



Is Cannabis Abuse Related With Personality Factors, Aggression, Impulsivity And Sensation Seeking In Patients With Schizophrenia

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Abstract

Psychotic patients specifically schizophrenia use Cannabis most frequently and it is associated with poor outcomes in schizophrenia. Many studies have shown the co-morbidity of schizophrenia and cannabis abuse as well as its implications, but little evidence is available regarding their relationship. **Aim:** The present study was designed to compare aggression, personality traits, sensation-seeking and impulsivity in a group of inpatients suffering from schizophrenia and schizophrenia with cannabis use. **Materials and Method:** The study was conducted at the Institute of Mental Health and Hospital Agra. The present study is a hospital based, cross-sectional and comparative study. **Sample:** 30 Schizophrenia patients, 30 Schizophrenia with cannabis use patients admitted in the inpatient unit of the hospital were selected through purposive sampling with certain inclusion and exclusion criteria. **Tools :**The Aggression Questionnaire (Buss &Perry 1992) ,Barratt Impulsivity Scale(Revised) (Barratt etal.1995) ,Brief Sensation-Seeking Scale (Revised)(Hoyle etal. 2002) and Eyesank Personality Questionnaire EPQ-(90) were used to measure Aggression, Impulsivity, Sensation-Seeking and Personality. **Results:** Schizophrenic with cannabis us patients are more impulsive and shows high levels of sensation seeking compared to schizophrenia with no evidence of cannabis use. Though high neuroticism, low extraversion and high psychoticism are the personality characteristics of cannabis users are reported still it is difficult to identify a particular trait that initiates cannabis use which needs further exploration.

Keywords: NIL

Introduction

Schizophrenia is a severe mental illness characterized by a group of symptoms and disruptive behaviour affecting the process of perception, emotion, cognition and behaviour. Psychotic patients specifically schizophrenia use Cannabis most frequently ¹ and it is associated with poor outcomes in schizophrenia. Many studies have shown the co-morbidity of schizophrenia and cannabis abuse as well as its implications , but little evidence is available regarding their relationship. It is difficult to make a distinction between the cause and effect of co-morbidity due to various methodological issues,

clinical severity and use of different diagnostic criteria ^{2,3}.

A positive relationship between schizophrenia and violent behaviours has consistently been observed ⁴. Disinhibition in schizophrenic patients was associated with greater maladaptive skills increases the frequency of substance use. MacArthur study suggests that cannabis use in psychotic patients increases the risk of violent behaviour (VB) and seems to be a prominent predictor of violent behaviour VB ⁵. Presently, evidence is contradictory as to whether a high genetic risk for schizophrenia promotes cannabis use.^{6,7} However, research exploring the links between cannabis use and violent

behaviour in psychosis is still rare^{8,9,10,5,11} and due to inconsistencies among the findings of studies declared this issue as a matter of controversy in psychosis¹².

Persons affected with schizophrenia often show aggressive behaviour as a part of psychotic symptoms¹³ and literature reviews have shown that the proportion of aggression in schizophrenic patients varies from 6 to 42.5%.^{14,15} Many researchers have reported that not only cannabis misuse is a potent risk factor for aggressive behaviour.¹⁶ but also is considered as causal factor in schizophrenia.¹⁷ Few studies have also pointed out that the risk of aggression increased with medication noncompliance, (57%) alcohol use, and (51%) previous aggressive behaviour.¹⁸ Recent literature on the risk factor of violent behaviour have also reported the interactions between substance use and positive symptoms^{19,20, 21}, level of insight^{19,22,4} impulsivity^{4,23,9}, affective instability²⁴, and treatment adherence.^{22 25,26} In a study Lapworth et al. found that positive symptoms interact with impulsivity to increase the risk of violent behaviour in psychotic patients with co-morbid substance use.²⁷ The complex interactions between substance use, impulsivity and co-morbid antisocial personality disorder and the risk of violent behaviour in psychosis is also studied.^{23,28, 19}

Impulsivity plays a role in illicit drug use and previous studies on impulsivity have shown that those who have high scores on impulsivity are more likely to use cannabis.^{29,30} Dervaux et al. also reported that high impulsive persons use drugs more frequently with huge quantity.³¹ There is some evidences which suggest that though impulsivity may not be elevated by cannabis use but expression of impulsivity influences the experiences of individuals while using cannabis. Whether impulsivity leads to drug use or drug use leads to elevated impulsivity is not confirmed by any longitudinal studies so far. Huddy et al. in his study tried to find out the relation between cannabis abuse with respect to two components of impulsivity (1)response inhibition and(2) reflection impulsivity.³² He gave the idea that impulsivity is a type of personality characteristic and not simply the consequence of prolonged drug abuse.

