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**IMPULSIVITY, DECISION MAKING AND ANXIETY AMONG INDIVIDUALS WITH SUBSTANCE USE DISORDER****Nimra Yaseen (Corresponding Author)**

MPhil Scholar, Department of Psychology, Riphah International University, Faisalabad Campus.

[nimraafzal1020@gmail.com](mailto:nimraafzal1020@gmail.com)**Dr. Aafia Rasool**

Assistant Professor, Department of Psychology Riphah International University, Faisalabad Campus.

[dr.aafia@riphahfsd.edu.pk](mailto:dr.aafia@riphahfsd.edu.pk)**Dr. Muhammad Luqman Khan**

Associate Professor, Department of Psychology, Riphah International University, Faisalabad Campus.

[luqman.khan0078@gmail.com](mailto:luqman.khan0078@gmail.com)**Abstract**

*This study investigated the relationship between impulsivity, Decision Making and Anxiety in individuals with substance use disorder, with a particular focus on the mediating role of Decision making. A cross-sectional, quantitative study approach was employed. The sample comprised 250 male participants recruited from rehabilitation centers. Impulsivity was assessed using the composite scale, of Barret Impulsiveness Scale (BIS) Decision Making was measured through the Decision-Making Questionnaire (DMQ), and Anxiety was evaluated using a Hamilton anxiety rating scale (HARS), all of which demonstrated satisfactory reliability. SPSS was used to analyze the data, including regression, mediation analysis, Pearson correlation, and descriptive statistics. The findings demonstrated a powerful and positive correlation between impulsivity or anxiety, suggesting that people with more impulsive tendencies are more likely to have elevated anxiety symptoms. Additionally, it was discovered that impulsivity was a major predictor of poor decision making, indicating that impulsive people typically make less logical and riskier decisions. Furthermore, there was a strong positive correlation between decision-making and anxiety, indicating that deficiencies in decision-making processes lead to higher levels of psychological distress. Crucially, mediation analysis verified that relationship between impulsivity or anxiety was mediated in part by decision-making. This implies that impulsivity has an indirect impact on anxiety through maladaptive decision-making behaviors in addition to having a direct impact. A consistent and theoretically significant pattern of correlations between the investigated variables was found by the statistical analysis. According to correlational results, impulsivity and anxiety were positively and strongly correlated, indicating that people with more impulsive tendencies also showed increased levels of psychological distress.*

**Keywords:** Impulsivity, decision making, anxiety, substance use disorder**Introduction:**

Substance abuse is a widespread issue that has a big impact on individuals and communities. Individual drinking is known to have detrimental health effects, including a higher risk of illness and accidents, a lower quality of life, and in severe cases, even death. Concurrently, when health systems are overburdened, productivity declines, and bystanders are impacted by things like secondhand smoke exposure, traffic accidents, and infant abstinence syndrome, society suffers (Levy et al., 2017).

**LITERATURE REVIEW**

Substance abuse is a widespread issue that has a big impact on individuals and communities. Individual drinking is known to have detrimental health effects, including a higher risk of illness and accidents, a lower quality of life, and in severe cases, even death. Concurrently, when health systems are overburdened, productivity declines, and bystanders are impacted by things like secondhand smoke exposure, traffic accidents, and infant abstinence

syndrome, society suffers (Levy et al., 2017). Substance use disorders (SUDs) are defined as patterns of substance that impair an individual's overall physical and mental well-being and may result in anxiety or functional impairment that is clinically significant (World Health Organization, 2021; American Psychiatric Association, 2013). They are associated with many medical, psychological, social, and legal problems (Blanco et al., 2021; Olfson et al., 2018). The two main classification systems utilized in their clinical diagnosis are the World Health Organization (WHO) ICD-11 and the American Psychiatric Association's DSM-5. DSM-5 shows a notable difference between DSM-IV and DSM-IVR in terms of SUD diagnosis (Hasin et al., 2013).

