Sources of Prescriptions for Misuse by Adolescents: Differences in Sex, Ethnicity, and Severity of Misuse in a Population-Based Study

TY S. SCHEPIS, PH.D., AND SUCHITRA KRISHNAN-SARIN, PH.D.

ABSTRACT

Objective: Epidemiological data indicate that adolescent prescription misuse rates have risen over the past decade. Despite this, little work has examined sources for opioids, tranquilizers, and stimulants or evaluated sex or ethnic differences or whether different sources correspond to differences in other risk behaviors. **Method:** Data from the 2005 and 2006 National Survey on Drug Use and Health (adolescent n = 36,992) were used to address these questions. Frequencies and percentages for source categories were calculated, and potential sex and ethnic differences in medication source were evaluated using χ^2 analyses; logistic regression analyses evaluated whether the use of specific sources corresponded to a greater likelihood of concurrent substance use or depressive episodes. **Results:** The most common source of medication was from friends or family, for free; other common sources included obtaining medication from a physician, purchasing medication, or theft (usually from friends or relatives). Sex differences were found, predominately for opioids: female patients were more likely to steal medication or obtain it for free; male patients were more likely to purchase medication or acquire it from a physician. White adolescents were more likely to purchase opioids, whereas African American adolescents were more likely to misuse opioids obtained from a physician. **Conclusions:** Across medication classes, adolescents who most recently acquired medication by purchasing it had the worst risk profile in terms of concurrent substance use and severity of prescription misuse. These results may help identify subgroups of adolescent prescription misusers who are most vulnerable to consequences from misuse or other substance use. *J. Am. Acad. Child Adolesc. Psychiatry,* 2009;48(8):828–836. **Key Words:** prescription medications, misuse, source.

Numerous reports for the past 5 years have noted an increase in the prevalence of prescription misuse by adolescents.[1–5] The rising rates of prescription misuse stand in stark contrast to the declines seen since 2000 in the rates of use of any illicit drug, alcohol, or tobacco by adolescents.[2,3] Currently, only alcohol, tobacco, and marijuana have higher rates of use/misuse by adolescents than prescription medications.[3] Despite important medical uses for these medications, the misuse of opioid, stimulants, tranquilizers (benzodiazepines), and sedatives (barbiturates) poses significant risks, including the potential for physical and/or psychological dependence and overdose. To illustrate, more than one third of adolescents who misused a medication in the past year have developed one or more symptoms of a substance use disorder from prescription misuse, with the most notable correlates being a past year major depressive disorder, past year cocaine or inhalant misuse, and 10 or more past year episodes of misuse.[6] Careful exploration of the phenomenon of adolescent prescription misuse has great public health importance, as it could inform the development of prevention programs for adolescents at higher risk for misuse and treatment for those adolescents who have initiated misuse.

To this end, investigators have begun to evaluate the correlates or risk factors associated with the misuse of

Accepted March 18, 2009.

This article was reviewed under and accepted by Deputy Editor Ellen Leibenluft, M.D.

Drs. Schepis and Krishnan-Sarin are with the Yale University School of Medicine.

This work was supported in part by National Institutes of Health grant T32-DA007238. The National Survey on Drug Use and Health is sponsored by the Substance Abuse and Mental Health Services Administration.

Correspondence to Ty S. Schepis, Ph.D., Department of Psychiatry, Yale University School of Medicine, 34 Park Street, Room S-201, New Haven, CT 06519; e-mail: ty.schepis@yale.edu.

0890-8567/09/4808-0828©2009 by the American Academy of Child and Adolescent Psychiatry.

DOI: 10.1097/CHI.0b013e3181a8130d

prescription medications.[6–12] These investigations have made considerable progress in establishing the factors that mark those with a greater likelihood of misuse, identifying differences associated with sex, ethnicity, other addictive substance use, and psychopathology, including depressive symptoms and/or diagnosis. In addition, the characteristics of adolescents who divert stimulant medications are becoming better understood (for a review, please see reference[13]); diversion across medication classes has also been studied by Boyd and colleagues[14] and by Daniel and colleagues.[15] However, outside of the characteristics of those who divert their medication or receive diverted medication, much less is known about the specific sources of prescription medications used by adolescents who misuse them.

