

Associations between substance misuse, social factors, depression, and anxiety among college students

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SUMMARY

Research on substance misuse and mental health is becoming increasingly important. Many individuals struggle with their mental health and turn to substances to cope. It is important for those who are struggling with their mental health to not turn to substances, as substance use could exacerbate their mental health concerns. Recent studies suggest that individuals in long-term relationships may have a lower chance of misusing substances. Therefore, our research question examines how an individual's relationship status correlates with mental health concerns, such as depression, anxiety, and fear of missing out (FoMO). This was tested using a survey sample of college students. We hypothesized that individuals with higher substance use (alcohol and drug use) will have increased levels of stress, anxiety, FoMO, and depression. We also hypothesized that those engaged in long-term relationships will have decreased levels of FoMO and substance use. By surveying college students with questions related to our hypotheses, we found that those with higher substance misuse had higher levels of anxiety, depression, and FoMO, and that those involved in longer-term relationships had lower levels of FoMO and alcohol use. These findings have identified important risk factors that may serve as targets for on campus prevention and intervention efforts for college student well-being.

INTRODUCTION

The transition of beginning college can bring academic pressures and stressors that often precipitate mental health issues that are common for college students (1). Furthermore, as many college students are mapping out their lives during this time, this leads to increased decision-making, identity exploration, and education and career choices that is often accompanied by alcohol and drug use (2).

Alcohol consumption is very common among college students and in one study conducted by the National Survey on Drug Use and Health, participants aged 18-25 years old reported that approximately 55% had consumed alcohol within the previous 30 days (3). In that same survey, within the previous month one-third of the participants reported binge drinking, which is defined as consuming four to five or more drinks in two hours (4). In another study, approximately 9% of young adults reported heavy alcohol use, which was defined as binge drinking for five or more days in the prior month (5). There has also been research conducted on the

social context of drinking behavior and how it can differ with varying social norms (5). In the population of college students, alcohol use is commonly associated with social activities and is often seen as part of the college experience (5). Additionally, many students overestimate the frequency and amount of drinking their peers are participating in, which impacts how often and how much they think they need to drink (5). Because alcohol use is so prevalent among college students, it is important for more research to be performed to understand how alcohol misuse can become a problem and how student affairs professionals can support prevention and recovery efforts. Alcohol misuse can affect college students' mental health, as research has shown that co-occurrence of depression or anxiety with alcohol use disorder is common (5). Drinking can worsen mental health concerns, making symptoms more severe and interfering with treatment. For instance, alcohol misuse increases the risk of suicidality by approximately seven times, with even higher risk associated with heavy use (5).

Anxiety and depression are very common mental health issues among college students, with approximately 11.9% of college students having an anxiety disorder, and 7–9% experiencing depression (6). It has been shown that substance misuse may correlate with depression, anxiety, or stress (7). This can be measured by the Depression, Anxiety, and Stress Scale-21 (DASS-21), which is a questionnaire devised to assess the symptoms of depression, anxiety, and stress of an individual (7). The questionnaire focuses on low mood, self-esteem, and motivation (7). Higher scores express increasing severity of stress, anxiety, or depression (7). The DASS-21 severity ratings are based on mean population scores; the further away an individual's score is from the population mean, the more severe the symptoms (7). One aspect that is important to consider when assessing results of the DASS-21 is an accurate evaluation of mood, as the questions on the DASS-21 can reflect mood disturbance. However, the DASS-21 reflects strong validity and is therefore an appropriate measure of depression, anxiety, and stress regardless of emotional state at the time of survey (8).

Substance misuse and depression have been found to be correlated in a number of studies (9, 10). For instance, a study was conducted examining whether substance use disorders are associated with depressive conditions (9). In their results, they found that patients were found to score lower in regard to depression on the DASS-21 questionnaire after detoxification compared to when they initially entered the facility (9). Additionally, in another study that used the DASS-21 found that the majority of patients who were addicted to, or dependent on, substances also reported moderate depression, poor social relationships, and high levels of anxiety (10). Furthermore, there was also an association

between anxiety and poor social relationships, as well as drug dependency and depression (10).

