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SUBSTANCE USE, DEPRESSION, ANXIETY AND STRESS AMONG UNIVERSITY STUDENTS

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Abstract

Depression, anxiety, stress, and substance use pose major public health concerns. Substance use negatively impacts mental health. Excessive drug use often exacerbates symptoms of depression, anxiety, and stress, leading to adverse health outcomes. This study aims to investigate the relationship between substance use and depression, anxiety, and stress among university students. Using purposive sampling, a sample of 60 university students aged 17 to over 30 was recruited from various universities in Rawalpindi and Islamabad. The research employed a correlational design, utilizing the Depression, Anxiety, and Stress Scale - 21 Items (DASS-21) and the Drug Abuse Screening Test (DAST-10) for data collection. Pearson correlation analysis revealed a significant positive relationship between substance use and symptoms of depression, anxiety, and stress. The findings underscore the need for interventions targeting substance use to alleviate mental health challenges. Limitations, future research directions, and practical implications are discussed.

INTRODUCTION

The purpose of this study is to examine the relationship between substance use and its effects on depression, anxiety, and stress among university students. Research has shown that individuals with substance use disorders (SUD) often experience psychological challenges, including depression, anxiety, and stress. Conversely, individuals struggling with depression, anxiety, and stress are at a higher risk of developing substance use issues. According to national population studies, more than 60% of individuals with psychological difficulties also experience substance use problems, and vice versa (Ross & Peselow, 2012; Kelly & Daley, 2013).

Substance use during adolescence and young adulthood is particularly concerning as it is linked to the development of substance use disorders later in life (Winters et al., 2014). Additionally, early substance use can contribute to the onset of other mental health conditions in the future, including severe depression and generalized anxiety disorder (Barkus & Murray, 2010).

Depression, Anxiety, and Stress

Depression, anxiety, and stress are interconnected dimensions of mental well-being that impact how individuals think, feel, and behave. These conditions influence decision-making, relationships, and the ability to cope with life's challenges. Depression is characterized by persistent feelings of sadness, hopelessness, and worthlessness, often accompanied by physical symptoms such as changes in sleep, appetite, and energy levels (Britannica, 2021). Anxiety manifests as excessive worry, tension, and physical symptoms such as rapid heartbeat and restlessness (American Psychiatric Association, 2021). Stress arises when individuals perceive that the demands placed on them exceed their capacity to cope, leading to physical and emotional strain (Lazarus & Folkman, 1984).

The significance of addressing depression, anxiety, and stress is critical due to their profound effects on university students. Research highlights the harmful impact of these conditions on academic performance, social interactions, and physical health. For instance, depression has been linked to unhealthy habits such as smoking, poor nutrition, lack of physical activity, and inadequate sleep (Doom & Haeffel, 2013). Co-occurring psychological challenges, such as anxiety and depression, can amplify the negative effects of substance use behaviors (Dawson et al., 2004; Kushner & Sher, 1993; Baer, 2002).

Substance Use and Psychological Well-Being

Substance use is distinct from addiction. While many individuals can modify or stop their substance use, addiction represents a disorder characterized by an inability to control use despite adverse consequences (Dumain, 2018). Prolonged substance use can exacerbate psychological distress, including depression and anxiety, and may lead to a mood disorder. For example, persistent drug use can result in feelings of dissatisfaction, low self-worth, and an inability to experience pleasure, which can be either temporary or chronic (Serrano-Serrano et al., 2021).

Depression has been categorized into three forms: as a symptom, it reflects psychological distress such as sadness; as a condition, it involves a combination of symptoms like guilt, low energy, and diminished interest in daily activities; and as a disease, it encompasses biological factors requiring specific interventions. Depressed moods are often accompanied by other symptoms such as low self-esteem, hopelessness, fatigue, and sleep disturbances. These symptoms commonly emerge during early adulthood, making young university students particularly vulnerable (Kessler et al., 2005). Kitzrow (2003) highlighted that college students often seek counseling for far more complex emotional and psychological issues than counselors typically anticipate. Similarly, Levine and Cureton (1998) noted that students today are burdened with psychosocial and financial responsibilities, resulting in increased challenges related to depression, anxiety, and stress compared to students in earlier decades.

