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Social Contexts of Substance Use among U.S. High School Seniors: A Multi-Cohort National Study

Sean Esteban McCabe^{a,b}, Brady T. West^{c,d}, Philip Veliz^{a,b}, Kenneth A. Frank^{e,f}, and Carol J. Boyd^{a,g,h}

^aInstitute for Research on Women and Gender, University of Michigan, Ann Arbor, MI, 48109

^bSubstance Abuse Research Center, University of Michigan, Ann Arbor, MI 48109

^cCenter for Statistical Consultation and Research, University of Michigan, Ann Arbor, MI 48109

^dSurvey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, MI 48016

^eCollege of Education, Michigan State University, East Lansing, MI 48824

^fCollege of Agriculture and Natural Resources, Michigan State University, East Lansing, MI 48824

^gAddiction Research Center, Department of Psychiatry, University of Michigan, Ann Arbor, MI 48109

^hSchool of Nursing, University of Michigan, Ann Arbor, MI 48109

Abstract

Purpose—To determine the social contexts associated with past-year substance use (multiple substances, alcohol, marijuana, and nonmedical use of prescription opioids, stimulants and tranquilizers) among U.S. high school seniors.

Methods—A secondary analysis of nationally representative survey data from ten cohorts (2002–2011) of the Monitoring the Future study, including 24,809 high school seniors.

Results—The social contexts associated with past-year substance use varied considerably based on which substance was used. The most prevalent location for alcohol, marijuana, and polydrug use was at a party while nonmedical use of prescription stimulants, tranquilizers and opioids was most likely to occur at home. Most types of substance use occurred in the presence of other people with the exception of nonmedical use of prescription stimulants that was a more solitary behavior.

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Please send correspondence to: Sean Esteban McCabe, Ph.D. University of Michigan Institute for Research on Women and Gender, 204 S. State St., Ann Arbor, MI, 48109-1290, PHONE: (734) 615-8840; FAX: (734) 615-2931; plus@umich.edu.

Implications and Contribution: The social contexts of past-year substance use (multiple substances, alcohol, marijuana, prescription opioids, stimulants and tranquilizers) were examined among U.S. high school seniors. The findings indicate that social contexts vary considerably between substances, and that these differences should be considered when developing prevention efforts.

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Conclusions—These exploratory findings indicate that prevention efforts may need to account for differences in social contexts between types of substances used.

Keywords

substance use; social contexts; adolescents; prescription stimulants; prescription opioids; prescription tranquilizers; alcohol; marijuana; controlled medications; epidemiology

Introduction

Alcohol use, marijuana use, and the nonmedical use of controlled medications are the leading forms of illicit substance use among U.S. adolescents.^{1,2} Although more than seven in every ten high school seniors have used at least one of these substances in the past year, very little is known about the social contexts in which these substances are used.^{1,2} The primary objective of this secondary analysis was to determine the social contexts (location of use, people present during use, and time of use) associated with past-year substance use (alcohol, marijuana, prescription opioids, stimulants, tranquilizers, and multiple substances) among U.S. high school seniors.

Methods

The Monitoring the Future (MTF) study annually surveys a cross-sectional, nationally representative sample of high school seniors in approximately 135 public and private secondary schools in the coterminous U.S.¹ Respondents complete a paper and pencil survey while in their classrooms. The average response rate was 82% between 2002 and 2011. Additional details about the MTF study are available elsewhere.¹

Sample

Between 2002 and 2011, there were 24,809 respondents who completed the survey items for this study during the spring of their senior year. The weighted sample represents a population of high school seniors (approximately 4 million students each MTF year) that had a modal age of 18 years and was 52% women, 59% white, 11% African-American, 30% from other racial groups or not specified, 82% urban and 18% rural.

Measures

The MTF study assesses demographic characteristics as well as standard measures of substance use behaviors including past-year alcohol, marijuana, and the nonmedical use of prescription opioids, stimulants, and tranquilizers. The survey items remained the same over the 10 year period. The social context of past-year substance use was measured with a series of items that asked how often respondents used each substance in a specific social context (see Table 1).

