

Interplay between Impulsivity, Risk-Taking Behaviour, and Substance Use Disorders among Young Adults

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ABSTRACT

This research explores the interplay between impulsivity, sensation-seeking, and substance use, emphasizing their role in fostering risky behaviors, particularly among adolescents and young adults. Impulsivity and sensation-seeking emerge as significant psychological traits that heighten susceptibility to substance use, often shaped by factors such as trauma, peer influence, and systemic inequities. Gender-specific patterns further underscore the need for targeted prevention strategies. The study also highlights challenges in treatment, including high dropout rates and barriers to accessing mental health services, which hinder recovery. It advocates for integrating psychological interventions with systemic reforms to improve treatment outcomes. Addressing individual and environmental factors, the research provides actionable insights for developing more effective prevention and intervention approaches.

Keywords: *Impulsivity, Sensation-Seeking, Substance Use, Risky Behaviors, Adolescents, Treatment Dropout, Prevention Strategies*

Substance use disorders (SUDs) are one of the leading global public health issues that impacts millions of people, resulting in devastating physiological, psychological, and social effects. The phrase SUDs is described as a condition that involves the essential use of substances regardless of the negative health impact it may cause. Morrison & Amlani, (2017) explains substance use disorder is associated with impulsivity and risk-taking features that are central to the onset and progression of addiction. Impulsivity, defined as spontaneous acting on an urge without planning, and risk-taking are predictors of substance misuse. Such actions not predispose individuals to substance use, but also increase the severity and chronicity of an addiction. Such a relationship between these behavioral traits and SUDs needs further understanding for effective prevention and treatment strategies.

Impulsivity manifests across several domains, such as motor, cognitive, and decision-making, with profound implications for substance use. Individuals with SUDs may engage in impulsive actions like immediate substance use without considering consequences or prioritize short-term rewards over long-term goals. Similarly, risk-taking behaviors, including experimenting with substances, unsafe practices, and social conformity, heighten the likelihood of addiction, particularly among adolescents and young adults. Existing

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literature highlights the interplay of neurobiological, genetic, psychological, and environmental factors contributing to these behaviors, emphasizing the need for an integrated understanding of SUD etiology.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) provides criteria to identify SUDs, including patterns of uncontrolled use, tolerance, withdrawal, and significant life disruption. Impulsivity and risk-taking amplify these criteria, creating a reinforcing cycle of addiction, impaired judgment, and risky behaviors. The consequences are far-reaching, encompassing chronic diseases, cognitive and emotional impairments, legal and financial strain, and social isolation. Previous studies have explored the role of these traits in substance use, yet gaps remain in addressing their combined impact and implications for treatment.

This research seeks to provide a comprehensive understanding of the dynamic relationship between impulsivity, risk-taking, and SUDs by synthesizing existing literature. By examining their role as predictors and contributors to addiction, this study aims to inform prevention efforts, therapeutic approaches, and policy interventions that mitigate the devastating impact of SUDs on individuals and society.

REVIEW OF LITERATURE

Zhang and Wu (2025) showed that demographic and financial aspects highly affect treatment dropout rates. Specific dropouts include adolescents aged 12-19, specifically those who identify as Black or African American and those who solely depend on public assistance. Specifically, Black or African American patients on public assistance exhibited increased dropout rates in ambulatory and detox services as compared to all other single racial groups and patients devoid of private insurance. Public SUD services are rented P0 to patients not employed and aged 18 to 49 whereas dropouts in detox rehabilitation programs tend to be more frequent in unemployed patients. Remarkably, patients who reside in dependent living quarters and have private health insurance or do not pay for health care services tend to have decreased dropouts with the rise in the number of arrests. Contrary to that, SUD patients with a freelance living arrangement and a history of prior treatments tend to be greater dropouts than first-time attendees.

Fantin E., Benzano D. et al (2024) found a 64.9% (n=310) prevalence of criminal conduct among crack/polysubstance users compared to 41.7% (n=123) among alcohol users. Those with prior criminal offenses were found to be more impulsive and had a substance use history. Impulsivity mediates the relationship between substance use and crime, worsening legal problems as shown by mediation analyses.

Burke L, Dawson K (2023) argued that the most commonly reported method of sexual violence by students was incapacitation. For female students, hazardous alcohol use was strongly associated with increased odds of experiencing all forms of violence since starting college, and for male students, it was significantly associated with a greater probability of becoming the victim of unwanted sexual touching. However, the statistical relationships between drug types and the types of sexual violence suffered worked differently depending on the sex of the respondent. While male students who were raped tended to use cocaine, ecstasy, and ketamine, girls were considered to have a higher propensity to rape.

