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Research paper

A Study on The Psychological Determinants of Substance Use among Indian University Students Diagnosed with Borderline Personality Disorder

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Abstract

Background: Borderline personality disorder (BPD) frequently co-occurs with substance use, yet the psychological mechanisms underlying this relationship remain insufficiently understood. This study examines the association between BPD and substance use, with a focus on impulsivity, emotional dysregulation, anxiety, and depression.
Method: A cross-sectional study was conducted between September 2023 and December 2024 among undergraduate students from multiple institutions within a single university in Eastern Odisha. Substance use was assessed using the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST, Version 3). Psychological constructs were measured using the Difficulties in Emotion Regulation Scale, Barratt Impulsiveness Scale, and Hamilton Depression and Anxiety Rating Scales (HAM-D, HAM-A).
Results: Of the total participants, 5.8% (N = 115) met criteria for BPD, and 37.3% (N = 43) of these reported substance use. Cannabis (81.4%) and tobacco (60.5%) were the most commonly used substances among individuals with BPD, whereas alcohol, opioids, sedatives, inhalants, and other drugs showed lower prevalence. Psychological symptoms were highly prevalent in the BPD group, including impulsivity (62.6%), emotional dysregulation (67.9%), anxiety (53.1%), and depression (34.8%). Substance use demonstrated strong associations with anxiety ($\chi^2 = 20.786$, OR = 10.307, $p < 0.001$), emotional dysregulation ($\chi^2 = 8.196$, OR = 4.296, $p = 0.004$), and impulsivity ($\chi^2 = 12.624$, OR = 6.576, $p < 0.001$). In contrast, depression was not significantly associated with substance use ($p = 0.409$).
Conclusion: Adults with BPD exhibit significantly higher rates of substance use, particularly cannabis and tobacco, compared to their non-BPD counterparts. Psychological factors, especially impulsivity, emotional dysregulation, and anxiety, emerged as strong predictors of substance-use vulnerability, whereas depression did not show a significant association.

Keywords: *Borderline Personality Disorder; Substance Use; Anxiety; Impulsivity; Emotional Dysregulation.*

1. Introduction

Borderline Personality Disorder (BPD) is characterised by intense emotional ups and downs, a shaky sense of self, and difficulties in maintaining stable relationships. This often leads to impulsive behaviours and quick shifts in mood. [1]. Emotional lability refers to the intense and rapidly shifting emotions that individuals with BPD often experience. This emotional instability often results in persistent feelings of depression, anxiety, and emptiness, significantly impacting daily functioning and relationships. [2]. People with BPD may be more impulsive during times of acute emotional dysregulation, which frequently results in high-risk behaviour like substance abuse, careless driving, or self-harm. These behaviours are maladaptive ways for them to cope with psychological distress. [2], [3]. Previous research indicates that BPD is more prevalent among young adults, mainly undergraduate students, as personality disorders often emerge during adolescence or early adulthood. While the prevalence of BPD in the general population ranges from 0.5% to 3.2%, studies suggest that the prevalence among university students in China is around 17.7% [4].
Impulsivity is a hallmark of BPD, often resulting in risky behaviours such as excessive alcohol consumption, substance abuse, and reckless driving. This tendency becomes more pronounced during stressful or emotionally intense situations, potentially increasing the likelihood of substance abuse and making students more susceptible to addiction[5].BPD has a significant impact on substance use among adolescents, who are already more likely to experiment with drugs because of a variety of stressors, social pressures, and developmental changes [6]. In this group, the relationship between substance use and BPD might be very troubling for several reasons. Extreme emotional instability is a hallmark of BPD, and many people with the disorder may turn to drugs as a kind of self-medication [7]. Drugs or alcohol may temporarily alleviate feelings of distress, anger, or emptiness that are common in BPD. This coping mechanism can escalate substance use, leading to dependence or abuse. BPD is characterised by impulsive behaviour, which includes risky activities like substance abuse[8].

Emotional dysregulation is a central characteristic of BPD, involving difficulty in managing intense emotions. This can lead to rapid mood shifts, irritability, and struggles with self-soothing. The inability to control emotions is closely linked to substance abuse, as individuals may turn to alcohol or drugs as a means of coping with overwhelming feelings [9]. There is a strong correlation between depression and BPD; research indicates that up to 85% of people with BPD also fit the criteria for major depressive disorder. The hopelessness and low mood associated with depression in BPD can drive substance use as a form of self-medication [10].

2. Novelty of The study

This research explores the psychological factors underlying substance use in Eastern Odisha college students, an area with distinct cultural and socio-economic characteristics, yet underrepresented in global mental health studies. While anxiety, emotional dysregulation, and impulsivity are widely recognised as key contributors to substance use, this study is the first to examine their interaction within the context of BPD in this region. With substance use on the rise and mental health resources remaining scarce, the findings underscore a strong correlation between these psychological traits and substance use. Interestingly, the study challenges conventional beliefs by revealing no significant link between depression and substance use, emphasizing the need for culturally nuanced diagnostic approaches and targeted interventions. By addressing a crucial gap in addiction research, this study enhances the understanding of substance use psychology in Eastern Odisha College students. It provides a foundation for developing mental health strategies tailored to the specific needs of its population.