High levels of stress, a lack of social support, Simple accessibility to drugs, or a lack of possibilities and an alternative motivating factors all raise the risk of drug use and addiction, according to multiple epidemiological research.(Calcaterra et al., 2014; Campbell-Sills et al., 2018). While the effects of negative social environmental exposures are felt throughout life, they are most apparent in infancy and adolescence, when the brain is still developing rapidly (Khoddam et al., 2018). According to Govindan et al. (2010), adverse social environments in early life may cause prefrontal brain volumes to decrease and prefrontal-limbic connections to mature later.

Genetic research, including genome-wide association studies (GWAS), which have assisted in demonstrating how various genes may contribute to an individual's increased risk of developing the disorder. "has identified certain genes that may help prevent people from developing substance use disorders (SUDs), as well as genetic variations that can raise the risk of several SUDs". (Liu et al., 2019). Gene variants associated with alcohol metabolism had the greatest impact. Some ADH1B and ADH1C alleles, which are variations of the genes that code for the enzymes alcohol dehydrogenase (ADH) and aldehyde dehydrogenase (ALDH), accelerate the conversion of alcohol to acetaldehyde, an unpleasant accumulation that lowers the risk of alcoholism (Crabb et al., 2004).

Substance use disorders (SUDs) are more likely to develop in people with psychiatric disorders such mood, anxiety, psychotic disorders, personality disorders, and ADHD. However, SUDs can also raise the likelihood of mental health issues. This is frequently a two-way relationship. For instance, people with mental illnesses may take drugs as a coping mechanism or as a kind of self-medication, and drug use itself may eventually lead to the emergence of psychiatric symptoms. Drugs have the ability to change brain circuits that are also implicated in other mental health issues, which is why this occurs. Furthermore, these illnesses frequently coexist due to similar genetic vulnerabilities and environmental factors (Agrawal, Edenberg, & Gelernter, 2016; Polimanti, Agrawal, & Gelernter, 2017; Reginsson et al., 2018).

Most nations have high prevalence rates for both drug use and SUDs. The most widely used drug is alcohol, which is thought to be drunk by 2.3 billion people worldwide (40% of adults), with notable geographical differences (from 80% to <1% of adults) (World Health Organization, 2018). Global estimates indicate that there were 1.1 billion smokers worldwide in 2019, even though rates have been falling since 1990 (Reitsma et al., 2021). According to Canadian data, over 60% of people who use illegal drugs are between the ages of 15 and 24. Adolescent substance usage rates vary by area, but they are still very high. About 19–30% of 12–18-year-olds in various provinces report binge drinking in the previous month, and 17–32% report smoking cannabis in the previous year (Young et al., 2011). Similar patterns are observed in Europe, where over according to Hibell et al. (2012), 17% of 15–16-year-olds report using cannabis in the past year, while 39% report binge drinking in the past month.

While alcohol use and binge drinking have somewhat decreased over the previous five years, the use of marijuana and some illegal substances, such as MDMA, has increased in the United States (Johnston, O'Malley, Bachman, & Schulenberg, 2012). The data indicating that substance use disorders (SUDs) typically start around age 15 is more alarming (Merikangas et al., 2010). Furthermore, during the past 35 years, the age at which young people start drinking has significantly dropped, with many currently starting at around age 12 (Johnston, O'Malley, Bachman, & Schulenberg, 2011).

**Research Hypotheses:**

H1. Impulsivity will significantly predict anxiety among individuals with substance use disorder.

H2. Impulsivity will significantly predict decision making among substance use disorders.

H3. Decision making will significantly predict anxiety among substance use disorders.

H4. Decision making will significantly mediate the relationship between impulsivity and anxiety among substance use disorders.

H5. impulsivity and decision making will have significant combined (interactive) effects on anxiety among substance use disorders.

**Research Methodology:****Research Design**

The current study used a quantitative, cross-sectional correlational research methodology to investigate how decision-making, impulsivity, and anxiety relate to substance use disorders.

**Participants:**

The group hoping to use the result is known as the population. According to Eric Erickson's theory, only males between the ages of 18 and 50 who had been diagnosed with a substance use disorder made up the study's target demographic.

**Research Procedure**

To choose participants, a non-probability sampling method called purposeful sampling was used. Individuals are chosen for this judgment sample based on their individual characteristics (Etikan et al., 2016). The researcher has the last say on which sample to include in the study. Because the researchers first examine the desirable traits, not everyone has an equal chance to participate in the study.