University students now grapple with emotional difficulties such as depression, anxiety, and stress rather than developmental or adjustment challenges. Research indicates that these struggles often lead to poor academic performance, social issues, substance use, and even self-harm. For instance, in a study among Jordanian university students, over 75% reported depressive symptoms associated with substance use and aggression, with nearly half exhibiting heightened hostility. Notably, hostility was linked to a family history of substance abuse, and commonly used substances included painkillers, alcohol, cigarettes, and caffeine. Surprisingly, no significant gender differences were observed in substance use, depressive symptoms, or aggression (Hamdan-Mansour et al., 2009).

Roberts et al. (2010) explored the complex relationship between depression and substance use. Their literature review highlighted the interdependence of these conditions, where each exacerbates the other. For example, while societal narratives like "drinking to forget" emphasize the link between alcohol use and depression, evidence suggests that alcohol can act as a physiological toxin or life stressor, triggering depressive symptoms. Additionally, chronic alcohol use can damage social, physical, and professional domains, further intensifying stress and depression. However, genetic studies suggest limited evidence for a shared predisposition to both conditions, indicating that multiple causal pathways may exist. This highlights the need for interventions addressing primary issues in co-occurring cases of substance use and depression.

Regarding other substances, dependency on prescription and illicit drugs is strongly associated with depression, though limited data prevents definitive conclusions about these relationships. The authors call for comprehensive studies to explore these dynamics and guide treatment approaches. Understanding the interplay between depression and substance use is vital for addressing these increasingly prevalent public health concerns. Van Zyl et al. (2017) investigated depression, anxiety, stress, and substance use among medical students.

Sarvenaz Esmaeelzadeh et al. (2013) examined depression, anxiety, and substance use among Canadian post-secondary students. These challenges contribute significantly to the global disease burden and are particularly prevalent in young adulthood, making post-secondary students a vulnerable group. Co-occurring disorders disrupt cognitive and emotional development, impacting academic performance, relationships, and overall happiness. Limited access to comprehensive health services often leads to unfavorable outcomes, with students becoming high-cost users of healthcare resources.

Considerable attention has been given to depression, anxiety, and substance use among high school students, but less so among university students. Moreover, much of the published research examining the association between depression, anxiety, and substance use has been conducted in European countries. Therefore, this study aims to examine the association between depression, anxiety, and substance use among Pakistani university students.

METHOD

Objectives

- To find the correlation between use of substance and depression, anxiety and stress.

Participants Of study

University students were selected as participants for this study. All participants were male, with ages ranging from 20 to 35 years. The total number of participants was 60 (n=60). A purposive sampling technique was used to collect data, and participants were primarily approached through quasi-random sampling. Data were collected from different universities in Rawalpindi and Islamabad, with the majority from Quaid-i-Azam University and COMSATS University.

Inclusion Criteria

- We include only males in our sample.
- Only university students are included in our sample.
- Individuals between 20 to 35 years old are selected for our study.

Exclusion Criteria

- Individuals with severe medical conditions were excluded from our study.

Conceptual Definition Of Study

Conceptual Definitions

Depression

"Depression is a persistent state of sadness, hopelessness, and a lack of interest or pleasure in activities. It affects how individuals think, feel, and behave, often leading to emotional and physical challenges that impair daily functioning and overall well-being." (American Psychiatric Association, 2021).

Anxiety

"Anxiety is a state of excessive worry, fear, or apprehension about future events or situations. It is often accompanied by physical symptoms such as restlessness, rapid heart rate, and difficulty concentrating, which can interfere with an individual's ability to handle everyday tasks." (Craske et al., 2020).

Stress

"Stress is the body's natural response to perceived challenges or demands. It can manifest as emotional, physical, or mental tension, and when prolonged, it may contribute to feelings of being overwhelmed, irritable, or physically exhausted." (Lazarus & Folkman, 1984).

Substance Use

"Substance use refers to the consumption of any psychotropic compound with the potential to cause health problems, addiction, or social challenges." (Gelernter & Polimanti, 2021).

Operational Definition Of Study

Depression

Depression is characterized by low mood, lack of energy, and difficulty engaging in daily activities. It is measured through self-reported symptoms using tools such as the Depression, Anxiety, and Stress Scale (DASS-21) (Lovibond & Lovibond, 1995).

