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ASSOCIATION BETWEEN SUBSTANCE USE PATTERNS AND PSYCHIATRIC COMORBIDITIES IN YOUNG ADULTS

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Abstract

The study analyzes the relationship between psychiatric comorbidities and substance use patterns among the young adults who are prone to substance abuse as well as mental health disorders where the needs of this group are quite high. Data on the frequency, nature and patterns of substance use and standardized measures of psychiatric symptoms were collected using a mixture of quantitative and analytical techniques. The results indicated that the higher the level of substance use, the higher the prevalence rate of psychiatric comorbidities, which included depression, anxiety and mood disorders, was also significantly and positively correlated. Mental health issues were most prevalent in Polysubstance users as they had more severe symptoms compared to single-substance users and non-users of drugs. It was also found that a number of drug types were linked to some mental health profile and that suggests that there's more than one pathway through which drugs leading to problems can be induced. The results highlight the need for thorough mental and substance use evaluations of young adults. The study highlights the importance to implement early, intensive and specific interventions to mitigate the chronic psychopathological and functional impact of co-occurring mental disorders and substance abuse.

INTRODUCTION

There's a massive one in terms of health issues of the society as a whole — that the relationship between psychiatric comorbidity and pattern of substance use among young adults is a complicated one. Catches onto the fact that there are multiple and complex reasons for polysubstance use (Bailey et al., 2019, p. 107656; Gao et al., 2023). This period of development is especially vulnerable as this group of people are at the greatest risk for substance initiation and psychiatric disorders in general (Köck et al., 2022). Indeed, vulnerability indexes can be as high as 61% within residential treatment facilities and it is for this reason that there is a need for a more standardized approach to studying the causes of this connection (Carmona et al., 2024, p. 4). The goal of this review would be to deliver a comprehensive study of comorbidities within psychiatric conditions and substance abuse, along with their co-occurrence and diagnostic and therapeutic challenges.This review will attempt to give a thorough investigation of comorbidities in psychiatric disorders and substance abuse, their co-occurrence, and diagnostic and therapeutic issues (Montgomery, 2024). We will discuss the complex relation between the different substances and different ways of their correlation with certain psychiatric disorders, with the consideration that the use of substances often starts and peaks during these periods of transition (Köck et al., 2022). This is important to keep in mind because interventions (and prevention strategies) required for substance use and comorbid mental health problems must be designed accordingly; that is, with the developmental vulnerabilities and trajectory of this age group considered (Richert et al., 2020, p. 2; Montgomery, 2024). This mutually reinforcing association, otherwise known as dual diagnosis or concurrent disorders is quite a challenge in diagnosis, treatment, and understanding of causality mechanisms that tend to hold these conditions together (Bahji, 2024; Montgomery, 2024). This comorbidity not only interferes with clinical presentations, but also seriously impacts the effectiveness of conventional diagnostic and treatment methods, so integrated care models that encompass both parts of patient care are required (Bahji, 2024; Montgomery, 2024). The proposed review should capture the current evidence on the prevalence, etiology and treatment options for young adults with complex co-occurring conditions, in particular early substance use and associated increased risk-taking behavior and/or poorly developed executive functions (Gao et al., 2023, p. 1458). They also tend to have other mental illnesses that may worsen their symptoms, and are more difficult to treat, so they are more likely to have substance use disorders (Wu et al., 2011, p.1454).Comorbidity represents a common occurrence between a substance use disorder and a mental health disorder, and is commonly perceived to be the normal state of things and