Fear of Missing Out (FoMO), or the feeling one has when they think they are missing out on a rewarding experience that others are experiencing, may also play a role in alcohol use in college students (11). In one study, there was a connection between FoMO and the number of drinks consumed per drinking session, as well as a correlation between FoMO and negative alcohol-related consequences (11). One study was conducted to examine the relationship between FoMO and alcohol use during orientation week at a university, which is associated with excessive alcohol use and harm among young adults (11). The results of this study implied that FoMO predicted that individuals may experience harm due to reasons beyond orientation week drinking, or that drinking alone may not be the cause of the consequences (11).

Mindfulness may serve as a tool to improve mental wellbeing in college students and help them cope with the changes that accompany starting college. Mindfulness is considered a method of being present in a non-judgmental, openhearted, and non-reactive manner (12). In a study conducted by Altinyelken *et al.*, there were indications that through mindfulness, students wanted to improve their awareness of negative emotions and make their coping mechanisms more effective (12). Practicing mindfulness seemed to offer resources that made it possible for students to shift their mindset from a negative one to a positive one, resulting in overwhelmingly reported positive outcomes, as students sought self-compassion and an improved sense of presence following the program (12). In addition, one study showed that mindfulness-based interventions (MBIs) were successful in reducing smoking urges and cravings (13).

The presence of a significant other in a romantic partnership may modulate the relationship between substance use and FoMO, as well as between depression and anxiety. College students in committed relationships experience fewer mental health concerns (14). Additionally, those in relationships engage in less risky behavior than those who are single (14). This may be because they have less time to participate in such activities, as well as because risky behaviors, such as substance use, conflict with the less reckless behavior committed relationships cause (14). A final possibility is that those who are engaged in risky behaviors are unable to stay in a committed relationship and are more likely to be single (14).

Given the extensive research on the deleterious effects of substance use in college populations in addition to the increasing prevalence of FoMO in this population, promoting mental wellbeing is of utmost importance (15). Previous research has shown that MBIs can be effective for preventing substance use disorders. Given the efficacy of mindfulness as an intervention to increase emotion regulation, this may be a mechanism through which the negative effects of substance misuse can be mitigated (16). We were able to determine these relationships through surveying college students on their alcohol and substance use and mental health concerns. We included measures on stress, depression, anxiety, mindfulness, and substance use (alcohol and drug use), then interpreted the correlational values between these measures. Therefore, we hypothesized that individuals with higher substance use will have increased levels of stress, anxiety, FoMO, and depression. We also hypothesized that

those engaged in long-term relationships will have decreased levels of FoMO and substance use. Our results support our hypothesis indicating that those with higher substance misuse had higher levels of anxiety, depression, and FoMO, and that those involved in longer-term relationships had lower levels of FoMO and alcohol use.

RESULTS

In a sample of college students using survey data, we found significant correlations between drug use, alcohol use, FoMO, stress, anxiety, and duration of a relationship. There were also correlations between these measures and mindfulness, which was measured by the Five Facet Mindfulness Questionnaire (FFMQ). The FFMQ asks participants a number of prompts regarding their awareness, ability to communicate, and subconscious reactions. Participants can select a number one through five that corresponds to frequency of the event occurring. For example, one prompt includes “I watch my feelings without getting lost in them.” There was a significant, positive correlation between drug use and anxiety ($r(571)=0.115, p=0.006$). Second, between drug use and depression, there was also a significant, positive correlation ($r(564)=0.140, p<0.001$). Third, between FoMO and alcohol use, there was a significant, positive correlation, ($r(571)=0.129, p=0.002$). Fourth, between FoMO and the length of a relationship, there was a significant, negative correlation ($r(587)=-0.096, p=0.021$). Fifth, similarly, between alcohol use and the length of a relationship, there was a significant, negative correlation value of ($r(571)=-0.106, p=0.012$) (Figure 1).

Additionally, there were other significant correlations that were not related to our hypotheses. First, between drug misuse and alcohol misuse, there was a significant, positive correlation ($r(562)=0.325, p<0.001$). Second, between a mindfulness measure, FFMQ Observing, and FoMO, there was a significant, positive correlation ($r(567)=0.086, p=0.041$). Third, between FFMQ Observing and stress, there was a significant, positive correlation ($r(559)=0.252, p<0.001$). Fourth, between FoMO and stress, there was a significant,