Novelty or sensation seeking is a trait which is frequently studied as the most important aspects of

impulsivity in predicting cannabis use. Sensation seeking has also been found to be associated with current cannabis use and prediction of future use in adolescents.³³ However, Donohew and colleagues in their study viewed that the association between sensation seeking and drug use is a complex phenomena and several studies have reported controversial results regarding the association of cannabis use and sensation seeking which needs to be confirmed by further studies.^{34,35}

Personality is also considered as a prominent risk factor in predicting cannabis use. Some studies have shown that persons with high scoring on particular traits such as schizotypy are more prone to use cannabis where as other studies reported that cannabis use exacerbates the expression of schizotypy. Long term studies is required for drawing a definite conclusion regarding the relationship between cannabis, schizotypy, and psychotic symptoms²⁹.

Two different mechanisms such as the social deviance model and the self-medication model are used to explain the role of personality traits in cannabis use³⁶. Social deviance model view that persons with certain personality traits are less likely to be influenced by societal norms and engage in deviant behaviour. But the socialization theory indicates the co existence of third variable such as peer pressure in mediating the cannabis use. It is also seen that some personality traits are indicative of an underlying biological proneness to psychopathology. According to the self-medication hypothesis sometimes individuals use substances due to their pharmacological properties, in order to counter some internal abnormality in a particular neurotransmitter system. As cannabis has a non-specific pharmacological effect on neurotransmitters it is difficult to conclude which trait of individuals are prone to use cannabis for self medication.

No studies of both the mechanisms can conclude that a personality trait or combination of traits increases the risk of cannabis use. Many longitudinal studies explored the patterns of cannabis use in different populations and reported personality as a confounding factor.

Ebstein et al³⁷ viewed that personality traits are biological determined entity and individual differences in experiences with cannabis is reported

by the same biological mechanisms. Particularly in psychiatric patients the nature of personality traits and the non specific role of cannabis use demands a need to conduct further systematic research in

order to establish a relationship between personality trait and cannabis use.

Aim:

The present study was designed to compare aggression, personality traits, sensation-seeking and impulsivity in a group of inpatients suffering from schizophrenia and schizophrenia with cannabis use.

Materials and Method

Venue: The study was conducted at the Institute of Mental Health and Hospital Agra. It is a tertiary referral centre with bed strength of 800 and a postgraduate teaching hospital. This hospital has a wide catchment area which includes the states of Uttar Pradesh, Madhya Pradesh, Rajasthan, Haryana and Uttarakhand.

Design: The present study is a hospital based, cross-sectional and comparative study.

Sample: 30 Schizophrenia patients, 30 Schizophrenia with cannabis use patients admitted in the inpatient unit of the hospital were selected through purposive sampling with the following inclusion and exclusion criteria.

Inclusion criteria

1. Patients fulfilling the diagnostic criteria of Schizophrenia and Schizophrenia with cannabis use as per ICD-10 DCR criteria.
2. Age group of both patient groups ranging from 18-55 years
3. Only male patients were considered.
4. Those who gave informed consent to participate in the study

Exclusion criteria

Patients in both the groups with a history of neurological disorders such as Seizures, Movement Disorders, Cerebral Palsy and concomitant severe medical illnesses (e.g., Uncontrolled endocrine abnormalities, cardiovascular or pulmonary diseases)

Toos:

The Aggression Questionnaire (Buss & Perry 1992)

This questionnaire consists of 29 items having 4

factors such as Physical Aggression(PA), Verbal Aggression (VA), Anger (A) and Hostility(H). Item No.9 and 16 is to be reversed coded. A 5 point scale is used to score the response i.e extremely uncharacteristic to extreme characteristics.

Barratt Impulsivity Scale(Revised) (Barratt *etal.*1995) It is a 30 item self-report, widely used measure of different aspects of impulsiveness- such as attention, motor, selfcontrol, cognitive complexity, perseverance, and cognitive instability impulsiveness, among others A 4 point scale is used to rate the responses i.e Never to always.

