Short communication

Racial/ethnic differences in correlates of prescription drug misuse among young adults

Zaje A.T. Harrell *, Clifford L. Broman

Michigan State University, East Lansing, MI 48824-1116, USA

**Article Info**

**Abstract**

This study examined psychosocial correlates of prescription drug misuse over time among young adults. Data from a nationally representative U.S. sample consisting of 4882 cases were analyzed. Multivariate logistic regression analyses revealed that being younger, having less education, as well as alcohol use; marijuana use, inhalant use, and delinquent behavior during adolescence were associated with prescription drug misuse. In Whites, prescription drug misuse was related to age, alcohol use, marijuana use and delinquent behavior. Among Hispanic young adults inhalant use, delinquent behavior and maternal warmth were associated with greater prescription drug use, while marijuana use was predictive of lower prescription drug misuse. Religious attendance was associated with lower prescription drug misuse among Black young adults. These findings suggest that there are unique racial/ethnic profiles for substance use risk behaviors in adolescence. Further investigations should examine culturally specific dimensions that may account for racial/ethnic differences in prescription drug misuse.

**1. Introduction**

Epidemiological trends indicate increasing prescription drug misuse, particularly among adolescents and young adults (Boyd et al., 2006; Compton and Volkow, 2006; Herman-Stahl et al., 2006; McCabe, 2005; McCabe et al., 2005; Wu et al., 2008). Data from Monitoring the Future (MTF), a national surveillance study of drug use, indicated that among 12th graders, prescription drug use was the second most prevalent form of illicit substance use after marijuana use (Johnston et al., 2005). Similar to trends with alcohol and tobacco use (Kandel, 1995; Johnston et al., 2000; Wallace et al., 1995), prescription drug misuse is generally found to be higher among White adolescents and young adults compared to ethnic minority adolescents and young adults (Becker et al., 2007; Herman-Stahl et al., 2006; Kroutil et al., 2006; McCabe, 2005; Simoni-Wastila and Strickler, 2004).

There are distinct risk factors for substance misuse by race (Catalano et al., 1992; Tragesser et al., 2007). Ethnic minority participants often report risk factors associated with substance misuse, such as neighborhood disorganization, poverty, and criminal activity in the community (Choi et al., 2006). However, there is also evidence of distinct protective factors related to sociocultural practices (i.e., religion) and familial structure among ethnic minority adolescents. In particular, family factors such as parental relationships and monitoring are associated with less drug use among ethnic minority adolescents (Choi et al., 2006; Fraunglass et al., 1997; Griesler and Kandel, 1998). These racial/ethnic differences are most robustly indicated in patterns of alcohol, tobacco and marijuana use (Catalano et al., 1992; Fraunglass et al., 1997; Tragesser et al., 2007). Given the trends concerning the prevalence of prescription drug use, further exploration of race/ethnicity in risk factors associated with prescription drug misuse is merited. Because much of the existing research on prescription drug misuse in young adults has largely focused on cross-sectional data from college samples, there remains a need to examine patterns of use over time in broadly representative samples. The current study addresses this void in the literature by examining correlates of non-medical prescription drug use in a multiethnic sample of young adults. We focus specifically on the role of substance use, mental health, family structure, high risk behaviors, and religiousness as predictors of prescription drug misuse.

**2. Method**

**2.1. Sample**

The data used is from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative study of adolescents in grades 7–12 in the United States (Bearman et al., 1997). A multistage, stratified, school-based, cluster sampling design was used to first collect data in schools. Approximately 120,000 adolescents were eligible for a school interview, and more than 90,000 adolescents completed...
the in-school questionnaire. From among those eligible for the school interview, a portion of the students were selected for in-home interviews. Wave I data were collected in 1994–1995 (see Bearman et al., 1997; Blum et al., 2000). Wave III data were collected in 2001–2002.

The current study used the public use in-home dataset, which consists of a randomly generated half sample of the core in-home interviews. Data from Wave I (n = 6504) and Wave III (n = 4882) were analyzed.

2.2. Measures

2.2.1. Prescription drug misuse

Prescription drug misuse was assessed from data collected at Wave III. Participants responded to five “yes” or “no” items which asked if they had used sedatives, tranquilizers, stimulants, pain killers, and steroids without a doctor’s permission since Wave II (1995). The variable is coded 1 for any “yes” responses, and zero otherwise.