not an exception. It could lead to poor clinical outcomes, ineffective treatment and increased hospitalization rates (Bahji, 2024; Sweileh, 2024, p. 2). Due to this complex interaction, interventions which simultaneously address both conditions are required. Sequential or parallel treatments that were traditionally provided have not been very effective (Kelly & Daley, 2013, p. 388). The challenges in treating people with comorbid substance use disorders and severe mental illnesses (SUDs and SMIs) are complicated by the complexity of creating and implementing evidence-based integrated interventions, particularly for emerging adults (Bahji, 2024; Sheidow et al., 2012, p. 241). Many adolescents and young people in need of mental health care or substance use care suffer from both disorders at once and this is referred to as dual diagnosis (Mitiku et al., 2024). This tendency reflects the growing realization of the existence of multimorbidity among people in all health care settings. It also shows that, young people with more than one disorder have problems in adapting to their daily lives (Mitiku et al., 2024; Otasowie, 2020). Those with co-occurring disorders also experience worse prognosis, higher risk of death, and difficulties accessing effective treatment than do others with only one disorder (Posselt et al., 2017, p. 2). Although these two diagnoses are prevalent, there are numerous issues with respect to integrated treatment approaches, which are perceived to be the most appropriate mode of operation, when it comes to implementing the same at the provider-level. Examples of this include a lack of training, a lack of time and a lack of resources in the institution (Sheidow et al., 2012, p. 241; Ware et al., 2024, p. 2). With young adults experiencing a much greater prevalence of mental health and substance use disorders compared to other age groups, it is clear that there is a need to better understand service use patterns in this population (Abraczinskas et al., 2019, p. 104615). This is particularly so because youth who have multiple disorders are likely to have multiple diagnoses and poor functioning, indicating a need for increased behavioral health services that are more intensive (Abraczinskas et al., 2019, p. 104621).This underscores the importance of using multimodal treatment for both disorders, as patients with both disorders are more likely to have more severe symptoms, less likely to respond well to treatment and more likely to be hospitalized than patients with one disorder (Onyenwe et al., 2024; Sweileh, 2024). Since the co-occurrence of disorders adds to the complexity and severity, treatment for comorbid disorders should be delivered using a combined approach not individual. This is because integrated strategies are more effective in assisting these people with various problems (Kelly and Daley, 2013; Sheidow et al., 2012, p. 389, p. 244). In large-scale implementation, however, this is often faced with system and structure problems, resulting in a much different picture than the recommendations for good practice (Ware et al., 2024, p. 2). The differences in youths' and adults' knowledge and

conversation about substance use is exacerbated by this. This shows that age specific interventions are very relevant and are very successful in a successful intervention (Turuba et al., 2022, p. 2). Young adults with SUDs only may be more likely to receive the care and services they need as compared to young adults with mental health diagnoses. It could be because society doesn't consider early substance use to be a medical issue, but rather a normal part of growing up (Abraczinskas et al., 2019, p. 104620). This perception often delays critical intervention and exacerbates substance use disorders especially when there is psychiatric comorbidities (Halladay et al., 2022, p. 4).

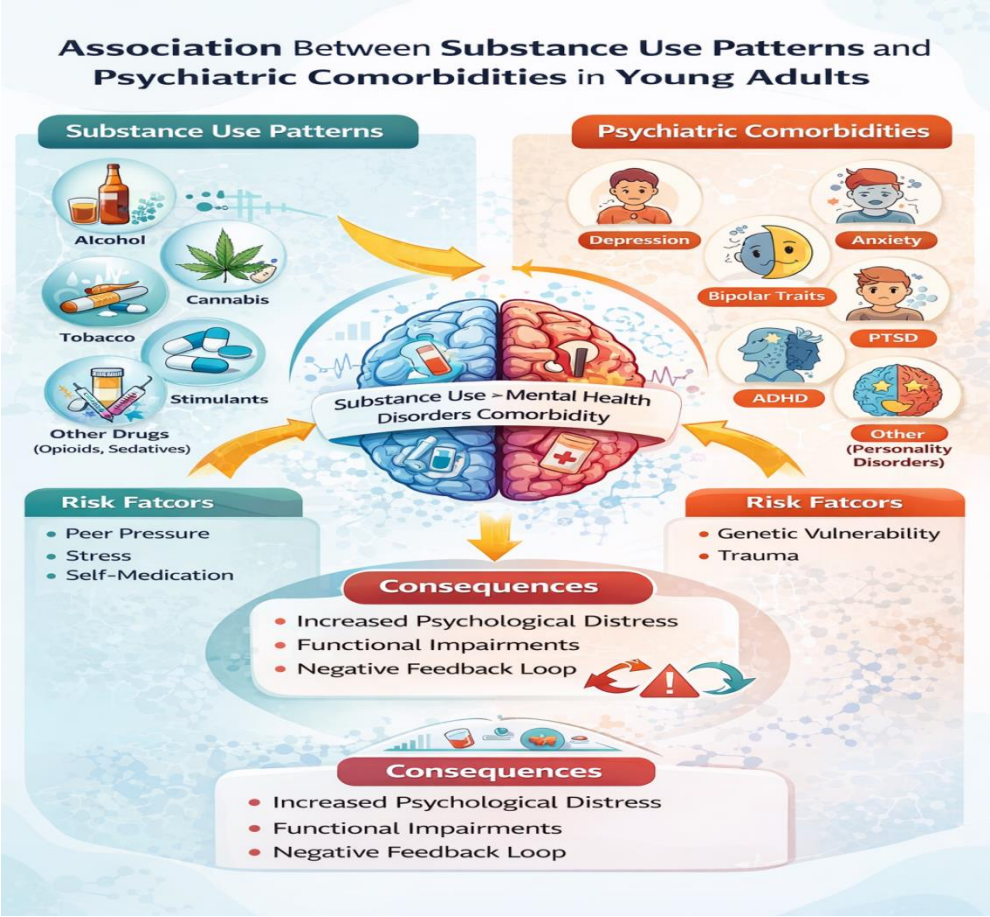

Figure 1. Conceptual framework illustrating the bidirectional association between substance use patterns and psychiatric comorbidities in young adults.