3. Objective

This explanatory study aims to assess the relationship between BPD and substance use, focusing on the psychological factors that may contribute to substance use among individuals with BPD. By assessing impulsivity, emotional dysregulation, anxiety, and depression, the study seeks to identify key psychological characteristics that differentiate substance users from non-users among university students.

4. Hypothesis

H1: BPD with substance use exhibits significantly higher levels of anxiety, emotional dysregulation, and impulsivity compared to non-users.
H2: Depression levels will not significantly differ between substance users and non-users

5. Method and Material

5.1. Study design

A cross-sectional study was conducted between September 2023 and December 2024 among undergraduate students from multiple institutions within a single university in Eastern Odisha.

5.2. Sampling

A stratified random sampling method was used to ensure representation across academic years and departments.

5.3. Participants

6. Inclusion criteria

- Undergraduate students from the selected multiple institutes in Eastern Odisha
- Students aged between 18 to 26 years.
- Students signed the consent to participate in the study.

6.1. Exclusion criteria

Severe medical conditions and brain injuries excluded both people from the study.

6.2. Sample size

A total of 2,000 participants were recruited through stratified random sampling across the participating institutions. Given the exploratory nature of this investigation, no formal sample size calculation for hypothesis testing was conducted. Instead, the sample size was determined by feasibility considerations and the achievable recruitment within the study period.

6.3. Data collection

This study was conducted through face-to-face interviews in private, confidential spaces within campus facilities. Each session lasted approximately 35 minutes. All participating students chose to complete the language in English.

7. Assessment Used

A socio-demographic profile is a comprehensive description of a population based on various demographic factors, such as age, gender, and family annual income, in BPD students. Borderline Personality Disorder (BPD) is diagnosed using the criteria listed in the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th Edition). According to the DSM-5, BPD is a pervasive pattern of instability in interpersonal relationships, self-image, and affect, along with marked impulsivity, beginning by early adulthood and present in a variety of contexts. To meet the diagnostic threshold, five (or more) of the following nine criteria must be met[11].

The McLean Screening Instrument for BPD (MSI-BPD) consists of a 10-item self-report questionnaire based on the criteria for BPD defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM). Each ten-item is answered as Yes (1 point) or No (0 points. A score of 7 or more is considered indicative of BPD. A score below 7 suggests that the individual may not meet the criteria for BPD based on this screening tool.[12]

The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST-V3) is a tool designed to identify and assess substance use and related problems. The ASSIST evaluates the use of various substances, including alcohol, tobacco, cannabis, cocaine, amphetamines, inhalants, sedatives, hallucinogens, opioids, and other drugs, scoring such as Low Risk (0-3), Moderate Risk (4-26), and High Risk (27-40).[13]

The Hamilton Rating Scale for Depression (HAM-D) is a clinician-administered tool to assess the severity of depressive symptoms. The scores range from 0 to 24. The higher the score, the greater the severity of depression. Generally, a score of 0-7 indicates no depression, 8-16 indicates mild depression, 17-23 indicates moderate depression, and scores greater than 24 are considered severe depression.[14]

The Difficulties in Emotion Regulation Scale (DERS) is a recognised self-report measure of emotion regulation difficulties that assesses a person's difficulties regulating their emotions using six subscales (nonacceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, absence of emotional awareness, limited access to an emotional regulation strategy, and absence of emotional clarity)[15]. Items were rated on a 5-point Likert scale, ranging from 1 (never) to 5 (almost always), so that higher scores indicated greater difficulties with emotion regulation. Summary scores were computed by summing all item responses, and subscale scores were calculated separately for each of the six subscales. The range of total scores is from 36 to 180; scores over 100-110 are considered high levels of difficulty, while scores lower than 60-70 indicate lower levels of difficulty. [16]

The Barratt Impulsiveness Scale is a widely used self-report questionnaire to assess individuals' impulsivity. One of the most common versions is the BIS-11, which consists of 30 items. Respondents rate their frequency of behaviours or feelings on a 4-point Likert scale, where one represents "rarely/never" and four stands for "almost always/always." The total score ranges from 30 to 120, obtained by summing the responses to all items. Scores between 30 and 71 indicate low impulsivity, while scores of 72 and above suggest higher levels of impulsivity.[17].

The Hamilton Rating Scale for Anxiety (HAM-A) is a clinician-administered assessment tool used to evaluate the severity of anxiety symptoms. Scores range from 0 to 24, with higher scores indicating more severe anxiety. Typically, a score of 0–7 suggests no anxiety, 8–16 indicates mild anxiety, 17–23 suggests moderate anxiety, and scores above 24 are indicative of severe anxiety.[18].

7.1. Procedure

A stratified random sample of 2,000 students from multiple institutions within one university will complete standardised assessments, including self-report questionnaires and behavioural observations. Validated instruments (ASSIST v3, DERS, BIS, HAM-A, HAM-D) will assess BPD symptoms, substance use, emotional regulation, impulsivity, anxiety, and depression. Statistical analyses will examine associations between psychological traits and BPD symptoms, as well as the moderating effects of substance use.

8. Statistical Analysis

Descriptive statistics, chi-square tests, odds ratios (OR), and 95% confidence intervals (CI) were computed (SPSS v25). Significance level: $p < 0.05$.

