Drug-Induced Violence And Criminal Liability: A Psychopharmacological And Legal Study In The Indian Context

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HOW TO CITE:

Akash Prakhar, Namita Vyas Joshi (2026). Drug-Induced Violence And Criminal Liability: A Psychopharmacological And Legal Study In The Indian Context. International Journal of Special Education, 41(6s), 223-246.

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ABSTRACT:

Drug-induced violence is a complex issue in relation to criminal law, criminology and forensic evaluation as violent behavior does not necessarily result from intoxication and intoxication does not excuse criminal liability. The present study explores the issue of drug induced violence and criminal liability in the Indian context by syncretizing the two approaches, psychopharmacological and legal, in an integrated approach. The study examines associations between substance-use history, offence-time intoxication, psychopharmacological impairment, impulsivity, aggression, offence severity, legal recognition, sentencing, rehabilitation, relapse, and recidivism risk using an empirical sample of 150 drug courts cases. Descriptive statistics, reliability testing, correlation analysis, categorical association tests, group comparisons and regression models were applied for the analysis. The results indicated that there was a relationship between substance exposure, acute intoxication and psychopharmacological impairment; that psychopharmacological impairment was related to impulsivity and aggression. Impulsivity was more strongly tied to impulsive offending while aggression was more strongly tied to violent offending, severity of offending, and recidivism risk. Another gap identified in the study is the legal-recognition gap. In many cases there was an element of offence time intoxication but the formal documentation and court consideration was more discriminating. The legal framing around intent and the psychopharmacological evidence were the most prominent aspects of court consideration. Dependence severity, impulsivity, aggression, relapse, and rehabilitation completion were the factors most associated with recidivism risk, whereas the factors most associated with sentencing were offence seriousness. The study concludes that drug-induced

violence must be considered as a staged behavioural/legal process, and not just a direct consequence of being intoxicated.

Keywords: Drug-induced violence; Criminal liability; Psychopharmacological impairment; Intoxication; Recidivism.

1. Introduction

1.1 Background and Problem Statement

Drug-induced violence is a challenging issue for criminal law, criminology and forensic evaluation. There is a link between substance use and violent/impulsive offending; however, the association isn't always direct or consistent. Character of behaviour while intoxicated can be influenced by the pharmacology of the substance, degree of intoxication, state of dependence, emotional lability, impulsiveness, social context and opportunity to offend. That's why people who use drugs shouldn't be assumed to be responsible for violence. It is more helpful to consider the behavioural mechanism by which intoxication might affect judgment, self-control, disinhibition and aggression. More recently, this was supported by some evidence. While a systematic review of drug use disorders and violence suggested an association between drug use disorders and violent outcomes, it also indicated that the strength and type of this association depends on the type of drug and the population studied, as well as the type of study design (Duke et al., 2020). This suggests the need for models that are beyond an exposure-only approach.

One such explanation is from the perspective of psychopharmacology. It implies that the potential to contribute to violence may result from the acute and/or chronic effects of a psychoactive substance that change cognition, perception, emotional regulation or behavioural inhibition. In this perspective, drug-induced violence is more than just a byproduct of using drugs. It is associated with dysfunction of the abilities which usually control behaviour. Intoxication, for instance, by alcohol or stimulants, has been talked a lot in conjunction with aggression, disinhibition, and impaired decision making. Even here, however, the evidence is not definitive that will there be a single level of intoxication at which intoxication automatically turns into violence producing. There are issues of cause and effect on the relationship between alcohol and aggression, and it is important to consider individual and situational factors in reviews of intoxicated aggression (Boles & Miotto, 2003; Kuypers et al., 2020). This necessitates the study of intermediary behavioral mechanisms like psychopharmacological impairment, impulsivity and aggression.

The question of the law is also complicated. The criminality is not only related to the occurrence of the act but also to the mental aspect of the act. Traditionally, intoxication in Indian criminal law has been seen in a narrow lens of 'incapacity' and 'intent'. This was so because the Indian Penal Code contained provisions regarding acts done by persons who are incapable of judging what they do (Section 85) and offences which necessitate special intent or special knowledge (Section 86). This general dichotomy is continued in the corresponding provisions relating to intoxication and criminal responsibility in the Bharatiya Nyaya Sanhita, 2023 (which replaced the Indian Penal Code on 1st July 2024) (Bharatiya Nyaya Sanhita, 2023; Indian Penal Code, 1860). The main legal question is, then, whether the accused had been drinking or taking drugs. Whereas the questions of relevance are whether intoxicating the individual affected rendered him incapable of exercising knowledge, intention, voluntariness, or culpability.

This means that you have a significant evidentiary missing point. True intoxication will not necessarily lead to a finding of intoxication if it is not recorded, supported by medical evidence and related to the accused's state of mind at the time of the offence. Generally, intoxication is not a good excuse in court. It is necessary for them to have evidence that links

into intoxication to incapacity, impaired intent or lack of legally relevant awareness. For this reason, drug-induced violence is a behavior and legal phenomenon that needs to be studied as such. Behavioural impairment is a possible explanation for the offence, but if it is translated into admissible and persuasive evidence then it will be recognised in the law.

The present study will look at this nexus of psychopharmacological impairment and criminal liability in the context of the Indian law. It examines an empirical data set of 150 cases including information on patterns of substance use, acute intoxication, psychopharmacological impairment, impulsivity, aggression, offence characteristics, legal-recognition indicators, sentencing, rehabilitation, relapse and recidivism risk. The study builds on the idea that drug-induced violence can be explained by a sequence of events, rather than a direct connection between drugs and violence. This enables analysis of the distinction between background exposure to substances, offence-time intoxication, offence-time impairment, and legal recognition

.1.2 Aim and Objectives

This study attempts to explore the phenomenon of drug induced violence and criminal liability based on an integrated approach of both a psychopharmacological and legal perspective in India. The study will examine associations between substance exposure/acute intoxication and impairment, impulsivity, aggression, offence outcomes, legal recognition, sentencing, rehabilitation and risk of recidivism.

The specific objectives of the study are:

1. To explore the relationship between substance exposure, acute intoxication, psychopharmacological impairment, impulsivity, aggression and offence-related outcome.
2. To examine if there are behavioural mechanisms where psychopharmacological impairment, impulsivity, and aggression between substance use and impulsive offending, violent offending, and the severity of offence.
3. To evaluate Legal Signs of intoxication and impairment including Intent Dispute, Intoxication Defence, Psychopharmacological Evidence and Court Consideration.
4. To explore the relationships between offence severity, rehabilitation, relapse, behavioural risk factors and sentencing outcomes and recidivism risk.

.3 Contribution of the Study

From the literature point of view, this study has three contributions. First, it can divert attention from the direct assumption of intoxication-violence, to a staged pathway of psychopharmacological intoxication. This is because the legal and criminological functions and consequences of substance use are related to impairment, behavioural control and offence context. Secondly, it relates behavioural mechanisms with legal-recognition indicators. This enables a study to be conducted on the differences between intoxication as a true state of intoxication and intoxication as a legal issue. Thirdly, it can go beyond liability to sentencing, rehabilitation, relapse, recidivism risk. The study offers a comprehensive understanding of drug-induced violence that is pertinent to the issue of criminal accountability, forensic evidence, court interpretation and correctional policy.

2. Literature Review

2.1 Substance Use and Psychopharmacological Violence

The link between drugs and violence has been explained in the context of the drugs-violence nexus (DVN). The tri-partite framework is still relevant as it is what distinguishes psychopharmacological violence from economically compulsive and systemic drug violence, Goldstein's. The psychopharmacological variable is the most important in the present study since it addresses the effects that psychoactive substances can have on cognition, judgement, emotional regulation, and behaviour inhibition which can lead to aggression or impulsive behavior (Goldstein, 1985). This

framework does not indicate that when a person gets drunk, he or she will become violent. Instead, it views violence as a potential consequence when the effects of substances meet an individual's vulnerability, provocation in the situation, dependence, and offence context.