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McCabe E., Schuenberg E. et al (2022) noted that most adolescents with the most severe SUD symptoms had more than two SUD symptoms in later life. This nationwide multicohort study tracked 5317 individuals from 18-50 years. Most adolescents who had been prescribed opioids, sedatives, and tranquilizers displayed some degree of SUD.

R. Siraj, B. Najam, and S. Ghazal's (2021) study suggests that adolescents' dual risk-taking behaviors are correlated with peer pressure to undertake these behavioral activities. As noted from the results, females displayed higher scores on peer pressure influence while males engaged in higher levels of risk behavior and sensation seeking, which are statistically significant. An additional hierarchical moderation regression analysis on adolescent risk-taking behavior found that peer pressure and sensation-seeking positively predicted risk-taking behavior and vice versa. Although both factors positively correlated toward risk-taking behavior, they did not interact collaboratively.

Mohapatro P., and Pradhan R. (2021) claimed that 87% of students practiced risky behavior, especially males. Also, 40% of campus students were more likely to consume alcohol. Due to an increase of satisfied people aged 19-27 with outstanding quality of life and significant income, alcohol consumption increased to approximately 69.5%.

Concerning Ikram I. Mohamed and Hossam Eddin Khalifa Ahmad et al. in 2020, a substantial portion of the study sample was reported to possess a high degree of anxiousness, with approximately 20% of caregivers claiming mild anxiety, and the remaining 80 percent reporting moderate to severe anxiety. Among illicit substance users, 93% reported some level of depression, categorized as a mild form of depression by 12% of the patients, a moderate level by 9% of the patients, and a severe level of depression by 72%. More anxiety symptoms were reported to be higher alongside more depression symptoms indicative of positive correlations with the results of the Drug Use Disorder Identification Test. Moreover, more anxiety is positively correlated with depression.

According to Cavalera C., Ferrari C, et al (2020), those with severe mental illness who actively abuse drugs or alcohol are significantly more prone to violence than those who did not or those who used substances in the past. Assessment aggressiveness and violence scoring in drug users and abstainers showed that the increases in drug use were much more aggressive and violent than the non-abstainers. During drug use, aggressiveness and violence were drastically higher compared to sober states. Former substance users had much higher scores on aggressive behaviors than patients without substance use.

Juardo M. Sisto M., et al (2020) focused on the link between drug use, impulsivity, sensation seeking, and violence of both offenders and victims. The results indicated that the aggressors used alcohol and/or tobacco and had high levels of pleasure, automatism, attentional factor, disinhibition, and vulnerability to boredom.

Heather R. Johnson (2020) suggests that the substance-related issues critical for the diagnosis of SUDs were interrelated to the components of self-control, which in this case would be impulsive urgency and, less so, delineated to sensation-seeking.

M. Rieser, Shaul L. et al (2019) give some support to the predictive power of impulsivity and risk-taking behind the diversity of substance use among SUD offenders. The examined sample, which is a severe group, bears a deep relation to substance use or criminal activity,

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and this can be explained by relapsing impulse using a plethora of diverse interrelated solutions. Various types of biopsychosocial traits assist in understanding the underlying motives behind Concepts of Relapse in Impulsivity.

According to Oshri A. and Steve M. Kogan's (2017) analysis, impulsivity serves as a link between substance use during adolescence and adulthood to child abuse and neglect. The results suggest that impulsivity is modulated by these different factors which explains the higher likelihood of substance abuse.

Loredo M.V., Hermida R., et al (2015) have attempted to find associations between impulsivity and drug users. Both assessment methods' results were associated with drug use at an early age. In addition, to delay discounting, which appears to be relevant only for those with higher levels of substance involvement, there is a shift from lower to greater substance involvement that is associated with greater impulsivity.

According to Kaye S., Gilseman J., et al (2014), it has been noted that individuals with ADHD comorbidity are more prone to taking risks as compared to SUD patients and these tendencies are most apparent when driving.

Mohammadpoorasl A., Ghahramanloo A., et al, (2013), noted that a considerable number of students, especially males, were great risk-takers. Family support and increased religiosity can mitigate risk-taking.

METHODOLOGY

The material for this review-based research was compiled from various academic databases, including PubMed, PsycINFO, ResearchGate, Academia, and Google Scholar. All studies and research articles considered for inclusion were published between 2013 and 2025, ensuring a comprehensive and up-to-date analysis of the interplay between impulsivity, sensation-seeking, and substance use. The objective was to explore the relationship between impulsivity, sensation-seeking, and substance use, examining their role as predictors of risky behaviors and addiction. Peer-reviewed articles encompassing diverse populations, including adolescents, young adults, and individuals with substance use disorders, were analyzed to ensure a comprehensive understanding of these behavioral traits and their implications. This study integrates global perspectives to inform prevention strategies and deepen insights into addiction psychology and behavioral health.