Brief Sensation-Seeking Scale (Revised)(Hoyle *etal.* 2002) It is a 8-item self report for measuring sensation seeking with four different aspects such as Thrill and adventure seeking, Disinhibition, Experience seeking, and Boredom susceptibility. A 5 point scale is used to score the response i.e Not at all like me to very much like me.

Eysenck Personality Questionnaire EPQ-(90) It contains 90 questions having 4 domains such as Psychoticism, Extraversion, Neuroticism and Lie. The person has to respond either in "Yes" or "No" .Scoring is to be done as per the instruction given in the manual.

Procedure :60 consecutively admitted patients of schizophrenia (n=30) and schizophrenia with cannabis use (n=30) were included in the study. The patients were diagnosed by two psychiatrists using ICD 10 DCR and Cannabis abuse were diagnosed through psychiatric history and self-report. After getting the consent from the patients as well as from their family members the above scales were administered two days after admission by the investigator. Minimum two days and maximum three days were spent on each patient to get the information on all scales. The socio-demographic and clinical details of the patients were recorded on a separate sheet specifically made for the study purpose. The responses on different scales were also recorded in different sheets for statistical analysis.

Data analyses were performed using SPSS and t- test was calculated for comparison. Two-sided tests of significance were used with an alpha set at 0.05 for all analyses. Descriptive statistics such as mean, SD and percentage was used to describe the data.

Results

Characteristics		Schizophrenia (n=30)		Schizophrenia & Cannabis (n=30)	
		Mean	S.D.	Mean	S.D.
Age (in years)		40.13	8.19	38.20	8.52
Education (in years)		12.33	2.91	11.73	2.54
Duration of Illness (in years)		11.06	3.64	11.90	3.62
Age of Onset (in years)		26.80	7.57	26.30	5.87
Duration of Treatment (in years)		10.33	3.56	11.30	3.34
Domicile	Rural	57%		50%	
	Urban	43%		50%	
Family Type	Nuclear	53%		47%	
	Joint	47%		53%	
SES	Low	37%		37%	
	Middle	63%		63%	
Marital Status	Unmarried	33%		37%	
	Married	67%		63%	

Table -1 shows the characteristics of respondents according to categories . The mean and SD of the age of schizophrenia group was 40.13±8.19 and schizophrenia with cannabis use group was 38.20±8.52. The mean and SD of education of schizophrenia group was 12.33 ± 2.91 and schizophrenia with cannabis use group was 11.73 ±2.54. The mean and SD of duration of illness, age of onset and duration of treatment of the schizophrenia group was 11.06±3.64, 26.80±7.57, 10.33±3.56 and schizophrenia with cannabis use group was 11.90± 3.62, 26.30± 5.87, 11.30± 3.34. About 57% of patients hail from rural background and 43% from urban area where as equal no i.e 50% of patients were from urban and rural background. The representation of patients from nuclear family was 53% and joint family was 47% in schizophrenic group .The socioeconomic status of the patients in both the groups were equal i.e 37% from low income group and 63% from middle income group. Most of the patients were married in both the groups .

Measure	Groups	Mean	S.D.	t-Value
Aggression Questionnaire	Schizophrenia	50.83	12.24	1.18
	Schizophrenia and Cannabis	54.66	12.86	
Barret Impulsivity Scale	Schizophrenia	44.06	8.25	2.021*

	Schizophrenia and Cannabis	48.60	9.09	
Brief Sensation Seeking Scale	Schizophrenia	12.73	3.64	1.97*
	Schizophrenia and Cannabis	14.96	5.04	
Psychoticism Scale (EPQ)	Schizophrenia	11.80	4.71	1.24
	Schizophrenia and Cannabis	13.46	5.62	
Extraversion Scale (EPQ)	Schizophrenia	9.80	2.36	.92
	Schizophrenia and Cannabis	9.26	2.09	
Neuroticism (EPQ)	Schizophrenia	9.96	2.72	1.14
	Schizophrenia and Cannabis	10.83	3.14	
Lie Scale (EPQ)	Schizophrenia	12.26	2.03	.79
	Schizophrenia and Cannabis	12.76	2.78	
*Significant at .05 level				

Table-2 shows the comparison of aggressiveness, impulsivity, sensation seeking and personality of schizophrenic patients and schizophrenic with cannabis use patients. On impulsivity and sensation seeking the t value is 2.021 and 1.97 which is significant at .05 level. Though there is no significant difference in aggressiveness and personality traits among the two groups, the scores of aggressiveness, psychoticism, neuroticism and lie were high in schizophrenia with cannabis use group than the schizophrenia without cannabis use group.

