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TRAUMATIC EXPERIENCES AND PTSD SYMPTOMS IN SUBSTANCE USE DISORDER: A COMPARISON BETWEEN STIMULANT AND NARCOTIC USERS

Original Research

Razi Ur Rehman[1]*, Malik Nohman[1], Abid Aftab[1], Asif Azeem Bajwa[1], Ahmed Shaoib Tabassum[1], Sheraz Malik[1]
[1]Armed Forces Institute of Mental Health (AFIMH), Rawalpindi, Pakistan.
Corresponding Author: Razi Ur Rehman, Armed Forces Institute of Mental Health (AFIMH), Rawalpindi, Pakistan. raziurrehman97@gmail.com
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ABSTRACT

Background: substance use disorders (SUDs), particularly those involving stimulants and narcotics, are frequently associated with trauma exposure and psychiatric comorbidities such as post-traumatic stress disorder (PTSD). PTSD not only complicates addiction recovery but also intensifies the psychological burden in affected individuals. Prior research has not sufficiently compared trauma-related PTSD severity between stimulant and narcotic users, leaving a gap in personalized treatment approaches based on substance type.

Objective: This study aimed to evaluate the impact of traumatic experiences on PTSD symptom severity and substance use patterns in adults with stimulant or narcotic use disorders. A secondary objective was to compare psychological measures, including depression and impulsivity, between the two groups.

Methods: A cross-sectional study was conducted among 150 participants aged 18–60 years, equally divided between stimulant (n=75) and narcotic (n=75) users. Participants were recruited from rehabilitation centers and outpatient facilities. PTSD symptoms were assessed using the PTSD Checklist for DSM-5 (PCL-5), trauma exposure via the Trauma History Questionnaire (THQ), substance use behaviors with the Drug Use History Questionnaire (DUHQ), and depression levels through the Beck Depression Inventory (BDI). Statistical analyses included independent t-tests, Chi-square tests, Pearson's correlation, and multivariate regression.

Results: Narcotic users were older (35.2 ± 6.1 vs 30.5 ± 5.6 years; $p < 0.05$) and had lower education levels (8.7 ± 2.9 vs 10.2 ± 3.4 years; $p = 0.03$). They reported higher PTSD scores (40.3 ± 12.1 vs 32.1 ± 10.5; $p < 0.01$), more frequent childhood abuse (82% vs 67%; $p = 0.02$), and physical violence exposure (72% vs 56%; $p = 0.04$). Narcotic users also reported higher depression scores (28.1 ± 7.5 vs 22.4 ± 6.2; $p < 0.01$) and self-medication rates (69% vs 43%; $p < 0.01$), while stimulant users scored higher on impulsivity (19.7 ± 4.8 vs 15.2 ± 5.1; $p = 0.03$).

Conclusion: Narcotic users exhibited significantly greater PTSD severity, trauma exposure, and depressive symptoms compared to stimulant users, who displayed elevated impulsivity. These findings highlight the need for substance-specific, trauma-informed therapeutic strategies to improve outcomes in individuals with comorbid PTSD and SUD.

Keywords: Depression, Impulsivity, Narcotic Use Disorder, PTSD, Self-Medication, Stimulant Use Disorder, Trauma Exposure.