This is a qualified view, which is supported by recent evidence. Meta-analytic studies have demonstrated associations between alcohol use, illicit drug use and violence in various populations and across various types of violence, with some studies showing associations between alcohol and violence perpetration and others between alcohol and violence victimization, as well as between alcohol and the incidence of other types of victimization (Duke et al., 2020), with substance type, study design, gender, mental illness and perpetration or victimization demonstrating moderation effects. Intoxicated aggression is also reviewed to warn of the danger of a one-to-one dose response interpretation. While alcohol and stimulants often been associated with aggression, there is no clear threshold at which intoxication of an individual will automatically result in aggression (Kuypers et al., 2020). These results underscore the importance of analyzing the mediating mechanisms, as well as considering drug exposure alone as a cause.

This means that the notion of psychopharmacological impairment is fundamental to the issue. Acute intoxication can affect attention, risk assessment, impulse control and decision making. It can also result in emotional outbursts or affect the individual's capacity to control anger. The changes are of great legal and criminal significance as they relate to capacities that are related to conduct and culpability. But a defect should be distinguished from simply using. One person might drink a substance without any problems, and another person might experience significant problems because of the amount they drink, the need for the substance, withdrawal from the substance, or because they drink more than one substance or because they are psychologically susceptible to the effects of the substance. Therefore, this study does not consider substance exposure and acute intoxication as behavioral antecedents of offense-related outcomes but considers psychopharmacological impairment as the behavioral mechanism that links substance use to the outcomes.

2.2 Impulsivity, Aggression, and Offence Severity

Impulsivity and aggression are related but are not the same and are closely related to substance-use behaviour. Impulsivity is a tendency towards acting quickly, without thought, and with a lot of risk taking. Aggression: Hostile, angry, or physically harmful behaviours towards others. Both are exacerbated by intoxication but act by different paths of behaviour. Impulsivity is related to sudden and poorly controlled offending, whereas aggression is more related to violent behaviour, injury to victims, the use of weapons, offence severity and other aspects of violent behaviour.

Impulsivity has come to be understood as a multi-dimensional phenomenon in the field of research related to substance use. Impulsivity has been found to be strongly linked to substance-use disorders, however, the definition and measurement of impulsivity differ across the various studies (Makarenko et al., 2025). This is important because impulsivity can be a marker of a number of related processes including sensation seeking, unplanned actions, lack of inhibitory control, and urgency in the face of emotion. These processes can increase the likelihood that in an emergency situation, in conflict or provocation, a person will act quickly. Impulsivity can also diminish one's ability to stop, think or prevent escalation when coupled with intoxication.

There is a second behavioural pathway, aggression. Research on individuals seeking substance-use disorder treatment has found that aggression is related to negative emotional states, maladaptive coping and overall psychological vulnerability (Wang & Crook-Rumsey, 2021). This means that when people use substances, aggression can't be equated with being drunk or intoxicated. It could be due to a mix of pharmacological, emotional regulation, personality, social stress and offence context. This separation is significant for the current

research. Impulsivity contributes to the impulsivity and lack of planning of certain offences. The reasons for some offences being violent or serious can be explained with reference to aggression. Both constructs are thus explored as mediators between the construct of substance use and the construct of offending outcomes by the empirical model.

2.3 Intoxication, Mens Rea, and Legal Recognition

Intoxication has a legal significance with regards to criminal capacity and mens rea. In the UK, drunkenness is a general defence against criminal liability and this is not the case in India. Section 23 of the Bharatiya Nyaya Sanhita, 2023, is the provision that provides that if a person, due to intoxication, is unable to know the nature of the act or that the act is wrong or contrary to law, it is not an offence. This section (sect. 24) tackles offences that are committed with special knowledge or intent by an intoxicated person. It stipulates that if the person is intoxicated, he is treated as if he knew what he had done, except when the intoxicating agent was used by an individual without his knowledge or consent (Bharatiya Nyaya Sanhita, 2023). The provisions have the same general approach that Section 85 and 86 of Indian Penal Code, 1860 had.

This is a legal position that makes the evidentiary aspect very important. The legal significance of intoxication is only relevant when linked to incapacity, knowledge, intent and/or voluntariness or understanding the wrongfulness of their conduct. Generally the amount of use made is not enough. The defence/mitigation needs to demonstrate how intoxication impacted on the accused's state of mind when the offence occurred. This means physical evidence, including medical, police, behavioral, forensic or expert evidence. From this point of view there are two types of intoxication. It can be a factual condition in the offence situation, but can also be a legally recognised condition in criminal proceedings. The second is more limited since it requires evidence and doctrinal significance.

The present research, thus, is not based on the premise that legal recognition is a part of the analytical process. The model does not presume that if the victim is impaired then the victim will not be held legally liable for the crime or be sentenced. It instead investigates how impairment is manifested in legal markers (intoxication defence, intent dispute, psychopharmacological evidence, court consideration). The distinction is important for an Indian analysis of the criminal liability as it is not clinically impaired that will determine the criminal liability. It is evaluated by means of legally established questions of intent, knowledge, capacity, proof and responsibility.

2.4 Rehabilitation, Relapse, and Recidivism Risk

There are other questions beyond conviction and sentencing that are raised by drug-induced violence. The relevance of rehabilitation to correctional policy and public safety emerges when substance dependence, relapse, impulsivity and aggression are among those factors that contribute to the risk of offending. Many offender populations are associated with repeated contact with the justice system and substance-use disorders. However, it is not always related to substance use alone that causes recidivism. Other factors influencing repeat offending are psychological vulnerability, social exclusion, prior offending, access to treatment, adherence to treatment, and risk of relapse.

This larger perspective is backed up by recent studies. A national cohort study of women released from prison revealed that clinical and correctional assessments are relevant to re-offending risk after release, with substance-use disorders and severe mental illness being relevant (Svendsen et al., 2025). The relationships among substance-use experiences, social barriers and psychological risk factors and reoffending trajectories have also been highlighted in other recent studies of psychosocial determinants of recidivism (Syasyila et al., 2025). The results are consistent with the hypothesis that there should be an integrated approach and that dependence severity, behavioural dysregulation, treatment involvement, relapse and rehabilitation completion should be investigated simultaneously.

In the context of this current study, rehabilitation is not considered as a legal right or a sentencing option. It is regarded as the part of the risk management pathway. Rehabilitation may be helpful in reducing the risk of recidivism if it addresses dependence, a vulnerability to relapse, impulse control, and aggression. Meanwhile, if treatment is incomplete or unmaintained, or if a relapse occurs, there's still a chance that the individual is at risk of further episodes. Thus, rehabilitation and recidivism are significant outcomes in a drug-induced violence psychopharmacological-legal model.

2.5 Conceptual Framework

This study uses a staged psychopharmacological-legal pathway to make up its conceptual framework. Antecedent conditions such as exposure to substances and acute intoxication may be conditions that increase psychopharmacological impairment. Impairment can then lead to greater impulsivity and aggression which in turn influence the likelihood of committing impulsive offences, violent offences and the severity of offences. Legal recognition is not automatically given with these behavioural outcomes. They need to be translated into legally relevant evidence, like an intent dispute, a defence of intoxication, psychopharmacological evidence, etc., or into the court's consideration. Then, the legal and correctional outcomes of sentencing and recidivism risk are explored as downstream legal and correctional outcomes. This is a way of linking the behavioural impairment to criminal liability, while maintaining the charge of being drunk enough to be held criminally liable to the crime itself.

