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PREVALENCE AND RISK FACTORS FOR ALCOHOL USE AMONG FIFTH AND SIXTH GRADE CHILDREN IN PUERTO RICO, 2005-07

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ABSTRACT

Underage drinking is a major public health problem in Puerto Rico. Almost 25% of adolescent drinkers report beginning before age 12, but most prevention efforts are targeted to teens. Alcohol use and its risk factors among children is rarely discussed. "Consulta Juvenil VII", a cross-sectional survey conducted in 2005-07, is the only study in Puerto Rico that estimates the prevalence and evaluates risk factors for alcohol use in a nationally representative sample of elementary school students (5th-6th grade). The sample (n=1,708) was selected using a multi-stage stratified cluster sampling design. Multiple logistic regression models were used to evaluate the association between alcohol use and socio-demographic, individual, peers, school, family, and community characteristics. Collinearity was assessed before multiple regression models. Prevalence of alcohol use was 34.6% (95% CI=30.7-38.5%). Smoking, ever been offered illicit drugs, and having friends who drink were the most important predictors of alcohol use among students. Other risk factors included: damaging property, forgetting planned tasks, antisocial behavior, good/excellent health, none/little perceived risk in 1-2 daily drinks, and having siblings or parents that drink. Our findings seem to suggest that risk factors for pre-adolescents' alcohol use are different from those identified among Puerto Rican adolescents. There also seem to be cultural differences. Unlike other populations, peer factors appear to be more influential in a Puerto Rican child's alcohol use than family factors. These results provide important baseline information and a better understanding of alcohol use by elementary school students that should be considered when designing and implementing prevention programs for our pre-adolescents.

INTRODUCTION

- Underage drinking is a major public health problem in Puerto Rico. Over half (56.2%) of adolescent students have consumed alcohol with 24.5% reporting onset of drinking before age 12. However, most prevention efforts are targeted to teens.
- Early onset of alcohol use has been associated with subsequent substance use during adolescence, later substance abuse problems (including alcohol abuse and dependence), risk-taking and antisocial behaviors, early sexual activity, and conduct and social problems, and delinquency, among others.
- Among Puerto Rican adolescents, risk factors for alcohol use include: early onset of alcohol use, use of alcohol among family members and by friends, easy access to alcohol, and absenteeism. Important protective factors include: unfavorable attitudes toward alcohol use by the teen and his/her family, alcohol harm perception, opportunity for participating in family matters, and family supervision (Consulta Juvenil, 2005-07).
- Little is known about risk and protective factors for alcohol use among children, and even less among Puerto Ricans.
- "Consulta Juvenil" is the only study in Puerto Rico that estimates prevalence of alcohol use in a nationally representative sample of elementary school children and that evaluates risk factors for alcohol use in this population.

OBJETIVES

- To estimate the prevalence of alcohol use among elementary school students (5th-6th grade) in Puerto Rico.
- To determine the association between alcohol use among elementary school students (5th-6th grade) in Puerto Rico and risk and protective factors in the following domains: socio-demographic characteristics, individual characteristics and behaviors, peers, school, family, and community.

METHODS

- STUDY DESIGN**
 - "Consulta Juvenil VII" survey, a cross-sectional study
 - Data collected over the period of two academic years: 2005-06 and 2006-07
- SAMPLING DESIGN**
 - Multi-stage stratified cluster sampling design
 - Representative sample of all 5th and 6th graders in public and private schools in Puerto Rico
 - Sample size
 - Participants = 1,739 (71.5%)
 - Absent = 433 (17.8%)
 - Refused = 261 (10.7%)
 - 31 questionnaires invalidated
 - Final sample size = 1,708 students
- DATA COLLECTION INSTRUMENT**
 - Pre-coded self-administered questionnaire
- STATISTICAL ANALYSES**
 - SAS SURVEYFREQ procedure used to estimate prevalences and their 95% confidence intervals
 - Logistic regression models (SAS SURVEYLOGISTIC) used to estimate the odds ratios and their 95% confidence intervals
 - Stepwise regression with a backward selection method
 - Collinearity - assessed before multiple regression models
 - Results were weighted to represent approximately 113,246 students.