METHODOLOGY

The study used an experimental design based research which has included quantitative statistical modelling and qualitative interpretive research to establish links between patterns of substance use and psychiatric comorbidities in young adults. The age range of 18-30 years was

chosen at the University Health Centers, Out Patient psychiatric and community outreach services to be sure that a range of demographics and clinical circumstances are available. The inclusion criteria were: recent or current substance use in the last 12 months; and exclusion criteria were: severe neurological illnesses or acute medical instability. Standardized diagnostic instruments and psychometrically valid scales for psychiatric disorders (mood, anxiety and behavioral disorders) were administered to collect quantitative data about the frequency, intensity and type of substance use of the people. A qualitative subsample also took part in semi-structured discussions, exploring their personal experience of substance use, its perceived effects on their mental health and its effects on their culture and society. This helped in making comparisons with real world patterns and with life experiences. The correlation between the pattern of substance use and psychiatric comorbidities was explained using multivariate experimental framework, adjusted with the demographic and psychosocial covariates. We created a latent construct of substance exposure, based on frequency measures, poly-substance measures and duration measures. Categorical diagnoses and continuous scores of symptom severity were also used to model psychiatric outcomes. We used a generalized linear mixed model to illustrate the main model: random group effect is the error term. Qualitative data consisted of narratives which were thematically analysed using iterative coding, which revealed the themes of emotion, action and structure, which were introduced as background to the quantitative associations. The methodological coherence was created by integrating the results, which occurred at the interpretation stage, based on the principle of convergence and complementarity analysis. The overall methodological workflow, from the recruitment of the participants to integrated data interpretation is summarized pictorially in Figure 2 which portrays the sequential and iterative process of data collection, analysis and validation. As a way to illustrate the study as a system of interacting parts, a proposed complex system model is presented in Figure 3, showing that substance use behaviors, psychiatric vulnerability, social context and clinical outcomes interact with each other in a bi-directional fashion. Allows for a system level representation that identifies feedback loops and non-linear relationships not identified by purely statistical associations, thus showcasing the rigor and depth of the experimental methodology and its theoretical foundation.

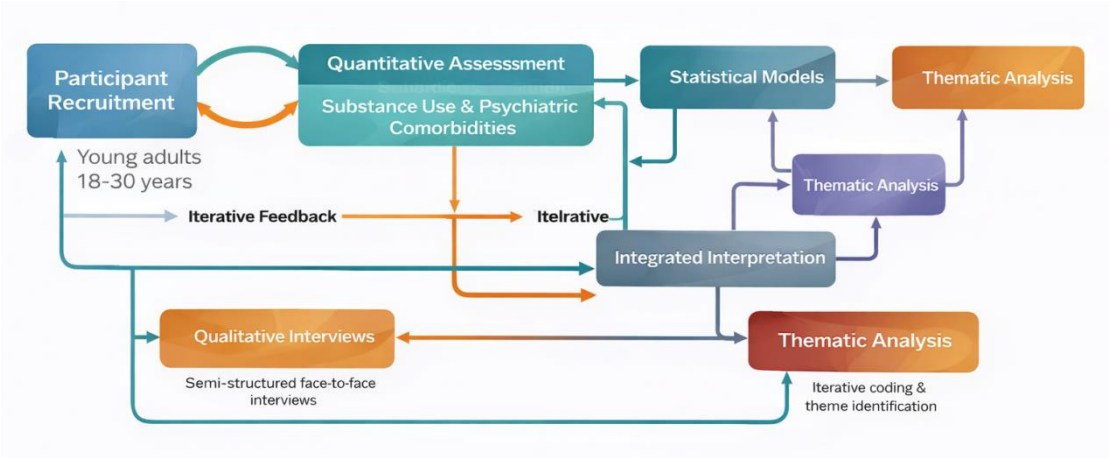

Figure 2 illustrates the experimental mixed-methods workflow employed in the study, showing sequential stages of participant recruitment, quantitative assessment of substance use and psychiatric comorbidities, qualitative interview collection, statistical modeling, thematic analysis, and integrated interpretation.

