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ORIGINAL RESEARCH

Impulsivity and HIV-related high-risk behaviors among intravenous opioid users in Kashmir

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Abstract

Background: Role of impulsivity in high-risk behavior in intravenous opioid users has not been studied much from our part of the world.

Aims and Objectives: The aim of this study was to determine the prevalence of impulsivity and high-risk behavior among intravenous opioid users in Kashmir and to find the relationship between the two.

Methodology: It was a hospital based descriptive study conducted in the postgraduate department of Psychiatry, GMC, Srinagar. A total of 400 patients were included in the study using purposive sampling. After obtaining written informed consent from the patients, sociodemographic data, Barratt's impulsivity scale (BIS-11) to assess impulsivity and HIV-related high-risk behavior scale (HRBS) to assess high risk behavior were used.For inferential statistics, Pearson's Chi-square was used and two-sided p values were reported and p value of 0.05 was considered as statistically significant. Correlation statistics were used to find the relationship between various variables.

Results: On analysis of 400patients,it was revealed that 174(43.5%) patients scored high in impulsivity and 170(42.5%) scored high in high-risk behaviors. Besides, a strong positive correlation was found between impulsivity and high-risk behavior in these patients ($r=0.643$, $p\leq0.01$).

Conclusions: As impulsivity is often associated with a high risk of substance use, it is worthwhile to understand the interplay of impulsivity, substance use, abstinence and relapse. Besides, patients with high impulsivity being at an increased risk of developing and passing HIV, they can be targets for HIV prevention strategies.

Keywords: Opioid use, impulsivity, high-risk behavior, HIV

Introduction

Drug abuse is a multifaceted phenomenon affecting the health of individuals, besides having social, economic and cultural aspects. It is often characterized as a form of impulsive behavior.[1] Impulses are strong motivational urges enabling a person to engage in reward seeking. These can lead to impulsive behavior unless inhibited or interrupted. [2,3] Impulsive behaviors are not always pathological and may reflect a person's desire to obtain certain

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outcomes, like being dominant in society,[4] gaining energy or nutrients,[5] or other rewards. These become pathological when they become intrusive, cause disruption in routine, or lead to distress or harmful behaviors. [6] This happens when there is a failure of inhibitory self-control mechanisms, which would otherwise suppress these behaviors. [2,7,8] Role of impulsivity in initiation, management and relapsing nature of substance use has received comparatively recent attention. It is now believed that impulses and substance use have a clear but complex association. [9]

In DSM-5, impulsivity has not been directly named as a symptom of substance use disorder, instead the concept of "impaired control" has been used. [10]

Further, substance use causes a person to have impaired decision making and become disinhibited. [11] This results in an increased probability of a person to engage in risk taking behaviors which includes risky sexual behaviors or sharing of needles with fellow injection drug users (IDU's) putting the person at an increased risk to acquire or transmit HIV infection. [12] In India, the prevalence of HIV infection among IDU's is 9.9%. [13]

IDU's practice unsafe behavior (multiple sexual partners, unprotected sex) particularly due to lack of perceived risk for HIV transmission or due to peer norm. [14] In addition to this, sharing of needles may result in dermatological infections, scarring and abscess formation.[15]

Studying this behavior of IDUs is imperative as it provides information about the possible risk of spread of infection from them to the general population.

Rationale of the study

The rationale of the current study was to examine the role of impulsivity in high-risk sexual behavior in intravenous opioid users. We hypothesised that sexual risk behavior would be positively associated with impulsivity. As such, using simple self-reported questionnaires for impulsivity can be useful to target patients at risk for developing or passing HIV.

Operational definitions

Intravenous Drug User (IDU) has been defined by the National AIDS Control Program as an individual who has injected drugs at least once in the last 3 months. [16]

Material and methods

It was a hospital based descriptive study, which was conducted from March 2022 to August 2022. The study was commenced after obtaining clearance from the Institutional Ethical Committee. The inclusion criteria were: patients ≥15 years of age, patients diagnosed as opioid use disorder as per DSM 5, HIV-seronegative patients (determined by rapid HIV testing) and patients providing informed consent for the study (in case of patients <18 years of age, consent was obtained from parent or legal guardian). Exclusion criteria were: serious medical or psychiatric condition and non-injection opioid users.