2.2.2. Demographic measures

Demographic measures of age, sex, race and ethnicity were self-reported by respondents. Age and level of education from Wave III were used in analysis. Sex was a dummy coded variable with male = 1. Race was dummy coded for racial and ethnic groups: White, Black Native-American, and Hispanic.

2.2.3. Alcohol and other drug use

Alcohol and Other Drug Use were assessed using measures from wave one. Each measure is constructed based on questions which asked about both the quantity and frequency of substance use. Both measures of alcohol and marijuana use assessed the quantity and frequency of use on a five-point scale ranging from “never” (0) to “more than thirty (uses) drinks in the past month” (4). Inhalant use (i.e., glue or solvents) was measured using a range from “never” (0) to “use once a day or more” (2). Measures are based on those of prior studies (Duncan et al., 1998).

2.2.4. Psychosocial dimensions

Family structure is measured from items which assessed household residence arrangements. A three-category variable was originally defined to indicate whether the adolescents resided with: (a) two-parent biological family; (b) single parent family; and (c) step, blended or family with non-biological parents/guardians. For the purpose of this study, two-parent biological families are considered as the reference group and the other two categories were represented using two dummy variables. Parenting relationship was assessed using a measure of maternal warmth. Following Calp et al. (2000), maternal warmth was measured using the sum of five items assessing satisfaction and closeness of the maternal relationship. The alpha for this scale was .84.

Religiousness was measured using three single items assessing attendance, importance, and prayer, following Regnerus and Elder (2003). Attendance at religious services was measured on a scale ranging from never (1) to once a week or more (4). A single item assessed the importance of religion using the scale not at all important (1) to very important (4). A single item also assessed the frequency of prayer, using the scale ranging from never (1) to at least once a day (5).

Depressive Symptoms were measured using a slightly modified version of the Center for Epidemiological Studies-Depression Scale (CES-D) (Radloff, 1977). Participants responded to 20 items related to depressive symptoms (i.e., sadness, poor appetite). Two questions from the CES-D related to “restless sleep” and “crying” were modified slightly in the AddHealth survey (see Ruhston et al., 2002). Individual items were scored on a scale of 0–3 which indicated the frequency of depressive symptoms. The total items were then summed. The alpha for this measure was .86.

Deviant behavior was measured separately for non-violent delinquent behavior (i.e., damaging property, stealing) and violent behavior (i.e., fighting, weapon use). Both non-violent and violent behaviors were assessed based on the sum of nine "yes" responses for violent and non-violent high-risk behaviors, similar to the scale used by Ellickson and McGuigan (2000). Each subscale had an alpha of .76.

2.3. Analysis plan

Multiple logistic regressions were performed for the entire sample and separately by race/ethnic use for Whites, Blacks, and Latinos. Design effects were controlled for and the data were weighted. Substance use behaviors, depressive symptoms, family structure and religiousness, and delinquent behaviors were all assessed at Wave I. Prescription drug misuse, age, and education were assessed at Wave III.

3. Results

3.1. Prevalence of substance use

The mean age of the sample at wave one was 15.6 years and the sample was 52% female. Wave III data were collected in 2001, and all respondents were between 18 and 28 years of age. At Wave III the mean age of the sample was 21.8 years and the sample was 54% female. In Wave I, 53.8% of the samples reported ever using alcohol, 24.9% had ever used marijuana and 5.3% had ever used inhalants. By Wave III, 25.6% of the participants reported non-medical use of prescription drugs.

3.2. Multivariate analysis full sample and racial/ethnic differences

The findings for the multivariate analysis are presented in Table 1. In the full sample, being younger and less educated, as well as having a history of alcohol, marijuana, and inhalant use and delinquent behavior predicted prescription drug misuse in young adulthood. Among Whites and Hispanics, delinquent behavior was a significant predictor of prescription drug misuse; however, this was not a significant factor for Blacks. Adolescent alcohol and marijuana use significantly increased the likelihood of prescription drug misuse among Whites. However, in Hispanic youth, adolescent inhalant use was associated with increase prescription drug misuse while marijuana use was predictive of lower prescription drug misuse. Interestingly, higher ratings of maternal warmth emerged as a significant predictor of prescription drug misuse among Hispanics. Higher religious attendance was related to a decreased likelihood of prescription drug misuse among Blacks.

4. Discussion

The present study examined psychosocial factors associated with prescription drug misuse during young adulthood. Being younger, less educated, as well as history of adolescent substance use, and non-violent delinquency increased the likelihood of non-medical prescription drug use. Distinct relationships emerged in a separate analysis by race/ethnicity.