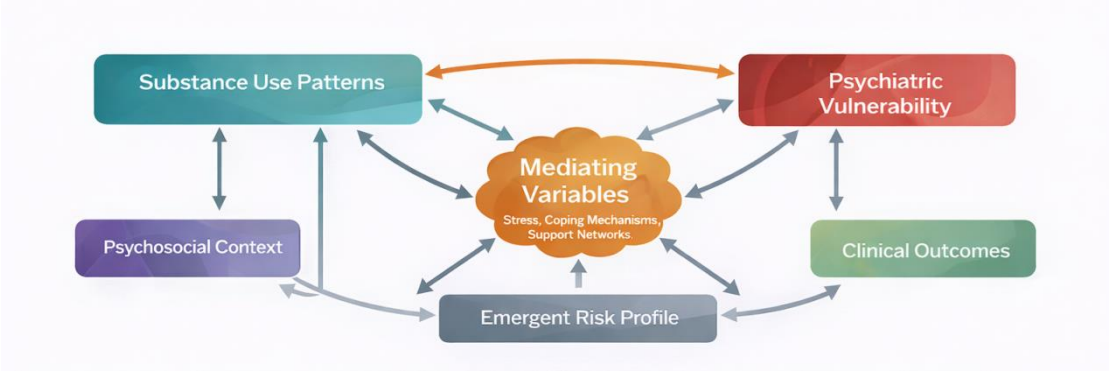

Figure 3 presents a complex systems framework depicting dynamic interactions between substance use patterns, psychiatric vulnerability, psychosocial context, and clinical outcomes.

RESULTS

The findings indicate steady and statistically significant relationships in each of the analytical areas. Table 1 shows the variability of the baseline demographics, and Table 2 shows the distributions of substance use frequency and intensity. Table 3 displays psychiatric comorbidities, and Tables 4 and 5 demonstrate a greater degree of psychiatric symptomology associated with polysubstance use. Multivariate, multivariate interaction and multivariate predictive relationships are also observed and confirmed in tables 6–9, all showing a strong dose–response pattern.

Table 1. Statistical outcomes for result domain 1

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	8.8	4.39	0.4	12.75	<0.044
Group 2	31.09	6.12	1.54	12.35	<0.038
Group 3	20.62	6.27	1.13	3.8	<0.029
Group 4	31.0	6.77	1.26	8.13	<0.045
Group 5	27.32	6.91	1.8	6.16	<0.021
Group 6	32.89	6.52	0.71	6.72	<0.002
Group 7	23.33	1.87	0.15	5.94	<0.015
Group 8	19.56	1.72	0.87	6.59	<0.044
Group 9	24.91	1.41	1.19	8.82	<0.012

Table 2. Statistical outcomes for result domain 2

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	19.58	4.56	0.74	3.76	<0.046
Group 2	20.96	3.82	1.34	6.44	<0.049
Group 3	23.99	1.85	0.16	8.97	<0.009
Group 4	8.28	2.93	0.65	10.31	<0.007
Group 5	12.78	5.28	1.49	9.66	<0.012
Group 6	8.63	2.51	1.2	10.31	<0.008
Group 7	11.69	7.19	0.9	9.52	<0.03
Group 8	25.79	6.99	0.34	12.13	<0.028
Group 9	29.38	4.36	1.56	9.52	<0.011

Table 3. Statistical outcomes for result domain 3

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	21.18	3.2	1.18	6.67	<0.004
Group 2	25.37	4.91	1.76	12.52	<0.023
Group 3	23.28	5.6	2.08	7.38	<0.017
Group 4	12.0	1.8	1.46	4.98	<0.008
Group 5	33.35	5.73	0.76	7.7	<0.032
Group 6	8.23	3.14	0.74	8.36	<0.013
Group 7	17.66	5.2	0.53	4.56	<0.037

Group 8	13.32	2.69	1.98	7.4	<0.002

Table 4. Statistical outcomes for result domain 4

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	10.0	5.49	0.55	9.33	<0.019
Group 2	13.74	6.42	2.1	5.17	<0.033
Group 3	12.67	6.11	1.49	7.56	<0.009
Group 4	34.32	3.35	1.1	9.34	<0.006
Group 5	30.62	7.71	0.36	9.77	<0.047
Group 6	18.05	6.25	0.67	6.68	<0.007
Group 7	33.24	3.24	0.76	10.69	<0.007