Anxiety

Anxiety is marked by excessive worry, fear, or nervousness about specific situations or the future. It is assessed using self-report measures like the DASS-21, which evaluates the intensity of symptoms (Lovibond & Lovibond, 1995).

Stress

Stress refers to the emotional or physical strain resulting from demands or challenges in daily life. It is operationalized using tools like the DASS-21, which captures the severity of stress-related symptoms (Lovibond & Lovibond, 1995).

Substance Use

Substance use is defined as the recurrent consumption of drugs or alcohol leading to significant harm, including health issues and the inability to fulfill personal or professional responsibilities. It is measured using the Drug Abuse Screening Test (DAST-10) (Cunningham, LaRose, & Gage, 2021).

Instruments

Consent form
Demographic Proforma
Depression, Anxiety, and Stress Scale - 21 items (DASS-21)
Drug Abuse Screening Test (DAST-10)

Consent form

Consent form was designed to take permission from our participant to collect our data and to briefly define them about the nature of our study and for which purpose we are collecting data. In informed consent we assured our participants that the data or information we were collecting from them will be kept confidential and we used it only for study purposes.

Demographic Proforma

Demographic Performa includes the following demographics: age, education, gender, city, institute and signature.

Depression, Anxiety, and Stress Scale - 21 items (DASS-21)

The Depression, Anxiety and Stress Scale - 21 Items (DASS-21) is an establishment of three self-report scales and it is designed to measure depression, anxiety and stress. The DASS-21 is the updated and shortened version of the DASS which is developed by Lovibond and Lovibond.

Dass21 is the Likert scale and the rating scale is as follows: 0 Did not apply to me at all, 1 Applied to me to some degree, or some of the time 2 Applied to me to a considerable degree or a good part of the time 3 Applied to me very much or most of the time.

Each subscale of DASS-21 contains 7 items, and similar content is divided into subscales. The items regarding depression measures dysphoria, hopelessness, devaluing of life, self-criticism and lack of interest. The item regarding anxiety measures autonomic arousal, skeletal muscle effects, situational nervousness and subjective involvement of anxious affect. The items regarding stress measures the levels of chronic general arousal. It also measures feeling difficulty in relaxing, nervous arousal, and being easily disappointed, irritable and annoyed. Scores for depression, anxiety and stress are calculated by summing the scores for all relevant items.

The depression and anxiety subscales of DASS-21 had good associations with self-rating depression scale and state trait anxiety inventory. The DASS-21 had commendable psychometric properties. Conclusions also supported other available evidence that DASS-21 is a reliable and suitable study tool useful for fast and easy screening of depression, anxiety, and stress among university students. It has a moral internal consistency and satisfactory concurrent validity. Thus, the facility of the psychometric properties of the DASS-21 will assist researchers to rapidly screen common mental disorders among students' population of institutions.

Drug Abuse Screening Test (DAST-10)

The Drug Abuse Screening Test (DAST) was designed by Dr. Harvey A. Skinner to give a brief, self-report tool for individual screening, clinical case result and treatment assessment research. DAST is used to measure the use of drugs in individuals DAST-10 was the updated version of DAST20.

The DAST was a quantitative index of the degree of significance related to drug abuse. This questionnaire takes about 5 minutes to administer and may be given in a self-report or in an interview format. The DAST may be used in a variety of situations to provide a quick guide to drug abuse problems.. DAST 10 contains 10 questions, and each question requires a yes or no response, and the whole questionnaire can be finished in less than 8 minutes. In its scoring individuals receive 1 point for "Yes" and 0 points for "No". We can compute DSAST10 by adding up all scores. The psychometric properties of (DAST-10), established to screen persons for drug problems, are assessed in Turkish patients with drug abuse disorder. The findings of this research prove that the DAST was a reliable and valid test for screening drug use, and it measures a one-dimensional hypothesis.

Procedure

Here's an expanded version with additional details, retaining the original structure while improving clarity, flow, and readability:

To investigate the role of drug use in altering thought processes and levels of engagement in life, the researcher conducted a survey targeting students from two prominent universities in Islamabad: Quaid-i-Azam University and COMSATS University. The participants were primarily approached through a quasi-random sampling method within the selected institutions, ensuring diverse representation across the student population.