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INTRODUCTION

Substance use disorder (SUD) represents a chronic and complex medical condition that affects millions of individuals globally, often resulting in profound physical, psychological, and social consequences. Beyond the immediate health risks associated with drug use, SUD frequently impairs emotional regulation, interpersonal relationships, and overall functioning, creating substantial burdens for both individuals and their surrounding communities (1). Among the substances commonly associated with addiction, stimulants and narcotics are particularly prevalent, yet their impact on mental health differs significantly. Stimulants, such as cocaine, methamphetamine, and prescription amphetamines, primarily act by increasing dopamine levels in the brain, leading to heightened alertness, elevated mood, and energy surges. Conversely, narcotics like heroin and prescription opioids bind to opioid receptors, producing sedation, pain relief, and feelings of euphoria and relaxation (2). Emerging evidence suggests a strong comorbidity between SUD and psychiatric disorders, particularly post-traumatic stress disorder (PTSD), which frequently emerges during addiction treatment and recovery processes (3). PTSD is a debilitating psychiatric condition that arises following exposure to traumatic events, including physical or sexual assault, serious accidents, combat experiences, and witnessing death or violence. Individuals with PTSD often experience intrusive thoughts, sleep disturbances, emotional numbness, and hyperarousal, which impair daily functioning and quality of life (4). In many cases, individuals resort to substance use as a form of self-medication in an effort to alleviate these distressing symptoms. However, this maladaptive coping strategy may exacerbate PTSD symptoms, reinforcing a destructive cycle of addiction and trauma (4, 5).

Despite the recognized link between trauma and substance use, the precise nature of the relationship remains insufficiently understood. Research has established that PTSD frequently co-occurs with both stimulant and narcotic use disorders; however, few studies have systematically compared PTSD symptom patterns across these two classes of substances (6). Much of the existing literature focuses on stimulant or narcotic use in isolation, often overlooking the substance-specific psychological consequences and failing to address how trauma exposure may differentially influence PTSD severity depending on the substance used (7). Furthermore, limited attention has been given to how co-occurring psychiatric conditions, such as depression and anxiety, may mediate or exacerbate PTSD symptoms and substance use behaviors within this population (8). A significant gap persists in understanding how the type of substance—stimulant versus narcotic—interacts with trauma exposure to shape PTSD symptomatology. Previous investigations have not fully explored whether different trauma experiences lead to distinct symptom trajectories in SUD patients, nor have they adequately addressed whether substance type alters the intensity or profile of PTSD symptoms (9). Addressing these questions is essential for developing nuanced, substance-specific treatment strategies that address the unique psychological challenges faced by individuals with comorbid PTSD and SUD. The objective of this research is to examine and compare PTSD symptom severity in individuals using stimulants versus narcotics, with a focused analysis on the role of trauma exposure in influencing symptom expression. By identifying substance-specific psychological profiles, the study aims to contribute critical insights that inform targeted, trauma-informed interventions for individuals struggling with both PTSD and addiction (10).

METHODS

This study employed a cross-sectional, comparative design to assess the relationship between trauma exposure and the severity of post-traumatic stress disorder (PTSD) symptoms in individuals diagnosed with either stimulant or narcotic use disorder (SUD). The research was conducted at the Armed Forces Institute of Mental Health (AFIMH), Rawalpindi, and included adult participants aged 18 to 60 years who fulfilled the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria for stimulant or narcotic use disorder, along with a confirmed history of traumatic exposure qualifying under DSM-5 PTSD criteria. Participants were recruited from both inpatient rehabilitation centres and outpatient psychiatric clinics. The inclusion criteria required individuals to fall within the specified age range, possess a clinically established diagnosis of either stimulant or narcotic use disorder, and have experienced at least one traumatic event consistent with the diagnostic requirements for PTSD. Individuals were excluded if they had a comorbid diagnosis of schizophrenia or bipolar disorder, were currently receiving treatment specifically targeting PTSD (including psychotherapy or pharmacological interventions), or exhibited inconsistencies in their questionnaire responses (3,11).

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A total of 150 participants were included in the study, with equal representation from stimulant and narcotic user groups. Group balancing was ensured through purposive sampling to facilitate comparative analysis, although randomization procedures were not employed. Data collection involved the administration of multiple validated assessment tools. PTSD symptom severity was measured using the PTSD Checklist for DSM-5 (PCL-5), while the Trauma History Questionnaire (THQ) was used to document the nature and extent of traumatic experiences. The Drug Use History Questionnaire (DUHQ) provided detailed information on participants' patterns of substance use. Additionally, the Beck Depression Inventory (BDI) was used to assess the presence and severity of depressive symptoms, given the frequent comorbidity of depression with both PTSD and substance use disorders.