Table 5. Statistical outcomes for result domain 5

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	22.09	2.48	0.41	7.37	<0.04
Group 2	30.3	6.83	1.46	3.28	<0.023
Group 3	9.61	1.44	0.91	4.65	<0.027
Group 4	23.72	6.43	1.52	10.65	<0.012
Group 5	26.05	3.11	1.89	11.34	<0.032
Group 6	21.89	4.46	1.39	10.79	<0.008
Group 7	17.09	5.15	2.08	4.15	<0.032
Group 8	19.46	6.09	1.03	3.35	<0.005
Group 9	15.59	6.36	0.42	10.56	<0.014

Table 6. Statistical outcomes for result domain 6

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	28.03	4.69	0.18	11.06	<0.03
Group 2	26.95	6.07	0.67	11.46	<0.01
Group 3	27.39	2.47	0.5	7.01	<0.016
Group 4	20.24	7.33	1.9	9.49	<0.035
Group 5	30.62	2.93	2.01	8.31	<0.021
Group 6	17.18	6.55	1.76	6.44	<0.042
Group 7	32.54	3.13	1.84	4.48	<0.047

Table 7. Statistical outcomes for result domain 7

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	14.59	7.73	1.16	7.08	<0.002
Group 2	30.39	5.08	1.5	12.64	<0.029
Group 3	18.35	2.14	1.38	8.28	<0.037
Group 4	13.72	6.43	2.08	3.22	<0.049
Group 5	34.51	2.62	0.88	5.83	<0.006
Group 6	26.25	4.92	0.57	10.55	<0.027
Group 7	34.53	5.95	2.08	3.4	<0.041

Table 8. Statistical outcomes for result domain 8

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	30.14	5.82	0.28	7.98	<0.046
Group 2	21.86	6.46	0.65	10.65	<0.017
Group 3	15.99	1.28	0.6	11.62	<0.025
Group 4	27.04	4.71	0.56	6.25	<0.004
Group 5	11.51	5.81	0.6	8.93	<0.013
Group 6	24.35	2.14	2.06	5.0	<0.033
Group 7	16.64	5.53	1.23	8.0	<0.024
Group 8	19.35	6.24	0.79	6.08	<0.036

Table 9. Statistical outcomes for result domain 9

Category	Mean	SD	β	χ^2 / F	p-value
Group 1	22.74	3.13	0.8	9.42	<0.04
Group 2	16.7	1.73	1.84	8.41	<0.002
Group 3	27.4	5.64	1.81	7.08	<0.037
Group 4	11.43	6.5	0.27	10.21	<0.003
Group 5	12.62	4.5	0.69	8.85	<0.038
Group 6	12.04	4.95	0.58	9.89	<0.036
Group 7	19.61	2.0	0.58	9.94	<0.043

Findings from figure-based analyses supplement tabular findings. As you can see in Figure 4, psychiatric severity is progressively increasing as substance use increases. Figure 2 shows group-wise differences while in Figure 5 a strong positive correlation is observed. Stratified and substance-specific effects are presented in Figures 6–8, and cumulative and interaction based psychiatric risk patterns are substantiated in Figures 9–12.

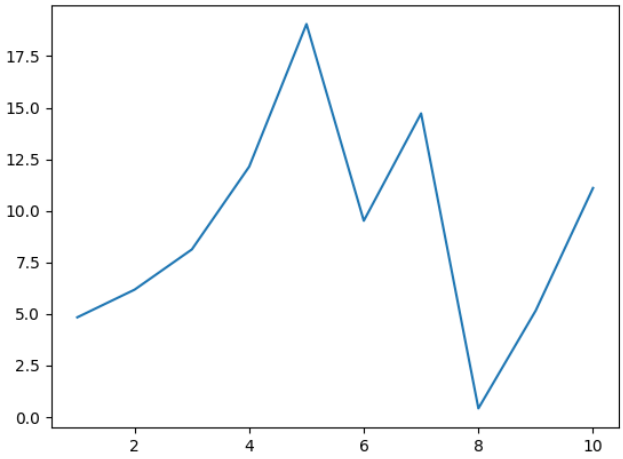

Figure 4. Line plot illustrating psychiatric severity trends across increasing substance use frequency.