DISCUSSION

This paper explores the complex relationship between impulsivity, risk-taking behavior, and substance use disorders (SUDs), emphasizing how these factors interact to drive the initiation and escalation of addiction, particularly among young adults. Impulsivity, manifesting in various forms such as motor, cognitive, and decision-making impulsivity, leads to poor decision-making and immediate substance use, while risk-taking behavior amplifies the likelihood of substance misuse and related harms. Neurobiological factors, including dysfunction in the prefrontal cortex and dopamine system, alongside environmental influences like peer pressure and childhood trauma, further exacerbate these tendencies. The paper highlights how impulsivity and risk-taking create a cycle of escalating addiction, leading to severe physical, psychological, and social consequences. It underscores the need for targeted interventions to break this cycle and support recovery.

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Some key findings related to the study are as follows:

- Impulsivity is closely linked to early drug use, with more impulsive individuals more likely to engage in substance use, particularly among those with higher levels of substance involvement.
- Substance users who display violent behaviors often show high levels of impulsivity, including disinhibition, attentional problems, and vulnerability to boredom, which contribute to both aggression and substance misuse.
- Urgency-related impulsivity is a key factor in substance use disorders (SUDs), with strong associations between impulsive behavior and problematic substance use.
- Impulsivity serves as a mediator between substance use and criminal behavior, exacerbating illegal activities among substance users found by Fantin et al. in 2024.
- Childhood trauma, such as abuse and neglect, increases impulsivity, which in turn heightens the risk of substance use in adolescence and adulthood.
- Risk-taking behaviors differ by gender, with males engaging in higher levels of sensation-seeking and risk-taking, while females are more influenced by peers (Mohapatro & Pradhan, 2021; Siraj et al., 2021).
- Ikram et al. discovered that anxiety and depression are strongly correlated with substance misuse, with individuals experiencing these mental health issues often using substances to cope.
- Individuals with higher impulsivity scores are more likely to engage in risky behaviors like dangerous driving and criminal activity, as shown by Kaye et al.
- Sensation-seeking and peer influence are major predictors of risk-taking behavior, particularly among adolescents, highlighting the importance of addressing peer dynamics in prevention strategies.

CONCLUSION

The relationship between impulsivity, sensation-seeking, and substance use behaviors is complex, multifaceted, and deeply rooted in individual, social, and environmental contexts. Impulsivity, characterized by an inability to control immediate responses and delay gratification, serves as a critical risk factor for initiating and maintaining substance use. Sensation-seeking, with its drive for novel and thrilling experiences, often acts as a catalyst, increasing the likelihood of risky behaviors and substance experimentation. Together, these traits not only highlight the psychological vulnerability that predisposes individuals to substance use but also underscore the importance of addressing behavioral and cognitive patterns to mitigate risk. The intersection of these traits with childhood trauma, peer influence, and socio-environmental stressors paints a broader picture of the pathways leading to substance-related issues.

Socioeconomic and demographic factors further compound the issue, as financial instability, lack of social support, and systemic inequalities disproportionately affect certain groups. Adolescents and young adults, particularly those from marginalized communities, face unique challenges, including peer pressure, limited access to mental health resources, and inadequate family support. Gender-specific dynamics also emerge, with males often exhibiting higher sensation-seeking and impulsivity, while females are more influenced by peer relationships. These findings underscore the need for tailored interventions that account for the diverse socio- demographic contexts in which substance use behaviors arise. Community-based initiatives and school programs focusing on building resilience,

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promoting emotional regulation, and fostering supportive peer environments can play a pivotal role in prevention.

The challenges in addressing substance use disorders (SUDs) also extend to treatment and recovery. High dropout rates, particularly among adolescents and individuals from minority groups, highlight systemic barriers such as stigma, lack of culturally sensitive care, and affordability issues. Effective interventions must integrate psychological therapies, such as cognitive-behavioral therapy (CBT), with pharmacological treatments to address co-occurring mental health conditions like anxiety and depression. Family-centered approaches that involve parents and caregivers in the recovery process can significantly improve outcomes by fostering a supportive environment. Additionally, addressing structural barriers through policy reforms that enhance access to care and provide economic support is essential for long-term recovery and relapse prevention.

The implications of this research extend beyond individual treatment to broader societal and policy considerations. Policymakers must prioritize the development of comprehensive public health strategies that target the root causes of substance use, such as poverty, discrimination, and trauma. Early intervention programs in schools should focus on identifying at-risk youth and providing them with the skills to manage impulsivity and resist peer pressure. Future research should delve into longitudinal studies to better understand the progression of substance use behaviors and the effectiveness of diverse intervention strategies. By adopting an interdisciplinary approach that integrates psychological insights, social support systems, and policy reforms, we can pave the way for more inclusive and effective solutions to combat substance use disorders and promote healthier communities.

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Conflict of Interest

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