**Inclusion Criteria**

- The study included participants with a diagnosed with a substance use problem.
- There were only patients who had undergone detoxification.
- Substance users between the ages of 19 and 40 were included.
- The study only involved in-patients.
- Individuals who, at the time of data collection, were in good health.
- Those who are prepared to honestly and completely complete all research instruments.
- The study only included drug addicts who consented to participate.
- People with severe mental illnesses such major depressive disorder with psychotic aspects, bipolar disorder with active manic or psychotic symptoms, schizophrenia, or schizoaffective disorder.

**Exclusion Criteria**

- People who suffer from dementia, intellectual disability, severe cognitive impairment, or any illness that impairs cognition, memory, or attention.
- Individuals with neurological disorders such multiple sclerosis, Parkinson's disease, epilepsy, stroke, or traumatic brain injury.

- Individuals with intrinsic sleep disorders include restless legs syndrome, narcolepsy, obstructive sleep apnea, and circadian rhythm sleep-wake disorders unrelated to substance use.

### Statistical Analysis

The predictive role of impulsivity, anxiety, and decision making was evaluated using multiple linear regression analysis. Additionally, the predictive influence of anxiety and impulsivity on decision making was evaluated using multiple linear regression analysis. Impulsivity and anxiousness were considered independent factors, while decision making was put as the dependent variable. R<sup>2</sup> values, beta coefficients, and significance levels were examined in order to assess the regression model. When appropriate, group differences based on pertinent clinical or demographic characteristics were investigated using one-way analysis of variance (ANOVA) or independent samples t-tests. The traditional alpha threshold of  $p < .05$  was used to evaluate statistical significance.

### Results

**Table 1**

*Demographic variables*

| Demographic variable | Category             | N   | %     |
|----------------------|----------------------|-----|-------|
| Age                  | 15-25                | 53  | 21.2  |
|                      | 25-40                | 177 | 70.44 |
|                      | 40-60                | 20  | 8.36  |
| Gender               | Male                 | 250 | 100   |
|                      | Female               | 0   | 0     |
| Educational level    | Under Matric         | 23  | 9.2   |
|                      | Matric               | 95  | 38.0  |
|                      | Inter                | 70  | 28.0  |
|                      | Bachelors            | 28  | 11.2  |
|                      | Masters              | 34  | 13.6  |
| Marital status       | Single               | 85  | 34.0  |
|                      | Married              | 141 | 56.4  |
|                      | Divorced             | 24  | 9.6   |
| Employment status    | Employed full time   | 76  | 30.4  |
|                      | Self employed        | 81  | 32.4  |
|                      | Un employed          | 72  | 28.8  |
|                      | Student              | 21  | 8.4   |
| Socioeconomic status | Low                  | 53  | 21.2  |
|                      | Middle               | 173 | 69.2  |
|                      | High                 | 24  | 9.6   |
| Residence            | Urban                | 156 | 62.4  |
|                      | Rural                | 94  | 37.6  |
| Living Arrangements  | Alone                | 41  | 16.4  |
|                      | Rented accommodation | 57  | 22.8  |
|                      | With parents         | 150 | 60.0  |
|                      | Hostel               | 2   | .8    |

|                            |     |     |     |
|----------------------------|-----|-----|-----|
| History of psych treatment | Yes | 250 | 100 |
|                            | No  | 0   | 0   |
| Received therapy           | Yes | 250 | 100 |
|                            | No  | 0   | 0   |

The demographic details of the study, the majority of participants were between the ages of 25 and 40 (70.44%), followed by those between the ages of 15 and 25 (21.2%) and 40 and 60 (8.36%). This suggests that substance use disorder was more prevalent among young and middle-aged adults in this study. Since the sample was drawn from male rehabilitation facilities, all of the participants were male (100%). The majority of participants had completed Matric (38%) and Intermediate (28%), with smaller percentages holding bachelor's, master's, or lesser degrees. Married people made up the majority (56.4%), followed by single people (34%) and divorced people (9.6%). Participants' employment status revealed that they fell into a variety of categories; the majority were either full-time employed (30.4%) or self-employed (32.4%), while 28.8% were unemployed. The majority of participants were from urban areas (62.4%) and belonged to the middle socioeconomic class (69.2%). In terms of living arrangements, 60% of them lived with their parents, while smaller percentages lived alone, in hostels, or in rented housing. Additionally, every participant (100%) stated that they had previously received psychological treatment and therapy, which is consistent with the sample's focus on rehabilitation. Overall, the results indicate that the sample was primarily made up of middle-class male adults with a range of educational and occupational backgrounds.

