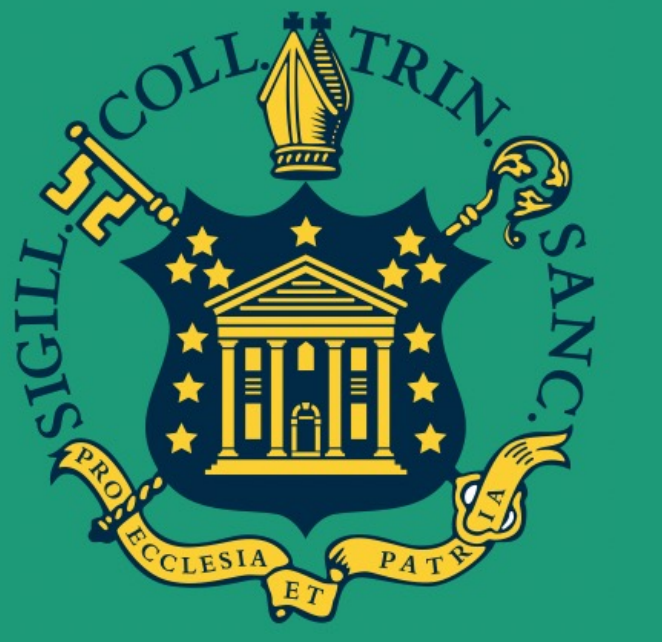




# Substance Use Trajectories Among College Graduates: Associations with Negative Mood States, Employment Status, and Quarantine