METHODS

VARIABLES

- Dependent variables:** Alcohol use (ever)
- Independent variables**
 - Socio-demographic characteristics:** gender, age, country of birth, living with both parents most of the time, parents' educational level
 - Individual characteristics and behaviors:** frequency of participation in religious or spiritual activities, importance in life of religion or spiritual experiences, self-perceived health, ever use of cigarette or illicit drugs, perceived risks in 1-2 drinks almost daily or in binge drinking (≥ 5 drinks), antisocial behaviors (fighting in school or somewhere else, stealing from store, damaged property, threw something to someone, hurt somebody with a sharp object), attention deficit disorder symptoms (trouble staying focused in task for more than a short time, trouble staying focused in task when other things are happening, forgot to do planned tasks, took medication for hyperactivity or attention problems, avoided tasks that required attention for a long period, made many errors due to difficulty in doing things carefully), feeling anxious or preoccupied, feeling sad or depressed, feeling annoyed, irritable, or in a bad temper, behavior problems
 - Family characteristics:** parents' or siblings use of cigarettes, alcohol, or illicit drugs, parental oversight (would notice if child does not arrive on time at home; know child's whereabouts and company when not at home; would notice if child drank beer, wine or liquor without their permission), clear rules in house (in general or about alcohol and drug use, family conflict (family members frequently insult or scream at each other; strong arguments at the house), family member ever had a severe alcohol or drug problem
 - Peer characteristics:** friends use of cigarettes, alcohol, or illicit drugs
 - School characteristics:** grade, repeated a grade, grade point average, skipped classes, participation in school teams (sports or recreation) or in school groups or clubs
 - Community characteristics:** participation in teams (sports or recreation), in community groups or clubs, in church groups or clubs, in classes (art, music, theater, ...), or in Boys/Girl Scout, Boys & Girl Clubs, 4-H, Athletic League..., lived or studied abroad, perceived availability of alcoholic drinks, ever been offered illicit drugs (marijuana, cocaine or crack)

RESULTS

- PREVALENCE OF ALCOHOL USE (Figure 2)**
 - Ever = 34.6% (95% CI=30.7-38.5%), N=39,164
 - Last year = 15.5% (95% CI=12.1-18.9%), N=17,326
 - Last month = 9.3% (95% CI=7.5-11.0%), N=10,416
- RISK FACTORS FOR ALCOHOL USE**
 - Individual characteristics and behaviors of the child were more important determinants of alcohol use than socio-demographic, peers, school, family, and community characteristics.
 - Smoking (Figures 3-4), ever been offered illicit drugs (marijuana, cocaine, or crack), and having friends who drink (Figures 4-5) were the most important predictors of alcohol use among children.
 - Other significant risk factors included: damaging property, forgetting planned tasks, antisocial behavior, good or excellent health, none or little perceived risk in 1-2 daily drinks, and having siblings or parents that drink (Figures 4-7).
 - Few family, peer, or community factors and no socio-demographic or school characteristics remained in the final models after adjustment.

FIGURE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF 5th AND 6th GRADE CHILDREN, PUERTO RICO

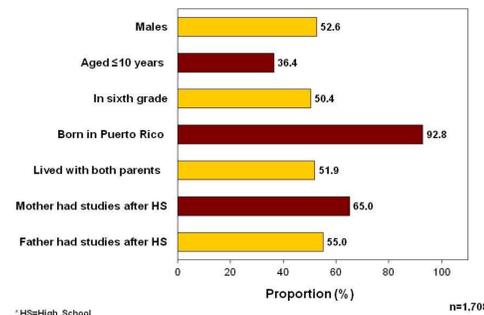


FIGURE 2: PREVALENCE OF ALCOHOL USE AMONG 5th AND 6th GRADE CHILDREN, PUERTO RICO

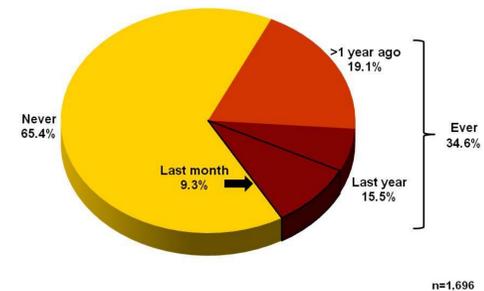


FIGURE 3: PREVALENCE OF ALCOHOL USE AMONG 5th AND 6th GRADE CHILDREN BY COMMUNITY AND INDIVIDUAL CHARACTERISTICS, PUERTO RICO

