Prevalence and Etiology of the Non-Medical Use of Prescription Medications among College Students

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Overview

1. National Estimates of Prevalence
2. Background on the College Life Study
3. What we know
4. What we suspect
5. What we can do
National Estimates of Prevalence

Any Psychotherapeutics  | Pain Relievers | Stimulants | Sedatives | Tranquilizers

2002: 9.2%  | 7.6%  | 2.7%  | 0.6%  | 2.3%
2003: 9.2%  | 7.7%  | 2.3%  | 0.5%  | 2.3%
2004: 8.8%  | 7.4%  | 2.1%  | 0.5%  | 2.0%
2005: 8.3%  | 6.9%  | 2.0%  | 0.5%  | 2.0%
2006: 8.6%  | 7.2%  | 2.2%  | 0.4%  | 1.9%
2007: 8.1%  | 6.7%  | 2.0%  | 0.4%  | 1.9%
2008: 7.7%  | 6.5%  | 1.9%  | 0.5%  | 1.9%
2009: 7.7%  | 6.6%  | 1.9%  | 0.5%  | 1.9%
2010: 7.4%  | 6.3%  | 1.9%  | 0.5%  | 1.9%
2011: 7.0%  | 5.9%  | 1.8%  | 0.3%  | 1.3%
2012: 6.6%  | 5.3%  | 1.7%  | 0.3%  | 1.3%
2013: 5.8%  | 4.6%  | 1.5%  | 0.3%  | 1.1%
2014: 6.2%  | 4.7%  | 1.7%  | 0.5%  | 1.5%

- Any Psychotherapeutics
- Pain Relievers
- Stimulants
- Sedatives
- Tranquilizers

### Graph

- **Any Psychotherapeutics**
- **Pain Relievers**
- **Stimulants**
- **Sedatives**
- **Tranquilizers**

#### Data Points

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<th>Year</th>
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Prescription stimulants are the only class of prescription drugs that are nonmedically used more by full-time college students than part-time college and non-college peers (during the past month; ages 18-22; SAMHSA, 2015)
Past-Year Nonmedical Use of Prescription Drugs, among 12- to 17-year-olds, by Gender (SAMHSA, 2013)

- **Any Psychotherapeutics**
  - Males: 6.1%
  - Females: 7.1%

- **Pain Relievers**
  - Males: 5.1%
  - Females: 5.6%

- **Stimulants**
  - Males: 1.2%
  - Females: 1.5%

- **Tranquilizers**
  - Males: 1.4%
  - Females: 2.2%

- **Sedatives**
  - Males: 0.2%
  - Females: 0.4%
Post College Year 4
24 Months: Interview (n=1,101) 88%

Screening (n=3,401)

Post College Year 3
84 Months: Interview (n=951) 76%

Post College Year 2
72 Months: Interview (n=982) 78%

Post College Year 1
60 Months: Interview (n=1,001) 80%

Post College Year
54 Months: Interview (n=1,097) 88%

Post College Year 2
48 Months: Interview (n=1,019) 81%

Post College Year 1
36 Months: Interview (n=1,097) 88%

Post College Year
24 Months: Interview (n=1,101) 88%

Pre College Year 2
12 Months: Interview (n=1,142) 91%

Pre College Year 1
Baseline Interview (n=1,253)

Summer Orientation
Data weighted to adjust for both sampling bias and attrition. Source: College Life Study. Not to be shown or redistributed without written permission from Amelia M. Arria, Ph.D.
Figure 1. Trends in past-year nonmedical use of prescription medications: 2003-2013

What We Know

- Different drug classes = different harms
- Definition of nonmedical use
- Motives
- Research Studies of College Students
- Sources of obtaining drugs for nonmedical use
- Access and availability
What We Know, continued

- Diversion is prevalent and fuels nonmedical use
- Overestimation of others use
- Positive and Negative Expectancies
- High-risk Groups for use and diversion
- Strong association with other drug use
Motives

- Curiosity
- Improve concentration
- Stay awake longer to study
- Stay awake longer to party, drink more
- Get high
- Relieve depression symptoms?