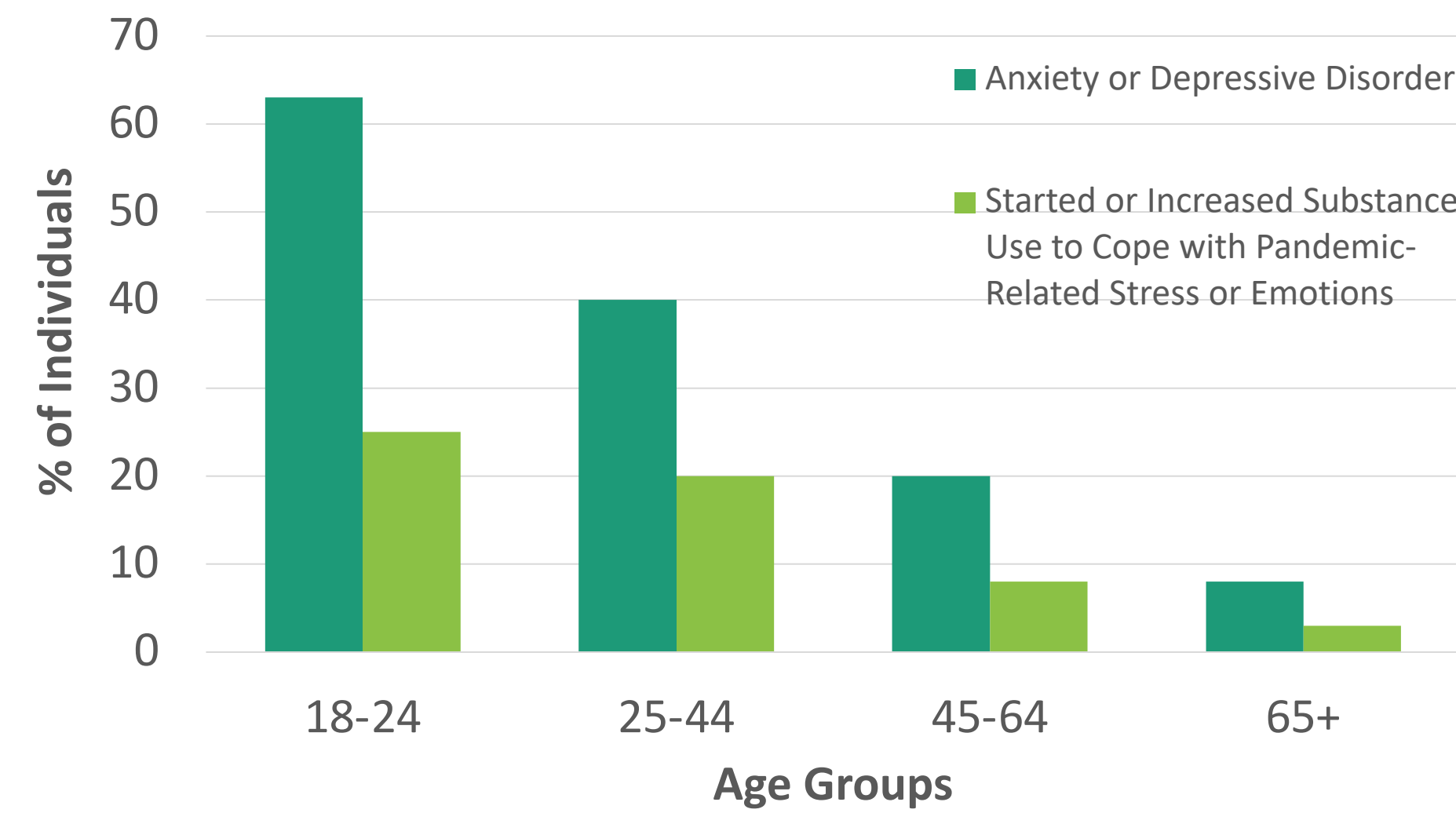


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## Background

- Substance use** is very prevalent among emerging adults (ages 18-25), as they are more susceptible to stressors and risk behavior due to the developmental transitions that occur during this life stage (e.g., graduating from college, entering the workforce). For example, **10%** of emerging adults have an alcohol use disorder, compared to **5%** of adults (ages 26+). **7%** of emerging adults have misused prescription stimulants in the past year, compared to **1%** of adults (NSDUH, 2018).
- Maturing out** is a term used to describe the decline in substance use that tends to occur with increased age (Lee & Sher, 2018; Verges et al., 2013). However, rates of maturing out vary considerably between different demographic groups (e.g., gender, race, socioeconomic status), life circumstances (e.g., employment status, living situation) and substances (e.g., alcohol, marijuana).
- Mental illness** is also very prevalent in emerging adults. In 2019, **8%** of young adults had a serious mental illness within the past year, in comparison to **6%** of adults (ages 26-49) and **3%** of people ages 50+ (NSDUH, 2019). Comorbidity between mental illness and substance use is common, and comorbidity increases the severity of both mental disorders and substance use (Lai et al., 2015; Swendsen et al., 2010).