Descriptive statistics, including means and standard deviations, were used to present demographic and clinical data. Independent samples t-tests were conducted to compare PTSD severity scores between stimulant and narcotic user groups. Chi-square tests were used to assess differences in categorical variables such as gender, education, and marital status. Pearson's correlation analysis was performed to examine associations between trauma exposure and PTSD symptom severity. Multivariate regression analysis was used to identify predictive factors for PTSD severity while adjusting for potential confounders, including depressive symptoms and substance use characteristics. Ethical approval for this study was granted by the Institutional Review Board of the Armed Forces Institute of Mental Health. All participants provided informed written consent after receiving a comprehensive explanation of the study's purpose, procedures, and confidentiality safeguards. Participation was voluntary, and individuals were informed of their right to withdraw from the study at any stage without any consequences for their ongoing treatment.

RESULTS

The analysis revealed statistically significant demographic and clinical differences between stimulant and narcotic substance users. The mean age of narcotic users was 35.2 ± 6.1 years, which was significantly higher than the mean age of stimulant users at 30.5 ± 5.6 years ($p < 0.05$). Educational attainment also differed, with narcotic users reporting fewer years of formal education (8.7 ± 2.9) compared to stimulant users (10.2 ± 3.4), a difference that reached statistical significance ($p = 0.03$). No significant difference was found in gender distribution between the two groups, with males comprising 85% of stimulant users and 88% of narcotic users ($p = 0.67$). Regarding trauma exposure, narcotic users reported higher rates of childhood abuse (82%) compared to stimulant users (67%), which was statistically significant ($p = 0.02$). Physical violence was also more prevalent among narcotic users (72%) relative to stimulant users (56%) with a significant p-value of 0.04. Although the incidence of sexual assault was higher in narcotic users (40%) compared to stimulant users (28%), this difference did not reach statistical significance ($p = 0.08$). Narcotic users demonstrated significantly greater PTSD symptom severity, with a mean PTSD score of 40.3 ± 12.1, as opposed to 32.1 ± 10.5 among stimulant users ($p < 0.01$).

In terms of substance use behavior, narcotic users engaged in more frequent substance use per month (22.7 ± 6.4 days) than stimulant users (18.3 ± 5.2 days), which was statistically significant ($p = 0.01$). A greater proportion of narcotic users (69%) reported using substances to self-medicate trauma symptoms compared to stimulant users (43%) ($p < 0.01$). Psychological profiles further distinguished the two groups: stimulant users exhibited higher impulsivity scores (19.7 ± 4.8) relative to narcotic users (15.2 ± 5.1) ($p = 0.03$), whereas narcotic users had significantly higher depression scores on the Beck Depression Inventory (28.1 ± 7.5 vs. 22.4 ± 6.2, $p < 0.01$). Based on the multivariate regression analysis conducted to identify independent predictors of PTSD severity among participants with substance use disorders, several key variables demonstrated significant associations. After adjusting for potential confounders, including age, depression severity, trauma exposure, and substance use characteristics, higher depression scores ($\beta = 0.41$, $p < 0.001$), history of childhood abuse ($\beta = 0.28$, $p = 0.002$), and narcotic use ($\beta = 0.24$, $p = 0.006$) emerged as significant predictors of elevated PTSD symptom severity. In contrast, impulsivity scores were inversely related to PTSD severity ($\beta = -0.19$, $p = 0.03$), suggesting a distinct psychological profile among stimulant users. Frequency of substance use and education level did not independently predict PTSD severity after adjustment ($p > 0.05$). These findings indicate that depressive symptoms and trauma exposure—particularly childhood abuse—play a substantial role in the exacerbation of PTSD symptoms, and that narcotic use is independently associated with more severe PTSD outcomes compared to stimulant use.

