

Binghamton University

## The Open Repository @ Binghamton (The ORB)

---

Research Days Posters Spring 2020

Division of Research

---

2020

### Potential Negative Cyclical Effects of ADHD Medication, Mental Health, and Academic Performance

Eva Kristoferson

*Binghamton University--SUNY*

Dennis Cregin

*Binghamton University--SUNY*

Lee Ann Genussa

*Binghamton University--SUNY*

Rebecca Koltun

*Binghamton University--SUNY*

Sana Malik

*Binghamton University--SUNY*

*See next page for additional authors*

Follow this and additional works at: [https://orb.binghamton.edu/research\\_days\\_posters\\_spring2020](https://orb.binghamton.edu/research_days_posters_spring2020)

---

#### Recommended Citation

Kristoferson, Eva; Cregin, Dennis; Genussa, Lee Ann; Koltun, Rebecca; Malik, Sana; Norton, Haley; Ricci, Adelle; Umeozor, Devon; and Begdache, Lina, "Potential Negative Cyclical Effects of ADHD Medication, Mental Health, and Academic Performance" (2020). *Research Days Posters Spring 2020*. 42.

[https://orb.binghamton.edu/research\\_days\\_posters\\_spring2020/42](https://orb.binghamton.edu/research_days_posters_spring2020/42)

This Book is brought to you for free and open access by the Division of Research at The Open Repository @ Binghamton (The ORB). It has been accepted for inclusion in Research Days Posters Spring 2020 by an authorized administrator of The Open Repository @ Binghamton (The ORB). For more information, please contact [ORB@binghamton.edu](mailto:ORB@binghamton.edu).

---

## Authors

Eva Kristoferson, Dennis Cregin, Lee Ann Genussa, Rebecca Koltun, Sana Malik, Haley Norton, Adelle Ricci, Devon Umeozor, and Lina Begdache



# Potential Negative Cyclical Effects of ADHD Medication, Mental Health, and Academic Performance

Eva Kristoferson, Rebecca Koltun, Devon Umbeozor, Lee Ann Genussa, Adelle Ricci, Haley Norton, Camille Guo, Sana Malik, Dennis Cregin, and Dr. Lina Begdache

## ABSTRACT

In the past decade, the misuse of non-prescription ADHD medication among college students for the goal of achieving academic success has seen a marked increase. In order to determine if there is a relationship between study drugs, mental health, and GPA, an anonymous survey was distributed asking participants questions regarding demographics, prescribed and non-prescribed Adderall use, its effects, and perceptions. A total of 879 college-aged students from several US colleges completed the survey. Using Pearson's Correlation Coefficient, there was a positive correlation between using non-prescribed Adderall use and a decrease in GPA, as well as a negative impact on mental health. The survey also showed that those who have a lower GPA exhibited several mental health symptoms, suggesting that there could be a vicious cycle at hand: non-prescribed study drugs, low GPA, and negative impact on mental health all act reciprocally, inexorably worsening the effects of the drug. Our results may indicate a lack of knowledge among non-prescribed users about the effects of Adderall, demonstrating a need for education outreach and alternative study methods.

## INTRODUCTION

Adderall (Dextroamphetamine) is a stimulant often prescribed to patients with Attention Deficit Hyperactivity Disorder (ADHD). When prescribed, ADHD medication is designed to increase focus<sup>3</sup>. It is frequently misused on college campuses in an attempt to increase concentration and studying<sup>2</sup>. When taken unprescribed, ADHD medication can cause a multitude of negative side effects affecting both mental and physical health. These symptoms include anxiety, depression, loss of appetite, dry mouth and more<sup>3</sup>. Students are often unaware of the risk of taking unprescribed ADHD medication and thus instead of improving academic performance, put them at a deficit.

## METHODS

An anonymous survey including multiple choice and free response was created and approved by the IRB to determine if there is a relationship between study drugs, mental health, and GPA. We distributed an IRB-approved survey to target college students throughout the United States. It was distributed via email, tabling events, and in-person events. The survey included questions about demographics, prescribed and non-prescribed Adderall use, its effects, and perceptions. This allowed us to collect information regarding what groups are more inclined to use it, their knowledge of the drug, purpose for taking it, and overall effects it had on their affect and academic performance. Data from 879 participants was analyzed using SPSS 25.0 and Principal Component Analysis to assess trends and correlations.