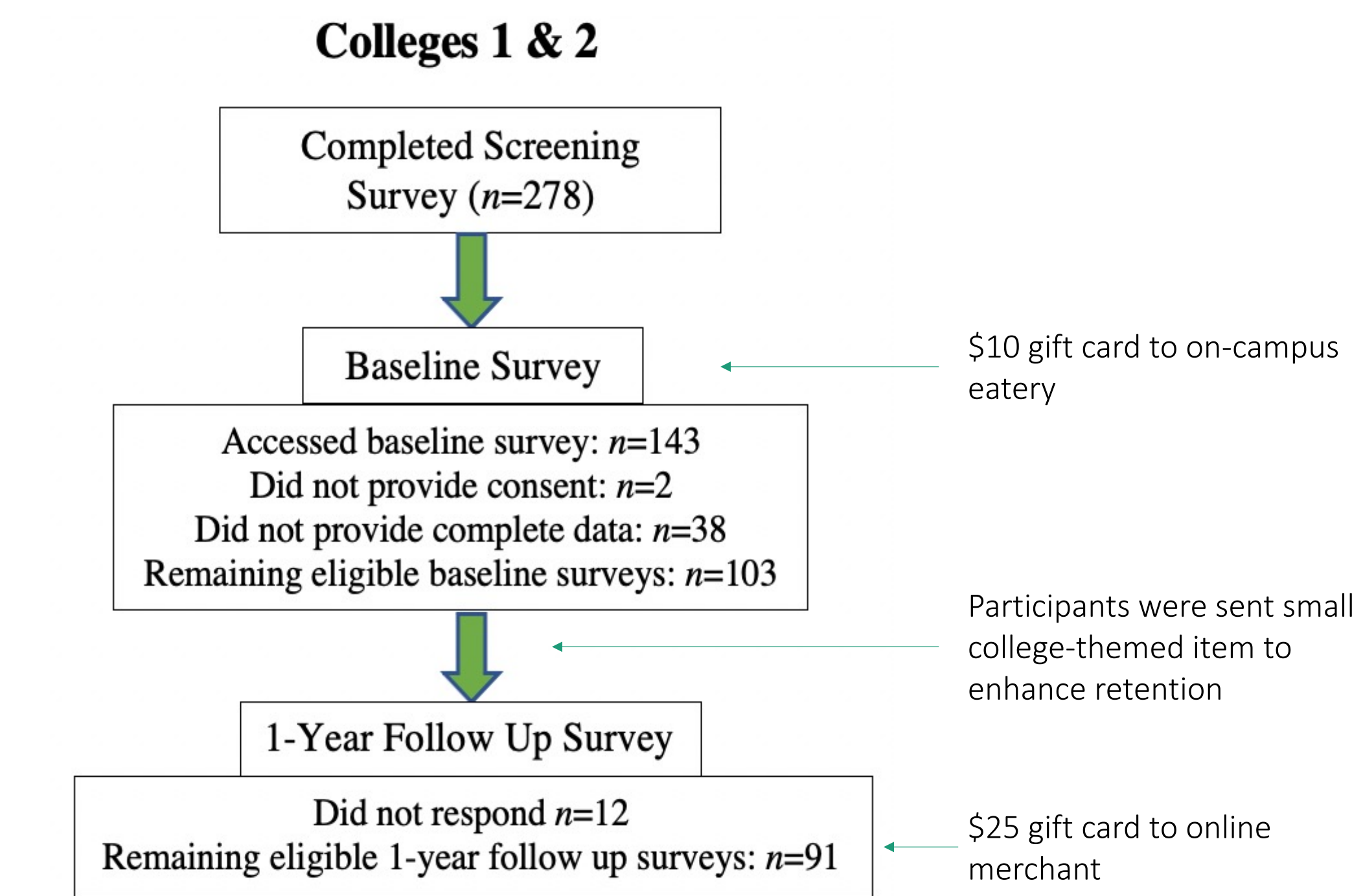
- As shown above, **the COVID-19 pandemic** has had a substantially negative effect on the mental health and substance use of emerging adults. Elevated rates of stress, anxiety, and depression symptoms, along with increased substance use, have been reported on a global scale (Czeisler et al., 2020), and the effects have been most pronounced for emerging adults (CDC, 2020).
- The current study focused on an understudied population, college graduates, and examined relations among their demographic characteristics, substance use, and negative mood states following graduation and the first month of COVID-19.

## Hypotheses & Research Questions

- [H1]** Frequency of all substance use (e.g., nicotine, alcohol, marijuana, cocaine) will show a decline over the one-year period.
- [H2]** Participants whose depression, anxiety, or stress increases over the one-year period will also show an increase in substance use.
- [H3]** Individuals who are employed full-time will show lower rates of substance use at one year compared to those who are unemployed.
- [RQ1]** How did depression, anxiety, and stress change between baseline and one-year (the onset of the COVID-19 pandemic)?
- [RQ2]** To what extent did substance use increase during the last 30 days (during the onset of the COVID-19 pandemic)?