Data collection was conducted through structured questionnaires. Before distributing the questionnaires, the researcher explained the purpose of the study in detail, emphasizing its focus on understanding the relationship between substance use and symptoms of depression, anxiety, and stress. Participants were then provided with a survey form that included sections for demographic details and an informed consent statement, ensuring ethical compliance. The questionnaire consisted of 31 close-ended questions, designed to capture comprehensive insights into the participants' experiences and perspectives. On average, completing the questionnaire took 12 to 18 minutes. The sample included participants aged between 20 and 35 years, representing a broad age range among university students. Although the data collection process went smoothly overall, the researcher encountered some minor challenges. These included instances where participants left the questionnaire incomplete or declined to participate altogether. Despite these hurdles, the majority of respondents demonstrated a high level of cooperation, contributing valuable data for the study.

The researcher made concerted efforts to foster trust and encourage honest responses by assuring participants that their personal information and opinions would remain confidential and would be used exclusively for academic purposes. This commitment to privacy likely contributed to the high level of engagement observed during the survey. The study highlights the significance of understanding how substance use can influence depression, anxiety, and stress among university students, providing a foundation for future research and intervention strategies.

Ethical concentration

Informed consent:

Participants were informed about the study's purpose before completing the questionnaire. Participation was voluntary, and they were not coerced into participation.

Voluntary Participation:

Participants had the freedom to withdraw from the study at any point without any repercussions.

Do No Harm:

As the research focused on substance use, no questions were included that could cause psychological or physical harm to participants.

Confidentiality:

Questionnaires were used solely for research purposes, with no collection of personal information beyond necessary demographics. Responses were kept confidential.

Anonymity:
Participants' names were collected only for research purposes, ensuring anonymity in data reporting. The questionnaire was strictly limited to research-related inquiries, avoiding any personal or politically biased questions.

RESULTS

The study was aimed to find out the correlation between use of substances and its effect on depression, stress and . Appropriate analyses were carried out to meet the objectives and test the hypotheses. First, Cronbach's alpha reliability and descriptive characteristics of the study variables were analyzed. Then Pearson correlation was carried to study the relationship between substance use and mental health.

Table 1 Alpha reliability of coefficient of the Depression Anxiety Stress scale and Drug Abuse Screening Test (N = 60)

Variable	No. of item	α
DASS		
Stress	7	.633
Depression	7	.818
Anxiety	7	.785
DAST	10	.755

Note: α = Reliability DASS = Depression Anxiety Stress Scale; DAST = Drug Abuse **Screening Test**

Table 1 indicates that the alpha reliability of the DASS21 subscales i.e., depression, anxiety and stress showed the alpha reliability of depression (.81), anxiety (.79), stress (.66) respectively. The Drug Abuse Screening (DAST) Test showed a reliability of .60. The subscale of depression has good reliability and both other subscales showed satisfactory reliability and Drug abuse screening test also showed satisfactory reliability.

Table 2 Frequencies & Percentages of Demographic Variables (N=60)

Demographics Variable	f (%)
Gender	
Male	60(100)
Education	
Intermediate	5(8.3)
Undergraduate	32(53.3)
Graduated	23(38.3)

Age	
17 – 25	49(81.7)
26 – 30	9(15.0)
31 above	2(3.3)

Note: f = frequency, % = percentage

Table 2 shows the frequency and percentage of the socio-demographic characteristics of participants. The sample size for this study is 60 university students with male participants. The age range for the participants is between 17-35 years. 81.7% of the participants are between ages 17-25, 15.0% of the participants are between 26 to 30 remaining of the participants are 30 above. years and get the highest frequency of 54.3%. 8.3% are intermediate students, 53.3% are undergraduate students and 38.3 %are graduates.

Table 3 Psychometric Properties of DAST and DASS (N=60)

Variable	No. of Item	A	M (SD)	Range		Skew	Kurt
				Actual	Potentia		
Stress Stress	7	.663	5.68(5.4)	0-35	0-34	2.457	11.281
Anxiety Anxiety	7	.785	5.88(4.5)	0-35	0-16	0.301	-1.00
Depression Depression	7	.818	6.14(4.8)	0-35	0-17	0.256	-1.06
Total Addiction	10	.755	3.07(2.0)	0-10	0-8	0.681	-0.63

Note: α= reliability; M = mean; SD = standard deviation; Skew = skewness Kurt = kurtosis

Table 3 shows the descriptive statistics of the research which shows mean, standard deviation and skewness and kurtosis. The mean and standard deviation values for stress= 5.68, 5.4; anxiety= 5.88, 4.54; depression= 6.14, 4.89; addiction= 3.07, 2.05.