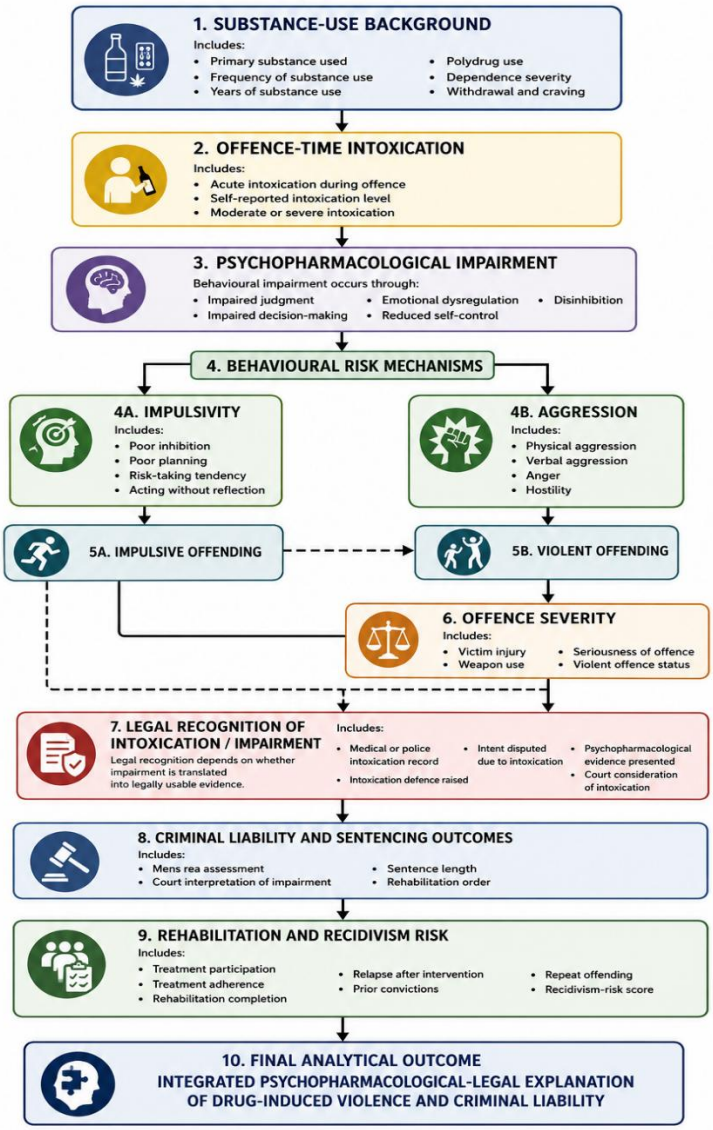

Figure 1. Conceptual framework of the psychopharmacological-legal pathway

The conceptual framework depicts violence resulting from drug use as a sequential drug-induced pathway involving psychopharmacology and the legal system. For the purposes of this data, substance-use background (i.e., whether the child had a history of substance use) and offence-time intoxication (i.e., was the offence-time intoxicated) are considered antecedent conditions. These situations can lead to psychopharmacological impairment, such as poor judgment, loss of self-control, emotional dysregulation and disinhibition. Impairment then leads to a variety of behavioural risk mechanisms, primarily impulsivity and aggression. Impulsivity will be expected to be associated with impulsive offending and aggression will be expected to be associated with violent offending and offence severity.

The distinction is also made between behavioural impairment and legal recognition in the framework. Being intoxicated or impaired does not automatically mean that the person will not be held liable if crimes are committed. It does not take on a legal effect until it is translated into evidence, legal argument or judicial consideration. This covers the medical/police record of intoxication, intoxication defence, intent dispute, psychopharmacological evidence, and intoxication in the courts. Sentencing and rehabilitation are seen as legal and correctional activities occurring downstream. Then the risk of

recidivism is seen as a combination of severity of the dependency, behaviour risk, likelihood of relapse, likelihood of rehabilitation completion, and previous offences. So, the framework brings together the concepts related to substance use, behavioural impairment, outcomes of offences, legal recognition, and correctional consequences into a single framework.

3. Methodology

3.1 Research Design and Dataset

The study was based on the quantitative research method with cross section and analytical research design. The study was designed to explore the associations between substance-use characteristics, psychopharmacological impairment, behavioural risk factors, offence outcomes, legal-recognition indicators, sentencing, rehabilitation, and recidivism risk; this was considered appropriate for this design. Analysis was done on an empirical data of 150 cases with respect to drug induced violence and criminal liability in the Indian perspective.

Information pertaining to demographic background, substance-use history, intoxication at the time of the offence, psychopharmacological impairment, impulsivity, as well as offence characteristics, legal indicators, sentencing outcomes, rehabilitation participation, relapse and recidivism-risk indicators were included in the dataset. The individual case was used as the unit of analysis. There was no attempt to make any claims about the general characteristics of substance offenders in the Indian population. On the contrary, it explored the internal behavioural and legal patterns in the analysed data.

The literature review resulted in the creation of a psychopharmacological-legal framework that was used to guide the design. The background of substance use and acute intoxication were considered as antecedent conditions. Different behavioural mechanisms, such as psychopharmacological impairment, impulsivity and aggression, were addressed. Legal and correctional outcomes of offence severity, violent offending, legal recognition, sentencing, rehabilitation and recidivism risk were considered. This structure enabled beyond the direct substance-violence explanation and to explore the evolving sequence of substance-violence linkage.

3.2 Variables and Measures

The variables were classified into six analysis domains. The first domain included demographic and background characteristics, such as age, sex, education, employment status, mental health experience, childhood adversity and family substance use history. These variables gave a profile of the analysed cases with their context.

The second domain included variables of substance-use and intoxication. The following were included: primary substance used, frequency of use, years of substance use, polydrug use, dependence severity, withdrawal, craving, acute intoxication, and offence-time intoxication level. The level of background of substance-use was summarised by a substance exposure index.

The third domain included psychopharmacological impairment. This included signs of poor judgement, poor decision making, emotional dysregulation, decreased self-control and disinhibition. All these indicators were aggregated to form a psychopharmacological impairment index. The fourth domain focussed on behavioural risk mechanisms. Impulsivity was measured in terms of BIS like impulsivity score and aggression was measured in terms of physical aggression, verbal aggression, anger, hostility and total aggression score.

The fifth domain included offence, legal-recognition variables. Variables relating to offence included violent offence, impulsive offence, use of a weapon, injury to the victim and the severity of the offence. Legal-recognition variables encompassed intoxication defence raised, intent disputed due to intoxication, medical/medicational record of intoxication, police record of intoxication, psychopharmacological evidence presented, and court consideration of intoxication.

The last domain was sentencing, rehabilitation, relapse and recidivism risk. These factors encompassed sentence length, rehabilitation ordered, involvement in rehabilitation, compliance

with rehabilitation, successful completion of rehabilitation, rehabilitation relapse, prior convictions, repeat offending and recidivism-risk score.

3.3 Statistical Analysis

The analysis of data was carried out by statistical procedures of SPSS. Demographic profile, substance-use characteristics, indicators of impairment, behavioural risk factors, characteristics of offences, and variables related to legal-recognition were first summarised using descriptive statistics. Categorical data was presented as frequency and/or percentage, and continuous data was presented as mean and standard deviation.

The tests of reliability were performed for the most important scales constructed, namely psychopharmacological impairment, BIS-like impulsivity and aggression. Assessment of internal consistency was done using Cronbach's alpha, which is still widely accepted as an internal consistency measurement in quantitative research (Cronbach, 1951). Reliability results were interpreted with care, as high alphas could mean that the items are highly reliable, but may also mean that there is some redundancy in the items.

The correlation analysis was used to explore correlation between substance exposure, acute intoxication, impairment, impulsivity, severity of offence, and recidivism risk. Where appropriate, continuous variables were correlated using the Pearson correlation. Rank based association was used in the case of ordinal structure or non-normality — Spearman correlations were utilized. Associations among categories of variables, such as between intoxication level and impulsive offending, between impulsivity category and impulsive offence, between aggression category and violent offence, and between polydrug use and violent offence were explored using chi-square tests and Cramer's V.