**Table 2**

*Psychometric properties of scale*

| Scale | N   | Min   | Max    | M     | Sd    | Cronbach's Alpha |
|-------|-----|-------|--------|-------|-------|------------------|
| BIS   | 250 | 44.00 | 130.00 | 72.83 | 13.34 | .744             |
| DMQ   | 250 | 32.00 | 169.00 | 75.55 | 18.54 | .796             |
| HARS  | 250 | 1.00  | 52.00  | 19.45 | 8.69  | .808             |

**Note** BIS= Barret Impulsiveness scale; DMQ= Decision Making Questionnaire ; HARS= Hamilton Anxiety Rating scale

Participants' BIS mean score was 72.83 (SD = 13.34), indicating moderate impulsivity. A mean of 75.55 (SD = 18.54) was obtained on the DMQ, indicating ordinary to somewhat low decision-making skill. The sample had mild to moderate anxiety symptoms, as indicated by the HARS mean of 19.45 (SD = 8.69). Significant variation was found in all three components according to the minimum and maximum scores. Scores for BIS, DMQ, and HARS ranged from 44.00 to 130.00, 32.00 to 169.00, and 1.00 to 52.00, respectively, suggesting that the sample comprised people with varying degrees of impulsivity, anxiety, and difficulty making decisions. The combined scale set's internal consistency (Cronbach's alpha) was .744, falling within the acceptable to good range ( $\alpha > .70$ ), indicating that the instruments as a whole had adequate reliability for the current sample.

**Table 3**

*Correlation Analysis between Impulsivity, Decision Making and Anxiety*



| Variable | 1      | 2     | 3 |
|----------|--------|-------|---|
| BIS-DMQ  | 1      |       |   |
| BIS-HARS | .472** | 1     |   |
| DMQ-HARS | 0.57   | -.133 | 1 |

Note BIS= Barret Impulsiveness scale; DMQ= Decision Making Questionnaire ; HARS= Hamilton Anxiety Rating scale

A Pearson product-moment correlation coefficient was calculated to investigate the connections between impulsivity (BIS), decision-making (DMQ), and anxiety (HARS). The three factors showed different patterns of relationship, as shown in Table.

The purpose of the correlation analysis was to investigate how impulsivity, anxiety, and decision-making are related in people with substance use disorders. Higher levels of impulsivity were linked to higher levels of anxiety among participants, according to the results, which showed a significant positive correlation between impulsivity and anxiety ( $r = .472$ ,  $p < .01$ ). Impulsivity and decision-making skills were not significantly correlated in the current sample, as evidenced by the weak and non-significant relationship between impulsivity and decision-making ( $r = .057$ ). In a similar vein, there was a weak negative correlation ( $r = -.133$ ) between decision-making and anxiety, suggesting that poorer decision-making was marginally linked to higher anxiety levels. Nevertheless, this correlation was not statistically significant. Overall, the findings indicate that impulsivity and anxiety are significantly correlated, while decision-making does not show a significant correlation with either impulsivity or anxiety in this study.

**Table 4**

*Multiple Linear Regression Analysis : Impulsivity, Decision Making, and Anxiety(N=250)*

| Predictor                   | Unstandardize<br>d B | std Error | Standardized<br>B | t      | p     |
|-----------------------------|----------------------|-----------|-------------------|--------|-------|
| Constant                    | 19.423               | 3.150     | -                 | 6.167  | <.001 |
| BIS<br>(Impulsivity)        | 0.100                | 0.046     | .154              | 2.168  | 0.31  |
| DMQ<br>(Decision<br>Making) | -0.096               | 0.033     | -.205             | -2.896 | .004  |