As has been found in past studies (McCabe, 2008; Fletcher et al., 2006), alcohol, marijuana, and inhalant use were related to prescription drug misuse in the full sample. However, findings by race/ethnicity were variable. Adolescent alcohol and marijuana increased the likelihood of prescription drug misuse among Whites. Inhalant use was associated with a higher likelihood prescription drug use among Hispanics, while marijuana use decreased the likelihood of use among this subgroup. Substance use was not a significant predictor among Black youth. This reveals that patterns of adolescent substance use are differentially related to prescription drug misuse; a profile of increased risk associated with a broader range of substance use behaviors emerged among White adolescents.

Past research has highlighted the relevance of family composition and dynamics in predicting adolescent risk behaviors (Amey and Albrecht, 1998; Duncan et al., 1998; Gil et al., 2002). In particular, family support and parental relationships have been found to be protective against substance use among Hispanic (Frauenglass et al., 1997; De La Rosa et al., 2005) and Black (Catalano et al., 1992; Doherty et al., 2007) youth. However, we did not find evidence of this protective trend for these subgroups in regard to prescription drug use. Rather, among Hispanic adolescents higher ratings of maternal warmth were associated with increased prescription drug misuse. There was no significant relationship between family structure and parental relationships among White and Black adolescents.

Past findings support that there is a complicated relationship between maternal predictors and substance use. For example, maternal drug use behavior has been related to smoking among White adolescents, but not Hispanic and African Americans (Griesler and Kandel, 1998). Among Hispanics, the cultural orientation of the parent and child has been related to the degree of parental monitoring: reported cultural disconnect between parent
and child is associated with increased parental monitoring as well as parental divestment (Prado et al., 2008)—while the former is a protective parenting strategy, the latter is not. Our preliminary finding indicates that closeness between a mother and adolescent is associated with greater prescription drug use. In order to better understand this pattern, an examination of factors related to parental surveillance of behavior in regards to prescription drug use as well as cultural dimensions is merited. These findings also indicate that it is particularly important to assess multiple familial dimensions (i.e., family structure, parental relationships) in order to determine the nuances of these influences across racial/ethnic groups.

Non-violent delinquency was associated with prescription drug misuse among Whites and Hispanics. This has been found in past studies (Hawkins et al., 1992), however, the lack of significance among Blacks is distinct compared to other patterns of substance misuse. Taken together, these findings support that both individual deviance and parental closeness are risk factors for prescription drug misuse. Hispanic youth while individual high level risk behavior is predictive for White youth.

While delinquency was not related to prescription drug misuse among Blacks, religious attendance was associated with lower prescription drug use. While religiousness has been shown to be protective against substance use (Nonnemaker et al., 2003) there is mixed support for the protective dimensions with respect to prescription drug use (e.g., Herman-Stahl et al., 2006). Our findings suggest that dimensions of religiousness should be examined in the context of racial/ethnic differences. It may be the case that the same protective psychological mechanisms (i.e., social support, forgiveness) that are associated with favorable health outcomes are also related to less risky prescription drug use. Among Blacks, in particular, dimensions such as religiousness are more relevant in regards to prescription drug misuse than other more common predictors of illicit substance use. Depressive symptoms were not related to patterns of prescription drug misuse in this sample.

4.1. Limitations

A major limitation of our study is that we were unable to determine whether the reported prescription drug misuse was related to self-medication of pain or another physical condition or recreational abuse. Furthermore, because prescription drug misuse was assessed at Wave III, we were not able to include a baseline measure of prescription drug use to further establish a causal relationship.

4.2. Conclusions

These findings support that prescription drug misuse is associated with distinct psychosocial predictors by race/ethnicity. Culturally relevant psychosocial factors related to substance use, such as racial identity (Caldwell et al., 2004) and acculturation/assimilation (De La Rosa et al., 2005; Prado et al., 2008; Yasui and Dishion, 2007), should be examined in future studies in order to more fully understand these group differences.

Funding source

This research was partially supported by a grant from the National Institute on Drug Abuse (DA14672) to the second author. NIDA had no further role in the study design; in the collection, analysis and interpretation of data; and in the writing of the report; or in the decision to submit the paper for publication.

Contributors

The current study is an analysis of data from the National Longitudinal Study of Adolescent Health. The first author managed the literature searches and summaries of previous related work and wrote the first draft of the manuscript. The second author undertook the statistical analysis for this paper. Both authors contributed to and have approved the final manuscript.

Conflict of interest

Both authors declare that they have no conflicts of interest.