9. Ethical Approval and Consent to Participate

The study was conducted in accordance with the principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Institutional Ethics Committee of IMS and SUM Hospital (Ref. no/IEC/IMS.SH/SOA/2023/599). They were assured that their participation was entirely voluntary, their identities and data would remain strictly confidential, and they retained the right to withdraw from the study at any stage without any adverse consequences. Written informed consent was obtained from all individuals before their participation.

10. Result

10.1. Socio-demographic characteristics from the student sample

The age distribution indicates that individuals aged 18–26 with BPD account for 5.8% (N = 115) of the total sample, while 94.2% (N = 1885) do not have BPD. Among those with BPD, 37.3% (N=43) also have substance use, whereas 62.7% (N=72) do not. The gender distribution revealed that 46.9% (N=54) of individuals with BPD were female, compared to 43.8% (N=825) in the non-BPD group. Males comprised 53.1% (N=61) of the BPD group, slightly higher than the 56.2% (N=1060) in the non-BPD group. Notably, among those with BPD and substance use, 27.8% were female, and 45.9% were male, while 72.2% of females and 54.1% of males with BPD did not report substance use. Regarding income, 71.3% (N = 82) of individuals with BPD had an income above ₹10 lakhs, which is slightly higher than the 65.1% (N = 1228) in the non-BPD group. In contrast, 28.7% (N = 33) of the BPD group had an income below ₹ 10 lakhs, compared to 34.9% (N = 657) in the non-BPD group. Among those with BPD and substance use, 72% had an income above 10 lakhs, while 70.8% of those with BPD without substance use also reported higher income. The lower-income group was 28% among BPD with substance use and 29.2% among BPD without substance use, suggesting minimal financial differences in substance use behaviour. (See table 1)

Table 1: Socio-Demographic Characteristics from the Student Sample

Variable	BPD(N=115) Frequency and percentage	Without BPD(N=1885) Frequency and percentage	BPD with Substance use: Frequency and percentage	BPD without Substance use: Frequency and percentage
Age (18-26)	115(5.8%)	1885(94.2%)	43(37.3%)	72(62.7%)
Gender				
Female (879)	54(46.9%)	825(43.8%)	15(27.8%)	39(72.2%)
Male (1121)	61(53.1%)	1060(56.2%)	28(45.9%)	33(54.1%)
Income				
10 lakhs above	82(71.3%)	1228(65.1%)	31(72%)	51(70.8%)
Below 10 lakhs	33(28.7%)	657(34.9%)	12(28%)	21(29.2%)

Note :P value:0.05, Borderline personality disorder, SD: standard deviation

10.2. Prevalence of BPD, SU, and psychological variables

Out of the total 2000 individuals analysed, 115 (5.7%) met the DSM-5 criteria for BPD using the scale(MSI-BPD), while 1885 (94.3%) did not have BPD. Substance abuse, as assessed by WHO-ASSIST, was present in 322 individuals (16.1%), with 43 (37.4%) of those diagnosed with BPD engaging in substance use. Among those with BPD, 72 (62.6%) exhibited impulsivity, while 43 (37.4%) did not. Depression was present in 40 individuals (34.8%) with BPD, while 75 (65.2%) were without depression. Anxiety was reported in 61 (53.1%) of BPD cases, whereas 54 (46.9%) did not experience anxiety. Emotional dysregulation was a common feature in BPD, affecting 78 individuals (67.9%), while 37 (32.1%) did not exhibit emotional dysregulation. These findings highlight significant associations between BPD and various psychological and behavioural factors, particularly impulsivity, emotional dysregulation, and anxiety.

Table 2: Shows the Prevalence of BPD Among Students and Its Association with Substance Abuse, Impulsivity, Depression, Anxiety, and Emotional Dysregulation

Variable	Frequency (%)
BPD	115(5.7%)
Without BPD	1885(94.3%)
Total	2000(100%)
Positive substance abuse (WHO-ASSIST)	322(16.1%)
Negative substance abuse	1678(83.9%)
Substance use BPD	43(37.4%)
Non-user with BPD	72(62.6%)
Impulsivity in BPD	82(71.3%)
Without impulsivity in BPD	33(28.7%)
Depression in BPD	40(34.8%)
Without depression in BPD	75(65.2%)
Anxiety in BPD	74(64.3%)
Without anxiety in BPD	41(35.7%)
Emotional dysregulation in BPD	84(73%)
Without emotional dysregulation in BPD	31(27%)

10.3. Substance use patterns in BPD groups and associated psychological factors

The tables 3 how that among individuals with BPD (N=43), cannabis (81.4%) and tobacco use (60.5%) are the most prevalent substances, while alcohol (23.3%), opioids (30.2%), sedatives (11.6%), inhalants (2.3%), and other drugs (9.3%) are less common, and no use of amphetamines or hallucinogens is reported. Across symptom-specific groups with comorbid substance use, tobacco and cannabis remain consistently high, especially in the impulsivity subgroup (tobacco 38.5%, cannabis 33.3%) and the emotional dysregulation subgroup (tobacco 58.8%, cannabis 47.1%). Depression with substance use shows notable levels of cannabis (59.0%) and tobacco (51.3%), while anxiety with substance use also reflects moderate rates of tobacco (38.5%) and cannabis (33.3%). Opioid use appears moderately represented across groups, peaking in the emotional dysregulation (31.6%) and overall BPD sample (30.2%). Overall, the pattern suggests that cannabis and tobacco are the dominant substances associated with BPD, particularly in individuals presenting with impulsivity, depression, and emotional dysregulation, while other substances show minimal involvement. (see table 3).