## RESULTS

**Table 1. Characteristics of Daily ADHD Medication Users**

Low GPA	0.72*
Aggression	0.388**
Depression/Negative affect	0.165**
Fatigue	0.175**
Headaches	0.233**
Inability to concentrate	0.300**
Irritability	0.277**
Lack of motivation	0.130**
Panic attacks	0.146**
Paranoia	0.187**

### Key

* p<0.05	** p<0.01
N=879	

**Table 2. Characteristics of Participants with a Low GPA**

Unprescribed ADHD medication use	.132*	
Daily use of ADHD medication	0.72*	
Weekly use of ADHD medication	0.086*	
Symptoms from ADHD medication use	Lack of Motivation	0.122*
	Focus	-.107*
	Anxiety	0.083*
	Mood Swings	0.107**
	Headaches	0.168**
Symptoms from ADHD medication use	Fatigue	0.183**
	Sleep Difficulty	0.167**

**Table 3. Characteristics of Participants with a Great GPA**

Do you believe the use of ADHD medication benefits one academically	-0.71*	
Symptoms from ADHD medication use	Inability to concentrate	-0.088*
	Suicidal Thoughts	-0.76*
	No unintended side effects	0.193**

**Table 4. Characteristics of Participants with a Marked Decrease in GPA after Unprescribed ADHD Medication Use**

Social Media/Internet first suggested ADHD medication use	.349**	
Daily Use	.136*	
Symptoms from ADHD medication use	Alertness	.333**
	Inability to concentrate	.187**
	Weight loss	.231**

**Table 5. Characteristics of Participants with a Slight Decrease in GPA after Unprescribed ADHD Medication Use**

Annual Use	.242**	
Symptoms from ADHD medication use	Lack of motivation	.197**
	Depression/Negative Affect	.265**

## CONCLUSIONS

It is shown that those who consistently use ADHD medication on a daily basis are more likely to have a low GPA<sup>4</sup>. It is also shown that those who consistently use ADHD medication on a daily basis are likely to suffer from adverse side effects, with these being depression, fatigue, headaches, an inability to concentrate, irritability, a lack of motivation, paranoia, and panic attacks<sup>3</sup>. These two factors are ultimately linked to one another, as the negative side effects that daily ADHD medication users experience are likely the reason they are experiencing a downturn in academic performance<sup>4</sup>. Unfortunately, given their worse grades, those that abuse ADHD medication may be encouraged to keep on using this substance in the hopes that their grades may rise once again, without ever realizing that ADHD medication is the reason their academics are suffering<sup>4</sup>. This came in stark contrast to those with higher GPAs, as there was a negative correlation between those with higher GPAs and believing that ADHD medication helped improve one's academic performance<sup>1</sup>. Thus, the negative cyclical nature of ADHD is exposed.

## FUTURE WORKS

The results from this study yields insight as to effective strategies that may help to ultimately curb the abuse of ADHD medication among our target group (college students 18-24). Future research may investigate more viable alternatives to help college students increase their GPA other than relying on the abuse of ADHD medication

## REFERENCES

1. Abelman DD. Mitigating risks of students use of study drugs through understanding motivations for use and applying harm reduction theory: a literature review. *Harm Reduct J.* 2017;14(1):68. Published 2017 Oct 6. doi:10.1186/s12954-017-0194-6
2. Chen, L. Y., Crum, R. M., Strain, E. C., Alexander, G. C., Kaufmann, C., & Mojtabei, R. (2016). Prescriptions, nonmedical use, and emergency department visits involving prescription stimulants. *The Journal of clinical psychiatry*, 77(3), e297–e304. <https://doi.org/10.4088/JCP.14m09291>
3. Lakhan SE, Kirchgessner A. Prescription stimulants in individuals with and without attention deficit hyperactivity disorder: misuse, cognitive impact, and adverse effects. *Brain Behav.* 2012;2(5):661–677. doi:10.1002/brb3.78
4. Weyandt LL, Oster DR, Marraccini ME, et al. Prescription stimulant medication misuse: Where are we and where do we go from here?. *Exp Clin Psychopharmacol.* 2016;24(5):400–414. doi:10.1037/pha0000093