Data analysis

The MTF study provides survey weights for responding cases, and these weights were used in all analyses to ensure that estimates of population features were unbiased. The estimated past-year prevalence rates of social contexts associated with different types of substance use

were computed using weighted cross-tabulations, and the estimated mean frequency of use in each context for each group of past-year substance users was computed as well. Estimated standard errors for weighted prevalence estimates were computed using Taylor Series Linearization, and weighted Pearson chi-square statistics comparing mutually exclusive groups of past-year substance users in terms of social contexts of use were divided by an average MTF design effect factor³ per the recommendation of Johnston and colleagues.¹ All statistical analyses were performed using commands for the analysis of complex sample survey data in the Stata 13 software (StataCorp, College Station, TX, 2011).

Results

The estimated past-year prevalence rates of each of the substances under examination were as follows: alcohol (70.1%, SE = 0.3), marijuana (33.8%, SE = 0.4), prescription opioids (8.1%, SE = 0.2), stimulants (6.7%, SE = 0.2), and tranquilizers (5.1%, SE = 0.2). In addition, the number of past-year users of multiple substances (polydrug users) was greater than the number of past-year users for any single substance only.

As shown in Table 1, the social contexts varied considerably as a function of the type of substance used in the past year ($p < 0.001$). For example, the estimated past-year prevalence of each type of substance use at a party was as follows: polydrug use (93.0%), alcohol use only (75.5%), marijuana use only (58.9%), nonmedical prescription stimulant use only (10.2%), nonmedical prescription tranquilizer use only (15.1%), and prescription opioid use only (11.7%). Alcohol, marijuana, and polydrug users were more likely to use at a party while those who only reported nonmedical use of controlled medications were most likely to use at home.

High school seniors were most likely to use each substance in the presence of other people with the exception of those who only reported nonmedical use of prescription stimulants. The prevalence of adolescents reporting solitary use differed as a function of the type of substance used ($p < 0.001$). For example, the estimated past-year prevalence of each type of substance use while alone was as follows: polydrug use (54.2%), alcohol use only (17.2%), marijuana use only (37.7%), nonmedical prescription stimulant use only (56.5%), nonmedical prescription tranquilizer use only (28.9%), and prescription opioid use only (53.6%).

Discussion

This is the first national study to examine the variation in social contexts associated with different types of substance use among U.S. high school seniors. In general, the findings reinforce the social nature of substance use among adolescents. These exploratory findings have implications for research and prevention efforts aimed at reducing substance use among adolescents. Unlike polydrug, alcohol, and marijuana users, the majority of adolescents who only reported nonmedical use of controlled medications did not use these medications at a party. Furthermore, polydrug use and nonmedical use of prescription stimulants and opioids appeared to have both social and solitary contexts. These findings deserve more attention, given that the effects of substance use are particularly negative

among adolescents who use alone and solitary use appears to be more indicative of poor psychosocial and behavioral outcomes, including substance use problems.⁴⁻⁵ The findings also indicate a potential role of family-based approaches for addressing adolescent substance use and especially nonmedical use of prescription medications given the high prevalence of substance use at home and protective influence of parenting practices.⁶⁻⁸

The study implications are constrained by the retrospective and secondary nature of this research. For example, the social context items were not mutually exclusive, and we could therefore not determine the location of solitary use. Due to the cross-sectional nature of the data, it is also unclear whether social contexts of substance use change over time, and future longitudinal studies are needed to answer questions about temporality. Despite these limitations, the findings provide evidence of differences in social contexts between various types of substance users and suggest that more research is needed to validate these results and enhance current prevention efforts including the consequences associated with different social contexts of substance use.

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Drs. Sean Esteban McCabe and Brady T. West had full access to all the data reported in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

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Table 1

Weighted estimates of percentages of past-year substance users that used in various social contexts and means describing frequencies of use in each context, for six mutually exclusive subgroups of high school seniors in the United States based on past-year substance use behavior (Source: Monitoring the Future Study 2002-2011)

