

Prevalence and Clinical Correlates of Aggression, Impulsivity, and Suicidal Intent Among Patients with Substance Dependence: A Cross-Sectional Study from a Tertiary Care Centre

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Abstract

Background: Substance dependence is a major public health concern frequently associated with behavioural dysregulation, including impulsivity, aggression, and suicidal behaviour. However, limited Indian data exist examining these comorbidities and their clinical correlates among treatment-seeking populations.

Aim: This study aimed to assess the prevalence of aggression, impulsivity, and suicidal intent among patients with substance dependence and examine their association with sociodemographic and clinical variables.

Materials and Methods: This cross-sectional study enrolled 100 adult patients (18–60 years) diagnosed with substance dependence syndrome as per ICD-10 criteria, attending a tertiary care psychiatry department. Patients with comorbid psychiatric disorders were excluded. Impulsivity, aggression, and suicidal intent were assessed using the Barratt Impulsivity Scale (BIS), Overt Aggression Scale (OAS), and Beck Suicide Intent Scale (BSIS), respectively. Statistical analysis was done.

Results: The sample was predominantly male (89%), aged 18–30 years (29%), married (42%), from nuclear families (50%), and rural areas (41%). Alcohol (40%) and opioids (32%) were the most commonly used substances. Severe aggression was observed in 39%, high impulsivity in 80% and moderate suicidal intent in 34%. Substance type was significantly associated with impulsivity ($p=0.019$) but not aggression or suicidal intent. Age ($p=0.031$) showed significant association with aggression. Aggression ($r=0.493$, $p<0.001$) and impulsivity ($r=0.474$, $p<0.001$) demonstrated significant moderate positive correlations with suicidal intent, while aggression and impulsivity were not correlated with each other ($r=-0.019$, $p=0.855$).

Conclusion: Impulsivity, aggression, and suicidal intent are highly prevalent among substance-dependent patients, even without comorbid psychiatric disorders. Routine screening and integrated management of these should be an essential component of substance dependence treatment.

Keywords: Substance dependence; Impulsivity; Aggression; Suicidal intent; Barratt Impulsivity Scale; Beck Suicide Intent Scale.

Introduction

Aggression, impulsivity, and suicidal behavior are frequently observed among individuals with substance dependence and represent important determinants of adverse clinical outcomes, including treatment failure, relapse, and premature mortality. Consequently, their timely recognition and appropriate management are integral to comprehensive addiction care.¹ India bears a considerable burden of substance use disorders, with an estimated 160 million alcohol users (57 million dependent), 22.6 million opioid users (more than 6 million requiring treatment), 11.8 million sedative users, over 2.2 million individuals dependent on inhalants, and nearly 850,000 people injecting opioids, underscoring the magnitude of this public health challenge and the need for effective screening and intervention strategies.³

The relationship between impulsivity and substance dependence is considered bidirectional, as impulsive personality traits may predispose individuals to substance use, while chronic exposure to psychoactive substances may further impair impulse control.^{6,8} Alcohol and opioid dependence are strongly associated with an increased risk of suicidal behaviour, with the likelihood of completed suicide estimated to be 10–14 times greater than that of the general population. Among patients seeking treatment for substance use disorders, lifetime prevalence of suicidal ideation ranges between 30% and 50%, while suicide attempts have been reported in approximately 15%–30% of cases. Individuals with substance-induced psychosis demonstrate even higher rates, with suicidal ideation and suicide attempts reported in 55.4% and 33.6% of patients, respectively.^{11,13} the association between substance use and suicide is multifactorial. Acute intoxication, particularly with alcohol and sedative-hypnotics, may provoke impulsive suicidal acts by reducing behavioural inhibition and impairing decision-making. Withdrawal syndromes are frequently

accompanied by anxiety, dysphoria, and feelings of hopelessness, whereas chronic substance dependence contributes to cumulative psychosocial stress, coexisting psychiatric disorders, social isolation, and family disruption, thereby increasing long-term vulnerability to suicide.^{13,14,24}