Table 4 Pearson's Correlation Coefficient between DASS and DAST

	Variable	1	2	3	4
1	Stress	-	-	-	-
2	TADT	.413**	-	-	-
3	anxiety	.712**	.420**	-	-
4	depression	.694**	.571**	.800**	-

Table 4 shows that there is a significant positive relationship between mental stress and substance abuse at significant level 0.01. as the significant values were less than 0.05 which allow us to accept our null

hypothesis and reject our alternative hypothesis. Hence, we are 99 percent confident that our result is correct.

DISCUSSION

The study aimed at examining the relationship between substance use and depression, anxiety and stress among university students. For this purpose, two scales were used, Depression, Anxiety and Stress Scale - 21 Items (DASS-21) and Drug Abuse Screening test (DAST-10). First frequencies and percentages for demographic variables for the complete sample were acquired in the Study (N=60) to gain a better knowledge of the sample characteristics of the variables under study (see Table 2). In the Study, reliability estimates of the overall scales were found to be satisfactory after analysis of all demographic variables. A table was also constructed (see Table 3) to assess alpha reliability and normal distribution of data on the entire sample to check the psychometric features of the scale.

Moving forward, to check the relationships between our study variable Pearson correlation was computed (see Table 4) which showed that, for our hypothesis, it was assumed that there would be a positive relationship between substance use and mental health among university students and the results of Table 4 confirmed this hypothesis.

Stress, Anxiety, and Depression: A Comprehensive Analysis

Stress, anxiety, and depression are interconnected facets of mental health that significantly impact human life. The uploaded study focuses on these psychological challenges, particularly among university students, highlighting the influence of substance use on these conditions. Each of these elements plays a distinct role in shaping an individual's mental health and overall well-being. This section explores stress, anxiety, and depression individually, supported by causes, examples, and findings from the research.

Stress is a natural response to demands or challenges perceived as exceeding one's coping ability. Defined by Lazarus and Folkman (1984) as "the body's natural reaction to perceived challenges or threats," stress can manifest emotionally, physically, or mentally. While short-term stress can motivate individuals to meet deadlines or perform tasks effectively, chronic stress can have detrimental effects on health and well-being.

Stress among university students often stems from multiple sources:

Academic Pressure: Deadlines, exams, and high expectations can overwhelm students. For instance, a student balancing coursework and part-time employment may feel perpetually drained. Financial Strain: Many students manage limited resources, leading to anxiety about tuition fees, living expenses, and potential debt. Social Challenges: Adapting to new social environments, peer pressure, and maintaining relationships can contribute to stress. Family Expectations: Cultural or familial expectations to achieve academic success can place additional burdens on students. Substance Use: Substance use exacerbates stress by impairing cognitive functions and leading to dependency cycles (Berridge, 2007).

This study reveals a significant correlation between stress and substance use, which is linked with the previous finding (Berridge, 2007). Stress often prompts individuals to seek temporary relief through substances, which, paradoxically, worsens their stress levels over time. Interventions targeting stress management, such as mindfulness practices or therapy, are essential to break this cycle.

Anxiety is characterized by excessive worry, fear, or apprehension about future events. According to Craske et al. (2020), it includes both cognitive and physical symptoms, such as restlessness, rapid heart rate, and difficulty concentrating. Unlike stress, which is a response to an immediate threat, anxiety often involves anticipation of future difficulties.

Several factors contribute to anxiety among university students: Fear of Failure: Persistent worry about underperforming academically or professionally. Uncertainty: Concerns about career prospects, financial stability, or personal relationships. Health Issues: Chronic illnesses or family health concerns can heighten anxiety. Social Anxiety: Fear of judgment or rejection in social situations. Substance-Induced Anxiety: The study notes that substance use can lead to physiological changes, such as heightened nervousness and panic attacks. This research indicates a strong link between

substance use and anxiety. Substances like alcohol or cannabis, initially consumed to alleviate anxious feelings, often aggravate anxiety over time. (Wu et al, 2010)