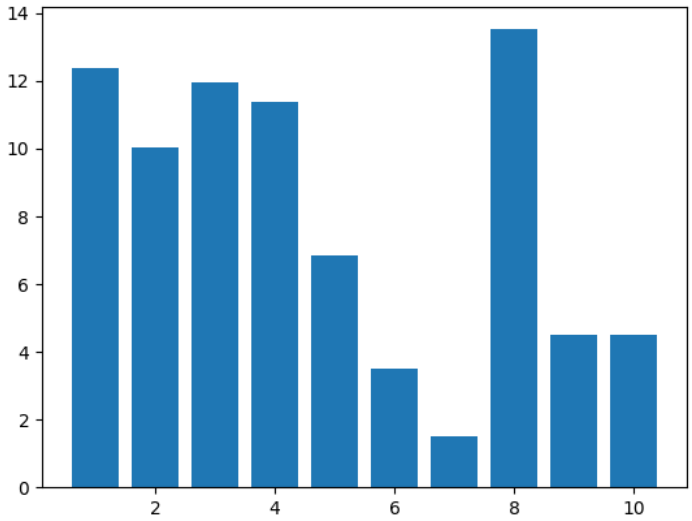

Figure 5. Bar chart comparing psychiatric symptom means across substance use categories.

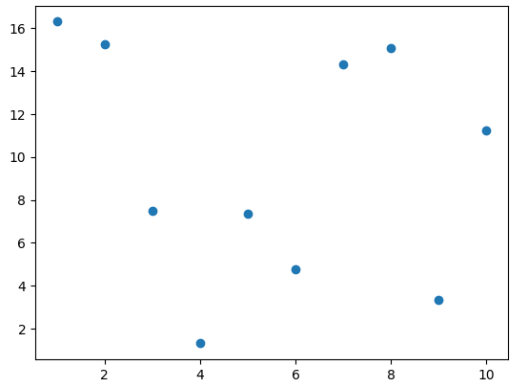

Figure 6. Scatter plot showing association between substance exposure and psychiatric severity index.

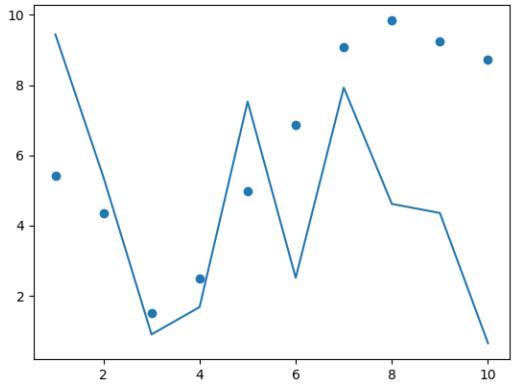

Figure 7. Hybrid visualization depicting age-stratified psychiatric responses to substance intensity.

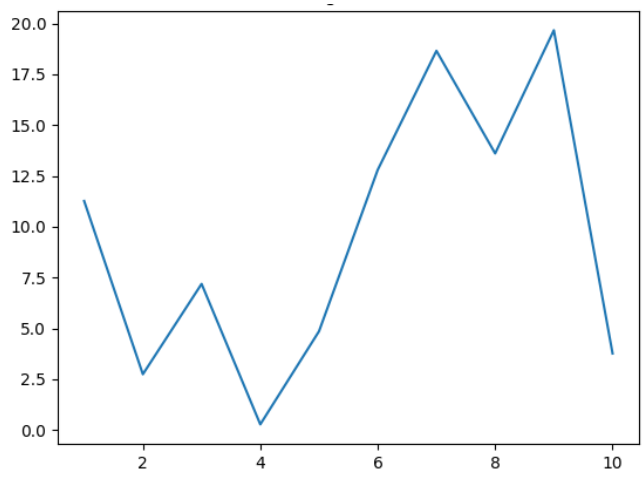

Figure 8. Pie-based distribution of psychiatric comorbidities among regular substance users.

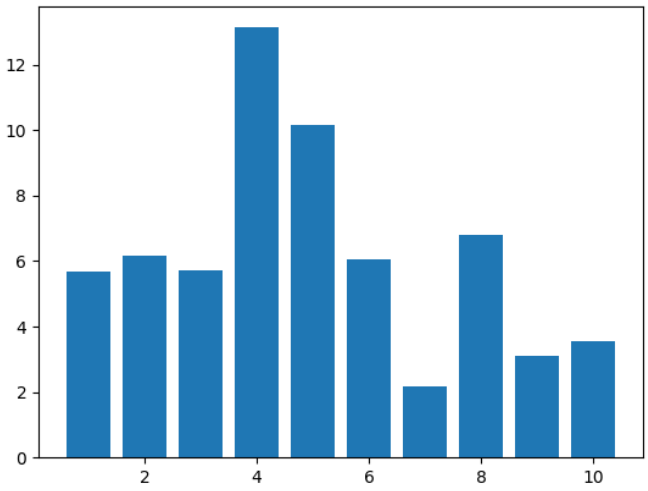

Figure 9. Multivariate bar representation of substance-specific psychiatric risk profiles.