Men generally exhibit greater substance use, physical aggression, and suicide completion, whereas women report comparatively higher rates of suicide attempts. Lower educational status, unemployment, and financial deprivation have been associated with greater addiction severity, heightened impulsivity, and aggressive behaviour. Although a large proportion of patients receiving treatment in India are married, marital discord, poor family functioning, and interpersonal conflicts remain common and may further aggravate psychological distress.^{16,17}

Suicidal behaviour among individuals with substance dependence is frequently misinterpreted by healthcare professionals as manipulative or attention-seeking, resulting in inadequate suicide risk assessment and missed opportunities for preventive intervention.^{13,14} Considering the substantial burden of substance use disorders in India and the need for culturally relevant evidence to improve screening and clinical management, the present study was undertaken to determine the prevalence and clinical correlates of aggression, impulsivity, and suicidal intent among patients with substance dependence attending a tertiary care centre.

Methodology

A cross-sectional design was employed to examine the prevalence and clinical correlates of aggression, impulsivity, and suicidal intent among substance-dependent patients attending the OPD of a tertiary care hospital from June 2024 to January 2026.

Sample and Sampling

Sample size ($N=100$) was calculated using $N = (Z\alpha^2 \times \sigma^2) / d^2$ based on pilot data from prior addiction studies (Moeller et al., 2001). Participants aged 18–60 years meeting ICD-10 criteria for Substance Use Disorder were consecutively enrolled. Exclusion criteria included comorbid psychiatric/medical disorders, intellectual disability, or refusal of consent. Written informed consent was obtained from all participants or caretakers. A structured proforma recorded sociodemographic data (age, gender, family type, marital status, residence, education, occupation, socioeconomic status) and substance use characteristics (type, duration). Impulsivity, Aggression, and suicidal intent in patients were assessed by Barrett's Impulsivity Scal⁵⁰, Overt Aggression Scale⁵¹ and Beck's suicide intent scale⁹ respectively.

STATISTICAL ANALYSIS

The statistical analysis was carried out with SPSS software, version 31.0. Means and standard deviations were used to report quantitative findings. Incidence rates and percentage tables summarized the qualitative data. An unpaired t-test was run on the quantitative variables, while the Chi-square test was applied to qualitative variables. A Pearson coefficient below 0.05 was considered statistically meaningful.

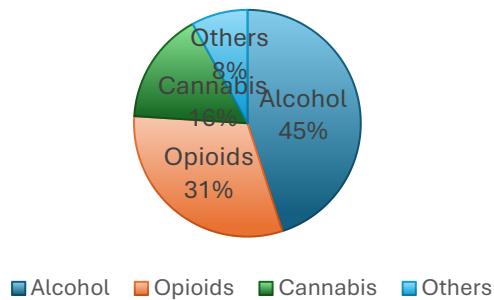
RESULTS

Sociological and demographical

of the 100 participants, the majority were male (89%), aged 18–30 years (29%), married (42%), and resided in nuclear families (50%) and rural areas (41%). Educational attainment varied, with primary education being most common (21%), followed by graduate (19%) and postgraduate (18%) levels. Unemployment was the most frequent occupational status (20%), and 25% of participants reported a monthly family income below ₹10,000, indicating a predominance of lower socioeconomic groups.

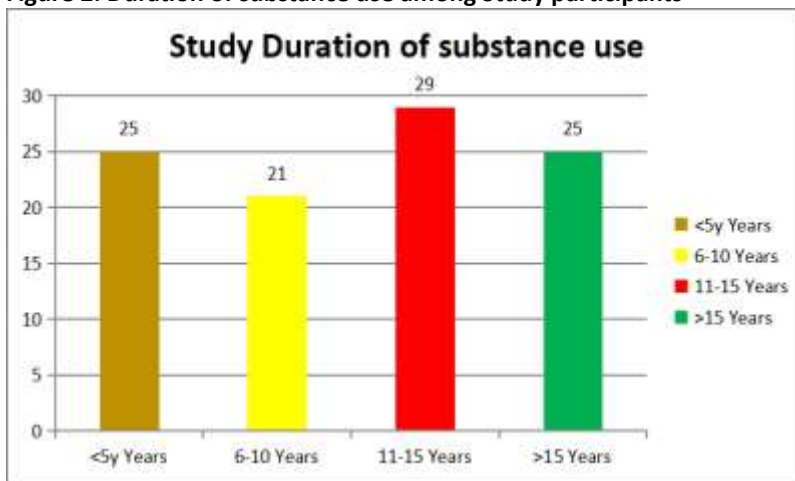
Figure 1: Distribution of the type of substance use in Study participants.

