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## Impulsivity, aggression and personality profile in major psychiatric conditions: A cross-sectional study

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### Abstract

**Background:** Impulsivity and aggression are complex behavioural disorders that are part of the core symptoms of many psychiatric disorders, especially in the background of personality traits. With respect to these factors, there is scarcity in the literature available in India.

**Aim:** To study the presence of Impulsivity, Aggression and personality profile in three major psychiatric illnesses (Schizophrenia, bipolar disorder and Alcohol use disorder) and compares them among the three groups.

**Materials and Methods:** This is a cross-sectional study wherein total of 112 patients diagnosed with one of the three major psychiatric illness i.e., schizophrenia or bipolar disorder (BPAD) or Alcohol dependence syndrome (ADS) were recruited into the study. Apart from descriptive statistics, data analysis was done using one-way ANOVA, chi-square test and Pearson's correlation.

**Results:** The means BIS-11 scores were higher in the group with BPAD, followed by schizophrenia and ADS; the difference was found to be statistically significant ( $F$  value = 4.40;  $p$  value 0.01). On Eysenck personality questionnaire (EPQ), scores on extraversion component were higher on BPAD group whereas that on psychoticism component were more on schizophrenia group. The difference of mean scores in these components among three groups was statistically significant ( $p$  value < 0.05). On Pearson's correlation, age was found to significantly negatively correlated with total BIS-11 scores ( $r$  = -0.19;  $p$  = 0.04).

**Conclusion:** A blanket approach does not work for impulsivity in every psychiatric illness. There is a need to individualize treatment approaches. In spite of the diagnosis, impulsivity in an individual reduces as age increases.

**Keywords:** Impulsivity, aggression, personality, major psychiatric illnesses

### Introduction

In the Diagnostic and Statistical Manual of Mental Disorders version V (DSM-V) several neuropsychiatric disorders are either classified as impulse control conditions or encompass impulsive symptoms in the diagnostic criteria, including attention deficit hyperactivity disorder (ADHD), trichotillomania (repetitive hair-pulling), and substance abuse [1]. Furthermore, it is increasingly recognized that high levels of impulsivity are associated with vulnerability to substance abuse and can contribute to relapse to drug-seeking and treatment failure [2].

Though most of the times, impulsivity and aggression are used as synonyms [3], there is a significant difference in their actual meaning of each term. Impulsivity was common (17%) particularly among males and younger individuals, and associated with a broad range of axis I and II disorders, particularly drug dependence, cluster B, dependent and schizotypal personality disorders, bipolar disorder and ADHD [4]. One potential reason for the conflicting results on the association between psychosis and aggression is the fact that past history of aggressive behaviour related to antisocial personality disorder and substance abuse are independently associated with aggression, and thus need to be taken into account in the study of psychosis and violence [5]. Impulsive-aggressive personality disorders and alcohol abuse/dependence were two independent predictors of suicide in major depression, and impulsive and aggressive behaviours seem to underlie these risk factors [6].

Unlike global research, in India there is paucity of literature comparing impulsivity and aggression in psychiatric disorders. Such a study would be essential to improve the necessary early intervention to improve the morbidity of the psychiatric burden in the community.

Therefore, this study aims to study the presence of Impulsivity, Aggression and personality profile in three major psychiatric illnesses (Schizophrenia, bipolar (mood) disorder and Alcohol use disorder) and compares them among the three groups.

**Material and Methods**

This study is a cross-sectional study conducted in a tertiary care centre in south India. The participants for the study were procured via purposeful and consecutive sampling. The study was conducted after approval from the concerned ethical committee. The participants who were diagnosed with bipolar affective disorder (BPAD), schizophrenia and alcohol dependence syndrome (ADS) as per ICD 10 diagnostic criteria [7], above the age of 18 years and were able to give written informed consents were included. Those with cognitive impairment, mental retardation, history of head trauma, convulsions, delirium or other organic conditions and major medical or surgical procedures done within last six-months were excluded from the study.

**Instruments used**

- 1. Impulsivity:** The Impulsivity was measured using Barratt Impulsiveness Scale 11(BIS-11 [8]). The BIS-11 is a self-report measure of impulsive personality traits; it includes 30 items which may be scored to yield six first-order (attention, motor, self-control, cognitive complexity, perseverance, and cognitive instability impulsiveness) and three second-order factors (attentional, motor, and non-planning impulsiveness). Based on the cut-off points given by Stanford M *et al.*, score of 72 or above is considered to be highly impulsive [9].
- 2. Aggression:** The Overt Aggression scale - modified (MOAS) was administered to measure the following four components, namely, Verbal Aggression, Auto aggression, Aggression against property and Physical aggression [10]. Total weighted aggression score ranges from 0 – 40.
- 3. Personality:** Eysenck Personality Questionnaire (EPQ) was implemented to assess the personality traits of the participants-Extroversion, Introversion, Psychoticism and Lie [11]. The scoring is considered for individual subscales which were based on these traits.