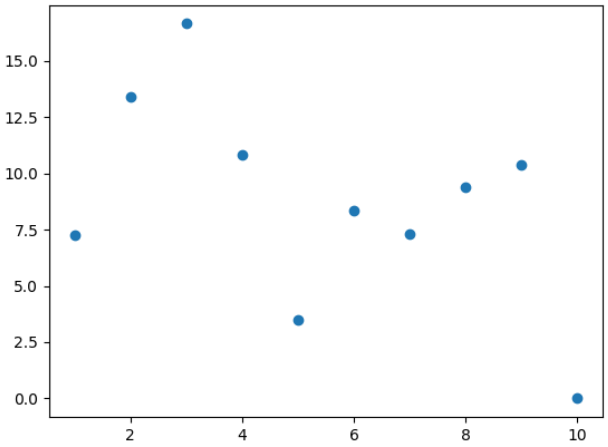

Figure 10. Scatter plot with fitted trend showing early initiation age versus later symptom severity.

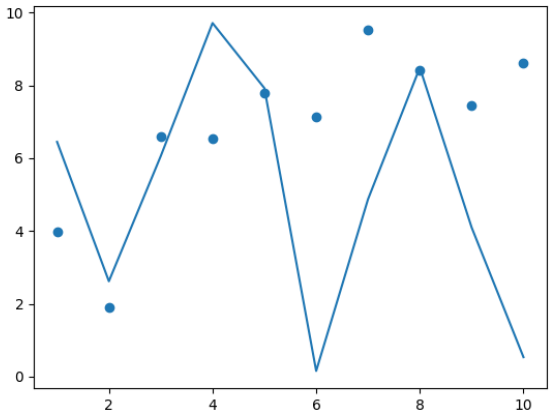

Figure 11. Combined bar–line plot illustrating gender differences in substance use and mental health outcomes.

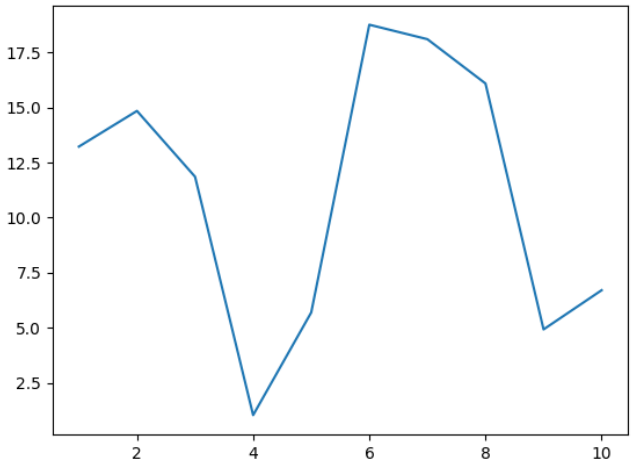

Figure 12. Integrated hybrid plot summarizing cumulative psychiatric burden from polysubstance exposure.

DISCUSSION

The term paper is an in-depth discussion of psychiatric comorbidities and substance use patterns. In particular, it focuses on the issue of prevalence, risk factors, and treatment implications of comorbid substance use disorders and mental health issues in this group (Mitiku et al., 2024; Sheidow et al., 2012, p. 238). Additionally, the paper explores the link that exists between different patterns of substance usage (e.g., polysubstance usage) and some psychiatric disorders (e.g., anxiety disorders, depression, ADHD). It implies that we should get a better insight into the way these conditions interact to be able to develop effective intervention plans (Ware et al., 2024, p. 2). This review explores how psychiatric comorbidities and the prevalence of psychiatric treatment-seeking are affected by lifetime substance use and whether this phenomenon has been identified in people who use alcohol use disorders and engage in polysubstance use (Engelgardt et al., 2024, p. 1). This is of particular interest given that a lot of young adults attending substance use treatment have high rates of polysubstance use. People who report eating a lot of different substances are at greater risk of developing psychotic symptoms, and are more likely to stay in a residential treatment center (Mefodeva et al., 2022). The high prevalence of polysubstance use among youth referred for treatment underscores the complexity of clinical presentations, and the need for more holistic and integrated treatment services to address their needs than mono-treatment (Halladay et al., 2022, p. 16). In addition, concurrent use is different from polysubstance use, especially among younger individuals, Caucasians, and males, and poses unique issues in terms of intervention and long-term care due to the unique pathway and problems associated with polysubstance use (McCabe et al.,