Table 3: Substance Use Patterns in BPD Groups and Associated Psychological Factors

SL no.	Substance use patterns of BPD groups		N=43(%)	Impulsivity with substance use(n=39)	Anxiety with substance use (n=39)	Depression With substance us(n=17)	Emotional dysregulation with substance use (n=38)
1	Tobacco	Yes	26 (60.5%)	15 (38.5%)	20 (51.3%)	10 (58.8%)	15 (39.5%)
		No	17 (39.5%)	24 (61.5%)	19 (48.7%)	7 (41.2%)	23 (60.5%)
2	Alcoholic beverages	Yes	10 (23.3%)	2 (5.1%)	5 (12.8%)	5 (29.4%)	9 (23.7%)
		No	33 (76.7%)	37 (94.9%)	34 (87.2%)	12 (70.6%)	29 (76.3%)
3	Cannabis	Yes	35 (81.4%)	13 (33.3%)	23 (59.0%)	8 (47.1%)	25 (65.8%)
		No	8 (18.6%)	26 (66.7%)	16 (41.0%)	9 (52.9%)	13 (34.2%)
4	Amphetamines	Yes	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
		No	43 (100%)	39 (100%)	39 (100%)	17 (100%)	38 (100%)
5	Inhalants	Yes	1 (2.3%)	0 (0%)	0 (0%)	1 (5.9%)	0 (0%)

		No	42 (97.7%)	39 (100%)	39 (100%)	16 (94.1%)	38 (100%
		Yes	5 (11.6%)	2 (5.1%)	5 (12.8%)	2 (11.8%)	3 (7.9%)
6	Sedatives	No	38 (88.4%)	37 (94.9%)	34 (87.2%)	15 (88.2%)	35 (92.1%)
		Yes	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
7	Hallucinogens	No	43 (100%)	39 (100%)	39 (100%)	17 (100%)	38 (100%)
		Yes	13 (30.2%)	8 (20.5%)	10 (25.6%)	2 (11.8%)	12 (31.6%)
8	Opioids	No	30 (69.8%)	31 (79.5%)	29 (74.4%)	15 (88.2%)	26 (68.4%)
		Yes	4 (9.3%)	1 (2.6%)	1 (2.6%)	2 (11.8%)	1 (2.6%)
9	Other drugs	No	39 (90.7%)	38 (97.4%)	38 (97.4%)	15 (88.2%)	37 (97.4%)

% : percentage

10.4. Association between substance use and psychological variables

Psychological correlates analysis of the use of substances reveals strong correlations with emotional dysregulation, anxiety, and impulsivity, while depression is not statistically significant. Anxiety is strongly prevalent in the substance-use-positive group (n=39) compared to the substance-use-negative group (n=35), with a chi-square (x^2) of 20.786, an odds ratio (OR) of 10.307, a 95% confidence interval (CI) of 3.336-31.844, and a strongly significant p-value (<0.001). These results indicate that individuals with anxiety are more than ten times more likely to be involved in substance use compared to those without anxiety. Emotional dysregulation is another prevalent risk factor, with 38 participants in the substance-use-positive group compared with 46 in the contrast group. The 8.196 chi-square value, an OR of 4.296, and a CI of 1.505 to 12.265 (p=0.004) provide evidence of the strong relationship and suggest that emotional dysregulation is a strong predictor of substance-use vulnerability. In addition, impulsivity shows the strongest association, with 39 cases in the positive group compared to 43 in the negative group, yielding a chi-square of 12.624, an OR of 6.576, and a CI ranging from 2.121 to 20.390 (p=0.000), indicating a significantly increased risk profile for the impulsive individuals. Depression, on the other hand, does not appear as a strong determinant of substance use, demonstrated by the similar distribution between the positive (n=17) and negative (n=23) groups with a chi-square value of 0.684, an OR of 1.393, and a CI of 0.634 to 3.060. The corresponding p-value (0.409) is not statistically significant, which shows that depression by itself does not impart increased vulnerability to substance use. (See table 4)

Table 4: Association Between Substance Use and Psychological Variables

Category psychological factors	Substance Use(positive) (n=43)	Substance Use(negative) (n=72)	Pearson's Chi-square (x^2)	Odd Ratio(OR)	95 CI	P value <0.001
Anxiety	39(90.6%)	35(48.2%)	20.786	10.307	3.336 to 31.844	0.000
Without anxiety	4(9.4%)	37(51.8%)				
Depression	17(39.5%)	23(31.5%)				
Without depression	26(60.5%)	49(68.5%)				
			0.684	1.393	0.634 to 3.060	0.409
Emotional dysregulation	38(88.3%)	46(63.9%)				
Without Emotional dysregulation	5(11.6%)	26(36.1%)	8.196	4.296	1.505 to 12.265	0.004
Impulsivity	39(90.6%)	43(59.7%)				
Without impulsivity	4(9.4%)	29(40.3%)	12.624	6.576	2.121 to 20.390	0.000

Note:p<0.001 significant and depression p>0.05 not significant

11. Discussion

According to our study, the rate of borderline personality disorder (BPD) in our participant population is 5.8%, which is consistent with prior studies. Additionally, we found that 37.3% of students with BPD are using some form of substance. This supports previous studies, which have established that youth with BPD have a higher rate of substance use, which suggests that they are clearly at a higher rate of substance use than their peers.[19]This age range is a crucial time for development, filled with important emotional, social, and psychological shifts that can lead to the emergence or intensification of BPD symptoms.[20,21]. The findings from the current study regarding the socio-demographic profile of individuals with BPD indicate a slight majority of females (54%) compared to males (61%). Most participants fall within the age range of 18 to 26 years and have a certain annual family income level. This observation is consistent with earlier research that has also noted a higher occurrence of BPD among females.[20]. In this study, we found that 37.3% (N=43) of individuals with BPD also struggle with substance use, while 62.7% (N=72) do not. We took a closer look at how gender influences impulsivity, emotional dysregulation, depression, and anxiety in people with BPD. The results shed light on how these psychological factors manifest differently in men and women.