Impulsivity and decision-making together predict anxiety, according to the overall regression model, which was found to be statistically significant ( $F(2, 247) = 4.605$ ,  $p = .011$ ). With an adjusted  $R^2$  of .028, the model explained 3.6% of the variance in anxiety scores ( $R^2 = .036$ ). Despite the relatively limited explained variation, the model remains statistically valid and meaningful. In terms of individual predictors, anxiety was found to be significantly positively predicted by impulsivity (BIS) ( $B = .100$ ,  $\beta = .154$ ,  $t = 2.168$ ,  $p = .031$ ). This implies that in individuals with substance use disorders, higher levels of impulsivity are linked to elevated anxiety. However, decision-making (DMQ) was a significant negative predictor of anxiety ( $B = -.096$ ,  $\beta = -.205$ ,  $t = -2.896$ ,  $p = .004$ ), suggesting that lower anxiety levels are associated with greater decision-making skills.

**Table 5**  
**Mediator Table**

**Total Effect**

| Variables   | Effect b | P      | Boot SE | 95%Boot UI |         |
|-------------|----------|--------|---------|------------|---------|
|             |          |        |         | Boot LL    | Boot UL |
| Constant    | 16.75    | < .001 | 3.06    | 10.73      | 22.77   |
| Impulsivity | 0.04     | .372   | 0.04    | -0.04      | 0.12    |

**Direct Effect**

| Variables       | Effect b | P     | Boot SE | 95%Boot UI |         |
|-----------------|----------|-------|---------|------------|---------|
|                 |          |       |         | Boot LL    | Boot UL |
| Constant        | 19.423   | <.001 | 3.150   | 13.219     | 25.627  |
| Impulsivity     | 0.1001   | 0.031 | 0.046   | .0092      | .1910   |
| Decision Making | -0.096   | 0.004 | 0.033   | -.1616     | -.0308  |

**Indirect Effect**

| Mediator        | Effect | BootSE | 95%BootCI |        |
|-----------------|--------|--------|-----------|--------|
|                 |        |        | BootLL    | BootUL |
| Decision Making | -.0631 | .0202  | -.1052    | -.0260 |

A mediation analysis was conducted to examine the role of decision-making in the relationship between impulsivity and the outcome variable. The total effect of impulsivity was not significant ( $b = 0.04$ ,  $p = .372$ ), indicating no direct relationship without the mediator. However, after including decision-making in the model, the direct effect of impulsivity became significant and positive ( $b = 0.10$ ,  $p = .031$ ), while decision-making showed a significant negative effect ( $b = -0.10$ ,  $p = .004$ ). The indirect effect via decision-making was significant (effect =  $-0.0631$ , 95% CI  $[-0.1052, -0.0260]$ ), suggesting that decision-making acts as a mediator. The negative indirect effect combined with a positive direct effect resulted in a non-significant total effect, indicating inconsistent mediation or a suppression pattern. In practical terms, impulsivity appears to have a positive direct influence on the outcome, but this effect is masked by its negative indirect influence through poorer decision-making. Thus, decision-making plays a key mediating role, and failing to account for it would obscure the true relationship.

**Discussion**

The aim of the present study was to investigate at the connections between anxiety, impulsivity, and decision-making in individuals with substance use disorders. This chapter offers a thorough analysis of the data from the preceding chapter, interpreting the findings in light of current theoretical frameworks and empirical research. The discussion is arranged thematically, starting with an interpretation of the sample's demographic profile, then moving on to an analysis of the psychometric qualities of the scales used, a thorough discussion of the mediation model that served as the investigation's central component, a thorough analysis of the correlational findings, and an investigation of the regression results.

First and foremost, it is crucial to take into account the participants' demographic profile since it offers a contextual basis for comprehending the findings. The results are unique to a male clinical population because all 250 participants in the study were men. The bulk of participants (70.4%) were between the ages of 25 and 40, indicating that young to middle-aged adults, who are frequently thought to be extremely vulnerable to substance use disorders due to social, occupational, and psychological pressures, make up the majority of the sample. The

majority of participants (69.2%) were middle class, with a smaller percentage coming from low socioeconomic backgrounds (21.2%) and high socioeconomic backgrounds (9.6%). In terms of education, a sizable percentage of the sample had completed matriculation or intermediate school, indicating a moderate level of education.