**Study Procedure**

All the subjects who fulfilled the inclusion and exclusion criteria were consented for participation in the study. The socio demographic data and clinical details were noted. The diagnosis was made per ICD-10 criteria by the treating

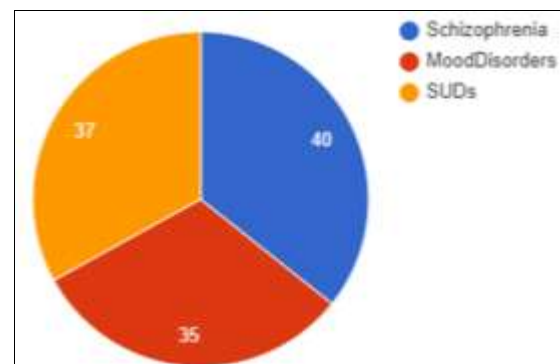
psychiatrist. BIS- 11, MOAS and EPQ were administered in all the three groups.

**Statistical Analysis**

Collected data was subjected to quantitative analysis using frequencies, mean and standard deviation and percentages of different variables were calculated. Pie diagram and plots were taken as per the requirement. Parametric statistics such as one-way Anova and nonparametric statistics such as Chi-square test were used for comparison across the three groups. Correlation between various parameters was obtained using Pearson’s correlation (r value). A *p* value of <0.05 was considered statistically significant. Statistical Package for the Social Sciences (SPSS v.22) software was applied to analyse the data [12].

**Results**

In the study population, 35.7% of them had schizophrenia, 31.3% had BPADs and 33% had Alcohol dependence syndrome (ADS) (Figure-1). All the three groups were comparable and shows no significant difference with respect to socio -demographic details like gender, religion, language, education, family income and socio-economic status. Majority (86.6%) of them had no medical comorbidity.



**Fig 1:** Pie chart showing sample distribution of various disorders (n=112)

Patients with BPADs had higher mean scores of Barratt’s impulsiveness scale followed by those with ADS and schizophrenia. The difference in the three groups was found to be statistically significant (*F* value – 4.40; *p* value 0.01) (Table-1). The total scores on modified overt aggression scale were higher in those with schizophrenia, followed by BPAD and Alcohol dependence syndrome. However, the difference was found to be not statistically significant (*p* value 0.18) (Table-1)

**Table 1:** Impulsivity and Aggression scores of various psychiatric illnesses (n= 112)

Variable	Schizophrenia Mean (S.D.)	BPAD Mean (S.D.)	ADS Mean (S.D.)	F Value	P Value
BIS 11 -Total Score	75.30(8.01)	81.88(12.60)	80.05(9.12)	4.40	0.01*
MOAS-Total Score	10.40(6.38)	9.37(6.11)	7.91(5.01)	1.72	0.18

\*P value < 0.05 was considered statistically significant

One-way Anova test was used (F value)

SD – Standard deviation; BIS-11- Barratts impulsiveness scale; MOAS – modified overt aggression scale

On personality assessment in three groups, the mean EPQ extroversion component score was higher in BPAD group (13.08 ± 3.93) when compared to schizophrenia (9.05± 3.01) and ADS (11.24± 4.11) groups. The difference in the means of EPQ extraversion scores among three groups was

found to be statistically significant (F value 11.19; *p* value 0.001). The mean scores on EPQ psychoticism component were greater in the group with schizophrenia when compared to BPAD and ADS. The difference in the means of EPQ psychoticism scores among three groups was found

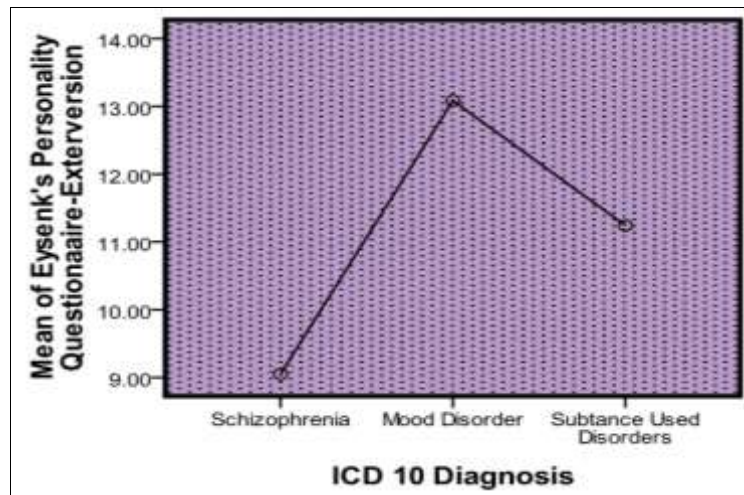
to be statistically significant (*F value 18.48; p value 0.001*). However, there was no statistically significant difference in

the other two EPQ component scores (Neuroticism and lie) among the three groups (Table-2, Figure-2 & 3).

