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# The Relationship between Anxiety and Depression and Substance Misuse (Marijuana, Illicit Drugs, Tobacco, and Alcohol) in College Students



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## Introduction

- The prevalence of substance use in pop culture increases the popularity and appeal among college students. These substances are also relatively easily accessible, widely used, and almost normalized in college settings, making this a risky period for college students.
  - In college students, marijuana usage is at a historic high (National Institute on Drug Abuse, 2019).
  - Nicotine vaping has almost tripled among college students, going from 6.1% to 15.5% (National Institute on Drug Abuse, 2019).
  - 36.4% of college students suffer from depression, and 41.6% of college students experience anxiety (American Psychological Association, 2013).
  - People who tend to suffer from social anxiety disorder often misuse substances, particularly alcohol (Anxiety and Depression Association of America, 2019).
- This project investigates the correlation between substance use and mental health.**
- It is hypothesized that there is a correlation between marijuana and alcohol usage and higher anxiety symptoms in college students and a correlation between college students who are poly-substance users and higher depressive symptoms.

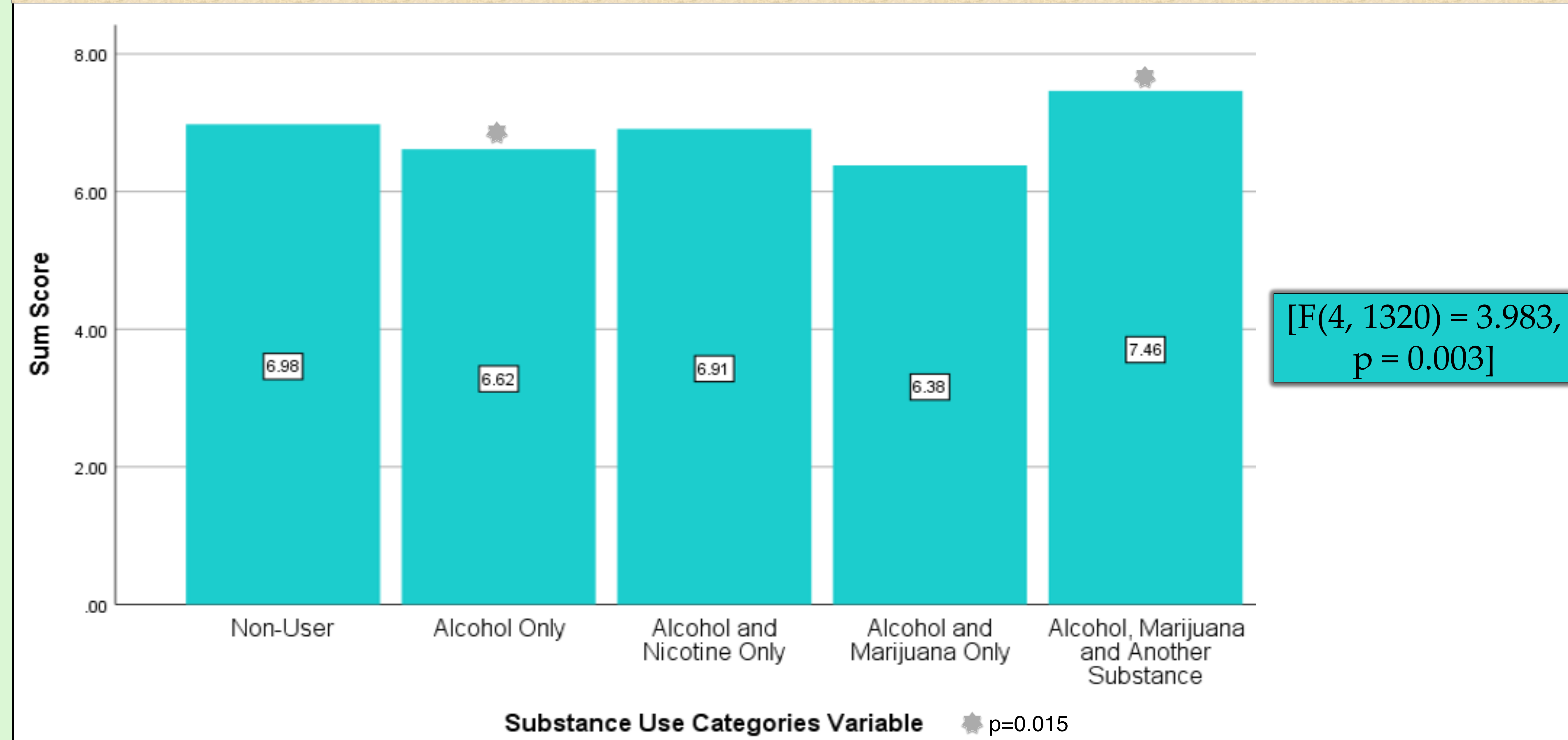
## Spit4Science

Spit4Science is a university-wide study that aims to focus on genetic, environmental, and developmental influences on substance use and emotional health at an urban, public university with a diverse population.