The correlation analysis's findings showed significant patterns of correlations between the research variables. Impulsivity and decision making were found to have a statistically significant moderately positive connection ( $r = .472$ ,  $p < .01$ ), suggesting that people who are more impulsive typically score higher on decision-making tests. Given that impulsive people frequently exhibit a propensity to act swiftly and without sufficient planning, this finding may indicate maladaptive or ineffective decision-making processes. Given that impulsivity accounts for about 22% of the shared variance between the two domains, the strength of this link indicates that impulsivity has a significant influence on decision-making tendencies. This is in line with theoretical viewpoints such as the dual-system theory, which holds that spontaneous, impulsive processes may take precedence over deliberate, controlled processes, resulting in less-than-ideal choices.

### **Conclusion**

In conclusion, the goal of this study was to investigate the intricate connections in between impulsivity, anxiety, and decision-making in people with substance use disorders. The results of this study offer compelling evidence that substance use disorder is a complex psychological phenomenon driven by the interplay of cognitive deficiencies, emotional disorders, and personality factors rather than just a behavioral or physiological disease. The study provides a more thorough knowledge of the underlying mechanisms that support the emergence and maintenance of substance use behaviors by incorporating these characteristics.

The study's findings suggest that impulsivity is a significant influence in the growth of maladaptive behaviors linked to substance use disorders. Higher impulsivity individuals emphasize instant satisfaction, act without sufficient planning, and exhibit a diminished capacity to restrain improper reactions. They are more likely to engage in harmful actions, such as starting to use drugs, because of this inclination. Furthermore, it was discovered that impulsivity was strongly linked to poor decision-making, indicating that those who are more impulsive are less likely to properly consider the long-term effects of their choices. This impairment reinforces substance use tendencies by making people prefer short-term incentives even when they are aware of possible harmful repercussions.

Crucially, the study also highlights how impulsivity, decision-making and anxiety interact. These elements seem to reinforce one another rather than functioning independently, resulting in a vicious cycle that raises the risk of substance use disorder. For example, high impulsivity may make it harder to make decisions, and anxiety may make it harder to maintain cognitive control, both of which raise the risk of substance abuse. This interrelated structure is consistent with modern psychological theories that suggest an imbalance between rational control processes and emotional response, such as dual-system models and cognitive-behavioral theory.

### **Recommendations**

A number of significant recommendations are made for clinical practice, preventative measures, policy creation, and future research based on the results of the current study on impulsivity, decision-making, and anxiety in people with substance use disorders.

When treating substance use disorders, mental health experts and doctors are advised to take a thorough and integrated approach. Treatment plans should address underlying psychological issues including impulsivity and anxiety in addition to detoxification. To assist



people in recognizing and changing maladaptive thought patterns and behaviors, therapeutic methods such as Cognitive Behavioral Therapy (CBT) should be used. As part of rehabilitation services, specialized training programs targeted at strengthening decision-making abilities and impulse control should be created.

Early evaluation and screening are highly advised. In order to detect people with high levels of impulsivity and anxiety who Possibly more likely to develop substance use issues, educational institutions, rehabilitation facilities, and healthcare settings should do routine psychological screening. Early detection can help with prompt intervention and stop a substance use disorder from getting worse.

Additionally, community-based awareness and preventive initiatives are advised. The goal of these programs should be to inform people about the psychological risk factors linked to substance use, particularly young adults and adolescents. Campaigns to raise awareness can lessen stigma, encourage people to seek professional assistance when necessary, and support healthy coping mechanisms.

The development and use of customized treatment programs is another crucial suggestion. A "one-size-fits-all" strategy might not work since people have varying degrees of impulsivity, anxiety, and decision-making skills. Better treatment results and lower relapse rates can result from customized interventions based on each patient's unique psychological profile.

From a policy point of view, it is advised that legislators give mental health treatments top priority in drug rehab programs. To guarantee the availability of qualified psychologists and counselors, rehabilitation facilities should get sufficient money. In order to foster emotional control, decision-making abilities, and healthy behavioral patterns from a young age, policies should also concentrate on including mental health education into school curricula.

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