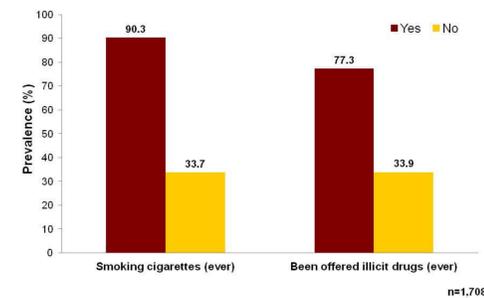
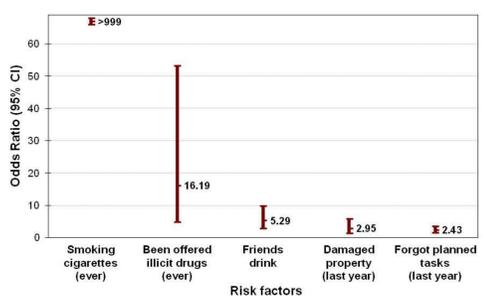


FIGURE 4: RISK FACTORS FOR ALCOHOL USE AMONG 5th AND 6th GRADE CHILDREN, PUERTO RICO



*OR adjusted by all variables left in multiple regression model after backward selection.

FIGURE 5: PREVALENCE OF ALCOHOL USE AMONG 5th AND 6th GRADE CHILDREN BY FAMILY AND FRIENDS ALCOHOL USE, PUERTO RICO

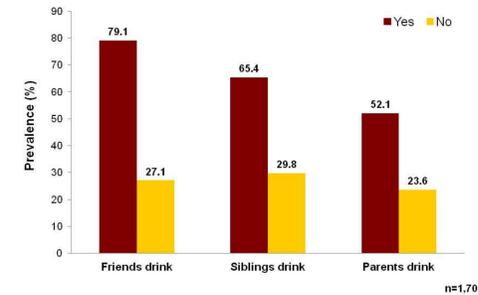


FIGURE 6: PREVALENCE OF ALCOHOL USE AMONG 5th AND 6th GRADE CHILDREN BY INDIVIDUAL CHARACTERISTICS, PUERTO RICO

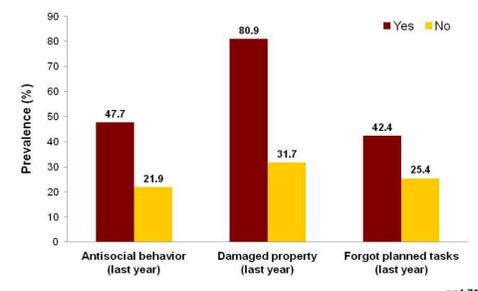


FIGURE 7: PREVALENCE OF ALCOHOL USE AMONG 5th AND 6th GRADE CHILDREN BY INDIVIDUAL CHARACTERISTICS, PUERTO RICO

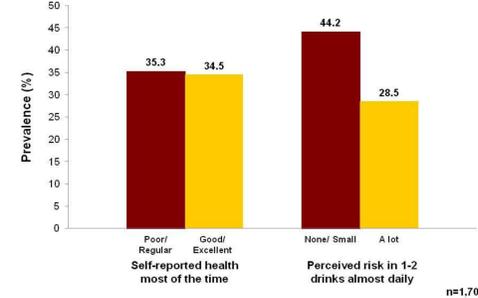
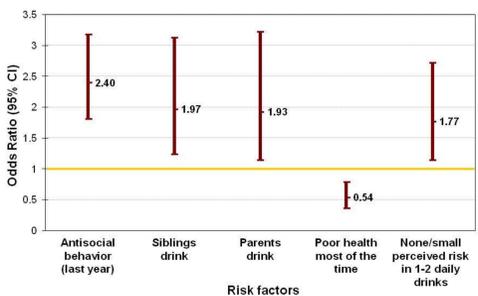


FIGURE 8: RISK FACTORS FOR ALCOHOL USE AMONG 5th AND 6th GRADE CHILDREN, PUERTO RICO



*OR adjusted by all variables left in multiple regression model after backward selection.