Discussion

The present study was designed to compare aggressiveness, impulsivity, sensation seeking personality traits in a group of inpatients suffering from schizophrenia and co-morbidity of schizophrenia with cannabis use.

Our results showed no significant difference in the aggression level of schizophrenia group as compared to co-morbid cannabis use schizophrenia group. The findings of other studies also revealed that the cognitive skills and emotion processing of patients using cannabis are more intact and stable compared to those with no history of cannabis use^{38,39} But this is in contradiction of the previous findings which reported that cannabis misuse is a risk as well as causal factor for aggressive behaviour and persons with schizophrenia with substance use showed more

aggressive behaviour than non abusive schizophrenia persons.^{16,17} Recent evidence also reported that among individuals who are genetically vulnerable for schizophrenia, are more prone to use cannabis.⁴⁰ In this study besides genetic factor the quantity of cannabis and medication adherence might influence the presence of aggressive behaviour which needs further exploration.

Our results showed high levels of impulsivity and sensation seeking in the group of inpatients suffering from cannabis use co-morbidity compared to schizophrenia with no evidence of cannabis use. These findings are consistent with other studies who reported high levels of impulsivity and sensation seeking in the group of inpatients suffering from cannabis use comorbidity.^{31,41} Zhonitsky et al. also found high levels of sensation seeking in substance

abuse/dependence patients but did not find significant differences in impulsivity between substance abuse/dependence patients with and without schizophrenia.⁴² A meta-analysis of imaging studies conducted recently to find the association between cannabis use and impulsivity suggests that cannabis has an impact both on the structure and function of the prefrontal cortex.⁴³ Literature on high impulsivity and cannabis use have shown that impulsivity is linked with current use of cannabis.^{29,36} But some inconsistencies are found by other studies which reported that low novelty seeking (a trait of impulsivity) was high among polysubstance users and low in cannabis users.⁴⁴ Chakroun et.al also reported that cannabis users had high novelty seeking scores compared with cannabis non users and the novelty seeking scores were highest in polysubstance users²⁹.

Studies on sensation seeking behavior and cannabis use have also reported contradictory findings. Some studies have shown the direct association of sensation seeking and cannabis use³³ while other studies by using biosocial-affect model explained the role of individual difference in sensation seeking and reported no direct relationship between sensation seeking behaviour and cannabis use and suggested further exploration.³⁴

This study could not find any significant difference in the personality traits among schizophrenia group as compared to co-morbid cannabis use schizophrenia group. Many researchers have found the association of neurotic trait with psychoactive agents but specifically with regard to cannabis use mixed results have been reported.^{45, 46} Chowdhury et al. (2015) in their showed an association between cannabis and neuroticism among regular cannabis users where as other studies showed low neuroticism in recreational cannabis users^{47,45} In this study it is assumed that low neuroticism might be due to recreational cannabis users .

It is well documented in recent studies that cannabis use and psychosis are associated with each other but the nature of association is not yet fully explored.^{48, 49} Results of some clinical studies revealed that acute intake of cannabinoid agonists can induce brief psychotic symptoms in vulnerable as well as healthy individuals^{50,49} but there is limited evidence for inducing long term psychotic symptoms.⁵¹

However, inconsistent association has been reported between cannabis use and extroversion. Flory et al. reported that the trait of introversion was associated with cannabis dependence.⁵² On the other hand, Hengartner et al. (2016) reported an association between extraversion and cannabis use.⁵³ Subsequently, more studies have reported lack of association between the traits of introversion and extraversion among cannabis users.^{22,19,45} There are no sufficient evidence for an exclusive personality profile of the persons who use drugs.⁵⁴ The results of our study suggested high neuroticism, low extraversion and high psychoticism in cannabis users which is somehow similar to the findings of a meta-analytic study which reported that a personality profile of high neuroticism, low agreeableness, introversion, and low conscientiousness is associated with several psychiatric disorders⁵⁵. The relationship between personality traits and cannabis use is still controversial which needs further investigation.

Conclusion

Schizophrenic with cannabis use patients are more impulsive and shows high levels of sensation seeking compared to schizophrenia with no evidence of cannabis use. Though high neuroticism, low extraversion and high psychoticism are the personality characteristics of cannabis users are reported still it is difficult to identify a particular trait that initiates cannabis use which needs further exploration.

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