

Characterizing Adolescent Prescription Misusers: A Population-Based Study

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ABSTRACT

Objective: To examine the risk factors associated with adolescent (ages 12–17) misuse of opioids, stimulants, tranquilizers, and sedatives using a nationally representative sample. The characteristics associated with symptoms of abuse and/or dependence related to prescription medication misuse among adolescents were also analyzed. **Method:** These questions were addressed using the 2005 National Survey on Drug Use and Health. Screening and full interview response rates were 91% and 76%, respectively, and data from 18,678 adolescents were used. Regression analyses, using population-based weights, were performed to identify characteristics associated with past year misuse of prescription medications and the presence of past year abuse or dependence symptoms related to misuse. **Results:** Among adolescents, 8.2% misused a medication and 3.0% endorsed symptoms of a substance use disorder related to prescription medication misuse in the past year. The predictors of misuse from multivariate analyses were poorer academic performance (odds ratio [OR] 2.9, 95% confidence interval [CI] 2.37–3.52), past year major depression (OR 3.1, 95% CI 2.62–3.74), higher risk-taking levels (OR 3.6, 95% CI 3.13–4.20), past year use of alcohol (OR 7.3, 95% CI 6.19–8.59), cigarettes (OR 8.6, 95% CI 7.43–9.91), marijuana (OR 9.9, 95% CI 8.53–11.44), or past year use of cocaine or an inhalant (OR 10.7, 95% CI 8.98–12.72). Past year major depression (OR 1.5, 95% CI 1.03–2.25), past year cocaine or inhalant use (OR 1.7, 95% CI 1.21–2.41), or ≥ 10 episodes of past year prescription misuse (OR 3.0, 95% CI 2.13–4.17) was associated with having symptoms of abuse of or dependence among adolescent prescription medication misusers. **Conclusions:** These risk factors could help clinicians identify those at risk for significant problems due to prescription misuse, allowing for prevention or early treatment in this population. *J. Am. Acad. Child Adolesc. Psychiatry*, 2008;47(7):745–754. **Key Words:** risk factors, prescription medications, misuse.

Recent reports have noted increases in the misuse (also termed illicit use, abuse, or nonmedical use) of prescription medications by adolescents in the United

States.^{1–4} Commonly misused prescription medications include opioids (used for the treatment of pain and include hydrocodone and oxycodone), stimulants (including medications indicated for the treatment of attention-deficit/hyperactivity disorder, such as methylphenidate and amphetamine), tranquilizers (including the benzodiazepines and other minor tranquilizers such as meprobamate and carisoprodol), and sedatives (including the barbiturates and chloral hydrate). All of these medications have important medical uses when taken properly. Misuse, however, carries notable risks. These include the potential for physical or psychological dependence and overdose.

Only past-month use of alcohol, tobacco, or marijuana exceeds the rate of prescription misuse in adolescents.⁵ Rates of prescription misuse vary both by the class of medications and the time frame examined, but it appears that as many as 20% of adolescents have misused a prescription medication.⁶ Rates of prescription misuse

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appear to be highest for the opioids, followed by the tranquilizers, stimulants, and sedatives,⁶⁻⁹ but this has not been adequately evaluated. Also, there is some evidence that adolescents are at greater risk for prescription medication misuse than adults older than 25 years of age and at roughly equal risk as young adults between the ages of 18 and 25.¹⁰ In turn, earlier misuse of prescription medications increases the risk for later development of abuse of or dependence on a prescription medication, with a 5% drop in risk for each year misuse is delayed.¹¹

Although some studies have examined the risk and protective factors associated with adolescent prescription medication misuse, nearly all of them have concentrated on only stimulants or opioids. One of the initial investigations into stimulant misuse was conducted by Poulin,¹² using data from a 1998 survey of more than 13,000 adolescent students in the Atlantic provinces of Canada. This study found that misuse was associated with past use of alcohol, cigarettes, and marijuana, but that sex was not a risk factor; furthermore, misuse of stimulants was more likely in adolescents who either gave away or sold their stimulant medications.¹² Poulin¹³ later replicated the finding that addictive substance use served as a risk for stimulant misuse in a 2002 survey study of 12,990 adolescents in the Atlantic provinces of Canada. This investigation also expanded the previous findings by indicating that having depressive symptoms, having a likely attention-deficit/hyperactivity disorder diagnosis or being in a classroom where at least one student gave away or sold stimulants increased the risk for stimulant misuse. Finally, males were at increased risk for stimulant misuse in this study, which was not found in the earlier investigation.^{12,13}

Two studies of U.S. adolescents by McCabe and colleagues^{8,14} found that poorer grades, increasing age, and the use of cigarettes, cigars, alcohol, ecstasy, or marijuana were risk factors for prescription stimulant misuse. Both studies also indicated that African American race was protective.^{8,14} Herman-Stahl and collaborators¹⁵ used a nationally representative sample of adolescents to investigate the risks for stimulant misuse and replicated many of the above results. This study also found that a tendency toward risk-taking, high conflict with parents, and past mental health treatment were risk factors as well, with Hispanic adolescents protected from misuse.¹⁵ In all, the literature appears to indicate that stimulant misuse is associated with increasing age, lower grade point average, and

engagement in other risky behaviors, including addictive substance use.^{8,12-15} The role of sex appears to be less clear, with one study,¹³ but no others, indicating that male sex was a risk factor for stimulant misuse.

Similar results have been found for the misuse of opioid medications. McCabe and collaborators,¹⁶ using a nationally representative U.S. sample, found that males, those with poorer grades, and white adolescents were at an elevated risk for ever using some opioid analgesics. Also, this investigation indicated that use of cigarettes, alcohol, marijuana, cocaine, and other addictive prescription medications, as well as a number of high-risk behaviors, increased the risk for opioid misuse.¹⁶ Sung and colleagues⁷ also used a nationally representative sample to examine opioid misuse among U.S. adolescents and found, in a multivariate model, that misuse was associated with misuse of other prescription medications and illicit drugs. Sex was not a risk factor.⁷ A more recent investigation by Boyd and colleagues¹⁷ replicated previous findings that other addictive substance use served as a risk factor and found that increasing age was a factor. Unlike the findings of McCabe and collaborators,¹⁶ female sex was a greater factor risk for opioid misuse in this study.¹⁷ Thus, misuse of opioid medications appears to be associated with increasing age, poorer academic achievement, being white, engaging in other high-risk behaviors, and use of other addictive substances, including prescription medications.^{7,16,17} Again, it is unclear whether males or females are at greater risk for opioid misuse, with conflicting findings in the literature.^{7,16,17}

Finally, a study by McCabe and collaborators⁶ examined the risk and protective factors for lifetime misuse of opioids, stimulants, tranquilizers, or sedatives among a sample of 1,086 urban U.S. secondary school students from the Detroit area. Misusers of any medication were more likely to have used other addictive substances.⁶ Also, females were more likely than males to have misused opioids, white adolescents were more likely to have misused tranquilizers than African American adolescents, and increasing age was a risk factor for the misuse of either opioids or tranquilizers.⁶

Therefore, although many risk factors have been identified for the misuse by adolescents of opioid or stimulant medication, many issues remain unresolved. First, there is conflicting evidence about the role of sex in prescription misuse. Second, no investigation has used a nationally representative sample to examine the

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