The results of this study shed light on how substance use connects with different psychological traits in people with borderline personality disorder (BPD). The strikingly high rates of tobacco use and alcohol consumption indicate that those with BPD might turn to these substances to help manage their emotional ups and downs. This aligns with previous research that explores the link between borderline personality traits and the use of substances like smoking, alcohol, and cannabis[22]. Notably, alcohol use was more strongly linked to emotional dysregulation than impulsivity, indicating that individuals may use alcohol to manage emotional distress rather than impulsive tendencies. Cannabis use was relatively low in this group, but those who used it exhibited slightly higher emotional dysregulation, suggesting a potential self-medication effect. Similarly, opioid use [23] was significantly associated with impulsivity and emotional dysregulation, which aligns with previous research indicating that opioid use may be driven by attempts to regulate emotions and impulsive

behavior.[25]The diverse patterns observed in the utilisation of sedatives suggest that these pharmacological agents are predominantly employed to alleviate anxiety rather than to address impulsivity or emotional instability. Notably, this study cohort reported no instances of amphetamine or hallucinogen consumption. This observation may imply that individuals diagnosed with BPD either exhibit a lack of preference for these substances or may be engaging in underreporting of their usage. Furthermore, the prevalence of inhalant and other drug consumption was markedly low, which reinforces the notion that specific substances are utilized more frequently for emotional regulation within this demographic. The interrelations among impulsivity, emotional dysregulation, anxiety, and substance consumption exhibit parallels with opioids, cannabis, alcohol, and tobacco[24–27].]

The current research agrees with previous BPD literature in establishing the much higher severity of symptoms among people with the disorder than among people without. Previous research [30] has continually established that people with BPD are more emotionally unstable, more impulsive, and have more comorbid psychopathology, consistent with current research. Substance use has been found to significantly correlate with increased symptom severity in individuals with borderline personality disorder (BPD) ($P < 0.05$). This aligns with earlier research [31], which indicates that substance use can worsen impulsivity and emotional dysregulation in those with BPD. Impulsivity, a key trait of BPD, was notably higher in affected individuals, a finding that has been well-documented in previous studies [32]. However, unlike earlier research that emphasizes the strong influence of emotional dysregulation on BPD symptoms [33], this study reveals a statistically significant ($P < 0.001$) difference between individuals with and without emotional dysregulation. This variation might stem from different criteria or methods used to assess emotional dysregulation in this study [33], [34]. Additionally, the study found a significant link between depression and anxiety and increased symptom severity ($P < 0.05$), which is consistent with findings that highlight the high comorbidity of depression and anxiety in BPD [30], [35], [36]. Interestingly, anxiety levels were somewhat higher among substance users compared to non-users. The chi-square test ($x^2=20.786$, $p=0.001$) indicated a significant association, suggesting that those who use substances may experience heightened anxiety. This supports previous research that shows anxiety disorders can lead to substance use as a coping strategy. The significant association emphasizes the need to incorporate anxiety management techniques into substance use prevention and intervention programs [37]. The current study revealed that the average depression score was slightly higher in the group that used substances compared to those who did not. However, the chi-square test ($x^2=0.684$, $p=0.409$) showed no significant association between the two groups. This implies that depression might not be a key factor that sets apart individuals with substance use from those without in this particular sample. While some research points to a strong connection between depression and substance use, the lack of a significant association here could be attributed to the characteristics of the sample, differences in methodology, or other influencing factors.

The current research indicates that people who use substances tend to have higher scores for emotional dysregulation compared to those who do not. A chi-square test ($x^2 = 8.196$, $p = 0.004$) showed a significant link, indicating that emotional dysregulation is a key factor in substance use. This research highlights how emotional instability can influence behaviours related to substance use, suggesting that individuals who struggle more with regulating their emotions might be more likely to turn to substances as a way to cope. Garke et al. (2021) pointed out a connection between emotional dysregulation and both the frequency and severity of substance use [27]. They also propose that addressing impulsive behaviour could be an important focus in treatment for those dealing with substance dependence. These findings emphasize the need for therapeutic approaches that help improve emotional regulation skills in individuals at risk for substance use. In this study, substance users showed slightly higher levels of impulsivity than non-users. A current study indicated a significant relationship, suggesting that impulsivity might play a role in substance use behaviour. Previous research by Kozak et al. (2018) examined the neurobiology of impulsivity and its relevance to treating substance use disorders. The results demonstrate consistency with earlier findings regarding impulsivity as a known risk factor for substance use, thus implying that those with higher levels of impulsivity tend to engage in riskier behaviours like using substances. The similarities between current findings and previous findings demonstrated that impulsivity was an important vulnerability factor for substance use. [40].