Independent-samples t-test and analysis of variance were performed to compare group differences when appropriate. Regression models were then used to investigate the predictors of psychopharmacological impairment and offence severity, sentencing outcomes and recidivism risk. These models were used to determine if there was a relationship between substance-use factors, impairment, impulsivity, aggression, offence characteristics, and behavioural and legal outcomes. Pathway-oriented interpretation was also part of the analysis to determine if the findings observed were in line with the proposed psychopharmacological-legal framework. Statisticians procedures were explained according to the normal advice in the SPSS applied and multivariate analysis (Field, 2018; Tabachnick & Fidell, 2019).

3.4 Methodological Cautions

Some methodological caveats are referred to when interpreting the results. There are two major limitations to the cross-sectional design: The analysis provides associations and patterns consistent with the pathways, but it does not conclude that there is a temporal cause. Second, it is noted that the sample size is relatively small (N=150) which makes the application of more complicated models that can be confidently interpreted difficult. Third, certain predictors are conceptually related, particularly substance exposure and dependence severity, acute intoxication, psychopharmacological impairment, impulsivity and aggression. This makes a problem of multicollinearity in regression models. Thus, the more general model patterns, i.e., the direction and the extent of patterns, were interpreted more than the patterns' coefficients.

Fourth, the internal consistency of the scales developed was found to be high. This enhances the coherence of the measures of impairment, impulsivity and aggression but caution must be taken with overclaiming psychometric validation. Finally, legal-recognition variables were seen as markers for the involvement of intoxication or impairment in the legal process. They were not regarded as full length arguments of the judges. Last, there was a small number of patients in the rehabilitation-completion subgroup. The interpretations of findings pertaining to the outcome of rehabilitation and relapse were therefore considered to be as policy-relevant trends, rather than as a clear estimate of effectiveness.

4. Results

4.1 Sample and Substance-Use Profile

Demographic and substance-use profile of the cases analysed is shown in Table 4.1. A total of 150 cases were analysed. The sample was mainly male, and focused primarily on lower and middle education. The amount used was high, with 57.3% reporting to use it once per week or once per day. The most frequently reported primary substance was alcohol, followed by cannabis, opioids, stimulants, sedatives, and polydrug dominant use.

Table 4.1. Sample profile and substance-use characteristics

Variable	Category / Statistic	n	%
Total sample	Valid cases	150	100.0
Gender	Male	145	96.7
	Female	5	3.3
Education	No schooling	32	21.3
	Primary education	44	29.3
	Secondary education	41	27.3
	Graduate	26	17.3
	Postgraduate	7	4.7
Employment before arrest	Unemployed	61	40.7
	Informal work	63	42.0
	Formal employment	16	10.7
	Student / other	10	6.7
Primary substance	Alcohol	66	44.0
	Cannabis	30	20.0
	Opioids	20	13.3
	Stimulants	18	12.0
	Sedatives	11	7.3
	Polydrug-dominant	5	3.3
Frequency of use	Weekly use	41	27.3
	Daily use	45	30.0
	Weekly or daily use	86	57.3
Polydrug use	Present	67	44.7
Offence-time intoxication	Moderate or severe	75	50.0

Table 4.1 shows that 50% of the cases were experienced as moderate or severe offence-time intoxication. This means that there is a significant offence time intoxication element in this data set.

4.2 Offence, Legal-Recognition, Sentencing, and Rehabilitation Profile

The offence, legal-recognition, sentencing and rehabilitation indicators are shown in Table 4.2. In 42.0% of the cases, violent offences were present and in 43.3% of the cases, impulsive or unplanned offences were present. Legal-recognition indicators seemed to be more discriminatory than intoxication indicators.

Table 4.2. Offence, legal-recognition, sentencing, and rehabilitation indicators

Variable	Category	n	%
Violent offence	Present	63	42.0
Impulsive / unplanned offence	Present	65	43.3
Weapon use	Present	31	20.7
Serious or fatal injury	Present	18	12.0
Mens rea issue	Present	54	36.0
Intent disputed due to intoxication	Present	52	34.7
Intoxication defence raised	Present	46	30.7
Medical / police intoxication record	Present	16	10.7
Psychopharmacological evidence presented	Present	42	28.0
Court consideration of intoxication	Present	46	30.7
Rehabilitation ordered	Present	57	38.0
Rehabilitation completed	Present	13	8.7
Relapse after treatment	Present	36	24.0
Repeat offending	Present	89	59.3

Table 4.2 indicates that there is some discrepancy between intoxication as an offence-time condition and intoxication as a formally documented legal problem. Only 10.7% had medical or police documentation and in 30.7% intoxication was considered in court.

4.3 Descriptive Statistics and Reliability of Key Indices

Descriptive statistics of the main continuous variables are presented in Table 4.3. They included measures of substance exposure, acute intoxication, impairment, behavioural risk, offence severity and recidivism risk.

Table 4.3. Descriptive statistics for major continuous variables

Variable	Mean	SD
Age	33.99	6.46
Years of substance use	5.67	3.10
Substance exposure index	60.59	26.50
Acute intoxication index	47.75	20.75
Psychopharmacological impairment	74.68	17.63
BIS-like impulsivity score	65.04	13.49
Aggression total score	77.66	13.25
Offence severity score	4.81	1.45
Recidivism-risk score	44.27	16.26

The reliabilities for the scale items created are given in Table 4.4. The internal consistencies of the scales for psychopharmacological impairment, BIS-like impulsivity and aggression were very high.

Table 4.4. Reliability of constructed scales

Scale	Number of items	Cronbach's alpha
Psychopharmacological impairment	5	.976
BIS-like impulsivity	3	.969
Aggression	4	.977

The alpha for each of the three scales built were over .96 as indicated in Table 4.4. These values reflect good internal consistency but caution should be used when using very high reliability values as they may also be due to item overlap.

4.4 Correlation Structure of the Psychopharmacological-Legal Pathway

Selected correlations among the key study variables are shown in Table 4.5. A correlation pattern was found that corroborated the staged psychopharmacological-legal pathway. There was an association between substance exposure and acute intoxication and impairment. Acute intoxication was more likely to be associated with impairment than just substance exposure alone. Impulsivity and aggression were both related to impairment.

Table 4.5. Selected correlations among major study variables

Relationship	r	p-value
Substance exposure index → Acute intoxication index	.468	< .001
Substance exposure index → Psychopharmacological impairment	.445	< .001
Acute intoxication index → Psychopharmacological impairment	.550	< .001
Psychopharmacological impairment → BIS-like impulsivity	.533	< .001
Psychopharmacological impairment → Aggression	.637	< .001
BIS-like impulsivity → Aggression	.530	< .001
Aggression → Offence severity	.631	< .001
Aggression → Recidivism risk	.591	< .001
Substance exposure index → Recidivism risk	.583	< .001
Offence severity → Sentence length	.908	< .001

As seen in Table 4.5 psychopharmacological impairment was more strongly correlated with aggression than impulsivity. Aggression also had strong associations with severity of offence and risk of re-offending. Figure 4.2 visually summarises the core pathway correlations.

