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Investigating the Correlations between Frequency of ADHD Medication Use with Perception, Dependence, and Undesired Side Effects

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INTRODUCTION

- **Dopamine**
 - Diagnosis of Attention Deficit Hyperactive Disorder (ADHD) involves low levels of dopamine, an neurotransmitter linked with motivation and concentration¹
- **Adderall**
 - A Schedule II stimulant used to treat ADHD by normalizing dopamine levels¹
- **Frequency**
 - The use of this stimulant is not uncommon among American college students despite its undesired side effects (DeSantis and Hane)
 - side effects include loss of appetite, mood swings, sleep disruption.⁶
- **Perception**
 - Users still perceive prescribed stimulants to be less dangerous than illicit stimulants
 - DeSantis et al.'s (2008) study: 2% thought the drug was "very dangerous" and 81% said the drug was "not dangerous at all" or only "slightly dangerous"⁵

HYPOTHESIS

- Perception of the safety of ADHD medications largely drives frequency of use
- Experiencing undesired side effects will disuade subsequent use

METHODS

- We established an anonymous electronic **survey** containing multiple-choice and open-ended questions regarding adderall use, perceptions of adderall, adderall impact gauged by campus climate, and demographic information of participants.
- The survey was distributed via media, email, and in-person at tabling and other events.
- The target population was **college students** attending universities across the United States, with a concentration in Northeastern campuses.
- Data collected was analyzed using Pearson's Correlational Coefficient using SPSS version 25.0

RESULTS

| Undesired Symptom | Use ADHD Medication "about once daily" | Perceived Safety of ADHD Medication | Use ADHD Medication "about once daily" |
|----------------------------|--|-------------------------------------|--|
| Panic Attacks | .146** | More safe than caffeine use | .142** |
| Aggression | .388** | More safe than marijuana use | .135** |
| Inability to Concentrate | .300** | | |
| Paranoia | .187** | | |
| Weight Loss | .350** | | |
| Lack of Motivation | .130** | | |
| Anxiety | .225** | | |
| Mood Swings | .208** | | |
| Headaches | .233** | | |
| Fatigue | .175** | | |
| Irritability | .277** | | |
| Depression/Negative Affect | .165** | | |
| Sleep Difficulty | .216** | | |

N = 879
Key:
* (p < .05)
** (p < .01)

DISCUSSION

Firstly, the results above indicate the following: among students who used ADHD medication "about once a day", a significant correlation was found for *all* undesired effects/symptoms inquired about in the survey, excluding "suicidal thoughts". Contrastingly, among those indicating that they used ADHD medications "about once a semester", only five of the thirteen above symptoms showed a significant positive correlation at the p<.01 level. It is likely that those using ADHD medications (Adderall, Ritalin, Vyvanse) on a daily basis were prescribed this medication by a physician, indicating that even non-illicit use of these medications can have detrimental inadvertent side effects, particularly when taken more frequently. Moreover, the "about once a day" users were likely to perceive caffeine and marijuana as more safe than ADHD medication use despite their experience of undesired symptoms. Perception of ADHD medication as more safe than caffeine or marijuana use was *not* significantly positively correlated among those who used ADHD medication *less frequently* than "about once a week." This indicates that as frequency of ADHD medication use increases, its perceived safety compared to other stimulants also increases notwithstanding their increased reporting of undesired symptoms.

CONCLUSIONS

- **Undesired Symptoms**
 - "About once daily" users exhibit the most side effects along with their use of ADHD medication
 - The mechanism behind such a cycle is related to ADHD medication increasing dopamine in the nervous system.³
 - Downregulation of dopamine receptors lead to desensitization.¹
- **Perceived Safety**
 - The perceived greater safety of ADHD medication compared to caffeine and marijuana use is the most prominent among "about once daily" users of ADHD medication
 - no "high" justification²
 - not a "bad drug" justification²
- **Dissuading Unprescribed Adderall use**
 - By sharing information about the physiological effects of recreational use of ADHD medication, we may be able to help students make more educated decisions about using such drugs.⁴

FUTURE WORKS

- Reaching a larger population, either nationally or internationally, for survey assessment to better understand the scope of the study drug epidemic
- Informed outreach
 - Survey data can be used to hone which target groups should receive the most outreach effort and resources

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