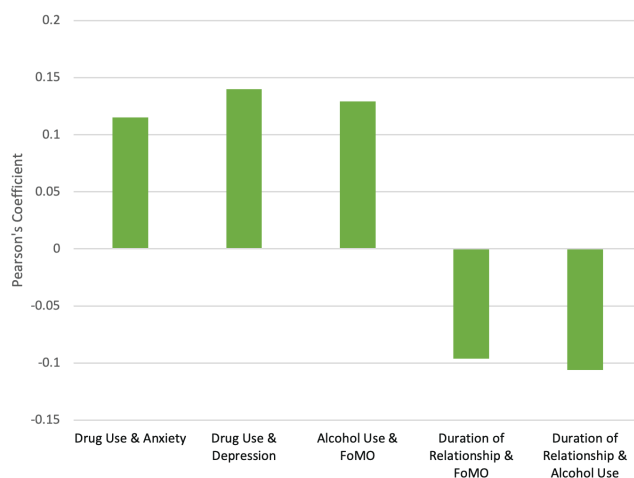


Figure 1: Hypothesized Correlations. Results of the correlations that were originally hypothesized. On the x-axis, the various relationships are shown. The Pearson's Coefficient values range from -0.15 to 0.2.

		Drug Use	FFMQ Observing	FoMO	Stress scale	Alcohol Use
FoMO	Pearson Correlation		0.086**			
Stress scale	Pearson Correlation		0.252**	0.518*		
Anxiety scale	Pearson Correlation	0.115*			0.726*	
Depression scale	Pearson Correlation	0.140*				
Alcohol Use	Pearson Correlation	0.325*		0.129*		
Duration of relationship	Pearson Correlation			-0.096**		-0.106**
	M	1.82	14.68	2.26	6.49	4.57
	SD	3.79	6.65	0.84	4.38	4.62

Table 1: Significant correlations between specific measures (n = 588). Eight measures are presented including: FoMO, stress scale, anxiety scale, depression scale, alcohol use, duration of relationship, drug use, and FFMQ Observing. Mean (M) and standard deviation (SD) for five measures are included in the bottom two rows. * $p < 0.05$, ** $p < 0.01$

positive correlation ($r(577) = 0.518, p < 0.001$). Fifth, between stress and anxiety, there was a significant, positive correlation ($r(573) = 0.726, p < 0.001$) (Table 1).

DISCUSSION

The significant correlations found indicate potential important relationships between these variables. First, the positive correlation between drug use and anxiety shows that increased levels of anxiety also implied increased levels of substance misuse. An explanation for this correlation is that those with anxiety may turn to substances to help manage their anxiety symptoms. Second, similarly, the positive correlation between drug use and depression shows that greater levels of depression and mental illness may also lead to increased drug use as a coping mechanism. These two relationships are evidenced by studies that show relationships between substance misuse and depression, anxiety, and stress (7). Third, the correlation value between FoMO and alcohol use also shows a weak, positive relationship between the two measures, suggesting that with increased alcohol use also came increased levels of FoMO. This could be explained by alcohol having negative effects on one's mental health, and, therefore, may cause increased levels of FoMO. This can be supported by a study conducted at one university during orientation week, which found a relationship between FoMO and alcohol use (11). Fourth, FoMO and the duration of a relationship had a negative, significant correlation. This correlation value implies that the longer the participant had been dating their partner, the less FoMO they experienced. An explanation for this could be that someone who has a long-term partner would be able to cope with stress more easily, with the support of that partner. Fifth, between alcohol use and the duration of a relationship, there was also a

negative, significant correlation. This implies that the longer a relationship continues, one would consume less alcohol. An explanation for this could be that one who has been with a partner for an extended period of time may not go to alcohol as a coping mechanism for poor mental health. These two relationships involving a long-term relationship are also supported by studies that find that individuals in relationships do not engage in risky behavior as often as those who are single (14). We cannot infer directionality with a correlation; thus, more research is needed to understand this relationship precisely.

Additionally, we found other significant correlations outside of our original hypotheses but related to the overall scope of this study. First, the positive correlation between drug use and alcohol use implies that one who uses drugs is more likely to also drink alcohol. This is important and relevant to our hypothesis because this shows a relationship between drug use and alcohol use, which could have negative effects on mental health. Additionally, a relationship between these two measures may also indicate that if an individual has increased levels of drug use, they may also have increased levels of alcohol use. Increases in these variables may lead to poorer mental health and mindfulness. Second, a positive, significant correlation between FFMQ Observing and FoMO indicates that with higher levels of mindfulness, also comes higher levels of FoMO. An explanation for this correlation would be that those who experience FoMO may turn to mindfulness as a way to help reduce the impact FoMO has on their life, but this method may not be working as effectively as desired. Although college students may be attempting to reduce stress, they may be not having a significant impact in their practices and still be experiencing stress. Fourth, between FoMO and stress, there was a positive, significant correlation, implying

that with higher levels of FoMO, there were also higher levels of stress. This relationship could support the idea that those who report high levels of stress may also be more likely to report FoMO in social contexts where they are excluded. Fifth, the positive correlation between stress and anxiety was the highest of the bivariate correlations. This suggests that if a college student has stress, they likely also have anxiety. An explanation for this could be that when one is more stressed, they are also more anxious because of the negative effects of stress, and/or that they are highly similar constructs.