Future research should further investigate the underlying mechanisms linking impulsivity to substance use and explore potential interventions targeting impulsivity to reduce substance use risk. They investigate these relationships using larger sample sizes of university students to better understand the causal mechanisms underlying substance use and psychological distress.

Limitations: Several limitations should be considered when interpreting the findings of this study. First, the cross-sectional design restricts the ability to establish causal relationships between BPD, psychological correlates, and substance-use behaviours. The associations identified may reflect co-occurring patterns rather than directional influences. Second, the reliance on self-report measures such as the MSI-BPD and WHO-ASSIST may introduce response bias, including underreporting or overreporting of symptoms and substance use. Third, although the sample size was large overall, the subgroup of individuals with BPD—particularly those with comorbid substance use—was relatively small, potentially limiting the statistical power for certain analyses and reducing generalizability. Fourth, the study did not assess environmental or familial factors (such as trauma history, peer influence, or genetic predisposition) that may contribute to both BPD and substance-use vulnerability. Finally, the findings are specific to individuals aged 18–26 and may not extend to other age groups or clinical populations. Future research incorporating longitudinal designs, larger clinical samples, and multimethod assessments would strengthen understanding of the complex relationship between BPD and substance use.

12. Conclusion

The present analysis highlights important sociodemographic, psychological, and behavioural patterns associated with borderline personality disorder (BPD) among young adults aged 18–26. Although individuals with BPD constituted a relatively small proportion of the total sample (5.7%), the disorder demonstrated strong associations with key psychological vulnerabilities and substance-use behaviours. Substance use was substantially more common among those with BPD, with cannabis and tobacco emerging as the most frequently used substances across all symptom-specific subgroups, particularly among individuals exhibiting impulsivity, emotional dysregulation, and depression. Psychological correlates further revealed that anxiety, emotional dysregulation, and impulsivity were significant predictors of substance use, with impulsivity showing the strongest association. Individuals with anxiety were over ten times more likely to engage in substance use, underscoring the heightened risk conferred by comorbid anxiety symptoms. Emotional dysregulation also markedly increased susceptibility to substance involvement, reflecting its central role in BPD pathology. In contrast, depression did not demonstrate a significant relationship with substance use, suggesting it may not independently drive substance-use behaviour within this population. Sociodemographic characteristics, including gender and income, showed minimal influence on substance-use patterns among those with BPD, indicating that psychological traits and symptom severity play a more critical role than demographic factors in shaping risk. Overall, the findings emphasize that BPD in young adults is closely intertwined with maladaptive behaviours and emotional vulnerabilities that significantly elevate the risk of substance use. Targeted interventions focusing on emotional regulation, impulsivity control, and anxiety management may therefore be essential in mitigating substance-use risk and improving outcomes for individuals with BPD.

13. Abbreviation

BPD: Borderline personality disorder.
DSM: Diagnostic and Statistical Manual of Mental Disorders.
SU: Substance use.
BDI: Beck Depression Inventory.
BIS: Barratt impulsivity scale.
DERS: Difficulties in the Emotion Regulation Scale.
SPSS: Statistical Package For The Social Sciences.
ASSIST: The Alcohol, Smoking, and Substance Involvement Screening Test.
MSI: McLean Screening Instrument.

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Conflict of Interest

There is no conflict of interest.

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Author Contributions

All authors contributed to the execution of the study. JD, MB, RM, and JB were responsible for conceptualization. JD and JB carried out statistical analysis. JB and JD reviewed and edited the manuscript.