Type of Substance used



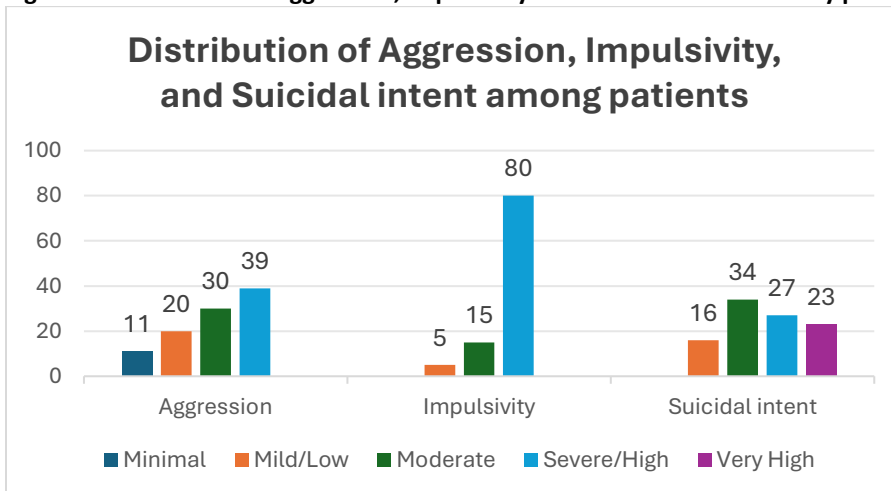
As depicted in Figure 1, alcohol emerged as the predominant substance of use, accounting for 40.0% of the sample, followed by opioids (32.0%), cannabis (17.0%), and other substances (11.0%).

Figure 2: Duration of substance use among Study participants



As depicted in Figure 2, the duration of substance use varied widely, with the majority of participants reporting prolonged use. The highest proportion (29.0%) had been using substances for 11–15 years, followed by 25.0% with <5 years, 25.0% with >15 years, and 21.0% with 6–10 years of use.

Figure 3: Distribution of Aggression, Impulsivity and Suicidal intent in Study participants



As depicted in figure 3, the mean scores for aggression, impulsivity, and suicidal intent were 25.18 ($\pm$ SD), 79.09 ($\pm$ SD), and 13.75 ($\pm$ SD), respectively. Severe aggression was observed in 39% of participants, with nearly 70% demonstrating moderate to severe levels. High impulsivity was prevalent in 80% of the sample. Suicidal intent was moderate to very high in 84% of participants, with half (50%) reporting high to very high intent. These findings highlight the substantial burden of behavioural and emotional comorbidities in this population.

Table 1: To Study the association of Substance-wise distribution of aggression score in Study participants.

Type of Substance	N	Aggression	Impulsivity	Suicidal Intent
Alcohol	45	25.02+9.42	80.78+9.73	14.82+7.11
Opioids	31	25.32+9.87	74.90+11.6	12.00+7.52
Cannabis	16	25.75+11.18	83.50+7.13	14.19+5.83
Others	08	24.38+8.01	77.00+6.63	13.63+4.40
F value		0.42	3.48	1.05
P value		0.98 ^{NS}	0.019*	0.37 ^{NS}

*Significant

^{NS} Non significant

Table 1 compares mean aggression, impulsivity, and suicidal intent scores across substance types (alcohol, opioids, cannabis, and others). No significant differences were observed for aggression ($F = 0.42$, $p = 0.98$) or suicidal intent ($F = 1.05$, $p = 0.37$) across groups. However, impulsivity scores differed significantly ($F = 3.48$, $p = 0.019$), with cannabis users reporting the highest scores (83.50 ± 7.13), followed by alcohol (80.78 ± 9.73), other substances (77.00 ± 6.63), and opioids (74.90 ± 11.60). Thus, impulsivity was significantly associated with substance type, whereas aggression and suicidal intent were not.