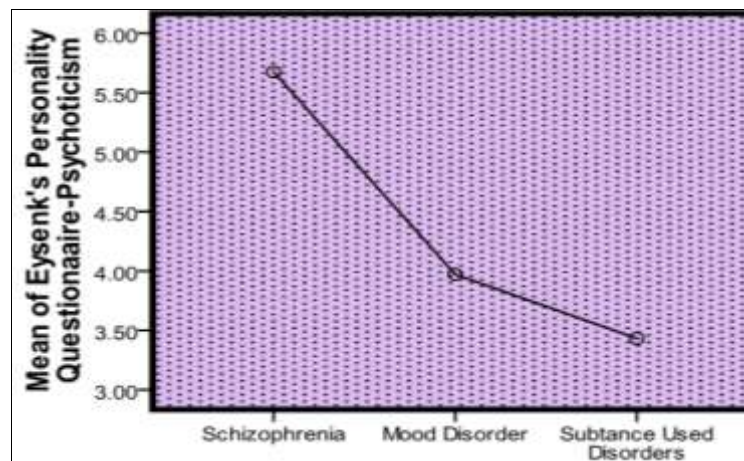
**Table 2:** Depicting the Eysenck’s Personality Questionnaire (EPQ) Scale in Relation to The Three Groups

EPQ component	Schizophrenia Mean (S.D.)	BPAD Mean (S.D.)	ADS Mean (S.D.)	F value	P value
Extraversion	9.05(3.01)	13.08(3.93)	11.24(4.11)	11.19	0.001
Introversion	10.67(3.56)	8.91(3.14)	9.48(3.96)	2.38	0.09
Lie Scale	3.95(1.53)	4.20(1.43)	4.40(1.46)	0.91	0.40
Psychoticism	5.67(1.95)	3.97(1.74)	3.43(1.30)	18.48	0.001

\*P value < 0.05 was considered statistically significant  
 One-way Anova test was used (F value)  
 EPQ – Eysenck personality questionnaire



**Fig 2:** Means Plot of the groups with EPQ-Extraversion score



**Fig 3:** Means Plot of the groups with EPQ-Psychoticism score

On Pearson’s correlation of factors correlating with impulsivity and aggression, age of the patient was significantly negatively correlated with BIS total score ( $r = -$

0.19;  $p = 0.04$ ) i.e., with increasing age, lesser is the mean on BIS total score. No significant correlation was observed with other factors. (Table -3)

**Table 3:** Correlation of various factors with Impulsivity and Aggression

	Age	Total duration	BIS-Total score	MOAS Total score
	Pearson correlation (r), significance (p) values			
Age	1.00	.034	-.191	-.142
	.	.720	.043*	.137
Total duration	.034	1.000	-.092	-.023
	.720	.	.332	.807
BIS-Total	-.191	-.092	1.000	.147
	.043*	.332	.	.121
MOAS-Total score	-.142	-.023	.147	1.000
	.137	.807	.121	.

\*P value < 0.05 was considered statistically significant



## Discussion

To our knowledge, this is one of the very few studies which compared impulsivity, aggression and personality profile in individuals with schizophrenia, bipolar disorder and Alcohol dependence syndrome. Understanding impulsive behaviours within social contexts could have significant clinical relevance. This information could inform specific therapeutic interventions to manage interpersonal functional impairments and recovery, during and following episodes.

In the current study, total of 112 subjects with three major psychiatric disorders were analyzed. The mean total BIS-11 scores were higher in the group with BPAD with mean score of 81.88, followed by schizophrenia and ADS. Based on the cut-off score mentioned, all the three groups had high impulsivity scores. However, the mean scores obtained in our study are more for all the three groups when compared to different studies conducted individually, in which mean scores of impulsivity (assessed by BIS-11) in Schizophrenia, BPAD and ADS are  $46.1 \pm 12.4$ ,  $49.5 \pm 10.2$  and  $59.7 \pm 9.3$  respectively [13, 14]. One study comparing impulsivity in BPAD and ADS individuals have found that the difference in mean BIS-11 scores was not statistically significant in both the groups [15]. This disparity could be due to the phase of illness at which the patients were included into the study.

The mean scores obtained on personality assessment by EPQ in patients with schizophrenia and ADS are similar to that of the previous literature [16, 17], however in BPAD, scores in our study differ with other studies on this topic [18]. The difference could be due to the variations in the sample included in the research.

On correlating various factors with impulsivity and aggression, significant negative correlation was observed only with age and impulsivity. This is in par with previous literature which shows that individuals with young age have higher impulsivity levels and as age progresses, impulsivity reduces [19]. Though there is no statistical significance, MOAS scores were higher in schizophrenia, followed by BPAD and ADS. Not many studies were found assessing the aggression among these three groups.

However, our study had few limitations. The current study was conducted at a tertiary care centre which may not represent the general population and hence the results cannot be generalized. There could be possible interviewer bias, as the investigators were not blind to the nature and severity status of the illness among the sample. Being a cross-sectional study, other confounding factors like social and personal factors for aggression were not addressed. Future research addressing these issues can be conducted to create a holistic approach on aetiology as well as various treatment modalities in order to improve their quality of life.

## Conclusion

There is a need to understand the minor difference between impulsivity and aggression, especially with the background of personality traits. In the last decade, there have been many studies supporting the idea that impulsivity and aggression play a major role in the psychopathology of major psychiatric illnesses. This can help us with early intervention according to the psychiatric illness, thereby improving the quality of life.

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## Conflict of interest

The authors have no relevant financial or non-financial interests to disclose.

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