A final sample size of 400 patients were included in the study (by keeping confidence level of 95%, margin of error as 5, population size of substance users in Kashmir as 62000**,** proportion of intravenous opioid users as 47.5%). The sample was collected using purposive sampling.

After obtaining written informed consent from the patients, the study was commenced. Sociodemographic data was obtained from the patients. Kuppuswamy's scale was used to assess the socioeconomic status of the patients. [17] We also included family and forensic history in our study.

Patients were screened for impulsivity and high-risk behavior using the following tools respectively:

1) **Barratt's impulsivity scale (BIS-11):[18]**It is a 30-item self-report scale, originally developed by Patton et al. (1995). There are various questions depicting impulsivity (I act

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"on impulse") or non-impulsive behaviors (I am future oriented). This scale has been used frequently. In our study, we used 75th percentile as a cut-off measure to differentiate high impulsivity from low impulsivity (Doran et al., 2000). [19] It has been found to be valid and reliable in a number of different languages. [18,20]

2) **HIV-Related High-Risk Behaviors Scale (HRBS):**This was assessed by HIV-Risk taking behavior scale (HRBS) developed by Darke et al., 1991. [21] It is an 11-item questionnaire that was developed to measure risk of contracting HIV infection in intravenous drug users. The scale has two sections, drug use section and sexual behavior section. Participants have to answer on a six-point Likert scale, the higher the score, the greater will be the risk of contracting and passing on HIV.

Statistical analysis

The recorded data was compiled and entered in a Microsoft Excel spreadsheet which was then exported to data editor of Statistical Package for Social Sciences (SPSS Version 20.0, SPSS Inc., Chicago, Illinois, USA). Continuous variables were expressed as Mean ± Standard Deviation and categorical variables were summarized as frequencies and percentages. Graphically the data was presented by bar diagrams. For inferential statistics, Pearson's Chi-square was used and two-sided p values were reported and p value of 0.05 was considered as statistically significant. Correlation statistics were used to find the relationship between various variables.

Results

Among the patients, 236(59%) belonged to age group 19 - 27 years, 70(17.5%) belonged to age group 28 -31 years; 220(55%) patients belonged to urban areas whereas 180(45%) belonged to rural areas. 140(35%) patients had studied till middle class,100(25%) had passed class 10 and 86(21.5%) had passed high school. In our study maximum number of patients 212(53%) started substance use between the age of 19 – 27 years.

It was found that 32(8%) patients had family history of opioid use disorder in first-degree relatives and 22(5.5%) patients had family history of cannabis use disorder in first-degree relative. 10(2.5%) patients had a family history of a psychiatric disease in their first-degree relatives. It was also found that 68(17%) patients had trouble with the police during the time of substance use. The sociodemographic characteristics of the patients have been summarised in Table 1.

174(43.5%) patients scored high in Barratts impulsivity scale whereas 226(56.5%) scored low in impulsivity.

On the other hand, 170(42.5%) patients scored high in HIV-Related high-risk behavior scale.

There was a significant positive correlation between impulsivity and forensic history ($r=0.439$, $p\leq0.01$) and impulsivity and family history of substance use ($r=0.281$, $p\leq0.01$). A significant negative correlation was found between impulsivity and age of onset of substance use ($r=-0.39$, $p\leq0.01$)

Similarly, a significant negative correlation was found between high-risk behaviors and education ($r=-0.157$, $p\leq0.01$), and age of onset ($r=-0.342$, $p\leq0.01$)

Relation of impulsivity and high-risk behavior

In our patients, a significant positive correlation was found between impulsivity and high-risk behavior of the patients ($r=0.643$, $p\leq0.01$)

Table 1: Sociodemographic characteristics of the patients

Parameter	Percentage/Mean (n=400)
Mean age (years)	24.45
Marital Status Unmarried	137(34.25%)

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	Married	189(47.25%)
	Divorced/Separated	74(18.5%)
Education	Up to 8th	140(35%)
	Up to 10th	100(25%)
	High school pass out	86(21.5%)
	Graduate	50(12.5%)
	Post Graduate	24(6%)
Locality	Rural	180(45%)
	Urban	220(55%)
Occupation	Employed	282(70.5)
	Unemployed	118(29.5%)

