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Complexities in understanding and addressing the serious public health issues related to the nonmedical use of prescription drugs

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Abstract

The nonmedical use of prescription drugs (NMUPD) is not only a serious public health problem, but also a complex one. The articles presented in this special issue underscore that complexity by describing multiple classes of prescription drugs (e.g., opioid analgesics, benzodiazepines, stimulants, anxiolytics, and sedatives) and examining multiple aspects of their patterns of use. Collectively, the articles examine epidemiologic use patterns in the United States, risk factors, clinical characteristics of individuals in treatment for dependence, and consequences. The key to addressing NMUPD is to construct a solid understanding of the issues through scientific research, and to translate the scientific evidence into action. The articles in this issue build upon a large body of literature that has accumulated during the last two decades. Dramatic increases in overdoses from prescription opioids and the transition to heroin use among nonmedical users of prescription opioids has captured the attention of community leaders across the nation. Yet, less well known is the co-occurrence of multiple substances among those using prescription drug nonmedically. This represents a common theme across these articles which document that nonmedical users were observed to have a history of using alcohol, marijuana, tobacco, and other psychoactive substances. In addition, the articles dispel certain ideas that appear to have gained traction in the popular discourse that have little scientific evidence behind them. First, the notion that prescription drug problems arise in cases of drug naïve individuals who are first exposed through a physician's prescription for pain medication is widespread, but is not rooted in scientific evidence. Second, despite the popular notion that nonmedical use of stimulants confers an

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Disclaimer

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"academic edge", nonmedical users have lower grade point averages (GPAs) than non-users. NMUPD was also shown to be associated with sexual aggression victimization and perpetration and regretted sex. In addition, several of the articles in this issue point to innovative targets for prevention of NMUPD. It is only through high-quality research can we gain a clearer understanding of the problem and how to address it.

Introduction

The nonmedical use of prescription drugs (NMUPD) is not only a serious public health problem, but also a complex one. The articles presented in this special issue underscore that complexity by describing multiple classes of prescription drugs (e.g., opioid analgesics, benzodiazepines, stimulants, anxiolytics, and sedatives) and examining multiple aspects of their patterns of use. Collectively, the articles examine epidemiologic use patterns in the United States, risk factors, clinical characteristics of individuals in treatment for dependence, and consequences. The key to addressing NMUPD is to construct a solid understanding of the issues through scientific research, and to translate the scientific evidence into action. The articles in this issue build upon a large body of literature that has accumulated during the last two decades.

Thankfully, there has been increased public awareness and discussions among policy makers about the urgent need to address NMUPD. Dramatic increases in overdoses from prescription opioids and the transition to heroin use among nonmedical users of prescription opioids has certainly captured the attention of community leaders across the nation. In this issue, Votaw et al. (2016) analyzed multiple years of data from the National Survey of Drug Use and Health (NSDUH) and showed a significant association between low perceived risk of regular heroin use and using heroin among nonmedical prescription opioid users. In an analysis of injection drug users, Al-Tayyib et al. (2016) found that 32% reported being hooked on prescription opioids prior to initiating injection drug use. Moreover, being hooked on prescription opioids prior to injection was a significant risk factor for experiencing an overdose.

No community seems immune to the widespread consequences of NMUPD and families across the country are grappling with the challenge of finding effective treatment services for their loved ones. No sociodemographic group is immune either. This is a problem that is affecting young and old, economically advantaged and disadvantaged, urban and rural, and individuals from all ethnic and racial groups. Some progress is evident however. Jones (2016) analyzed data from the NSDUH and observed decreases in nonmedical use of opioid analgesics from 48.4/1000 persons in 2003–2005 to 43.3 in 2012–2014. In contrast, increases in abuse or dependence were observed during the same time interval (6.0 to 7.5/1000 persons).

Despite the growing research base, there are several ideas that appear to have gained traction in the popular discourse that have little scientific evidence behind them. First, the notion that prescription drug problems arise in cases of drug naïve individuals who are first exposed through a physician's prescription for pain medication is widespread, but is not necessarily rooted in scientific evidence. In this issue, Cicero et al. (2016) analyzed data from more than

4400 patients entering drug treatment for opioid abuse. Among the individuals that were first exposed to opioids through a physician's prescription to treat pain, 94.6% had used a psychoactive substance nonmedically prior to or coincident with their opioid prescription. This finding is consistent with past research evidence, but is typically not discussed in the broader public discourse. The implication from this study is that clinicians need to be vigilant about screening for prior drug use histories and understanding the need for closer monitoring of such patients prior to prescribing pain medication.