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Table 1: Demographic Characteristics of Participants

Variable	Stimulant Users (n=75)	Narcotic Users (n=75)	p-value
Age (Mean ± SD)	30.5 ± 5.6	35.2 ± 6.1	<0.05
Gender (Male %)	85%	88%	0.67
Education (Years)	10.2 ± 3.4	8.7 ± 2.9	0.03

Table 2: Trauma Exposure and PTSD Severity

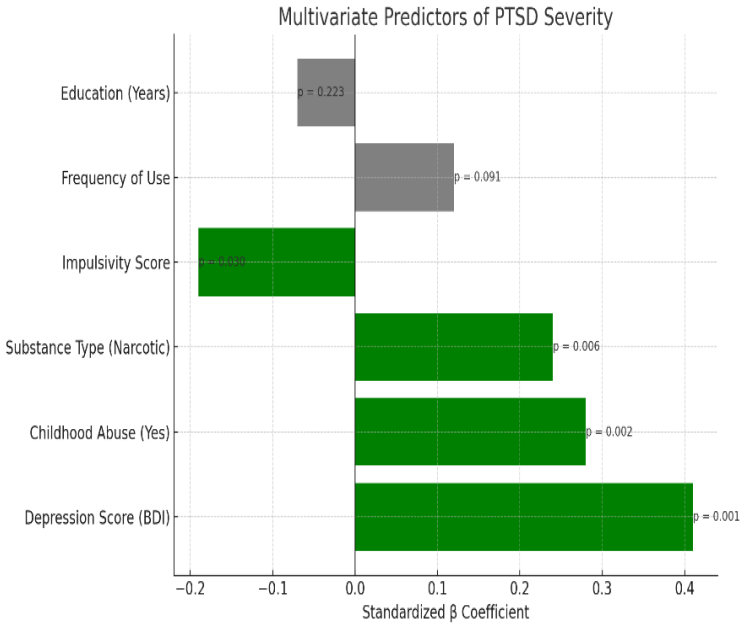
Variable	Stimulant Users (n=75)	Narcotic Users (n=75)	p-value
Childhood Abuse (%)	67%	82%	0.02
Sexual Assault (%)	28%	40%	0.08
Physical Violence (%)	56%	72%	0.04
PTSD Score (Mean ± SD)	32.1 ± 10.5	40.3 ± 12.1	<0.01

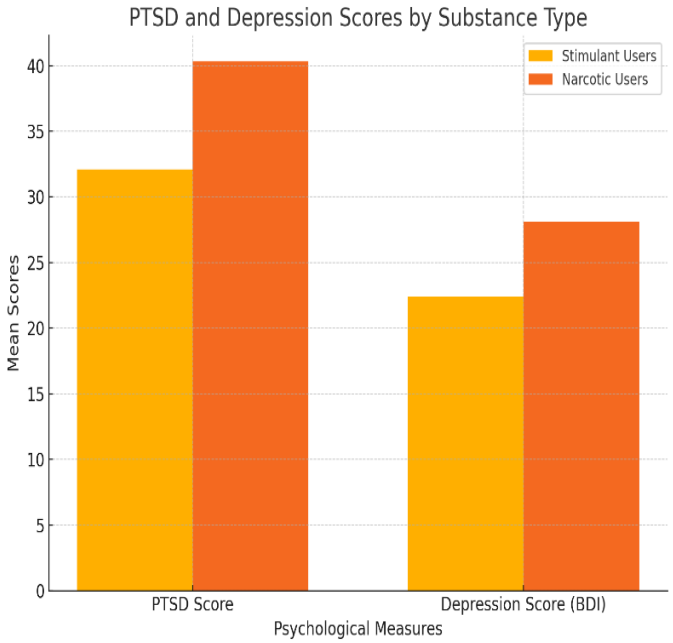
Table 3: Substance Use Patterns and Psychological Measures