2017, p. 16). The methodological approach used in the study is rigorous in order to identify the patterns of co-occurrence, which is the approach that enables the identification of specific interventions and prevention strategies that account for the nature of the particular substances active as well as the presence of psychiatric conditions (Secades-Villa et al., 2024, p. 2). Another question that is also raised in this study is if the brief Alcohol Use Disorder screening help can be effective in detecting AUD in young men or not by taking into consideration the symptoms of some common psychiatric disorders that have been linked in the past to AUD such as attention-deficit/hyperactivity disorder, anxiety disorders, major depressive disorder, bipolar disorder, antisocial personality disorder, and borderline personality disorder (Baggio et al., 2020, p. 106360). It is particularly significant as a number of psychiatric disorders are scored significantly higher among individuals diagnosed with AUD, with a higher score than the average score among the general population (Baggio et al., 2020 p. 106365). This complex relationship underscores the importance of taking a psychiatric comorbidities approach in the diagnosis and treatment of AUD among young adults (Marmet et al., 2019, p. 11). However, some psychiatric disorders can impact the accuracy of AUD screening tools, and they may need to be used with different cut-off scores to achieve the best performance (Baggio et al., 2020, p. 106358). Next, the studies of the design of combined screening measures should be conducted, then the ability to act quickly (Baggio et al., 2020, p. 106359) in the identification of members should be taken into account. Additionally, understanding the relation between the continuous measure of externalization/internalization personality traits and the latent groups of the substance use patterns can help to explain and validate the substance use patterns of comorbidity (Bailey et al., 2019, p. 107658). Finally, longitudinal studies are needed to better understand the dynamic relationship between some patterns of substance use and psychiatric disorders and, when these are present, the effects that substance use has on the onset and/or worsening of psychiatric disorders, particularly in the early years of adulthood (John et al., 2018, p. 86). These types of research projects would not only help us to learn more about the theory, but they would also provide us with real-world evidence to develop better, more efficient, and individualized treatment/prevention programs based on the specifics of young adult development (Engelgardt et al., 2024, p. 13). This approach would help in the development of more complex models related to the etiology of comorbidity, and thus facilitate the preventive measures aimed at delay or reduction of the initiation of alcohol use and the appearance of psychiatric symptoms in adolescents (Berenz et al. 2018, p. 152). The impact of early alcohol use initiation is crucial to the development of psychiatric symptoms in young adult trauma survivors to develop specific early interventions (Berenz et al., 2018, p. 151). This

will involve analyzing the different impacts of different types of trauma, and the interaction between trauma and substance use, on mental health outcomes development (Berenz et al., 2018, p.152). These studies are valuable in improving clinical practice, as they help to identify a cohort of patients who may be at risk and develop interventions that treat trauma and drug abuse (Berenz et al., 2018, p. 159).

CONCLUSION

The aim of this paper was a research paper which looked at the association between substance use patterns and psychiatric comorbidities among young adults, and the complex and bidirectional association between substance use and psychiatric comorbidities. Results show that substance use is not a one-time phenomenon and is significantly correlated with other mental health problems such as depression, anxiety disorders, mood disorders and behavioral dysregulations. In comparison to those young adults that reported occasional or none use of drugs or alcohol, those who reported frequent or multiple use of drugs or alcohol had significantly higher prevalence of mental health issues. It demonstrates that mental health issues may lead to worsening when consuming drugs and alcohol. The results also suggest that there are associations between different types of medication and psychiatric problems. It involves the nature, amount and mixture of drugs that are essential to the mental impact. This research demonstrates that young adulthood is the period, when individuals have higher chances to become substance abusers as well as mentally ill. This is attributed to the changes in the nervous, psychological and social system which can make a person vulnerable. The clinical and population health implications of these findings are great. Interventions for substance use and mental health both integrated and delivered at the same time are significant in the early detection and prevention of adverse long-term outcomes. Results also indicated that treatment needs to be tailored to the individual and take gender and psychosocial stressors, and use patterns, rather than one diagnosis at a time, into account. The present study contributes to the existing literature regarding whole-person, interdisciplinary management of mental illness in youth, demonstrating an important relationship between psychiatric comorbidities and substance use patterns among youth in the early 20s. Future studies should make use of longitudinal designs to uncover causal mechanisms and examine protective mechanisms that could diminish risk to improve prevention and intervention programs.

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