McCabe and colleagues[16,17] and McCabe and Boyd[18] conducted a series of studies using young adult undergraduate students and found that the most common sources of medications were friends or peers, followed by family. Fewer students obtained their medications from a drug dealer, and almost no students used the internet to acquire medications.[16–18] It seems that male undergraduates were more likely to get opioid medication from peers or a drug dealer, whereas female undergraduates were more likely to acquire opioids from family members.[19] Furthermore, those who obtained their medication from friends were more likely to have heavier use of other substances (e.g., binge alcohol use) than those who obtained their medication from family members.[17] Finally, white undergraduates were more likely to use peer sources than African American undergraduates, whereas African Americans more likely than whites to use family sources.[18]

The published data on the sources used by adolescents to obtain prescription opioids comes from Boyd and colleagues,[7] using participants from an urban secondary school in the Detroit area. Of the 131 adolescents who endorsed lifetime opioid misuse, 93 (70%) answered a free-response question as to how they obtained the medication. The most common source was from family members (34% of those responding), followed by peers (17%), and a drug dealer or theft (14%); nearly half of the students, however, gave an answer that was not coded because of difficulty in interpreting the response.[7]

Thus, data on the sources used by adolescents to obtain prescription medications are lacking. Also, it is unclear how sex or ethnic differences might operate to influence the use of particular sources by adolescents. Finally, it is not known whether use of a specific source might signal a greater likelihood of concurrent substance use (e.g., alcohol, tobacco) or more severe use of prescriptions among adolescents who misuse medications. This study attempted to fill these gaps in the literature through the use of data from the 2005 and 2006 versions of the National Survey on Drug Use and Health (NSDUH). This work extends our previous investigation[6] that evaluated demographic, psychosocial, and risk behavior correlates by examining similar correlates and risk behaviors based on the source used by the adolescent to obtain medication for misuse. To the best of our knowledge, this is the first investigation using nationally representative data to examine the sources by which adolescent prescription misusers acquire opioid, stimulant, and tranquilizer medication. Furthermore, we believe this is the first study to examine potential sex and ethnic differences in sources for prescription medication used by adolescents. We proposed to investigate the following research questions: first, do male and female subjects differ in terms of sources used to obtain medication for misuse? Second, are there differences by ethnicity for sources used? Third, is the use of a specific source associated with a stronger concurrent risk profile, in terms of concurrent substance use and depression?

METHOD

Data were obtained from the 2005 and 2006 public use files of the NSDUH, which is a yearly in-home survey of the civilian, noninstitutionalized U.S. population. This survey has provided data for previous publications on the correlates of adolescent prescription misuse.[6,8,10] Together, more than 135,000 individuals were surveyed for the 2005 and 2006 versions NSUDH, with 111,184 included in the public use file after individuals were excluded for confidentiality reasons. Of those, 36,992 were adolescents between 12 and 17 years of age, inclusive. The NSDUH was designed to oversample adolescents, young adults, African Americans, and people of Hispanic/Latino ethnicity, and it used an independent, multistage area probability sample for all states and the District of Columbia. Households were selected for screening, and an in-person interview to identify individuals aged 12 years and older was conducted. After identification of eligible households, full interviews were conducted on a random sample.

The 2005 and 2006 versions of the NSDUH combined both interviewer-assisted computer survey methods and self-interview using audio computer-assisted methods. To begin the survey, the field interviewer set up the computer for participant use, which was followed by self-interview using audio computer-assisted methods to assess substance use and other psychosocial variables. During the self-interview using audio computer-assisted method portion of the survey, the participant listened to the survey questions, and the field interviewer remained out of view of the computer screen; these