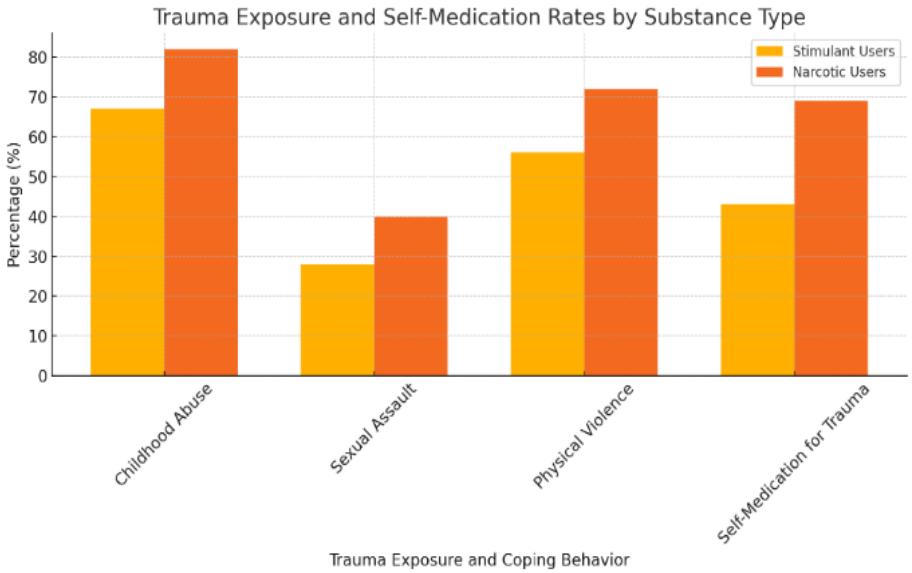
Variable	Stimulant Users (n=75)	Narcotic Users (n=75)	p-value
Frequency of Use (Days/Month)	18.3 ± 5.2	22.7 ± 6.4	0.01
Self-Medication for Trauma (%)	43%	69%	<0.01
Impulsivity Score (Mean ± SD)	19.7 ± 4.8	15.2 ± 5.1	0.03
Depression Score (BDI)	22.4 ± 6.2	28.1 ± 7.5	<0.01

Table 4: Predictors of PTSD Symptom Severity in Substance Use Disorder Patients (Multivariate Regression Analysis)

Predictor Variable	Standardized β Coefficient	p-value	Interpretation
Depression Score (BDI)	0.41	<0.001	Strong positive predictor of PTSD severity
Childhood Abuse (Yes)	0.28	0.002	Significant trauma-related predictor
Substance Type (Narcotic)	0.24	0.006	Narcotic use independently linked to higher PTSD
Impulsivity Score	-0.19	0.030	Inversely associated with PTSD severity
Frequency of Use (Days/Month)	0.12	0.091	Not a significant independent predictor
Education (Years)	-0.07	0.223	No significant independent effect







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DISCUSSION

The present study explored the intricate association between traumatic experiences, PTSD severity, and substance use patterns among individuals with stimulant and narcotic use disorders. Findings demonstrated notable differences between the two groups across demographic, psychological, and behavioral domains, offering meaningful insights into the substance-specific expression of trauma-related psychopathology. These results align with and extend existing literature, underscoring the heterogeneity within the substance-using population and the importance of tailored intervention strategies. Narcotic users were significantly older and had fewer years of formal education compared to stimulant users, reflecting previously reported socioeconomic disparities across substance user profiles (12,13). These demographic differences may be indicative of broader structural and environmental vulnerabilities contributing to the initiation and continuation of narcotic use. The lower education levels observed among narcotic users may further reflect limited access to health education, employment opportunities, and early intervention, all of which can perpetuate cycles of trauma and substance dependence (14).