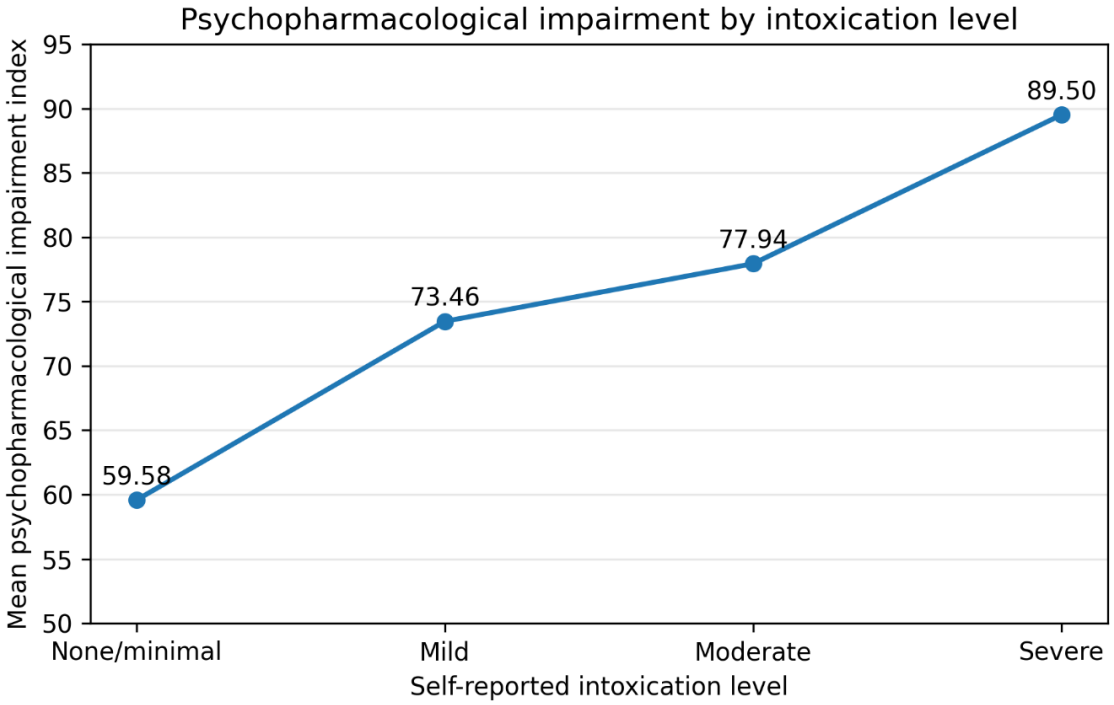

Figure 4.2. Core pathway correlations

4.5 Categorical Associations with Impulsive and Violent Offending

Categorical associations with impulsive and violent offending are presented in Table 4.6. There was a significant link between intoxication level and impulsivity category and impulsive offending. The aggression category was significantly related to the occurrence of violent offending. There was no significant difference in either polydrug use or weapon use in the simple categorical tests reported here.

Table 4.6. Categorical associations with impulsive and violent offending

Association tested	χ^2	df	p-value	Cramer's V	Interpretation
Intoxication level × Impulsive offence	11.820	3	.008	.281	Significant
Impulsivity category × Impulsive offence	23.051	2	< .001	.392	Significant
Aggression category × Violent offence	14.039	2	< .001	.306	Significant
Polydrug use × Violent offence	.144	1	.704	.031	Not significant
Weapon use × Violent offence	.174	1	.677	.034	Not significant

Selected proportions of offence by behaviour type are shown in Table 4.7. There was an increase from 22.2% impulsive offences at none or minimal intoxication to 56.7% at severe intoxication. The proportions of the offences with high level of impulsivity and high level of aggression were strongest.

Table 4.7. Selected offence proportions by behavioural category

Comparison	Key result
Impulsive offences at none / minimal intoxication	22.2%
Impulsive offences at severe intoxication	56.7%
Impulsive offences in high-impulsivity group	71.1%
Violent offences in high-aggression group	86.7%

The results of Tables 4.6 and 4.7 showed that while broad categories of substance-use were less informative than behavioural states, there was little difference between them. High impulsivity was highly correlated with impulsive offending and high aggression was highly correlated with violent offending.

4.6 Group Differences and Gradient Effects

The group differences by offence type are reported in Table 4.8. Aggression, acute intoxication and impulsivity scores were higher in violent cases as compared to non-violent cases. Impulsive cases also had higher scores on the impulsivity and psychopharmacological scores than the non-impulsive cases.

Table 4.8. Group differences by offence type

Comparison	Group 1 mean	Group 2 mean	t	p-value
Aggression score: non-violent vs violent cases	73.996	82.714	-4.192	< .001
Acute intoxication score: non-violent vs violent cases	43.092	54.191	-3.341	< .001
BIS-like impulsivity: non-violent vs violent cases	61.920	69.349	-3.450	< .001
BIS-like impulsivity: non-impulsive vs impulsive cases	60.212	71.354	-5.481	< .001
Psychopharmacological impairment: non-impulsive vs impulsive cases	69.500	81.462	-4.359	< .001

The results in Table 4.9 show effects associated with intoxication and substance-use frequency. Psychopharmacological impairment and impulsivity (BIS-like) increased with intoxication level. There was a higher level of dependence and risk of recidivism in each frequency-of-use category.

Table 4.9. Gradient effects across intoxication and use-frequency categories

Outcome	Category gradient	Mean values	F	p-value
Psychopharmacological impairment	None/minimal → mild → moderate → severe intoxication	59.58, 73.46, 77.94, 89.50	24.080	< .001
BIS-like impulsivity	None/minimal → mild → moderate → severe intoxication	56.89, 63.87, 67.29, 72.97	9.840	< .001
Dependence severity	Occasional → monthly → weekly → daily use	1.80, 3.74, 5.05, 7.07	81.423	< .001
Recidivism risk	Occasional → monthly → weekly → daily use	28.96, 42.41, 45.85, 52.96	15.453	< .001

Higher alcohol intoxication scores were associated with higher impairment scores and impulsivity scores, and higher rates of substance use were associated with higher dependence severity scores and higher risk of recidivism scores, as indicated in Table 4.9. These gradient patterns are shown in the two figures (4.3 and 4.4).