Table 2: To Study the association of socio demographic variables with the aggression, impulsivity and suicide intent levels.

Variable	Aggression		Impulsivity		Suicidal Intent	
	χ^2	p value	χ^2	p value	χ^2	p value
Age	18.35	0.031*	7.41	0.28 ^{NS}	11.00	0.27 ^{NS}
Gender	10.15	0.017*	1.09	0.58 ^{NS}	2.97	0.39 ^{NS}
Type of Family	10.40	0.109 ^{NS}	8.54	0.07 ^{NS}	1.98	0.92 ^{NS}
Marital Status	9.44	0.398 ^{NS}	2.61	0.85 ^{NS}	11.11	0.26 ^{NS}
Residence	7.37	0.288 ^{NS}	5.34	0.25 ^{NS}	4.81	0.56 ^{NS}
Education	9.50	0.850 ^{NS}	9.65	0.47 ^{NS}	6.12	0.97 ^{NS}
Occupation	15.87	0.602 ^{NS}	8.88	0.71 ^{NS}	11.47	0.87 ^{NS}
Monthly Income	8.87	0.714 ^{NS}	3.14	0.92 ^{NS}	6.82	0.86 ^{NS}
Duration of Use	2.58	0.979 ^{NS}	10.30	0.11 ^{NS}	15.91	0.06 ^{NS}
Substance Type	4.59	0.868 ^{NS}	11.09	0.08 ^{NS}	11.70	0.23 ^{NS}

*Significant ^{NS} Non significant

Chi-square analysis (Table 2) revealed that only age was significantly associated with aggression ($\chi^2 = 18.35$, $p = 0.031$). No other sociodemographic variable—including gender, family type, marital status, residence, education, occupation, income, duration, or substance type—showed significant associations with aggression, impulsivity, or suicidal intent ($p > 0.05$ for all). The association between duration of substance use and suicidal intent approached significance ($\chi^2 = 15.91$, $p = 0.06$). Overall, sociodemographic factors did not significantly influence the study outcomes except for age with aggression.

Table 3: To study the co relation between aggression, impulsivity, suicidal intent with various substances used by the study participants.

	Pearson r	p	Spearman ρ	
Aggression – Impulsivity	-0.019	0.855	0.093	NS
Aggression – Suicidal Intent	0.493	0.000	0.485	Sig
Impulsivity – Suicidal Intent	0.474	0.000	0.449	Sig

Pearson and Spearman correlation analyses (Table 3) revealed no significant correlation between aggression and impulsivity ($r = -0.019$, $p = 0.855$; $\rho = 0.093$). However, significant moderate positive correlations were observed between aggression and suicidal intent ($r = 0.493$, $p < 0.001$; $\rho = 0.485$) and between impulsivity and suicidal intent ($r = 0.474$, $p < 0.001$; $\rho = 0.449$). Thus, while aggression and impulsivity were independent of each other, both were positively associated with suicidal intent.

Discussion

This study examined aggression, impulsivity, and suicidal intent among substance-dependent patients and their associations with socio-demographic and substance-related factors. The findings revealed high levels of all three constructs, with both aggression and impulsivity showing significant positive correlations with suicidal intent, underscoring their importance in suicide risk assessment.