## Participants & Procedure

<b>Gender</b>	Male: 33% Female: 65% Gender non-conforming or fluid: 2%
<b>Age at Baseline</b>	$M=21.96$
<b>Race/Ethnicity</b>	White: 82% African American/Black: 3% Asian/Asian American: 7% Hispanic/Latino: 5% Bi/Multiracial: 3%
<b>Living Situation at 1 year</b>	With family of origin: 63% Independent: 37%



## Measures

Measure	Response options
<i>Substance use</i> within the past year (tobacco/nicotine, alcohol, marijuana, cocaine, hallucinogens, prescription opioids, prescription anxiety medications)	7-point Likert scale, 1="never", 7="40 or more times"

*Changes in substance use over past 30 days* (tobacco/nicotine, alcohol, marijuana, cocaine, hallucinogens, prescription opioids, prescription anxiety medications)

increased; decreased; stayed the same

*Depression, anxiety, and stress* symptoms in the last week (DASS-21 scale; 7 items/subscale Lovibond & Lovibond, 1995)

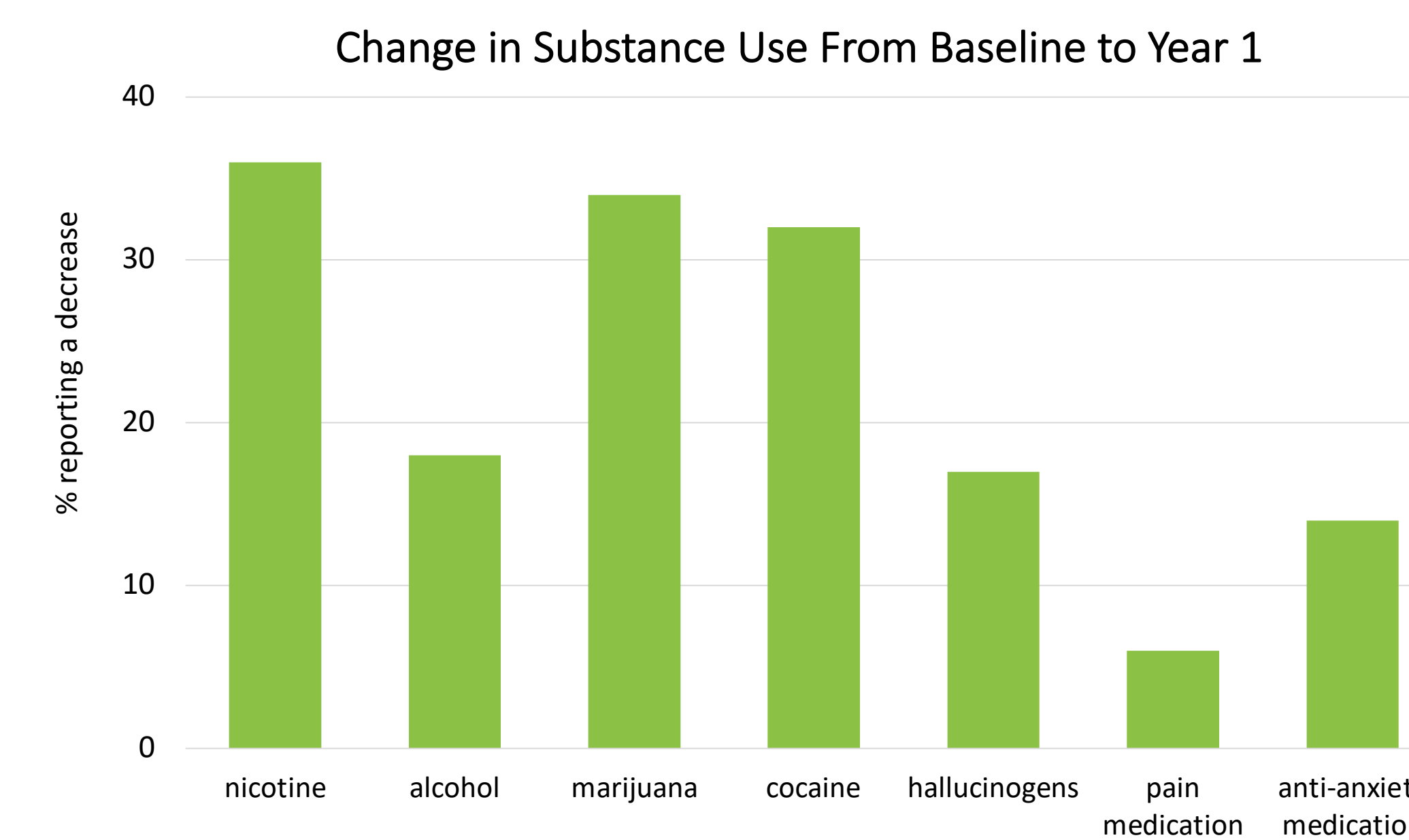
0 ("did not apply at all") to 4 ("applied to me most of the time").

