

## INTRODUCTION

•Adolescence is a key developmental period in humans marked by numerous neurological changes. For some adolescents, these neurological changes can be associated with risky behavior, including using substances (Spear, 2000).

•One model suggests that substance use may precede psychiatric disorders (Brook et al., 2000).

•Substance use disorder has been linked to increased rates of psychiatric disorders during adolescence (Deas & Brown., 2006; Kandel et al., 1999; Makput 2020, Roberts et al., 2007).

•Even low levels of early adolescent substance use can be associated with psychiatric disorders during adulthood (Gil et al., 2004).

•It is expected that adolescent substance use will be positively associated with adult mental health symptoms across the mental health measures.

## METHODS

- The sample size was n=325.
- Participants were aged 19-30 to ensure the ability to recall prior adolescent substance use.
- A modified and unmodified version of the Drug History Questionnaire developed by Sobell et al., (1999) was used. The modified version measured adolescent substance use (from ages 12 to 18) for the following substances: alcohol, cannabis, hallucinogens and opioids.
- 4 scales were used to measure current (adult) mental health symptoms. Scales include the Community Assessment of Psychic Experiences, the Bipolar Spectrum Diagnostic Scale, the Zung Self-rating Depression Scale, and the Zung Self-rating Depression Scale.
- Pearson correlation coefficients were calculated between the frequencies of adolescent substance use for each drug/drug category (including both total years used and typical frequency of use) and the scores obtained for each adult mental health measure.
- 2-tailed significance tests were run to measure statistical significance.

## RESULTS

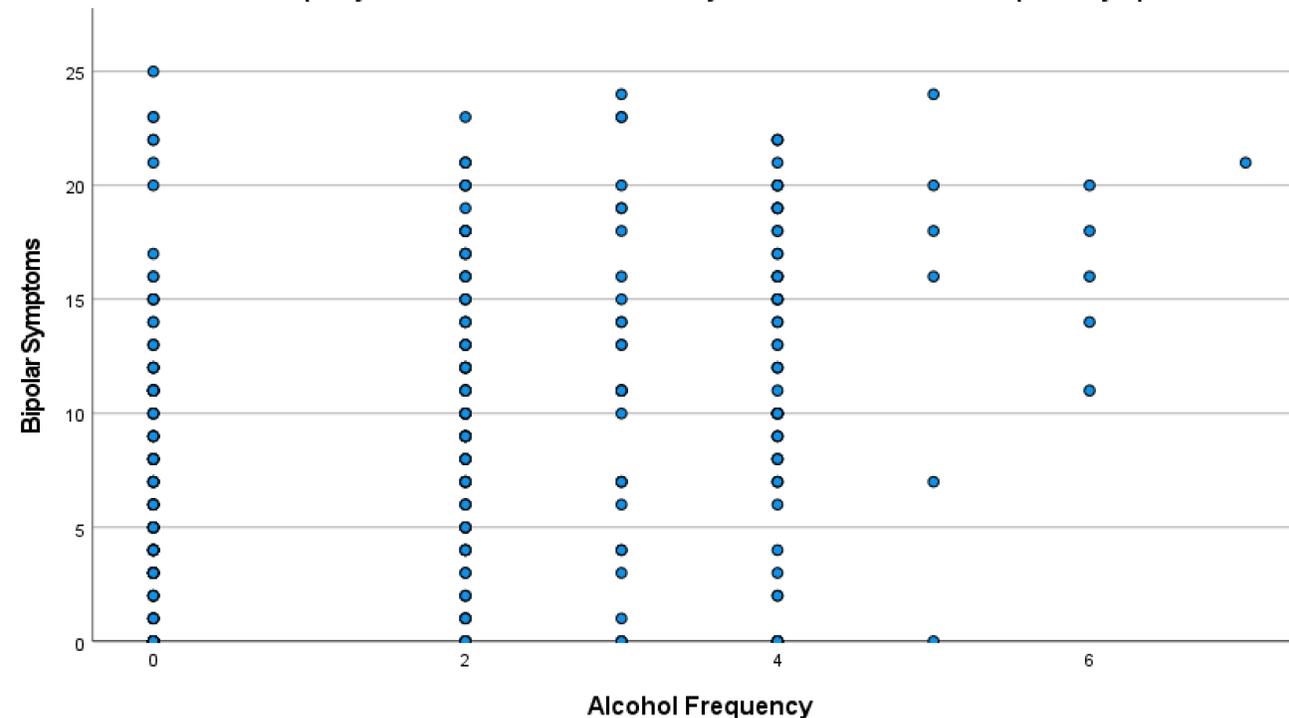
**Table 1**

*Pearson Correlation Coefficients (Modified Questionnaire)*

| Variable               | Psychosis Symptoms | Bipolar Symptoms | Depression Symptoms | Anxiety Symptoms |
|------------------------|--------------------|------------------|---------------------|------------------|
| Alcohol Years          | .16**              | .25**            | .08                 | .16**            |
| Alcohol Frequency      | .17**              | .32**            | .10                 | .16**            |
| Cannabis Years         | .21**              | .26**            | .16**               | .15**            |
| Cannabis Frequency     | .25**              | .30**            | .19**               | .17**            |
| Opioid Years           | .15**              | .19**            | .09                 | .10              |
| Opioid Frequency       | .13*               | .15**            | .06                 | .09              |
| Hallucinogen Years     | .22**              | .20**            | .09                 | .10              |
| Hallucinogen Frequency | .20**              | .23**            | .11*                | .13*             |

Note. \*p<.05 \*\*p<.01

**Adolescent Frequency of Use of Alcohol is Positively Associated with Adult Bipolar Symptoms**



## DISCUSSION

- Positive correlations were found between adolescent substance use across every substance class and the adult mental health measures, with the majority being statistically significant at at least a .05 power level. Notably, adult bipolar symptoms were among the highest correlations with adolescent substance use across all substances. Specifically, the highest correlations included moderate correlations between adolescent alcohol and cannabis use, for both years and frequency of use, and adult bipolar symptoms. Moreover, cannabis frequency of use and years of using hallucinogens during adolescence were among the highest correlations with adult psychosis symptoms.
- Our findings support findings by Duffy et al., (2012) which connected substance use to the development of the early bipolar disorder. Alternatively, as showcased by Wilens et al., (2004), adolescents with bipolar disorder have a high risk factor for substance use disorder. Our findings could be contextualized that adolescents who already had bipolar disorder had comorbid substance use as well, meaning that substance use may not have preceded bipolar disorder. Our results also mirror findings by Kiburi et al., (2021) that reflected adolescent cannabis use increasing the risk of adult psychosis.
- A future direction of research includes longitudinal research on substance use from adolescence into adulthood across a variety of mental health measures.
- Limitations of the study include the lack of measurement of substance binge use, the lack of longitudinal measurement of substance use and mental health symptoms, and the potential of decreased validity due to relying on self-report data. Furthermore, only conclusions can be made about the presence of mental health symptoms among participants and not the presence of any mental health disorder.
- A future direction of research includes longitudinal research on substance use into adulthood across a variety of mental health measures.
- Overall, the data suggest that adolescent substance use is connected to the increased occurrence of adult mental health symptoms across the measures of this study. Bipolar symptoms and adolescent alcohol and cannabis use seem to have the strongest relationship, followed by adolescent cannabis use and psychosis symptoms.