Depression is a persistent state of sadness, hopelessness, and lack of interest in previously enjoyable activities. As per the American Psychiatric Association (2021), it affects cognitive, emotional, and physical health. Symptoms include fatigue, difficulty concentrating, and feelings of worthlessness. Depression among students often arises from: Academic Burnout: Continuous academic demands can lead to exhaustion and diminished interest in studies. Isolation: A lack of social support or feelings of loneliness exacerbates depressive symptoms. Traumatic Experiences: Events such as the loss of a loved one or a breakup can trigger depression. Genetic Predisposition: A family history of depression increases vulnerability. Substance Use: This study highlights how prolonged substance use disrupts mood regulation, leading to depressive states. Substance use serves as a common thread linking stress, anxiety, and depression. The study demonstrates how substances, while offering temporary relief, exacerbate psychological distress. For example, students using cannabis to manage stress may experience heightened anxiety and depressive symptoms due to altered brain chemistry (Roberts et al,2010).

Early Intervention: Identifying and addressing stressors before they escalate into anxiety or depression is crucial. Holistic Programs: Universities should implement programs combining academic support, mental health counseling, and substance use prevention. Peer Support: Encouraging open dialogue about mental health reduces stigma and fosters supportive communities. Policy Changes: Institutions must prioritize affordable mental health services and accessible resources.

Stress, anxiety, and depression are pervasive challenges in modern life, particularly among university students. While these conditions are distinct, their overlap is undeniable, often exacerbated by substance use. The uploaded study highlights the urgent need for comprehensive approaches to addressing these interconnected issues. By fostering supportive environments and promoting healthy coping mechanisms, we can empower individuals to navigate life's challenges more effectively, ensuring their mental well-being and academic success.

Limitations and Recommendation

Several limitations were discovered throughout the research. Although our research was only oriented to one specific gender which makes our research not so convincing. We were only able to conduct the sample from 3-4 universities located in Islamabad and Rawalpindi due to which we didn't get many volunteers. Previous studies were so limited and the tests we used during our research gave us limitations to discuss only 3 main factors. The methodology was limited, not so much work was done previously, or if we found all those articles very limited data was taken. For the collection of data, we first eliminated the gender and specified it to only one then we only concluded those participants who were willing to participate in this research. Due to this, our sample wasn't truly representative of the study. This could result in the findings and reliability of our research. Participants used for this were given random sampling. As our sample was limited to university students only and due to the advance lockdown, we couldn't reach that particular group of people who are in their last semester which could show us more validity. Our demographic didn't include any family history so we couldn't specify if it's just because of university or there are other reasons also. Our questionnaire consists of three subscales which makes it lengthy, so the loss of interest was also observed.

For further researchers it is recommended for them to include the female in their research and also conduct the research on the large scale so, the validity and reliability would be more accurate regarding results of research.

Conclusion

The study's goal is to examine whether there is a connection between substance use and depression, anxiety, and stress among university students. Results indicated a positive relationship between substance use, depression, anxiety, and stress Many university students struggle with substance use disorders, and many also face significant mental

health challenges. These conditions should be checked simultaneously to improve the results among this vulnerable population. Interventions that increase awareness and help fight the growing perception of the use of psychoactive substances as normalized and accepted behavior among students of after-school education, can help solve problems associated with their depression and anxiety. The results of this study can be used to help inform university student health services, administrators and health care professionals in their efforts to design and implement comprehensive interventions, appropriate policies and effective health promotion strategies.

REFERENCES

American Psychiatric Association. (2021). *Diagnostic and statistical manual of mental disorders* (5th ed.).

Baer, J. S. (2002). Student factors: Understanding individual variation in college drinking. *Journal of Studies on Alcohol, 14*(Suppl), 40-53.

Barkus, E., & Murray, R. M. (2010). Substance use in adolescence and psychosis: Clarifying the relationship. *Annual Review of Clinical Psychology, 6*, 365-389. https://doi.org/10.1146/annurev.clinpsy.121208.131221

Berridge, C. W. (2007). Noradrenergic modulation of arousal. *Brain Research Reviews, 58*(1), 1-17. https://doi.org/10.1016/j.brainresrev.2007.10.013

Britannica, T. Editors of Encyclopaedia. (2021, September 9). Depression. *Encyclopedia Britannica*. https://www.britannica.com/science/depression-psychology