*Employment status:* Employment status 1 to 3 months prior to the beginning of COVID-19.

employed full-time (40 hours/week or more); part-time (less than 40 hours/week); unemployed and currently looking for work; unemployed and not currently looking for work; graduate student; self-employed; unable to work

Participants were also asked to describe any changes in employment due to COVID-19 (e.g., furloughed, laid off, hired, working from home) through an open response question.

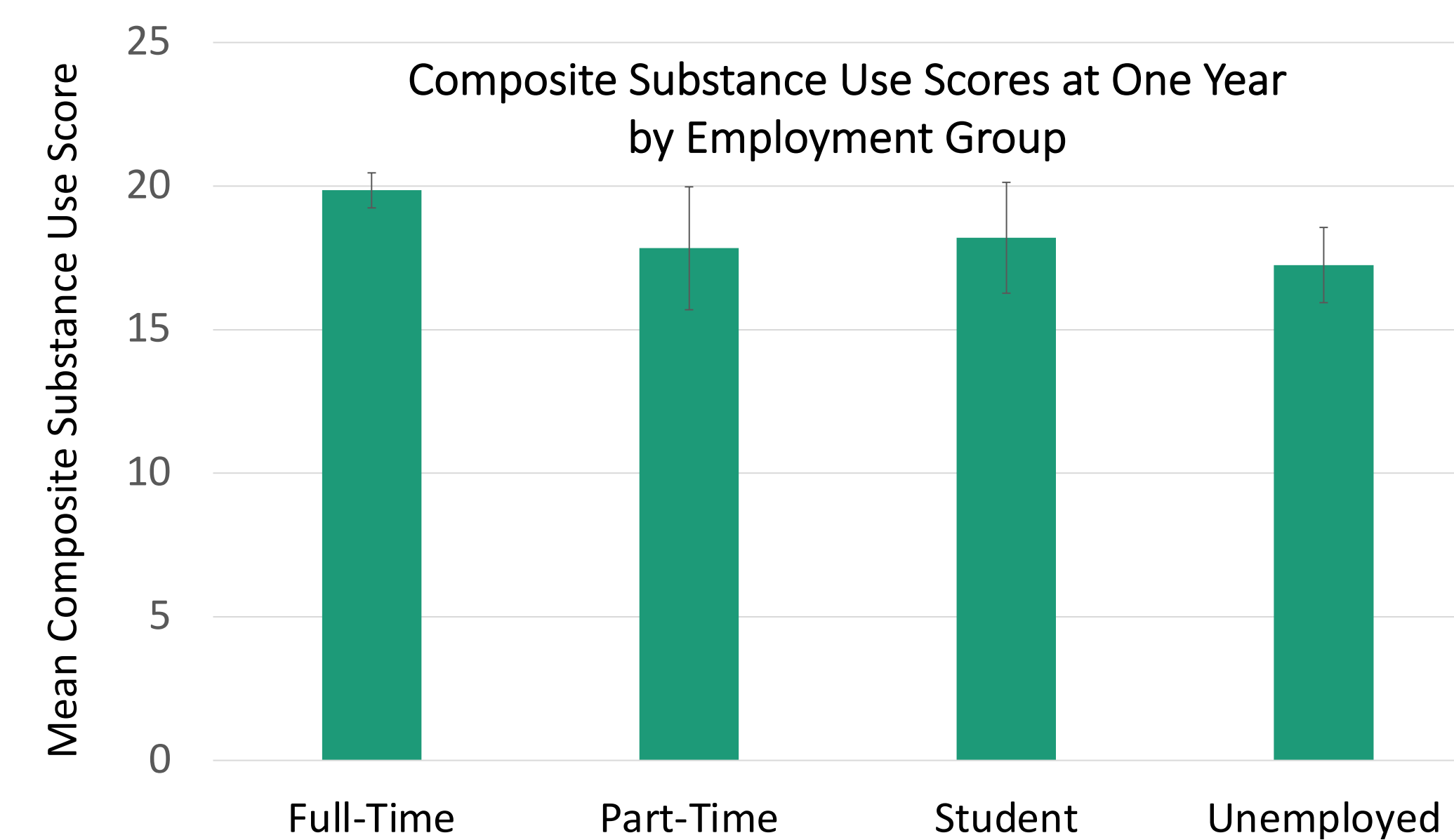
## Results



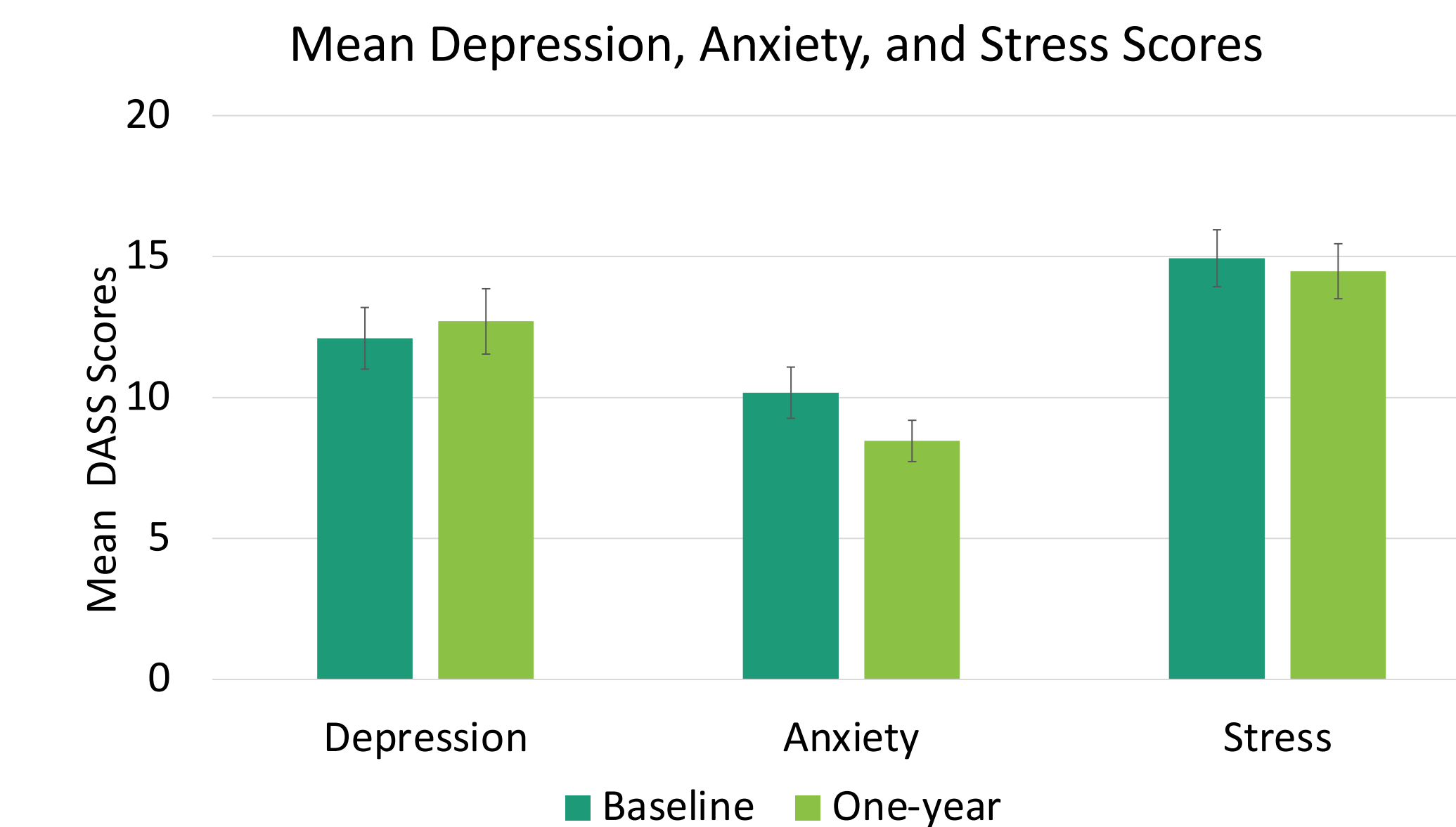
**H1 was partially supported.** The mean change in overall substance use ( $M=-1.68$ ) was negative, indicating that when increases and decreases for all substances were combined, there was a net decline. Participants were most likely to decrease their use of nicotine, marijuana, and cocaine (see above), but "staying the same" was the most common response.