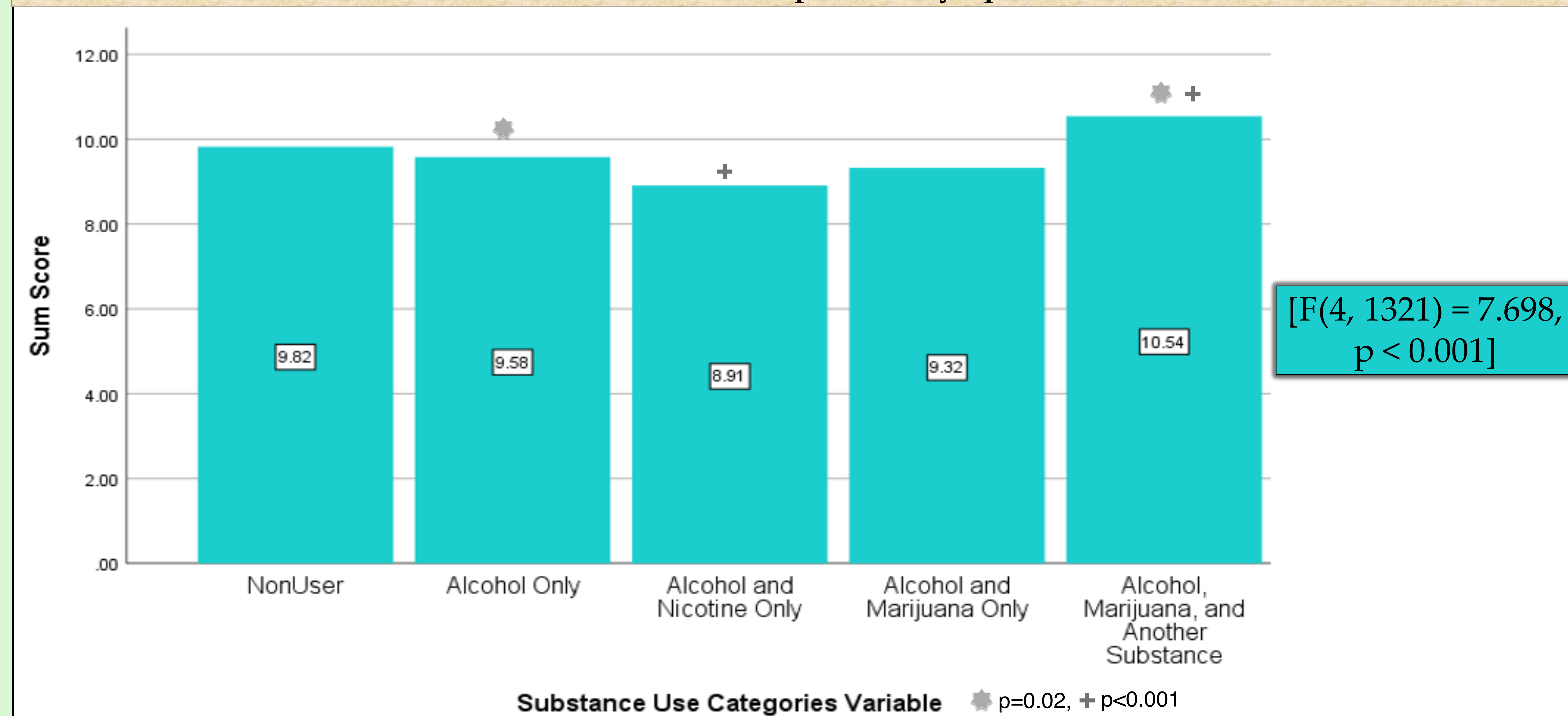
## Methods

- The groups are from S4S 2014 freshman year cohort and if they have ever used Alcohol, Nicotine (a collapsed list of 5 types of nicotine), Marijuana, and/or Illicit Drugs (cocaine, opioids, and stimulants).
- Separate sum scores for anxiety and depressive symptoms were put together by adding up the 5-point Likert scale responses to four questions each for anxiety and depressive symptoms (adapted from the SCL-90), to get a total score for each (Derogatis, Lipman, & Covi, 1973).
- Two ANOVA tests were run- one for anxiety symptoms and one for depressive symptoms- as were Tukey post hoc tests in SPSS.

## Sum Scores for Anxiety Symptoms



## Sum Scores for Depressive Symptoms



## Conclusion

**Poly-substance users (alcohol, marijuana, and another substance users) had the highest sum anxiety scores, and the highest sum depressive scores**

- As a result of the post-hoc Tukey Test, the Polysubstance group had significantly higher anxiety symptoms (p = 0.015) and depressive symptoms (p = 0.020) than the Alcohol Only group. The Polysubstance group also had more depressive symptoms than the Alcohol and Nicotine group (p < 0.001).
- The results show that Polysubstance users show higher anxiety and depressive symptoms, which shows the correlation between substance misuse and negative mental health effects. Possible explanations could be that either using the substances caused negative health effects to occur in otherwise healthy students, or that pre-existing mental health problems lead students to misuse substances as a coping mechanism.
- The results compare to Walters et al. (2018) who found that college students experienced depressive symptoms when they used cannabis, tobacco, amphetamines, cocaine, sedatives, and hallucinogens. Likewise, Stowell et al. (2019) found positive, significant correlation between CESD-R depression and binge drinking.
- A limitation encountered was sample sizes. However, some strengths included racial diversity of the sample, an urban, diverse population, information for multiple substances, and longitudinal analysis. Spit4Science could improve on this for future studies by advertising the study more, and possibly providing more incentives for potential participants.
- Spit4Science could implement programs and educate on how to deal with anxiety and depressive symptoms, how to get treatment, and tips to help quit. This could be done with the help of a future study, which would enhance our understanding of the negative effects of substance misuse.