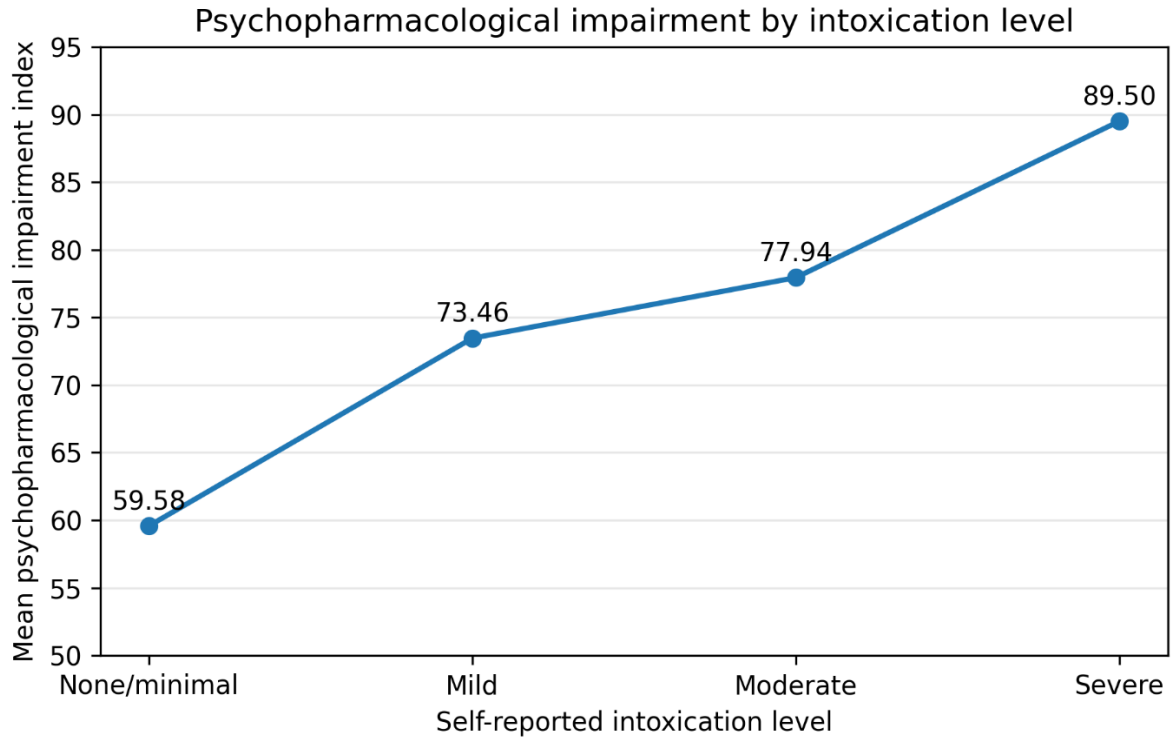

Figure 4.3. Psychopharmacological impairment by intoxication level

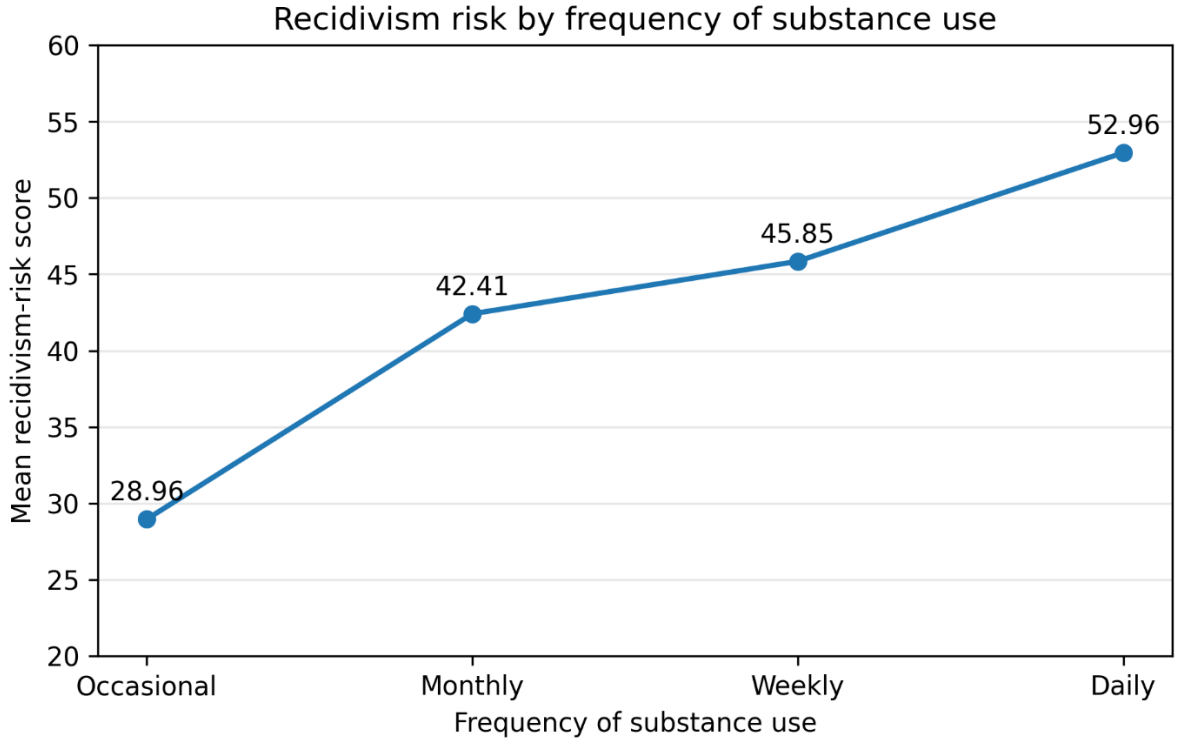

Figure 4.4. Recidivism risk by frequency of substance use

4.7 Regression Models for Psychopharmacological Impairment and Offence Severity

The results of the hierarchical regression model predicting psychopharmacological impairment appear in Table 4.10. The final model accounted for 48.0% of the variation. Acute intoxication was the greatest predictor and frequency of use was also significant. After controlling for substance-use and intoxication variables, there was no significant dependence between the severity of substance-use and the severity of dependence.

Table 4.10. Hierarchical regression predicting psychopharmacological impairment

Model / Predictor	Value
Final R	.693
Final R^2	.480
Adjusted R^2	.422
Control block R^2	.116
Substance-use pattern block added R^2	.211
Dependence, intoxication, and withdrawal block added R^2	.153
Acute intoxication B	.373
Acute intoxication β	.439
Acute intoxication t	5.912
Acute intoxication p-value	< .001
Frequency of use B	4.954
Frequency of use β	.301
Frequency of use t	2.635
Frequency of use p-value	.009
Dependence severity B	1.028
Dependence severity β	.135
Dependence severity p-value	.265

The model predicting offence severity is presented in Table 4.11, which is a hierarchical regression model. The final model accounted for 47.9% of the variance. Violent-offence status and aggression were the two most important factors when predicting the severity of offences, with aggression being the most important. There were few additional improvements in the ability of the model to explain the data when the substance and intoxication variables were added on top of the behavioural variables.

Table 4.11. Hierarchical regression predicting offence severity

Model / Predictor	Value
Final R^2	.479
Adjusted R^2	.453
Block 1: weapon use and violent-offence status R^2	.200
Block 2: substance and intoxication variables added R^2	.026
Final behavioural block added R^2	.253
Aggression B	.067
Aggression β	.609

Aggression t	7.091
Aggression p-value	< .001
Violent-offence status B	.779
Violent-offence status β	.266
Violent-offence status t	3.999
Violent-offence status p-value	< .001

Table 4.10 suggests that acute intoxication was a key aspect of psychopharmacological impairment, while aggression and violent-offence status were key aspects of offence severity.

4.8 Legal Recognition of Intoxication

The same legal-recognition funnel is illustrated in figure 4.5. As illustrated in the figure, formal documentation and legal processing was narrower than offence-time intoxication.

Table 4.12. Legal-recognition funnel

Legal-recognition stage	**n**	**%**
Moderate or severe intoxication	75	50.0
Medical or police intoxication record	16	10.7
Psychopharmacological evidence presented	42	28.0
Intoxication defence raised	46	30.7
Intent disputed due to intoxication	52	34.7
Court consideration of intoxication	46	30.7
Rehabilitation ordered	57	38.0

Figure 4.5 illustrates the same legal-recognition funnel. The figure shows that formal documentation and legal processing were narrower than offence-time intoxication.

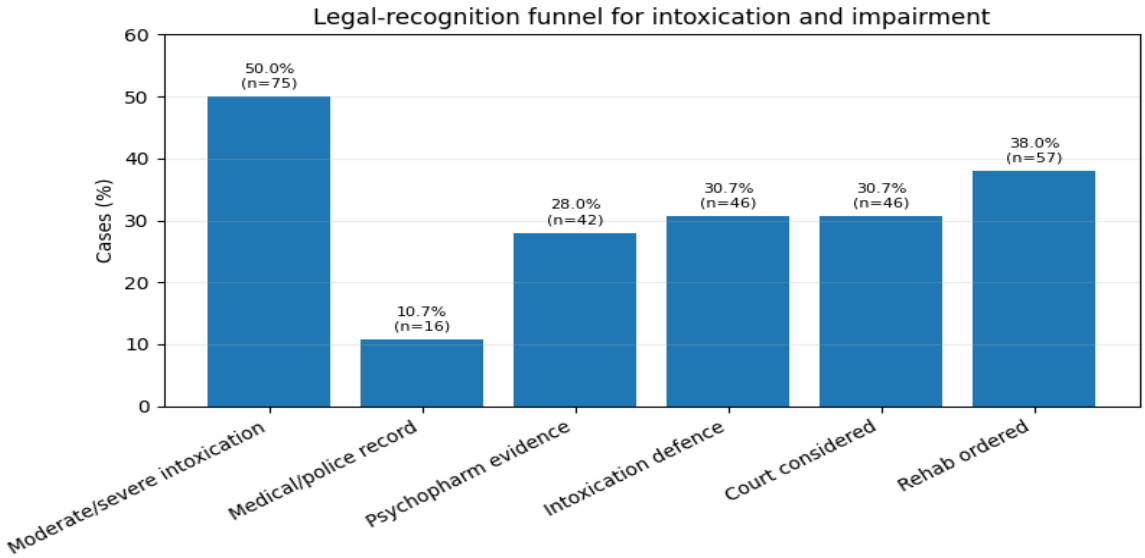

Figure 4.5. Legal-recognition funnel for intoxication and impairment

Table 4.13 shows the sensitivity model predicting court consideration that was built using the legal recognition data. The most common predictor was psychopharmacological evidence. Explanatory value was added to intent disputed due to intoxication. In this model, medical or police

intoxication record, and psychopharmacological impairment level were not significant.

