nature of this study prevents definitive knowledge about whether associating with alcohol-using friends causes Hispanic adolescents to drink or if Hispanic adolescents who drink choose alcohol-using friends, the drinking behavior of friends serves as a critical reinforcer in either case. However, focus group interviews conducted with Hispanic adolescents indicate that peer acceptance is a major reason they drink, suggesting that their friends are already drinking. In the current study, having alcohol-using friends consistently predicted all patterns of drinking. Therefore, the drinking behavior of friends seemed to be involved in the initiation of alcohol use, the amount of alcohol consumed, and plans to drink in the future.

In contrast, peer drinking norms predicted only alcohol initiation and future drinking. Although peer norms were related to experimental drinking for the overall sample, peer norms were associated with trying alcohol only for girls, not boys. Peer norms predicted future drinking only for girls; they were more likely to try drinking or to intend to drink in the future based on their perceptions of whether their peers drank. Past research with Hispanic adolescents failed to link peer drinking norms and drinking at least once a month or alcohol initiation within or across sexes. Such changes in etiologic predictors may well be caused by cohort effects. The earlier studies focused on data collected in 1987, whereas data for the present study were collected in 1994. Interestingly, other data from Hispanic and African American adolescents, collected in 1991, showed a link between peer norms and both experimental and future drinking, lending credence to the notion that predictors change over time for different cohorts.

Family drinking behavior proved to be another social influence to drink among Hispanic youth. This replicates studies of predominantly white adolescent samples that demonstrated a relationship between family alcohol behavior and the respondents' drinking. In particular, mother's drinking and siblings' drinking predicted alcohol use. However, father's drinking was not associated with any of the alcohol measures in the current study. This may reflect the fact that a large portion of the sample lived in households without a father. Prior research based on a longitudinal study conducted with white adolescents indicated that children tend to imitate their same-sex parent's alcohol behavior. The absence of a father in the home and the sex-specific effect of father's drinking on a boy's alcohol use may have decreased the impact of father's drinking. Mother's drinking predicted alcohol initiation across sexes and specifically for girls but not for boys. However, mother's drinking influenced plans to drink in the next year both across and within sex groups. Thus, girls seemed to imitate their same-sex parent.

Siblings influenced alcohol initiation and consumption for their brothers but not their sisters. As no information is available for the sex of siblings, it cannot be determined if same-sex siblings exerted a greater role on respondents' drinking. Future research should explore the possible importance of the sex of the sibling influencing respondents' drinking. Finally, availability of alcohol or perceived ease of obtaining alcohol predicted alcohol consumption and future drinking for the overall sample and for boys but not for girls. The alcohol consumption finding for the overall sample replicates research showing a link between availability and consumption among white students in grade 12.

There was evidence for a problem behavior syndrome because of the association of the drinking measures with cigarette smoking, marijuana use, and deviance. Cigarette smoking was associated with all 3 alcohol measures. Smoking initiation predicted alcohol initiation across and within both sex groups as well as alcohol consumption and future drinking for the overall sample and for girls. Marijuana use predicted alcohol consumption across sexes and for boys. Deviance (getting into trouble in the past month) was linked to all 3 patterns of drinking across sexes and for boys. The pattern of deviance also seemed to depend on sex. If we had not conducted sex-specific analyses, these findings would not have been detected.

Cigarette smoking tended to cluster with alcohol use for girls, whereas marijuana use and deviance clustered with some forms of drinking among boys. Since past research showed that a greater proportion of Hispanic girls than Hispanic boys reported smoking on a regular basis (at least once per month), this greater prevalence of smoking among Hispanic girls may underlie the association between smoking and drinking. Since the gateway theory of drug use posits that cigarette smoking and alcohol use precede marijuana use, it is not surprising that there was not an association between marijuana use and the drinking measures. Instead, it seemed that...
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