Discussion

The results of our study denotes that nearly half our patients scored high on impulsivity. Impulsive behavior has been closely linked to substance use. [22] Besides, substance use disorder itself may facilitate impulsive acts by interfering with the normal inhibitory controls.[23]

The linkage of impulsivity with substance use disorder has been confirmed by a myriad number of studies. **Cuneyt et al** found higher impulsivity scores among opioid use disorder patients than healthy controls. [24] **Hopwood et al** found that patients with a substance-use disorder displayed greater disinhibition (specifically impulsivity). [25] Additionally, **Meda et al. (2009)** showed that individuals who were at risk of developing a substance-use disorder or those who were already addicted displayed increased impulsivity on the BIS-11 compared with the control participants. [26]

Assessing impulsivity in substance users is clinically significant.

Firstly, impulsivity among substance users seems to be an important target for clinical intervention. [27] Since impulsivity can be easily assessed through self-report surveys, it makes it easier for the clinician to plan the type of treatment.

Secondly, patients with high impulsivity are more likely to drop out of treatment, treating the impulsivity trait can result in prolonged abstinence and decrease in the relapse rate. [28]Besides, the outcome of treatment in highly impulsive patients can further be improved by providing immediate tangible rewards for abstinence (e.g., vouchers for negative urinary drug screen). [29]

Thirdly, high impulsivity among opioid dependent individuals should be prioritised as they are predisposed to self-harm behaviors as well. [30]

In our study, a strong negative correlation between impulsivity and age of onset denotes that impulsivity in a substance user decreases as the person grows older. This is consistent with previous studies (Eysenck et al., 1985). [31] This reinforces the importance of dealing with the impulsivity trait from adolescence, wherein high intensity feelings, arousal and less than optimal decision making are common. [32]

Our study also shows that more than half of the participants exhibited high risk sexual behavior. Drug users continue to engage in sexual risk behaviors posing an ongoing public health risk, which appears to be driven by impulsivity traits.[33] In general, impulsivity has predicted incidents of high-risk sexual behavior. The same has been confirmed by our study which shows a strong relationship between sexual high-risk behavior and impulsivity. This is consistent with the previous research by Hoyle et al., 2000, Bancroft et al., 2003, Ostrow et al., 1999. [34,35,36]Specifically, impulsivity may predispose individuals to engage in heavy substance use. This use may put individuals at risk for HIV infection both directly thorough intravenous needle sharing and indirectly by lowering safe sex threshold (e.g., decreasing

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condom use).[37]Hence, using simple self-reported questionnaires for impulsivity can be useful to target patients at risk for developing or passing HIV

The increase in the high-risk behavior among our study participants can also be because of the lack of education about the harm reduction techniques. The harm-reduction strategy has been endorsed by the National AIDS Control Organization (NACO). In this, IDUs are provided with needles/syringes to reduce the chance of sharing. Apart from this, IDUs are counselled to switch over from injecting to medically supervised orally prescribed medicine. [15]

If individuals with high impulsivity could be identified prior to HIV-infection, it may be possible to target these individuals for intervention through psycho-education.[38] An early intervention may decrease substance use and help to curb the spread of HIV.

Limitations

It was an all-male study. During the study period, no female was enrolled. This can be due to lesser number of females attending the drug deaddiction centre as a result of stigma or due to actual low prevalence of intravenous opioid use in females.

Validity of self-report questionnaire is sometimes questionable as these tests are subjective and may represent distorted thoughts about one's own identity. Besides, these also have a component of recall bias.

Data was cross sectional, causal inferences about the temporal sequence of impulsivity and high-risk behavior cannot be made.

Conclusion

As impulsivity is often associated with a high risk of substance use, it is worthwhile to understand the interplay of impulsivity, substance use, abstinence and relapse. Timely management of impulsivity can prolong abstinence and further reduce the economic burden on the family. Besides, patients with high impulsivity being at an increased risk of developing and passing HIV, they can be targets for HIV prevention strategies.

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