Social contexts	Past-year users of multiple substances % (SE) [Mean (SE)]	Past-year users of alcohol only % (SE) [Mean (SE)]	Past-year users of marijuana only % (SE) [Mean (SE)]	Past-year nonmedical users of prescription stimulants only % (SE) [Mean (SE)]	Past-year nonmedical users of prescription tranquilizers only % (SE) [Mean (SE)]	Past-year nonmedical users of prescription opioids only % (SE) [Mean (SE)]	Design-Based Rao-Scott Chi-Square p-value
Location (Where)							
At school	31.4 (0.6) [1.3 (<0.1)]	4.5 (0.3) [1.1 (<0.1)]	16.8 (2.3) [1.3 (<0.1)]	45.4 (8.2) [2.0 (0.2)]	12.6 (7.4) [1.3 (0.2)]	25.2 (6.9) [1.4 (0.1)]	p < 0.001
At your home (or apartment)	76.8 (0.6) [2.1 (<0.1)]	50.1 (0.7) [2.0 (<0.1)]	42.0 (3.0) [1.9 (<0.1)]	83.1 (5.4) [3.7 (0.2)]	63.6 (12.3) [3.1 (0.5)]	72.7 (7.5) [3.0 (0.3)]	p < 0.001
At a party	93.0 (0.3) [3.0 (<0.1)]	75.5 (0.6) [2.9 (<0.1)]	58.9 (2.9) [2.3 (<0.1)]	10.2 (4.2) [1.3 (0.1)]	15.1 (8.8) [1.3 (0.2)]	11.7 (5.3) [1.3 (0.1)]	p < 0.001
In a car	74.7 (0.6) [2.0 (<0.1)]	17.3 (0.5) [1.3 (<0.1)]	58.7 (2.9) [2.2 (<0.1)]	17.2 (5.3) [1.4 (0.2)]	14.0 (8.1) [1.3 (0.2)]	24.4 (8.0) [1.5 (0.2)]	p < 0.001
People present (Who)							
When you were alone	54.2 (0.6) [1.6 (<0.1)]	17.2 (0.5) [1.3 (<0.1)]	37.7 (2.9) [1.6 (<0.1)]	56.5 (8.4) [2.6 (0.3)]	28.9 (10.6) [1.7 (0.3)]	53.6 (8.0) [2.1 (0.2)]	p < 0.001
With 1 or 2 other people	96.2 (0.2) [2.8 (<0.1)]	67.4 (0.6) [2.2 (<0.1)]	89.4 (1.9) [3.1 (<0.1)]	44.9 (8.5) [2.0 (0.3)]	59.8 (13.2) [2.8 (0.5)]	53.9 (8.3) [2.3 (0.2)]	p < 0.001
People over age 30	68.8 (0.6) [1.8 (<0.1)]	55.5 (0.7) [2.1 (<0.1)]	28.5 (2.7) [1.6 (<0.1)]	39.5 (8.5) [2.1 (0.3)]	78.5 (9.1) [3.6 (0.4)]	72.0 (7.0) [2.5 (0.2)]	p < 0.001
Date or spouse	67.8 (0.6) [2.0 (<0.1)]	37.9 (0.6) [1.7 (<0.1)]	36.3 (2.8) [1.8 (<0.1)]	19.8 (6.9) [1.4 (0.2)]	14.7 (8.2) [1.5 (0.3)]	15.9 (5.5) [1.4 (0.2)]	p < 0.001
Time of day (When)							
During daytime (before 4pm)	74.3 (0.6) [2.0 (<0.1)]	21.7 (0.5) [1.3 (<0.1)]	56.7 (2.9) [2.1 (<0.1)]	83.9 (5.3) [3.4 (0.3)]	77.9 (9.3) [3.2 (0.4)]	56.1 (8.4) [2.3 (0.2)]	p < 0.001

Note: The sample size for users of multiple substances in the past year was 8352, and sample sizes ranged from 8097 to 8190 for past-year alcohol users only, 372 to 376 for past-year marijuana users only, 47 to 49 for past-year stimulant users only, 17 to 19 for past-year tranquilizer users only, and 43 to 47 for past-year opioid users only due to missing data. SE = linearized estimate of standard error.

Note: The question used for each social context was as follows: "When you used [substance] during the last year, how often did you use them in each of the following situations?" Response options included: (1) not at all, (2) a few of the times, (3) some of the times, (4) most of the times, and (5) every time.

Note: The question used for each substance was as follows: "On how many occasions (if any) have you used (substance) during the last 12 months?" The items pertaining to controlled medications further specified "...on your own—that is, without a doctor telling you to take them." Response options ranged from (1) 0 occasions to (7) 40 or more occasions.