Table 4.13. Legal-recognition sensitivity model predicting court consideration

Model / Predictor	Value
Model R^2	.888
Psychopharmacological evidence B	.951
Psychopharmacological evidence β	.926
Psychopharmacological evidence p-value	< .001
Intent disputed due to intoxication B	.088
Intent disputed due to intoxication β	.090
Intent disputed due to intoxication p-value	.002
Medical / police intoxication record B	-.036
Medical / police intoxication record β	-.024
Medical / police intoxication record p-value	.401
Psychopharmacological impairment level B	-.001
Psychopharmacological impairment level β	-.025
Psychopharmacological impairment level p-value	.387

Table 4.12 and 4.13 reveal that the legalization of intoxication was primarily a matter of legalization and/or evidence. Court consideration was best predicted by psychopharmacological evidence.

4.9 Sentencing and Recidivism-Risk Models

Table 4.14 shows the regression model predicting sentence length. The model accounted for 88.7% of the variation in sentence length. The highest predictor was offence severity, followed by whether the offence was violent or not and whether a weapon was used. There was a small negative correlation between rehabilitation order and the length of sentence. After controlling for offence seriousness, court consideration of intoxication and psychopharmacological evidence were not significant.

Table 4.14. Regression model predicting sentence length

Model / Predictor	Value
R	.942
R^2	.887
Adjusted R^2	.881
F	158.706
Model p-value	< .001
Offence severity β	.818
Offence severity p-value	< .001
Violent-offence status β	.219
Violent-offence status p-value	< .001
Weapon use β	.087
Weapon use p-value	.003
Rehabilitation order β	-.088
Rehabilitation order p-value	.004
Court consideration of intoxication	Not significant

Psychopharmacological evidence	Not significant

Table 4.15 shows the regression model predicting the risk of recidivism. The final model accounted for 58.5% of the variance. These significant predictors included dependence severity, BIS-like impulsivity, and aggression. The completion of rehabilitation exhibited a protective trend and the relapse after rehabilitation exhibited a risk-enhancing trend.

Table 4.15. Regression model predicting recidivism risk

Model / Predictor	**Value**
Criminal history block R^2	.188
Dependence, impulsivity, and aggression block cumulative R^2	.555
Rehabilitation and relapse block added R^2	.030
Final R^2	.585
Adjusted R^2	.562
Dependence severity B	2.407
Dependence severity β	.344
Dependence severity t	5.001
Dependence severity p-value	< .001
BIS-like impulsivity B	.254
BIS-like impulsivity β	.211
BIS-like impulsivity t	3.170
BIS-like impulsivity p-value	.002
Aggression B	.415
Aggression β	.338
Aggression t	4.588
Aggression p-value	< .001
Rehabilitation completion B	-7.104
Rehabilitation completion β	-.123
Rehabilitation completion p-value	.055
Relapse after treatment B	6.239
Relapse after treatment β	.164
Relapse after treatment p-value	.066

The patterns of sentencing and recidivism-risk are different, as illustrated in Tables 4.14 and 4.15. Sentence length was more related to offence, and the risk of re-offence to dependence severity and behaviour risks.

5. Discussion

5.1 Interpretation of the Psychopharmacological Pathway

The results provide evidence for a developmental, psychopharmacological account of drug-induced violence. There was no empirical pattern that showed that substance exposure and acute intoxication were independent predictors. Instead, they were associated instead with psychopharmacological impairment, which in turn was associated with impulsivity, aggression, offence severity, and risk for recidivism. Acute intoxication was positively related to psychopharmacological impairment, and both psychopharmacological impairment and impulsivity were positively related to aggression, as displayed in Table 4.5. This reinforces the main thesis that intoxication can be considered criminologically relevant as it impairs

judgment, self-control, emotional control, and behavioral inhibition.

This is in line with the general body of literature that warns of the dangers of attributing violence to intoxication. The evidence from the meta-analysis indicates an association between alcohol, drugs, and violence, but the nature of this association varies depending on the type of substance, population, type of violence, study design, and so on (Duke et al., 2020). There are also reviews indicating that alcohol and stimulant effects can result in increased aggression, but with individual and contextual factors also playing a role (Kuypers et al., 2020). Finally, there is ongoing prison-based research that suggests that the use of NPS in prisons may be associated with violence and impulsivity, and the prison context and behavioural dysregulation still need to be explored. The present findings are thus in harmony with a qualified interpretation. Intoxication is important, but is better understood in terms of impairment and behavioural-risk mechanisms.

This is confirmed by the regression model presented in Table 4.10. Frequency of use and psychopharmacological impairment due to acute intoxication were the strongest predictors of psychopharmacological impairment. Substance-use and intoxication variables were also added to the model, but dependence severity was not significant. This indicates that, for the cases analyzed, offence-time intoxication and use frequency were a better predictor of use and impairment than dependence severity alone. The distinction is made at the offence stage between chronic substance use and acute impairment.

5.2 Impulsivity and Aggression as Offence Mechanisms

The findings also indicate that there were two distinct but related behavioural mechanisms, impulsivity and aggression. Impulsivity category was significantly related to impulsive offending and aggression category was significantly related to violent offending as presented in Table 4.6. Table 4.7 also indicates that the high-impulsivity group contained 71.1% of cases who were charged for impulsive offences and 86.7% of cases in the high aggression group were charged for violent offences. This pattern corroborates the notion that impulsivity and aggression cannot be lumped together as a single behavioural-risk factor.

The impulsivity component of offending seems to account for the unplanned or poorly regulated aspect of offending. As indicated in Table 4.8, impulsive cases obtained higher BIS-like impulsivity scores along with higher psychopharmacological impairment scores than non-impulsive cases in present study. This implies that there was a close relationship between impaired control and quick action. Scoping review evidence also indicates that, although there are different definitions and measurement of impulsivity across studies, it has been heavily linked to drug-use behaviours and harms in recent research (Makarenko et al., 2025). The current study adds to this literature by situating impulsivity in a legal-offence pathway, instead of just a clinical or behavioural characteristic.

Aggression, on the other hand, was more related to violence and the severity of offence. Table 4.11 indicates that in the final regression model aggression had the strongest relationship with the severity of the offence. Once behavioural variables were added in, the substance and intoxication block added little explanatory value. This is a key conclusion. It suggests that substance-use factors might account for some of the impairment but that, when the behavioural pathway is taken into account, aggression is a better predictor of the severity of the offence. This is consistent with studies indicating that there are several individual-difference and emotional factors that contribute to aggression among individuals seeking substance use treatment, and not just substance use (Wang & Crook-Rumsey, 2021).

5.3 Legal Recognition and Criminal Liability

The legal findings show a difference between factually being intoxicated and legally being intoxicated. Table 4.12 indicates that 50.0% of the cases were moderate or severe intoxications, and only 10.7% had medical or police intoxication documentation. In 30.7% of cases, the court took

into account the state of intoxication. This is important as the consumption itself does not change the criminal liability. Intoxication is only legally relevant when related to capacity, knowledge, intent, voluntariness or legally cognisable impairment.