The prevalence of trauma exposure was substantial across both groups, yet significantly higher among narcotic users, particularly in terms of childhood abuse and physical violence. These patterns reinforce evidence that early-life adversities serve as significant risk factors for developing opioid use disorders (15). Although the difference in reported sexual assault did not reach statistical significance, its higher frequency among narcotic users remains clinically relevant and may reflect underreporting or sample size limitations. The elevated PTSD severity observed in narcotic users corresponds with previous findings that link opioid use to higher emotional distress, possibly due to the potent anxiolytic and sedative properties of opioids that reinforce their use as a maladaptive coping strategy (16, 17). Substance use behaviors also differed considerably. Narcotic users exhibited higher monthly usage rates and were more likely to use substances as a means of self-medicating trauma-related symptoms, consistent with the self-medication hypothesis and supporting research showing chronicity and emotional regulation as primary motives in opioid dependence (18). In contrast, stimulant users exhibited significantly higher impulsivity, a trait that has been associated with dopaminergic dysregulation and stimulant-induced neuroadaptations. This profile is consistent with literature describing stimulant users as more prone to risk-taking and externalizing behaviors, potentially influencing treatment engagement and retention (19).

Narcotic users also demonstrated significantly greater depressive symptom severity, a finding congruent with prior studies linking opioid use to internalizing disorders. This may be explained by chronic alterations in serotonin and endorphin systems induced by long-term opioid exposure, contributing to depressive symptomatology and withdrawal-related dysphoria (20). The co-occurrence of depression and PTSD further intensifies psychological distress and complicates recovery, particularly in narcotic-using populations. The observed findings support the growing consensus that trauma exposure, particularly in early life, significantly shapes substance use trajectories and psychiatric symptomatology. PTSD severity appears to be strongly modulated by both trauma history and substance type. Meta-analytical evidence confirms the disproportionately high rates of PTSD among opioid users compared to those using stimulants, further emphasizing the clinical importance of substance-specific trauma screening and care models (21, 22). The distinct psychological presentations of stimulant and narcotic users suggest a need for differentiated treatment strategies. While opioid users may benefit more from trauma-focused interventions such as trauma-focused cognitive behavioral therapy (TF-CBT) and prolonged exposure therapy, stimulant users may require treatments that address impulsivity, such as contingency management and cognitive-behavioral approaches targeting behavioral regulation (23).

Among the strengths of this study was its comparative design, which allowed for direct evaluation of PTSD symptomatology and trauma exposure across two major substance-using groups. The use of validated instruments and multivariate analysis added to the robustness of the findings. However, certain limitations warrant consideration. The cross-sectional design limits causal inference, and the reliance on self-report measures may introduce recall and response biases. The absence of longitudinal follow-up restricts understanding of how trauma and psychiatric symptoms evolve over time in relation to substance use patterns. Additionally, while the sample was balanced in terms of group size, the non-random selection may limit generalizability. Future research should incorporate longitudinal methodologies to examine symptom progression, treatment outcomes, and relapse risk over time. Greater emphasis on the interaction between trauma type, timing, and neurobiological adaptations across substance classes could enhance understanding of mechanisms driving comorbidity. Furthermore, exploring gender differences and culturally specific trauma impacts may yield more nuanced insights for intervention development.

Overall, the findings underscore the need for integrated, trauma-informed approaches in substance use disorder treatment, especially for narcotic users exhibiting elevated PTSD severity and depressive symptoms. Tailored interventions that account for the psychological

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and behavioral distinctions between stimulant and narcotic users are critical to improving outcomes and breaking the cycle of trauma and addiction.

CONCLUSION

This study concludes that trauma exposure plays a critical role in shaping the psychological and behavioral profiles of individuals with substance use disorders, with distinct patterns observed between stimulant and narcotic users. Narcotic users were found to be more vulnerable to severe PTSD symptoms, emotional self-medication, and depressive tendencies, whereas stimulant users exhibited higher impulsivity traits. These differences underscore the importance of tailoring treatment approaches to the specific psychological needs associated with each substance type. By acknowledging the nuanced relationship between trauma, PTSD, and substance use patterns, this research contributes to the growing call for personalized, trauma-informed care in addiction treatment, ultimately enhancing the effectiveness of interventions and supporting long-term recovery outcomes.

Author Contributions

Author	Contribution
Razi Ur Rehman*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Malik Nohman	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Abid Aftab	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Asif Azeem Bajwa	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Ahmed Shaoib Tabassum	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Sheraz Malik	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published

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