PREVALENCE ESTIMATES AND RISK FACTORS FOR ALCOHOL USE AMONG 5th AND 6th GRADE STUDENTS, PUERTO RICO, 2005-07

Characteristics	Estimated Population	Weighted Prevalence (95% CI)	Crude Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)*	Adjusted Odds Ratio (95% CI)†
INDIVIDUAL BEHAVIORS AND CHARACTERISTICS					
Smoking Ever	1,482	90.3 (79.3-100.0)	18.36 (5.83-57.84)	4.31 (1.68-11.07)	>999.99 (>999->999)
Never	37,413	33.7 (29.7-37.7)	Reference	Reference	Reference
Damaged property (last year)					
Yes	4,966	80.9 (73.8-88.4)	9.12 (5.38-15.47)	3.23 (1.47-5.94)	2.95 (1.47-5.94)
No	32,494	31.7 (27.8-35.7)	Reference	Reference	Reference
Forgot to do planned tasks (last year)					
Yes	24,056	42.4 (36.7-48.0)	2.16 (1.74-2.68)	1.70 (1.36-2.12)	2.43 (1.64-3.60)
No	13,203	25.4 (21.7-29.1)	Reference	Reference	Reference
Any antisocial behavior (last year)					
Yes	26,183	47.7 (42.4-53.0)	3.26 (2.70-3.93)	1.51 (1.15-2.00)	2.40 (1.81-3.18)
No	12,433	21.9 (19.5-24.3)	Reference	Reference	Reference
Health most of the time					
Poor/Regular	7,136	35.3 (28.9-41.8)	1.04 (0.78-1.39)	0.63 (0.48-0.83)	0.54 (0.37-0.79)
Good/Excellent	31,339	34.5 (30.1-39.0)	Reference	Reference	Reference
Perceived risk in 1-2 drinks almost daily					
None/Small	16,798	44.2 (38.2-50.2)	1.99 (1.52-2.59)	2.04 (1.68-2.48)	1.77 (1.15-2.72)
A lot	15,807	28.5 (24.2-32.8)	Reference	Reference	Reference
FAMILY-RELATED CHARACTERISTICS					
Siblings drink					
Yes	7,308	65.4 (56.8-74.0)	4.46 (3.35-5.95)	2.55 (1.93-3.38)	1.97 (1.24-3.13)
No	21,507	29.8 (26.6-32.9)	Reference	Reference	Reference
Parents drink					
Yes	20,730	52.1 (46.5-57.7)	3.53 (2.86-4.37)	2.59 (1.99-3.38)	1.93 (1.15-3.23)
No	15,794	23.6 (20.7-26.4)	Reference	Reference	Reference
PEER-RELATED CHARACTERISTICS					
Friends drink					
Yes	8,928	79.1 (70.9-87.2)	10.15 (8.40-16.10)	10.15 (8.40-16.10)	5.29 (2.82-9.91)
No	21,670	27.1 (23.4-30.8)	Reference	Reference	Reference
COMMUNITY-RELATED CHARACTERISTICS					
Ever been offered illicit drugs (marijuana, cocaine or crack)					
Yes	1,486	77.3 (59.0-95.6)	6.64 (2.43-18.17)	7.54 (3.48-16.31)	16.19 (4.93-53.23)
No	36,264	33.9 (29.9-37.9)	Reference	Reference	Reference

* Adjusted by all the variables within the specific domain left in model after backward selection.
† Adjusted by all socio-demographic, individual, family, peer, and community variables left in model after backward selection.

CONCLUSIONS

- Our findings underscore the importance of considering the child's environment and their individual characteristics and behaviors when studying their alcohol use. Smoking and being in an environment where the child can be offered drugs were the strongest risk factors for alcohol use among Puerto Rican youth.
- Unlike previous research in other populations, peers appear to be more influential in a Puerto Rican child's alcohol use than family. Having friends that drink alcohol had a stronger association with their own alcohol use than their parents' or siblings drinking. More research is needed to explore whether this finding is due to peer pressure or modeling.
- Although in a lesser extent when compared to peers, the family environment has a major impact in a child's behavior. Parents and siblings continue being powerful role models for children, with children who have family members that drink twice as likely to report drinking than those without.
- Teachers, pediatricians, school nurses, and other professionals that deal with children should be alert to the presence of the risk factors identified and provide appropriate assistance. Asking children about their parents' and friends alcohol use can be a non-threatening way to identify at-risk children.
- Our findings seem to suggest that risk factors for alcohol use among elementary school pre-adolescents are different from those among adolescents, a fact that should be considered when designing and implementing prevention programs for our youth.
- Information from this study can be used for comparison to other Hispanic populations, and as baseline data for future studies among Puerto Rican children.

ACKNOWLEDGEMENTS

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