**H2 was not supported.** Correlations between changes in depression and changes in substance use; changes in anxiety and changes in substance use; and changes in stress and changes in substance use were non-significant.

Depression	$r = .08, p = .45$
Anxiety	$r = .20, p = .06$
Stress	$r = .16, p = .12$

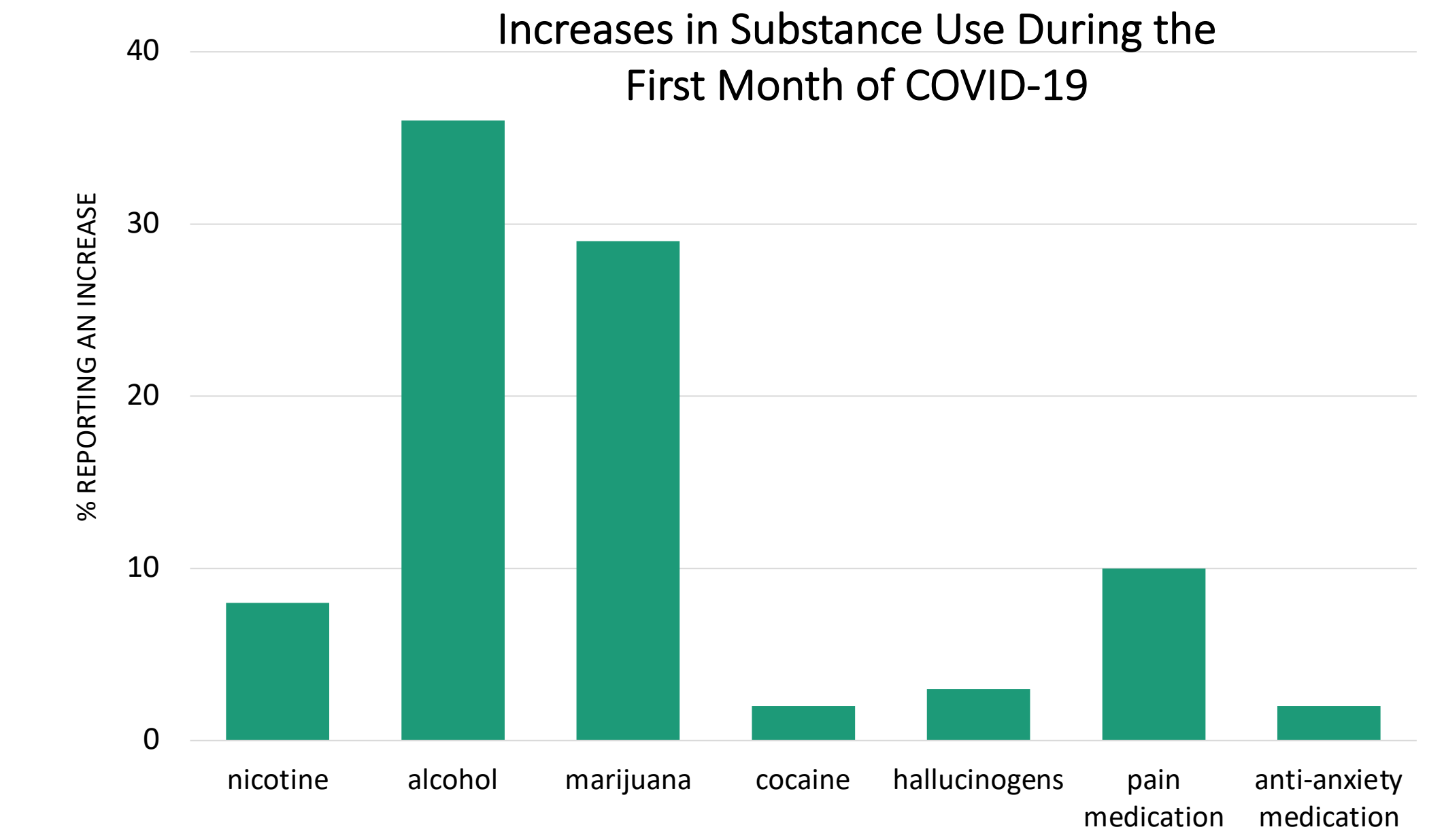


**H3 was not supported.** A one-way ANOVA showed no differences in overall substance use by employment group  $F(3, 87)=1.05, p=.38$ .



**RQ1:** Paired t-tests showed that graduates did not report a significant increase in depression [ $t(89)=-1.097, p=.276$ ], anxiety [ $t(90)=1.973, p=.052$ ], or stress [ $t(90)=.579, p=.564$ ] during the first month of the pandemic compared to baseline.

## Results



**RQ2:** Graduates were most likely to increase their alcohol and marijuana use early in the pandemic compared to other substances.

## Conclusions

- As predicted, overall substance use showed a net decline from baseline to year one, in line with literature showing a decrease in overall substance use with increasing age (maturing out).
- Contrary to the literature, changes in negative mood states were not associated with changes in substance use. It may be that substance use was impacted by other individual or situational factors (e.g., access to substances) with onset of the pandemic.
- My finding that there were no significant differences in substance use by employment group was not in line with existing literature. Most graduates working full-time in the current study reported working remotely, which might have meant that they could adopt similar substance use patterns to graduates working fewer hours. It would be interesting for future research to examine how remote work is associated with substance use patterns.
- Graduates did not show significant increases in depression, anxiety, or stress between baseline and the first month of COVID-19. However, compared to normative scores, their mean scores for depression and anxiety were in the moderate range at both baseline and one-year, and stress scores were in the mild range. It is possible that they would have declined without the onset of the pandemic. Our two-year follow-up data will provide more information about potential stability or change in negative affect.
- Alcohol and marijuana use were mostly likely to increase one month into the pandemic. Alcohol showed both the biggest increases and decreases in use compared to all other substances. Perhaps some graduates were using alcohol more often to cope; others might have been using less often because of fewer social opportunities. Future research could explore specific factors that prompted increases or decreases in the use of these substances.
- Limitations of this study included; small and relatively homogenous sample size, lack of detailed measures of substance use, and that DASS scales did not capture functioning throughout the entire year of the study, just the past week or 30 days.

## Acknowledgements

I would like to express my utmost gratitude to Professor Holt for her continued support and for guiding me throughout the entirety of my thesis project. I would also like to thank Professor Holt and Professor Su Langdon (Bates College) for creating the survey and collecting the data used in my thesis project, making this longitudinal study possible. Lastly, I would like to thank Professor Senland and the Senior Thesis Colloquium for their continued encouragement.