But remember, motives are not the same as risk factors
How often do users take prescription stimulants nonmedically?

Average number of times in the past year

Year 2: 11.3
Year 3: 15.3
Year 4: 13.8

Source: College Life Study. Not to be shown or redistributed without written permission from Amelia M. Arria, Ph.D.
What about students with ADHD who have their own prescribed ADHD medications?

Among 45 first-year college students with ADHD:

- 27% overused their own meds
- 16% nonmedically used someone else’s ADHD meds

In another sample of 55 males (mean age 21) with ADHD:

- 22% misused or took too much of their meds
- 10% got high on their meds
- 8% grinding/sniffing
- Nearly all of the misusers (83%) met criteria for CD and/or SUD, and all were using immediate-release formulations.

Sources:
Sources

Among college students, **friends and peers** are the most common **sources to obtain prescription medications used nonmedically**

References:
How are ADHD meds obtained for nonmedical use?

Sources of Medication
*Denotes significant difference from years 1 and 2 (p<.05).

Cost
**Denotes significant difference from years 3 and 4 (p<.05).

DIVERSION

60.2% of one sample of college students with ADHD shared or sold their prescription stimulants;

35.4% of students with prescription analgesics diverted their medications.

Students overestimate how many others use stimulants nonmedically.

Nonmedical Use is also associated with:

High levels of **positive** expectancies about the purported benefit on performance

Low levels of **negative** expectancies about the purported benefit on performance

“It will work”

“I won’t get in trouble”

High Risk Groups

- Students attending competitive colleges
- Students involved with Greek organizations
- High-risk drinkers and other drug users
- Students who are academically struggling
- Students who are not risk-aversive
- Students who have misperceptions of prevalence and what is normative
- Students who perceive drugs as benign, safe to use
Nonmedical prescription drug use is strongly associated with alcohol and other drug use

- Numerous studies report past-year prevalence estimates for marijuana use of 85%+
- Cocaine: 35-60%
- Ecstasy: 52%
- Prescription Analgesics: 44%
### Overlap between nonmedical prescription stimulant use and other drug use

<table>
<thead>
<tr>
<th></th>
<th>NON-USERS of Rx Stimulants (n=989)</th>
<th>NONMEDICAL USERS of Rx Stimulants (n=217)</th>
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</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>93.5 %</td>
<td>100.0 %</td>
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<tr>
<td>Tobacco Cigarettes</td>
<td>55.3</td>
<td>89.4</td>
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<tr>
<td>Marijuana</td>
<td>62.8</td>
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<td>Hallucinogens</td>
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<td>Cocaine</td>
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<td>Inhalants</td>
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<td>Ecstasy</td>
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<td>Amphetamines</td>
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<td>Heroin</td>
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<td>Nonmedical use of prescription analgesics</td>
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<tr>
<td>Nonmedical use of prescription tranquilizers</td>
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What We Suspect

Marijuana and other drug use might be driving academic problems, and nonmedical use of prescription stimulants is a compensatory behavior... a shortcut, and largely unsuccessful.
Nonmedical stimulant users spend less time studying, skip classes more often, and earn lower grades.

Nonmedical Use of Prescription Stimulants for Studying

Marijuana Use

Marijuana Dependence

Skipping Class

Academic Performance

Time
NPS use patterns from Year 2 to Year 3 of the College Life Study ($n=898$).

- Abstained from NPS: $n=618$
- Persisted in NPS: $n=150$
- Initiated NPS: $n=78$
- Desisted: $n=52$
Estimated marginal means and standard error bars for change in GPA during years 2-3, by NPS use pattern (n=898).

- Desisted from NPS: n=52, Change in GPA = 0.016
- Persisted in NPS: n=150, Change in GPA = -0.025
- Abstained from NPS: n=618, Change in GPA = 0.053
- Initiated NPS: n=78, Change in GPA = -0.025

Note. Sample is restricted to individuals who were never diagnosed with ADHD by Year 3. Change in GPA is computed as the difference between Year 3 GPA and Year 2 GPA, which were averaged from semesters 3-4 and 5-6, respectively. Results are adjusted for the effects of sex and Year 2 GPA. Normal distribution was assumed for GPA change score. Zero values for semester GPA were treated as missing because they cannot be distinguished from missing data due to studying abroad.

