Diversion of prescription stimulants among college students: An initial investigation of injunctive norms☆

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HIGHLIGHTS

• Diverters perceive their close friends as more approving of more frequent NMUPS.
• Diverters rate themselves and their close friends as more approving of NMUPS motives.
• Diverters rate distal referent groups as more approving of NMUPS for educational purposes.
• Interventions should focus on correcting NMUPS approval misperceptions.

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ABSTRACT

Nonmedical use of prescription stimulants (NMUPS) is an increasing problem among the college student population. Despite recent increases in stimulant prescriptions, little research has examined diversion of prescription stimulants among college students. The purpose of the current exploratory study was to compare normative beliefs about the frequency and motives of NMUPS among a college student sample. Participants were 121 college students who reported having a current prescription for a prescription stimulant. Participants completed online surveys and reported occasions of diversion behavior along with ratings of perceived approval for NMUPS and associated motives. Participants with a history of diversion were more likely to rate their close friends as more approving of more frequent NMUPS, and more approving of various motives for NMUPS. Perceived approval of NMUPS and NMUPS motives among parents and typical university students was similar across diversion groups, with parents and university students being rated as more approving of NMUPS for educational purposes. These findings extend the use of social norms theory to a new behavior while adding to our understanding how those who divert their medication differ from those who do not. Future studies should seek to establish a causal relationship between perceived approval for NMUPS and diversion behaviors. These findings also suggest that future research should focus on the feasibility and impact of social norms intervention for NMUPS and medication diversion.

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1. Introduction

The nonmedical use of prescription drugs (NMUPD), defined as the use of prescription drugs without a prescription or for reasons other than prescribed, has become the second most common drug problem in the United States (Garnier et al., 2010; Johnston, O'Malley, Bachman, & Schulenberg, 2012; Substance Abuse and Mental Health Administration [SAMHSA], 2015). In particular, NMUPD has become an increasing concern in the college student population, with nearly 15% of college students reporting NMUPD in the past year (Johnston et al., 2012; American College Health Association, 2012; McCabe, Teter, & Boyd, 2006). Among college students, nonmedical use of prescription stimulants (NMUPS) is especially problematic, as stimulant medications have the highest ratio of nonmedical to medical use (Advokat, Guidry, & Martino, 2008; Johnston et al., 2012; McCabe et al., 2006). Further, NMUPS is associated with a host of negative consequences, including health risks, psychological distress, interpersonal consequences, academic problems, and illegal behavior (Arria, O'Grady, Caldeira, Vincent, & Wish, 2008; McCabe & Teter, 2007;

Despite recent increases in the number of prescriptions and associated NMUDP, relatively little research has examined diversion (defined as selling, sharing, or giving away prescription medications) among college students (Garnier et al., 2010; Johnston et al., 2012; McCabe, Boyd, & Teter, 2009; Rabiner, 2013). Regarding stimulant medications specifically, Gallucci, Martin, and Usdan (2015) found that 58.9% of college students with a current prescription stimulant medication had diverted at least once in their lifetime. However, beyond studies on rates and sources of diversion, research on variables associated with diversion among college students has been limited (see Benson, Flory, Humphreys, & Lee, 2015, for a review). Examples of existing studies include demographic predictors of diversion (e.g., McCabe, West, Teter, & Boyd, 2014) and qualitative studies on reasons for diversion (e.g., DeSantis, Noar, & Webb, 2010). As noted by Benson et al. (2015), research on medication diversion would benefit from drawing from the more established literature on substance abuse, where several mechanisms that explain the initiation and maintenance of various behaviors associated with drug misuse have been identified.

Social norms theory is one such mechanism that could help explain the high rate of NMUPS and prescription stimulant diversion among college students. At the most general level, social norms theory states that behavior is influenced by perception of how members of various social groups think and act, and that misperceiving the behavior of others can lead to a range of unhealthy outcomes (Berkowitz, 2005). When applied to substance use behavior, social norms theory suggests that individuals tend to overestimate the prevalence and acceptability of substance use (McCabe, 2008). A fairly large collection of studies have indeed reported that misperceptions of how various referent groups (e.g., peers, parents) use and view substance use influences an individual's own substance use, generally in the direction of increased substance use (Borsari & Carey, 2001; Berkowitz, 2005; Neighbors, Dillard, Lewis, Bergstrom, & Neil, 2006; Perkins, 2002). Relatively few studies have examined the impact of social norms on NMUPS (Kimler, Geisner, Gasser, & Lindgren, 2015; McCabe, 2008; Silvestri & Correia, 2016), but initial results are consistent with previous findings. For example, Silvestri and Correia (2016) found that a sample of college students overestimated the frequency (descriptive norms) and approval (injunctive norms) of NMUPS, and that inflated normative estimates for both close friends and parents were related to past-year NMUPS. However, no identified studies have examined relationships between social norms and diversion behaviors. Thus, one possible explanation is that students who divert their medications, relative to those who do not divert, perceive others as more approving of NMUPS. However, this specific relationship has not been investigated.

