



Determinants of College Students' Nonmedical Use of Prescription Stimulants and Recommendations for Campus Education

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Background

- Prescription stimulants, typically prescribed to treat Attention-Deficit/Hyperactivity Disorder (ADHD) are Schedule II controlled substances due to high risk for abuse and addiction
- 1/3 of undergraduate college students have taken a prescription stimulant *nonmedically* in the past year, often to enhance academic performance
- However, research has shown that college students who use prescription stimulants nonmedically typically get lower grades than their non-using counterparts
- **Nonmedical use of a prescription stimulant (NPS) is defined as the taking of a prescription stimulant either (a) more frequently or in a higher dose than prescribed or (b) by a person who is not prescribed**

Objectives

- (1) To identify social and behavioral determinants of college students' NPS
- (2) To elicit college students' views of behavioral and lifestyle factors to reduce NPS

Qualitative Mixed-methods Design & Sample

Sample: 25 full-time undergraduate college students ages 18-25 who had engaged in NPS in the past year from two large public four-year colleges in Maryland

Interviews: Eight college students participated in semi-structured individual in-depth interviews

Focus Groups: 17 college students participated in four semi-structured focus groups of three to five students in each

Background Survey: All participants (N=25) completed a paper-pencil survey, reporting demographics, academic history, ADHD history and prescription status, and use of other substances

The University of Maryland Institutional Review Board approved this study and granted a waiver of written consent

Analysis

- In-depth interview and focus group transcripts were uploaded into NVivo 10 and analyzed using open coding and following the principles of grounded theory
- Descriptive statistics were used to characterize the sample of undergraduate college students and Fisher's Exact Test and two-tailed t-tests were used to test for statistically significant differences between students attending College A and College B ($p < 0.05$)

Results

Table 1. College Student Characteristics

Participant Characteristics	College A (n=13) N(%)	College B (n=12) N(%)
Female	7 (54)	6 (50)
Race*		
White	2 (15)	9 (75)
Other	11 (85)	3 (25)
Mean Age (SE)	20.7 (0.3)	20.0 (0.2)
Year in School		
Freshman/Sophomore	3 (23)	4 (33)
Junior/Senior	10 (77)	8 (67)
Mean GPA (SE)	3.29 (0.1)	3.03 (0.1)
Past Month Alcohol Use:		
0 days	0 (0)	0 (0)
1-9 days	10 (77)	9 (75)
10+ days	3 (23)	3 (25)
Past Year Use Of:		
Marijuana	10 (77)	10 (83)
Cocaine, LSD, or Ecstasy	3 (23)	6 (50)
None	3 (23)	2 (17)
Past Year Nonmedical Use of Prescription:		
Pain Killers/Opioids	2 (15)	4 (33)
Anxiety	1 (8)	4 (33)
None	11 (85)	7 (58)

*Statistically significant difference between College A and B ($p < 0.05$)

Take Home Message: Co-use of alcohol, marijuana, other illicit substances and nonmedical use of other prescription drugs is a common lifestyle factor among students engaging in NPS in the past year

Figure 1. Key Quotes from Participants

- "Wow, this is like a get-out-of-jail free card. I only have this much time before an exam, but I take an Adderall and then study. I'm a lot more focused and I retain a lot more knowledge"
- "When people see you studying all the time and then you tell them that you're on Adderall, it's just kind of like, 'Oh, that's why... I guess you just don't work that hard, then!'"
- "Peer pressure...like 'Oh, people are doing it.' 'Hey! You want a line?' It's not like Cocaine or anything. It's not going to kill me."

Take Home Message: Common social and behavioral themes included peer pressure, stress, school pressure, safety, and social stigma.

Figure 2. Word Cloud of Most Frequently Mentioned Words in Interviews and Focus Groups



Table 2: Thematic Concepts of Social and Behavioral Determinants of NPS from Interviews and Focus Groups

Thematic Concepts	Motivators	Deterrants
Performance	<ul style="list-style-type: none"> • Academic Enhancement • Athletic Enhancement • Work Enhancement 	
Social	<ul style="list-style-type: none"> • To Party • To Socialize • Peer Approval 	<ul style="list-style-type: none"> • Parental Disapproval • Peer Disapproval • Stigma
Physical Lifestyle	<ul style="list-style-type: none"> • To Stay Awake • To Skip Meals/Lose Weight • To Achieve a Euphoric Feeling • Belief that stimulants are safe 	<ul style="list-style-type: none"> • Lack of Sleep • Malnutrition • Fear of Developing a Dependence • Adverse Events
Availability	<ul style="list-style-type: none"> • Prescription stimulants are readily available 	<ul style="list-style-type: none"> • There are access barriers to obtaining prescription stimulants
Consequences	<ul style="list-style-type: none"> • Perception that there are no consequences of NPS 	<ul style="list-style-type: none"> • NPS could limit future career options

Table 3. Student-Identified Desirable Characteristics of an NPS Education Program

Target Audience	<ul style="list-style-type: none"> • Incoming freshmen • Incoming freshmen and transfer students • All students, annually • Health Center Counselor
Leader of Program	<ul style="list-style-type: none"> • Upperclassman/Peer • Health Professional • Side effects of prescription stimulants • Legal and academic consequences of NPS
Topics to Discuss	<ul style="list-style-type: none"> • How prescription stimulants can interact with alcohol and other drugs • Help developing study plans for exams
Additional Lifestyle Resources	<ul style="list-style-type: none"> • Peer tutors within majors • Peer health mentors • Confidential online chat to ask questions/concerns related to NPS • Include funny skits • Include statistics
Delivery	<ul style="list-style-type: none"> • Have an anonymous question box • Provide a website students can refer to later

Conclusions & Implications

- Students who engage in NPS often co-use other substances which highlights the importance of NPS as a public health concern among undergraduate students
- Social and behavioral determinants of NPS suggest that college students who have engaged in NPS in the past year are willing to accept some level of risk for the desired benefits of NPS
- These student-driven social and behavioral determinants of NPS are potentially of great importance to inform the development and optimization of desirable programs aimed at reducing NPS on Maryland campuses and nationally

Next Steps

- An online survey using preference elicitation methods (best-worst scaling and discrete choice experiments) will assess the benefit to risk tradeoffs that college students make when engaging in NPS
- The survey is being fielded with undergraduate students at five large, public four-year colleges in Maryland
- Preference elicitation techniques will elicit how undergraduate students prioritize competing social and behavioral determinants of NPS and what characteristics of an educational program are most preferred by undergraduates

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