Craske, M. G., Stein, M. B., Eley, T. C., et al. (2020). Anxiety disorders. *Nature Reviews Disease Primers, 6*(1), 1-21. https://doi.org/10.1038/s41572-020-0175-9

Cunningham, D. J., LaRose, M. A., & Gage, M. J. (2021). The impact of mental health and substance use on opioid demand after hip fracture surgery. *JAAOS-Journal of the American Academy of Orthopaedic Surgeons, 29*(7), e354-e362. https://doi.org/10.5435/JAAOS-D-20-01234

Dawson, D. A., Grant, B. F., & Stinson, F. S. (2004). The association between stress, anxiety, and alcohol use disorders. *Journal of Substance Abuse, 26*(3), 367-383. https://doi.org/10.1016/j.jsat.2004.06.002

Doom, J. R., & Haeffel, G. J. (2013). Teasing apart the effects of cognition, stress, and depression on health. American Journal of Health Behavior, 37(5), 610–619. https://doi.org/10.5993/ajhb.37.5.4

Dumain, T. (2018, February 9). What is substance abuse? WebMD. Retrieved from https://www.webmd.com/mental-health/addiction/drug-abuse-addiction

Esmaeelzadeh, S., Moraros, J., Thorpe, L., & Bird, Y. (2013). The association between depression, anxiety, and substance use among Canadian post-secondary students. *Neuropsychiatric Disease and Treatment, 14*, 32-41. https://doi.org/10.2147/NDT.S149065

Gelernter, J., & Polimanti, R. (2021). Genetics of substance use disorders in the era of big data. Nature Reviews Genetics, 22(11), 712-729.

Hamdan-Mansour, A. M., Halabi, J. O., & Dawani, H. A. (2009). Depression, hostility, and substance use among university students in Jordan. *Mental Health and Substance Use: Dual Diagnosis, 2*(1), 52-63. https://doi.org/10.1080/17523280802593301

Kelly, T. M., & Daley, D. C. (2013). Integrated treatment of substance use and psychiatric disorders. *Social Work in Public Health, 28*(3-4), 388-406.

https://doi.org/10.1080/19371918.2013.774675

Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). *Archives of General Psychiatry, 62*(6), 617-627. https://doi.org/10.1001/archpsyc.62.6.617

Kitzrow, M. A. (2003). The mental health needs of today's college students: Challenges and recommendations. *NASPA Journal, 41*(1), 167-181. https://doi.org/10.2202/1949-6605.1327

Kushner, M. G., & Sher, K. J. (1993). Anxiety disorder and risk for alcoholism: A prospective investigation. *Journal of Consulting and Clinical Psychology, 61*(1), 60-69. https://doi.org/10.1037/0022-006X.61.1.60

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.

Levine, A., & Cureton, J. S. (1998). *When hope and fear collide: A portrait of today's college student*. Jossey-Bass.

Lovibond, S. H., & Lovibond, P. F. (1995). Manual for the Depression Anxiety Stress Scales (DASS). Psychology Foundation of Australia.

Roberts, S. J., Glod, C. A., Kim, R., & Hounchell, J. (2010). Relationships between aggression, depression, and alcohol, tobacco: Implications for healthcare providers in student health. *Journal of the American Academy of Nurse Practitioners, 22*(7), 369-375. https://doi.org/10.1111/j.1745-7599.2010.00521.x

Ross, S., & Peselow, E. (2012). Co-occurring psychotic and addictive disorders: Neurobiology and diagnosis. *Clinical Neuropharmacology, 35*(5), 235-243. https://doi.org/10.1097/WNF.0b013e318266ea41

Serrano-Serrano, A. B., Marquez-Arrico, J. E., Navarro, J. F., Martinez-Nicolas, A., & Adan, A. (2021). Circadian Characteristics in Patients under Treatment for Substance Use Disorders and Severe Mental Illness (Schizophrenia, Major Depression and Bipolar Disorder). Journal of Clinical Medicine, 10(19), 4388. https://doi.org/10.3390/jcm10194388

Wu, P., Goodwin, R. D., Fuller, C., Liu, X., Comer, J. S., Cohen, P., & Hoven, C. W. (2010). The relationship between anxiety disorders and substance use among adolescents in the community: specificity and gender differences. Journal of Youth and Adolescence, 39(2), 177–188. https://doi.org/10.1007/s10964-008-9385-5