The current study found significant associations between substance use, FoMO, depression, and anxiety in college students. This is important for understanding risk factors in college student populations and could influence future research targeted at these mechanisms to improve overall health and wellbeing. Significant findings regarding substance misuse and mental health concerns are increasingly important for college students. With the specific settings of college that involve peer pressure, academic stress, and generally a new environment, FoMO, depression, and anxiety are becoming more prevalent amongst today's college students. With such findings, it is of high importance that mental health and wellbeing become more prioritized in college environments, and that students find ways to be more mindful in their daily lives.

It is important to acknowledge the limitations of this study in the context of the results. First, these measures were collected cross-sectionally, at the same point in time, and were limited to correlational analyses. Further analyses in subsequent research may choose to focus on statistical methods such as moderation and mediation in which relationships between associated variables are accounted for to better correlate specific results. Thus, we are unable to make conclusions about causal relationships between variables. However, these significant associations and the positive or negative nature of those correlations may provide important insights into future experimental research that could further investigate causal relationships. Second, limited racial diversity may be another factor that could skew the results of this study. As this study was conducted at a Southern, largely white-dominated

university, race could be a potential factor that may play a role in some of the relationships found. We did not include racial profile into our research question; however, we now see the importance of having a racially diverse sample to be able to appropriately represent this population of college students.

MATERIALS AND METHODS

In the spring and fall 2021 semesters, participants were recruited from undergraduate psychology courses after being informed that they could earn partial course credit for participating. Participants who chose to participate and met eligibility criteria were directed to a link to the online survey. To be eligible to participate, students had to be in a romantic relationship lasting at least one month. Participants provided informed consent before filling out the online survey. They provided their age, year in college, gender identity, sexual orientation, race/ethnicity, and relationship length. For evaluating stress, anxiety, and depression, the DASS-21 questionnaire was used. Additional measures included in the survey were FoMO, Five Facet Mindfulness Questionnaire (FFMQ), Alcohol Use Disorders Identification Test (AUDIT), and Drug Use Disorders Identification Test (DUDIT).

The FoMO scale allows for individual scores to be calculated by averaging responses to the ten items on the survey and forming an internally consistent composite score of $\alpha=0.87$ to 0.90 , which indicates that the measure has high internal consistency among items (17). Items on the FoMO scale include statements such as "I fear others have more rewarding experiences than me" and "I get worried when I find out my friends are having fun without me."

The FFMQ measures mindfulness levels through five separate measures. Each of the 39 items is measured using a 5-point scale that ranges from 1 (*never or very rarely*) to 5 (*very often*). The five individual measures can be combined to produce a total score, which reflects a global measure of mindfulness (18).

Next, the Alcohol Use Disorders Identification Test (AUDIT) is a 10-item screening tool that individuals can use to evaluate if others, or themselves, are using alcohol in a problematic manner (19). It asks a number of questions, such