Interpersonal factors are important influences on nonmedical use...

- Academic self-efficacy
- Perception of risk
- Perception of reward
Academic Self-Efficacy

- Definition: Having confidence about your ability to complete academic tasks

- Students who were less confident about their ability to avoid nonmedical prescription stimulant use when they had a large amount of work in a short amount of time were more likely to use (Bavarian, 2013).

- The more students procrastinate, the more likely they are to use prescription stimulants nonmedically. A possible solution: create a personalized study plan that outlines study times, learning goals (and class attendance) (Ponnet, 2015).
Individuals with low academic self-efficacy might be at high risk for NPS use.
Risk and Reward...

1. Is it risky?

2. Is there a benefit to using?

3. Does the benefit outweigh the risk?
Nonmedical use is higher among students who perceive lower levels of harm

However... among sensation-seekers, perceived harm did not influence analgesic use.
What we can do

1. Improve physician education and vigilance
2. Intervene by discussing both risk and reward perceptions
3. Correct student misperceptions
4. Educate parents
5. Focus on more subtle consequences
6. Give non-using students a louder voice
Clinicians: Considerations for Treating ADHD in High-Risk Patients

1. Monitor medication and other drug use
   - Pill counts
   - Frequent office visits
   - Urine toxicology screens

2. Prescribe medications with lower abuse potential
   - Non-stimulants
   - Extended-release preparations

3. Dose judiciously

4. Discuss compliance, “extra doses,” and treatment failure
Clinicians:
Considerations for Treating ADHD in High-Risk Patients

5. Utilize regular dosing, not PRN
6. Advocate for safe storage (don’t advertise)
7. Ask about changes in euphoria, cravings
8. Discuss ethical and legal issues around diversion
9. Support prescription drug monitoring programs
Improving Clinical Practice on College Campuses

- Increase vigilance regarding diversion and nonmedical use among college-bound patients.
- Partner with local university health centers to promote staff awareness of diversion and the risks of nonmedical use.
- Work with counseling center staff to recognize signs of mental health issues and drug problems... and intervene with students who are academically struggling.
- Screen ADHD patients for illicit drug use and convey risks of diversion.
Students

- Spread the word to other students about the true risks of nonmedical use and connection to marijuana use.

- Challenge misperceptions about “how many people are doing it.”

- Link nonmedical drug use to illicit drug use.

- Dispel “smart drug” myth.
THC concentrations have increased dramatically from 1995 to 2014

International concern exists regarding high-potency cannabis, especially because of the implications for mental health.

Students on Medication

- Adhere to your provider’s medication instructions.
- Never share your medication... not with anyone.
- Protect your medication from theft.
- Encourage responsible help seeking.
- Convey messages about risks of nonmedical use.
Parents

- Dispel “smart drug” myths.
- Do not condone or facilitate nonmedical use.
- Empower parents to take a central role in preventing nonmedical use of prescription drugs.
- Raise awareness about the opportunities for “new” drug use in college.
- Educate parents to recognize signs of emerging mental health and drug problems.
- Educate parents regarding medication adherence and role modeling of proper use
- Parent effectively to reduce risk of use
Colleges and Universities

- Sponsor ongoing dialogues that raise awareness and share experiences of college professionals
- Develop multidisciplinary campus action plans to reduce nonmedical prescription stimulant use.
- Have students re-think taking 18 credits per semester in the first year of college.
- Consider options for enforcing sanctions against diversion.
Give students who don’t use a LOUDER voice
Interlocking Dimensions of Student Success

Cognitively Strong

Motivated

Supported
For more information and a list of publications, please visit:

www.cls.umd.edu

www.cyahd.umd.edu

Thank you!

Email Dr. Arria at aarria@umd.edu