The purpose of the current exploratory study was to compare injunctive norms for frequency and motives of NMUPS across diversion status among a sample of college students with a current prescription for a stimulant medication. Based on previous studies on norms and engagement in substance use behaviors, we hypothesized that students with a history of diversion would perceive higher levels of NMUPS approval than students without such a history. We hypothesized that the higher levels of approval would be reported for both frequency of use and motives, and across various reference groups (close friends, typical university students, parents).

2. Method

2.1. Participants

Participants were drawn from 959 undergraduate students (73.8% female, mean age: 20.32, 88.4% White, 44.1% Greek affiliated) enrolled in a large public Southeastern University recruited through an online recruitment system. To participate, students had to be at least 19 years of age (per state law); no other exclusion criteria were included. The participants were recruited via the SONA system (a web-based system to manage research participation). Participants were directed to this web-based system through their psychology courses, and were compensated with 1 h of extra credit toward those psychology courses. From the total sample of 959 participants, 121 participants (72.7% female, mean age: 20.8, 95.0% White, 61.1% Greek affiliated) who endorsed having a current prescription for stimulant medication were included in the analyses.

2.2. Measures

2.2.1. Diversion

Participants who identified having a current prescription for stimulant medication completed a series of items related to diversion of their stimulant medications in their lifetime. Participants reported the number of times they had been approached to divert their medications, and how many times they “shared for free” and “sold/traded” their medications.

2.2.2. Injunctive norms for NMUPS

To assess injunctive norms of NMUPS, the current study adapted measures designed to measure injunctive norms toward marijuana use (LaBrie, Hummer, & Lac, 2011; see Silvestri & Correia, 2016, for report on previous use of adapted measures). Participants with a current medical prescription rated their approval of four behaviors – abstaining from using prescription stimulants for reasons other than prescribed, engaging in the use of prescription stimulants for other reasons than prescribed once or twice, occasionally, or regularly. Participants also reported the presumed level of approval of these behaviors for three referent groups: close friends, parents, and a typical university student (e.g., “How would your close friends feel about you occasionally using your prescription stimulant medication for any reason other than a health professional’s instructions to do so?”). For all questions, participants rated their approval on a 7-point Likert scale ranging from 1 (strong disapproval) to 7 (strong approval).

As there was no established measure of NMUPS motives at the time of data collection, 10 NMUPS motive items were derived from previous studies examining various self-treatment and recreational motives (e.g., DeSantis, Webb, & Noar, 2008; Garnier-Dykstra, Caldeira, Vincent, O’Grady, & Arria, 2012; McCabe & Cranford, 2012; Upadhyaya et al., 2010; McCabe et al., 2009; Rabiner et al., 2009; Teter, McCabe, LaGrange, Cranford, & Boyd, 2006). In addition to reporting their approval for each NMUPS motive, participants reported the perceived approval of NMUPS motives across three referent groups: close friends, parents, and a typical university student. All injunctive norm response options were based on a 7-point Likert scale ranging from 1 (strong disapproval) to 7 (strong approval). The first item of the NMUPS engagement questions, referring to abstinence, was reversed scored.

2.3. Procedure and data analysis plan

All study protocols were submitted and approved by the University’s Institutional Review Board. All measures were self-administered anonymously online through the Qualtrics survey website. Data analysis included descriptive techniques and the measurement of mean differences using ANOVA techniques in SPSS. As noted above, students answered separate questions about being approached to divert medications and about sharing or self/trading medication, and we present descriptive data about all three behaviors down below. However, for all of the ANOVAs, we used a combined definition of diversion that accounts for both giving away for free and selling/trading. One-way ANOVAs were used to compare injunctive norms for frequency of NMUPS among students who reported diversion of prescription stimulants in their lifetime. One-way ANOVAs were also used to obtain mean differences in NMUPS motives among students who reported diversion of prescription stimulants in their lifetime.
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