Specifically, aggression emerged as a prominent behavioural characteristic in the present study, with severe aggression observed in 39% and moderate aggression in 30% of participants, indicating that nearly 70% experienced clinically significant aggression. These findings align with previous reports of elevated aggression among substance-dependent individuals.^{5,6} Significant associations were observed between aggression and both age ($\chi^2=18.35$, $p=0.031$) and gender ($\chi^2=10.15$, $p=0.017$), corroborating earlier findings that younger individuals and males may be particularly vulnerable to aggressive behaviour.^{7,8} However, aggression was not significantly associated with other socio-demographic variables, duration of substance use, or substance type, suggesting that aggression may represent a common behavioural manifestation across substance dependence syndromes. Impulsivity was highly prevalent, with 80% of participants demonstrating high impulsivity (mean: 79.09), supporting its conceptualization as a core component of addictive disorders^{9,10}. Notably, impulsivity varied significantly across substance groups ($F=3.48$, $p=0.019$), with cannabis users scoring highest (83.50 ± 7.13), followed by alcohol (80.78 ± 9.73), other substances (77.00 ± 6.63), and opioid users (74.90 ± 11.60). This finding aligns with Díaz-López et al., who reported substance-specific impulsivity profiles with stimulants affecting inhibitory control most and cannabis showing weaker effects.¹⁶ However, Smith et al. found significantly increased impulsivity in stimulant, tobacco, and alcohol samples, but no significant effects in cannabis or opioid samples.¹⁷ The discrepancy may be explained by polysubstance use (70–95% in clinical populations), complicating substance-specific effects, and the dimensional nature of impulsivity—trait, action, and decision-making—which may be differentially affected across substances. No sociodemographic variable demonstrated significant association with impulsivity, suggesting it represents a fundamental neurobehavioral characteristic rather than a socially determined one. Suicidal intent constituted another major concern, with half of the participants (50%) exhibiting high-to-very high suicidal intent (mean score: 13.75), reflecting a substantial burden of suicide risk among individuals with substance dependence. These findings align with Conner and Ilgen¹⁸, who documented significantly elevated rates of suicidal behavior in substance use disorders, and Borges and Loera¹⁹, who reported strong associations between substance dependence and subsequent suicidal behavior (alcohol: OR 2.0–3.7; drugs: OR 2.0–4.0). A recent meta-analysis by Maffre Maviel et al. found that cannabis use was significantly associated with suicidal ideation (OR 1.78) even after depression adjustment²⁰, while Kaminer and Zhornitsky reported that 42% of young adults in methadone treatment had a suicide attempt history²¹. In the present study, suicidal intent did not show significant associations with sociodemographic characteristics or substance type, consistent with Borges et al., who noted that the number of substances used may be more important than the types in predicting suicidal behavior¹⁹. Although duration of substance use approached statistical significance ($\chi^2=15.91$, $p=0.06$), the association did not attain conventional significance levels.

Among all sociodemographic variables, only age showed a significant association with aggression ($\chi^2=18.35$, $p=0.031$), consistent with Czarnecki et al., who found that alcohol-dependent patients with comorbid aggression and suicide attempts were older.²² No other sociodemographic factor—including gender, family type, marital status, residence, education, occupation, income, duration, or substance type—was significantly associated with aggression, impulsivity, or suicidal intent. This aligns with Ali et al., who reported no aggression differences across substance groups despite impulsivity differences.²³ The near-significant trend between duration of use and suicidal intent ($p=0.06$) warrants consideration, as longer use may cumulatively elevate suicide risk (Conner & Ilgen). Correlation analysis revealed no significant correlation between aggression and impulsivity ($r=-0.019$, $p=0.855$), suggesting these represent distinct behavioral constructs in substance-dependent populations. However, both aggression ($r=0.493$, $p<0.001$) and impulsivity ($r=0.474$, $p<0.001$) demonstrated significant moderate positive correlations with suicidal intent. The aggression-suicidality link aligns with Czarnecki et al., who found that patients with comorbid aggression and suicide attempts had higher aggression scores (BPAQ: 113) than those with suicide attempts alone.²² The impulsivity-suicidality link is consistent with Ali et al., who reported higher impulsivity and suicidal risk in methamphetamine users.²³ The moderate correlation strength suggests aggression and impulsivity are significant but not sole determinants of suicidal intent, with other factors like depression and hopelessness also contributing.

The findings of the present study have important clinical implications. Given the high prevalence of aggression (70% moderate-to-severe), impulsivity (80% high), and suicidal intent (50% high-to-very high) among patients with substance dependence, routine assessment of these domains should be incorporated into de-addiction services. Early identification of individuals exhibiting significant aggression, marked impulsivity, or elevated suicidal intent may facilitate timely psychosocial interventions, closer monitoring, and targeted suicide prevention strategies, thereby improving treatment outcomes and patient safety.

Conclusion

The present study reveals a substantial burden of aggression, impulsivity, and suicidal intent among substance-dependent patients, with nearly 70% exhibiting moderate-to-severe aggression, 80% high impulsivity, and 50% high-to-very high suicidal intent. Routine screening and integrated management of these behavioural comorbidities should be integral to substance dependence treatment.

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