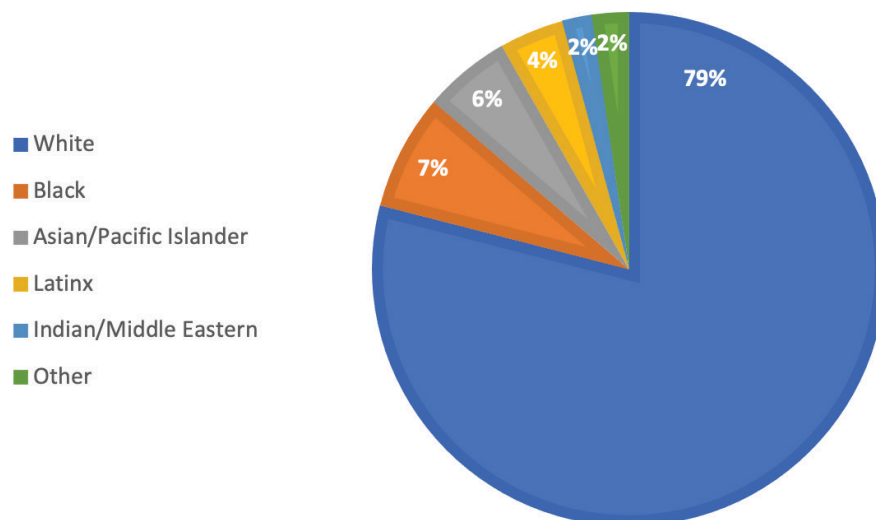


Figure 2: Racial Demographics. Self-reported racial identity of study participants.

■ Heterosexual ■ Bisexual ■ Gay/Lesbian ■ Other

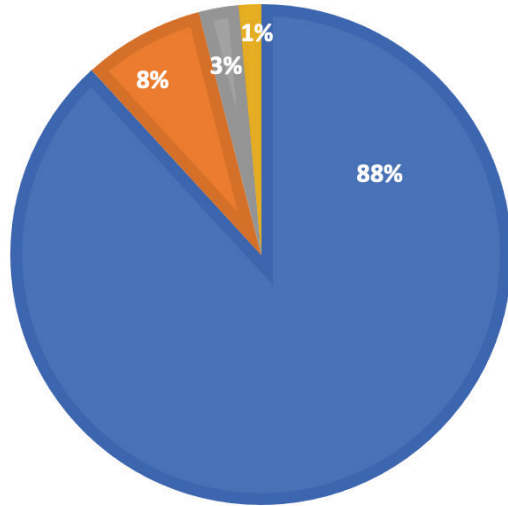


Figure 3: Sexual Orientation of Participants. Self-reported sexual orientation of study participants.

as “How often do you have a drink containing alcohol?” and “How often during the past 12 months have you failed to do what was normally expected from you because of smoking?”

Finally, the Drug Use Disorders Identification Test (DUDIT) is a screening that provides information on the level of drug intake and criteria for substance misuse and dependence. The DUDIT surveys individuals by asking prompts, such as “About how often do you use cannabis (for example, hash, pot, marijuana, THC, or other)?” and “How often during the past 12 months have you found that you were not able to stop using drugs once you had started?” Individuals are prompted

to choose the appropriate response, ranging from “never” to “daily”. The AUDIT and DUDIT were created to complement each other, both tests yielding scores on a continuous interval scale (20).

The current study was performed at a large, public, southeastern university and involved 588 undergraduate students. Of this sample, 68.7% of the students were female. All participants ranged from 18 to 37 years of age ($M=18.94$, $SD=1.72$). The average relationship length of participants was 13.41 months. Also, the sample was predominantly White (83.5%), followed by Black (7.7%), Asian/Pacific Islander (5.8%), Latinx (4.3%), Indian/Middle Eastern (2.0%), and other (2.4%) (Figure 2). Regarding sexual orientation, 88.1% of participants identified as heterosexual. The remainder of participants identified as either bisexual (7.8%), gay/lesbian (2.6%), or other (i.e., asexual, pansexual, bicurious, or queer; 1.4%) (Figure 3). Additionally, participants also reported using a variety of recreational drugs, including cannabis, cocaine, and hallucinogens (Table 2). Participants also used alcohol, with 432 having drunk alcohol in the past year out of the 588 total participants.

We used SPSS Version 27.0 to clean and score data by removing missing cases and computing total and sub-scale scores for more measures, as appropriate. After cleaning and scoring data, we examined descriptive statistics and bivariate correlations between study variables using the software mentioned above. Finally, we calculated internal consistency (i.e., Chronbach’s alpha) for each measure.

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	Cannabis	Cocaine	Hallucinogens	Non-prescribed stimulants	Non-prescribes sedatives	Non-prescribed opiates	Other substances
Never	380	571	548	575	570	573	570
Less than once a month	92	8	31	10	11	10	10
Once a month	16	4	6	1	2	1	3
2-3 times a month	31	2	1	1	4	2	0
Once a week	12	1	0	0	0	0	0
2-3 times a week	17	1	0	0	0	0	2
Daily	40	0	0	0	0	0	1

Table 2: Frequency of specific drugs used by participants. There are seven types of substances represented, including cannabis, cocaine, and hallucinogenic drugs. For participants who used a drug daily, cannabis was the most common.

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