References

[1] Giulio P. Borderline personality disorder: Definition, differential diagnosis, clinical contexts, and therapeutic approaches. Annals of Psychiatry and Treatment. Vol . 4,n-1 pp: 043-056. , 2020. https://doi.org/10.17352/apt.000020.
[2] Miller CE, Townsend ML, Grenyer BFS. Understanding chronic feelings of emptiness in borderline personality disorder: a qualitative study. Borderline Personality Disorder and Emotion Dysregulation. Vol.. 8, n. 1,pp. 1–9, 2021, https://doi.org/10.1186/s40479-021-00164-8.
[3] Kulacaoglu, Filiz, and Samet Kose. "Borderline Personality Disorder (BPD): In the Midst of Vulnerability, Chaos, and Awe." Brain Sciences.vol.8, no.11, pp. 201.2018, https://doi.org/10.3390/brainsci8110201.
[4] Jia N, Sakulsriprasert C, Wongpakaran N, Suradom C, O'Donnell R. "Borderline Personality Disorder Symptoms and Its Clinical Correlates among Chinese University Students: A Cross-Sectional Study." Healthcare (Basel, Switzerland) vol. 10,n-9 pp.1751. 2022, https://doi.org/10.3390/healthcare10091751.
[5] Parmar A, Kaloiya G. Comorbidity of Personality Disorder among Substance Use Disorder Patients: A Narrative Review.Indian Journal of Psychological Medicine Vol. 40, no .6, pp. 517-527. 2018, https://doi.org/10.4103/IJPSYM.IJPSYM_164_18.
[6] Trull TJ, Freeman LK, Vebares TJ, Choate AM, Helle AC, Wycoff AM. "Borderline personality disorder and substance use disorders: an updated review." Borderline personality disorder and emotion dysregulation, vol. 5,no.1, pp.15. 2018, https://doi.org/10.1186/s40479-018-0093-9.
[7] Köck, Patrick and Walter, Marc , Personality disorder and substance use disorder – An update. Mental Health & Prevention, vol. 12, p. 82–89,2018. https://doi.org/10.1016/j.mhp.2018.10.003.
[8] Kienast, Thorsten, Stoffers, Jutta, Bermpohl, Felix and Lieb, Klaus . Borderline Personality Disorder and Comorbid Addiction: Epidemiology and Treatment. Deutsches Ärzteblatt International, vol.111,no.16, p. 280,2014, https://doi.org/10.3238/arztebl.2014.0280.
[9] Stellern, J., Xiao, K. B., Grennell, E., Sanches, M., Gowin, J. L., & Sloan, M. E. (2023). Emotion regulation in substance use disorders: a systematic review and meta-analysis. Addiction (Abingdon, England), vol. 118,no.1, pp. 30-47. 2023, https://doi.org/10.1111/add.16001.
[10] Carpenter, Ryan W, and Timothy J Trull. "Components of emotion dysregulation in borderline personality disorder: a review." Current psychiatry reports. vol. 15,no.1 pp. 335.2013, https://doi.org/10.1007/s11920-012-0335-2.
[11] Komarnicki, J., Tobiaszewska, M., Dębowska, W., Dębowska, M., & Szulc, A. "Depression with comorbid borderline personality disorder - could ketamine be a treatment catalyst?" Frontiers in Psychiatry, vol. 15, pp.1398859. 2024, https://doi.org/10.3389/fpsyt.2024.1398859.
[12] Zanarini MC, Vujanovic AA, Parachini EA, Boulanger JL, Frankenburg FR, Hennen J"A screening measure for BPD: the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD)." Journal of Personality Disorders, Vol. 17, No.6, pp.568-73.2003, https://doi.org/10.1521/pedi.17.6.568.25355.
[13] Humeniuk, R., Ali, R., Babor, T., Souza-Formigoni, M. L., de Lacerda, R. B., Ling, W., McRee, B., Newcombe, D., Pal, H., Poznyak, V., Simon, S., & Vendetti, J). A randomized controlled trial of a brief intervention for illicit drugs linked to the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) in clients recruited from primary health-care settings in four countries. Addiction (Abingdon, England), 107 no.5, pp.957–966. 2012, https://doi.org/10.1111/j.1360-0443.2011.03740.x.
[14] Humeniuk, Rachel, Henry-Edwards, S., Ali, Robert, Poznyak, Vladimir, Monteiro, Maristela G. et al. (2010). The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST): manual for use in primary care. World Health Organization. pp.68, URL: https://iris.who.int/handle/10665/44320.
[15] HAMILTON, M. "A rating scale for depression." Journal of Neurology, Neurosurgery, and Psychiatry Vol. 23,no. 1 pp. 56-62.1960, https://doi.org/10.1136/jnnp.23.1.56.
[16] Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. Journal of Psychopathology and Behavioral Assessment, Vol . 26, no. 1, pp 41-54. https://doi.org/10.1023/B:JOBA.0000007455.08539.94.
[17] Hallion, L. S., Steinman, S. A., Tolin, D. F., & Diefenbach, G. J. "Psychometric Properties of the Difficulties in Emotion Regulation Scale (DERS) and Its Short Forms in Adults with Emotional Disorders." Frontiers in Psychology vol. 9,no.1, pp. 539,2018, https://doi.org/10.3389/fpsyg.2018.00539.