Second, despite the popular notion that nonmedical use of prescription stimulants (NPS) confers an "academic edge", numerous scientific studies conducted in college settings have observed that nonmedical users have lower grade point averages (GPAs) than non-users. Two articles specifically focus on NPS and academic performance. Arria et al. (2016) extends these prior findings by examining longitudinally what happens to college students' GPA who stop NPS as contrasted with individuals who continue to engage in NPS. They find no support that abstaining from NPS leads to poorer academic performance as measured by GPA. Non-users had the highest GPA of all groups studied, and individuals who continued to engage in NPS had the lowest GPA. Munro et al. (2016) tested the hypothesis that college students with deficits in executive functioning would be particularly at risk for NPS. While they called for additional research to disentangle the possible influence of polydrug use on the observed relationship, the findings still suggest that students with executive functioning deficits could be identified and given proper assessment and intervention to decrease their risk for substance use. Another article in this issue that utilized a college student sample explores the correlation between NMUPD and experiencing sexual aggression victimization and perpetration and regretted sex (Parks, Frone, Muraven, & Boyd, 2016). They report significant cross-sectional associations between nonmedical anxiolytic/sedative use and sexual victimization and associations between illicit drug use and sexual perpetration.

Several of the articles in this issue point to innovative targets for prevention of NMUPD. Schultz et al. (2016) focused their investigation on the possible link between individual perceptions about what is normative or acceptable (injunctive norms) and diversion of prescription stimulants among college students. Like other studies that have observed significant associations between normative perceptions and drug use, they observed that diverters were more likely than non-diverters to rate their close friends as approving of the behavior. Barman-Adhikari et al. (2016) also found significant associations between perceived approval from one's social network and NMUPD among a sample of homeless youth. Interestingly, they found that objections from family members decreased the likelihood of use.

Steiger et al. (2016) provide an excellent description of a novel protective factor-namely, "future orientation", and how it might decrease the risk for initiating substance use. In their analysis of data from a sample of high school students in the Midwest, they observed an interesting protective effect of perceiving that drugs could potentially interfere with future goals and the nonmedical use of both stimulants and analgesics.

Additional prospective research is needed to understand whether these sorts of risk factors (i.e., injunctive norms, future orientation) are related to the persistence of NMUPD (and other drugs in general) and whether or not these prevention targets are malleable through interventions.

Two of the studies involved intensive studies of patients attending drug treatment for prescription drug problems in an attempt to understand the relationship of novel risk factors for the development of the disorder as well as relapse. Lydon-Staley et al. (2016) observed significant relationships between fluctuations in sleep quality and drug craving among 75 patients in treatment for NMUPD, which appeared to be mediated by lower positive affect. McHugh et al. (2016) investigated the relationship between anxiety sensitivity and nonmedical use of prescription benzodiazepines among a sample of patients receiving treatment for opioid use disorder. They observed that anxiety sensitivity was strongly associated with nonmedical use of benzodiazepines among women, but not men, and suggested that anxiety sensitivity might be a promising intervention target.

Martins et al. (2016) investigated time trends during the past decade in prescription opioid use disorder among adolescent, emerging adult, and young adult nonmedical users. The total mean change in prescription opioid use disorder prevalence among nonmedical opioid users decreased by 1.7% among adolescents, but increased by 7.8% among emerging adults and 12.1% among young adults. Dramatic (nine-fold) increases in past-year heroin use among nonmedical opioid users were seen among young adults and emerging adults (four-fold).

A common theme among every article in this issue is the overlap between NMUPD, excessive drinking, and marijuana and other forms of substance use. In every investigation, nonmedical users were observed to have a history of using alcohol, marijuana, tobacco, and other psychoactive substances. Kalyanam et al. (2016) present the results of a highly innovative analysis of the “Twittersphere” that analyzed 2.3 million “tweets” related to NMUPD. A primary finding of their research was that almost 80% of the conversations involved overlap with multiple types of substances. McCabe et al. (2016) found that adolescents who used sedatives and anxiolytics nonmedically were at greater risk than non-users for the development of substance use disorder as adults, even after adjustment for possible confounding risk factors.

We congratulate all the authors for their outstanding contributions to this special issue which will increase the knowledge base related to NMUPD. We also thank the reviewers for their time and constructive commentary to the manuscripts they received. It is only through high-quality research can we gain a clearer understanding of the problem and how to address it.

Abbreviations

NMUPD	nonmedical use of prescription drugs
GPA	grade point average
NPS	nonmedical use of prescription stimulants

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