This is complemented by the legal-recognition sensitivity model shown in Table 4.13. The most common predictor of court consideration was psychopharmacological evidence, as was intent disputed due to intoxication. The model did not include intoxication record or impairment by medical or police administration as significant variables. It isn't that medical records aren't significant. Instead, the results indicate that intoxication needs to be "communicated" in a legal fashion before it is heard by the court. This translation seems to be carried out by psychopharmacological evidence, defence framing and arguments of intent.

This is in line with the systematic review evidence on forensic mental health knowledge and judicial decision making. Forensic mental health evidence can be used to determine criminal responsibility and sentencing, but its impact is dependent on the presentation, interpretation and linkage of forensic information to the appropriate legal issue (van Es et al., 2020). This is directly applicable to intoxication cases. There is no legal presumption of psychopharmacological impairment. It is relevant if it helps the court to consider knowledge, intent, capacity or behavioural control.

This discovery is of special significance to the Indian criminal law. There is no general rule of voluntary intoxication in the law. Rather, it is a question of whether intoxication impairs the ability to know the nature of the act, that there was an understanding of the wrongfulness or that there was a particular knowledge or intent necessary to the offence. Hence, there is a strong need for evidence. The present study demonstrates that impairment can be manifested in the behavior, but it is only when it is documented, when there is expert evidence, and when it is relevant to the doctrine, that it is recognized by law. This reinforces the main legal thrust of the article, that the degree of violence caused by drugs cannot be evaluated solely by determining if the defendant was intoxicated. The more relevant question is whether the intoxication caused legal impairment which was demonstrated and taken into account in the case.

5.4 Sentencing, Rehabilitation, and Recidivism Implications

The figures of sentences reveal that the length of sentence was largely offence related. Violent offence, weapon use and offence severity were the most significant predictors of sentence length, as indicated in Table 4.14. After controlling for offence seriousness, intoxication evidence and psychopharmacology evidence did not play a significant role in court. This indicates that the sentencing of these cases analysed was more related to the seriousness of the offence than to legal recognition of intoxication.

The slight negative relationship between rehabilitation order and sentence length is to be taken with a pinch of salt. It may signify that some cases were addressed from a more regressive or remedial point of view. This should not be interpreted as a reduction in sentences due to rehabilitation, however. Rehabilitation order may be determined by the nature of the offence, the judge's discretion, likely treatment and/or circumstances of the offence. Based on the systematic review evidence, treatment-oriented responses for drug-using offenders have been shown to be effective at decreasing drug use or recidivism in some settings, but the effectiveness of treatment responses is dependent on the type of treatment response, legal context, supervision, and the needs of the offender (Tomaz et al, 2023). Evidence from meta-analyses of judicial supervision also indicates that judicial supervision can have an impact on recidivism and wellbeing outcomes, although this is not consistent across all types of offenders or judicial supervision models (Trood et al., 2021). It is therefore important to view the present rehabilitation-order finding in the context of a sentencing-context indicator, rather than as a causal treatment effect.

The more general correctional implication is from the recidivism-risk model in Table 4.15. The severity

of dependence, impulsivity (BIS-like) and aggression were important factors in predicting recidivism risk. Completion of rehab treatment had a protective trend and relapse after treatment had a risk-enhancing trend. These results suggest that criminal history alone does not explain the risk for recidivism. It also had a dependency and behavioural dysregulation component. This aligns with the findings from cohorts that there are differences in crime-specific recidivism between clients involved with the justice system according to both substance-related and offence-related risk profiles (Karlsson & Håkansson, 2022). It also falls within evidence-based research that substance-use disorders and mental health issues are significant factors to consider when understanding recidivism among the incarcerated population (Zgoba et al., 2020).

The recidivism results need to be taken with a grain of salt. Only 13 cases completed rehabilitation, making it difficult to make strong claims about the effectiveness of rehabilitation. Further, there are significant differences across different jurisdictions, types of index offense, length of follow-up time, and measurement methods in the global systematic review evidence on recidivism rates (Yukhnenko et al., 2023). The present recidivism-risk results are therefore to be understood as results of analysis of individual cases and not as national estimates. Despite these precautions, the results are consistent with a rehabilitation approach which addresses substance dependency, impulse control, aggression management, relapse prevention and continuity of care after rehabilitation.

5.5 Policy and Practice Implications

The results have a number of implications for criminal justice and corrections practice. First, intoxication needs to be recorded in a more systematic manner at the initial stages of the case. Medical examination, police observation, toxicology analysis (if relevant) and behavioural notes can minimise the loss of relevant impairment evidence. Second, Courts and legal practitioners should differentiate between substance consumption, intoxication, psychopharmacological impairment and legally significant incapacity. These are the same but not identical.

Third, caution should be exercised in relying on psychopharmacological evidence for intoxication where mens rea and/or self-control is a concern. A blanket excuse for violence should not be made on the basis of such evidence. The utility of the measure is in determining if there was a substance-related impairment that influenced judgement, intent, behavioural control or offence dynamics. Fourth, if there is clinical relevance of substance dependence and behaviours, rehabilitation should be considered. The recidivism results indicate that the severity of dependence, impulsivity, aggression, relapse and treatment completion are significant correctional issues. A punitive response to the law may consequently overlook pertinent requirements for risk management.

5.6 Limitations and Future Research

There are a number of limitations to the study. A small number of cases were used for the analysis, so this means that the results are not generalisable. The cross sectional design also does not allow for causal inferences. The results indicate associations and patterns that are consistent with pathways, but not that they are temporally causal. There were some predictors that were both conceptually and statistically correlated such as substance exposure, acute intoxication, severity of dependence, psychopharmacological impairment, impulsivity, and aggression. This could have resulted in some regression coefficients being unstable.

The internal consistency of the scales was very high for all scales that had been constructed. While this helps to establish scale coherence, it can also be an indicator of item overlap. Also, the variables that were legally recognised were limited to those that were available. They are not able to understand all the reasoning of judges, prosecutors, defence lawyers, or forensic experts. Lastly, the rehabilitation-completion subgroup was relatively small, and strong conclusions about effectiveness of treatment cannot be made.

Larger numbers of offenders, longitudinal designs and analysis of court records should be used in

future research. Additional studies using mixed-methods would be helpful. Interviews with judges, attorneys, forensic experts, correctional and treatment staff would help to illuminate the interpretation of intoxication evidence in practice. Future studies can also employ formal mediation models, logistic regression and structural equation modelling to further test the pathway.

6. Conclusion

The aim of this study was to investigate drug-induced violence and criminal liability in an integrated approach, based on a psychopharmacological-legal perspective. The results indicate that substance use or intoxication should not be assumed to be a direct, or automatic, cause of violence. These are better understood when viewed in terms of impairment, impulsivity, aggression, offence severity, legal recognition, sentencing, rehabilitation and risk of recidivism. The findings are in favor of a staged pathway. Psychopharmacological impairment was related to exposure to substances and acute intoxication. Impulsivity and aggression were related to impairment. Impulsivity was more strongly associated with impulsive offending and aggression was more strongly associated with violent offending and offence severity. This suggests that a behavioural approach is a key to understanding drug-induced violence. Another key legal-recognition gap is emphasized in the study. In many cases, intoxication was an issue; however, formal documentation and court consideration was more selective. This demonstrates that intoxication is only legally relevant if it is rendered in evidence, defence framing, or when it is a point of intent. Intoxication can not be the sole basis for criminal responsibility. It will need the attention of capacity, knowledge, intent, impairment and proof. These findings on sentencing and recidivism also indicate that there are different factors affecting legal and correctional outcomes. The length of sentence primarily related to offence, and the risk of recidivism was related to the severity of dependence, impulsivity, aggression, relapse, and rehabilitation completion. The study concludes that a balanced approach that acknowledges accountability and treatment needs is warranted. Improved documentation, careful forensic analysis and correctional planning with rehabilitation in mind can aid in providing appropriate responses to drug-related offences.

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