[18] BARRATT E. S. (1965). FACTOR ANALYSIS OF SOME PSYCHOMETRIC MEASURES OF IMPULSIVENESS AND ANXIETY. Psychological Reports, Vol. 16, no. 2, pp.547-54. 1965, https://doi.org/10.2466/pr0.1965.16.2.547.
[19] Thompson, Euan. "Hamilton Rating Scale for Anxiety (HAM-A)." Occupational medicine (Oxford, England) vol. 65, no .7, pp. 601.2015, https://doi.org/10.1093/occmed/kqv054.
[20] Scalzo F, Hulbert CA, Betts JK, Cotton SM, Chanen AM. "Predictors of substance use in youth with borderline personality disorder." Personality disorders vol. 9,no.4 pp. 390-396.2018 https://doi.org/10.1037/per0000257.
[21] Bozzatello P, Bellino S, Bosia M, Rocca P. "Early Detection and Outcome in Borderline Personality Disorder." Frontiers in Psychiatry, vol. 10, no.1, pp 710. 2019, https://doi.org/10.3389/fpsyt.2019.00710.
[22] Bozzatello, P., Blua, C., Brandellero, D., Baldassarri, L., Brasso, C., Rocca, P., & Bellino, S. Gender differences in borderline personality disorder: a narrative review." Frontiers in Psychiatry. vol. 15, PP.1320546. 2024, https://doi.org/10.3389/fpsyt.2024.1320546.
[23] Distel, M. A., Trull, T. J., de Moor, M. M., Vink, J. M., Geels, L. M., van Beek, J. H., Bartels, M., Willemsen, G., Thiery, E., Derom, C. A., Neale, M. C., & Boomsma, D. I."Borderline personality traits and substance use: genetic factors underlie the association with smoking and ever use of cannabis, but not with high alcohol consumption.Journal of Personality Disorders, vol. 26, No.6, pp.867-79. 2012, https://doi.org/10.1521/pedi.2012.26.6.867.
[24] Bolshakova M, Bluthenthal R, Sussman S. "Opioid use and misuse: health impact, prevalence, correlates and interventions." Psychology & health vol. 34,no.9, pp 1105-1139. 2019, https://doi.org/10.1080/08870446.2019.1622013.
[25] Garke, M. Å., Isacsson, N. H., Sörman, K., Bjureberg, J., Hellner, C., Gratz, K. L., Berghoff, C. R., Sinha, R., Tull, M. T., & Jayaram-Lindström, N. "Emotion dysregulation across levels of substance use." Psychiatry research vol. 296,pp 113662. 2021, https://doi.org/10.1016/j.psychres.2020.113662.
[26] Doran, Neal, and Lyric Tully. "Impulsivity and tobacco product use over time." Addictive behaviors vol. 85, pp.153-157. 2018, https://doi.org/10.1016/j.addbeh.2018.06.007.
[27] Kenézlői, E., Balogh, L., Somogyi, S., Lévay, E. E., Halmai, Z., Nemoda, Z., Unoka, Z. S., & Réthelyi, J. M. "Emotion dysregulation and impulsivity as overlapping symptoms in adult Attention-Deficit/Hyperactivity Disorder and Borderline Personality Disorder: severity profiles and associations with childhood traumatization and personality functioning." Annals of general psychiatry vol. 24,no.1 pp.3. 2025, https://doi.org/10.1186/s12991-024-00540-y.
[28] Kumar PPC, Antony S, Ammapattian T, Kishor M, Sadashiv M. Substance use prevalence and associated factors among Indian college students: A narrative review. Archives of Mental Health vol. 25,no. 1, pp. 77-84, 2024. https://doi.org/10.4103/amh.amh_58_23.
[29] Leichsenring, F., Fonagy, P., Heim, N., Kernberg, O. F., Leweke, F., Luyten, P., Salzer, S., Spitzer, C., & Steinert, C."Borderline personality disorder: a comprehensive review of diagnosis and clinical presentation, etiology, treatment, and current controversies." World psychiatry: official journal of the World Psychiatric Association (WPA) vol. 23,no.1 pp.4-25. 2024, https://doi.org/10.1002/wps.21156.
[30] Stephen P. Whiteside, Donald R. Lynam.The Five Factor Model and impulsivity: using a structural model of personality to understand impulsivity, Personality and Individual Differences, vol.30, no. 4,pp.669-689,2001, https://doi.org/10.1016/S0191-8869(00)00064-7.
[31] Fossati A, Gratz KL, Maffei C, Borroni S. "Impulsivity dimensions, emotion dysregulation, and borderline personality disorder features among Italian nonclinical adolescents." Borderline personality disorder and emotion dysregulation, vol. 1, pp.5. 2014, https://doi.org/10.1186/2051-6673-1-5.
[32] McGonigal PT, Dixon-Gordon KL. Anger and Emotion Regulation Associated with Borderline and Antisocial Personality Features Within a Correctional Sample. Journal of Correctional Health Care. vol. 26 no.3 ,pp.215-226. 2020 , https://doi.org/10.1177/1078345820937775.
[33] Selby, Edward A, and Thomas E Joiner Jr. "Emotional cascades as prospective predictors of dysregulated behaviors in borderline personality disorder." Personality disorders vol. 4,no.2, pp.168-74. 2013, https://doi.org/10.1037/a0029933.
[34] Scheiderer, E. M., Wang, T., Tomko, R. L., Wood, P. K., & Trull, T. J. "Negative Affect Instability among Individuals with Comorbid Borderline Personality Disorder and Posttraumatic Stress Disorder." Clinical psychological science: a journal of the Association for Psychological Science, vol. 4,no.1, pp.67-81. 2016, https://doi.org/10.1177/2167702615573214.
[35] Tong, P., Bo, P., Shi, Y., Dong, L., Sun, T., Gao, X., & Yang, Y. Clinical traits of patients with major depressive disorder with comorbid borderline personality disorder based on propensity score matching." Depression and anxiety vol. 38,no.1,pp. 100-106.2021, https://doi.org/10.1002/da.23122.
[36] Grant, B. F., Chou, S. P., Goldstein, R. B., Huang, B., Stinson, F. S., Saha, T. D., Smith, S. M., Dawson, D. A., Pulay, A. J., Pickering, R. P., & Ruan, W. J."Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions." The Journal of Clinical Psychiatry, vol. 69, no.4 (2008): 533-45. https://doi.org/10.4088/JCP.v69n0404.
[37] Volkow, Nora D, and Carlos Blanco. "Substance use disorders: a comprehensive update of classification, epidemiology, neurobiology, clinical aspects, treatment and prevention." World Psychiatry. Official journal of the World Psychiatric Association (WPA) . vol. 22, no.2 ,pp. 203-229. 2023, https://doi.org/10.1002/wps.21073.
[38] Kozak K, Lucatch AM, Lowe DJE, Balodis IM, MacKillop J, George TP."The neurobiology of impulsivity and substance use disorders: implications for treatment." Annals of the New York Academy of Sciences vol. 1451,no.1,pp.71-91.2019, https://doi.org/10.1111/nyas.13977.