## Acknowledgments

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## References

American Psychological Association (2013). College students' mental health in a growing concern, survey finds. *Monitor on Psychology*, 40(6). Retrieved from <https://www.apa.org/monitor/2013/06/college-students>

Anxiety and Depression Association of America. Substance Use Disorders. (2019). Retrieved from <https://adaa.org/understanding-anxiety/related-disorders/substance-use>

Bierhoff, J., Haselhorst, E., Wiedle, M., & Berg, C. J. (2019). Psychological risk factors for alcohol, cannabis, and tobacco use among young adults: A longitudinal analysis. *Substance Use & Misuse*, 53(2), 2601. <https://doi.org/10.1080/10767449.2019.1627226>

Christoffel, J. A., Eisenberg, D., Serres, A. M. (2005). Substance use behaviors, mental health problems, and use of mental health services in a probability sample of college students. *Addictive Behaviors*, 30(2), 131-145. <https://doi.org/10.1016/j.addbeh.2004.08.007>

Derogatis, L. R., & Covi, L. (1973). Confirmation of the Dimensional Structure of the SCL-90: A Study in Construct Validity. *Journal of Clinical Psychology*, 33(4), 981-989.

Dick, D. M., Naiman, A., Faraone, A. C., Schwabst, J. E., Chen, S. B., Adelman, A., Mervin, I., Yan, L., Conley, M., Chubb, L., Conroy, N., Halperin, L., Johnson, K., Nouri, J., Chhabildas, J., Hancock, L., Donovan, K. K., Sun, C., Riley, B., & Kendler, K. S. (2014). Spit for Science: Launching a longitudinal study of genetic and environmental influences on substance use and emotional health at a large US university. *Frontiers in Genetics*, 5(47), 1-12. <https://doi.org/10.3389/fgen.2014.00047>

Derogatis, L. R., Lipman, R. S., and Covi, L. (1973). SCL-90: An outpatient psychiatric rating scale-preliminary report. *Psychopharmacology Bulletin*, 9, 13-26.

Evans-Pitlor, R., Latta, S., Meigs, J. (2016). Heterogeneity of alcohol, tobacco, and other substance use behaviors in U.S. college students: A latent class analysis. *Addictive Behaviors*, 53, 28-34. <https://doi.org/10.1016/j.addbeh.2015.11.010>

Leung, J. W., & O'Leary, M. A. (2014). Marijuana, tobacco, and alcohol use patterns in college students: A latent class analysis. *Addictive Behaviors*, 53, 28-34. <https://doi.org/10.1016/j.addbeh.2015.11.010>

Leung, J. W., & O'Leary, M. A. (2014). Marijuana, tobacco, and alcohol use patterns in college students: A latent class analysis. *Addictive Behaviors*, 53, 28-34. <https://doi.org/10.1016/j.addbeh.2015.11.010>

National Institute on Drug Abuse (2019). Marijuana use at historic highs among college-age adults. Retrieved from <https://www.drugabuse.gov/news-events/news-releases/2019/09/marijuana-use-historic-highs-among-college-age-adults>

National Institute on Drug Abuse (2019). Alcohol. Retrieved from <https://www.drugabuse.gov/understanding-anxiety/related-disorders/substance-use>

Schry, A. R., White, S. W. (2013). Understanding the relationship between social anxiety and alcohol use in college students: A meta-analysis. *Addictive Behaviors*, 38(11), 2040-2050. <https://doi.org/10.1016/j.addbeh.2013.06.014>

Stowell, D., Lewis, K. A., & Brown, K. (2019). Elevated stress, substance use, and mental health issues among college students in the midwest. *Journal of Prevention & Intervention in the Community*, 62(2), 122-132. <https://doi.org/10.1002/jpic.1232>

Stowell, D., Lewis, K. A., & Brown, K. (2019). Elevated stress, substance use, and mental health issues among college students in the midwest. *Journal of Prevention & Intervention in the Community*, 62(2), 122-132. <https://doi.org/10.1002/jpic.1232>

Stowell, D., Lewis, K. A., & Brown, K. (2019). Elevated stress, substance use, and mental health issues among college students in the midwest. *Journal of Prevention & Intervention in the Community*, 62(2), 122-132. <https://doi.org/10.1002/jpic.1232>

Walters, K. S., Burtner, S. M., Tietens, P. F., Orsola, U., Boehmke, R. (2018). Substance use, anxiety, and depressive symptoms among college students. *Journal of Child & Adolescent Substance Abuse*, 27(2), 105-111. <https://doi.org/10.1080/10767449.2017.1400000>