



IMPULSIVITY AND DECISION-MAKING ABILITY IN PATIENTS WITH DEPRESSION: A COMPARATIVE STUDY

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KEYWORDS

Impulsivity, Decision-Making Ability, Criteria For Patients, Psychological examining, Cognitive examining, Normative examining

ABSTRACT

The study was done to evaluate the impulsivity and ability for making a decision in severe Depression and to examine their relationship with their relatives in first-degree and healthy matched comparison control group. The study had a cross-sectional design with purposive sampling of 3 groups with 40 subjects each. Patients with depression and their relatives of first-degree and healthy matched normal comparison control group were assessed using General health questionnaire, Beck Depression Inventory, Barrat Impulsivity scale and Decision style inventory. The result shows a higher extent of impulsivity in patients with severe depressive disorder on the Barrat impulsivity Scale in which impairment in aspects of attention, motor, and planning facet was reported in patients in relation to their relatives of first degree they also reported impairment in motor facet as related to matched normal comparison control group and a marked impairment in performance is reported in decision-making ability of patients compared to their relatives of the first degree and healthy matched comparison control group.

Introduction

Whenever we think about a patient of Depression, the first thing that came to our mind is persistent sad mood, irritability, low energy level, inappropriate sleep and ideas of impulsive acts or thoughts of harming oneself. But the actual picture is totally different and it goes far beyond mood and energy level. Decisions made by depressed people were often very harmful and impulsive and they not even think about the actual result consequences of their act, it is quite difficult for them to make correct decisions.

Impulsivity

Impulsivity is Immediate and unplanned reaction to stimuli before processing the information. Sudden and quick decisions taken abruptly, reacting to any situation without any planning or thinking before reacting.

Types of impulsivity by Barrat

- (i) Motor,
- (ii) Cognitive,
- (iii) Non-planning¹

Decision Making Ability

Process of cognition to select anyone among different available choices. Decision making ability of an individual to choose what is better probability among the choices. Decision making ability had several aspects; they are in the form of psychological, cognitive and normative.

- (i) **Psychological:** decisions of an individual according to preferences and thinking of an individual.
- (ii) **Cognitive:** is related to integrating and interacting capability of an individual.
- (iii) **Normative:** logical thinking in making a choice.²

AIM

Aim to assess impulsivity with decision-taking ability of severe depression patients, their relatives of first-degree and healthy matched comparison control. There should be no family history of mental illness in healthy matched comparison control.

Study Venue

Gauri Devi Institute of Medical Science and Research, Durgapur, West

Bengal.

Objectives

1. assessment of impulsivity and decision-making ability in severe depressive patients.
2. Assessment of impulsivity and decision-making ability in relatives of first-degree

Materials And Method

Study Design: A hospital-based study with a sample taken cross sectionally.

Sample Size: 120 subjects. 40 patients with severe Depressive disorder. 40 relatives of first-degree of severe depressive disorder patients. 40 matched healthy comparison subjects without a family history of Depression.

Criteria For Major Depressive Disorder Patients To Be Included In the study

1. Full filling ICD10 (DCR) criterion
2. Age group between 18-50 yrs.
3. A consent informed and written.
4. Minimum qualification of 10th grade.

Criteria for unaffected relatives (first-degree) and normal healthy comparison group to be included in the study:

1. Age group between 18-50yrs.
2. A consent informed and written.
3. Minimum qualification of 10th grade.

Criteria for patients with major depressive disorder to be excluded from the study:

1. Any other comorbid psychiatric illness or mental retardation or received ECT in the past one year.
2. Any medical comorbidity.
3. Not giving consent.
4. Psychiatric disorder due to psychoactive substance use (Excluding Tobacco use).
5. Family history of psychiatric illness other than depression.

Criteria For Unaffected First-Degree Relatives And Normal Healthy Comparison Group To Be Excluded From The Study

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- Any known mental; illness or mental retardation or had a history of received ECT in the past one year.
- Any medical illness
- Not giving consent.
- Psychiatric disorder due to psychoactive substance use (Excluding Tobacco use) (3)(4)(5)

TOOLS:

- Social and demographic history and clinical history data sheet: contains information regarding age, sex, education, socioeconomic status of the subjects included in the study. Clinical history data of the patient onset and duration of illness, age of onset, total number of previous episodes of illness, history of psychosis and treatment history if available.
- General Health Questionnaire 12(GHQ12)(6). A screening test that is self-administered and shows sensitivity in detecting the presence of any mental and behavioural disorders in individuals presenting in primary care settings. The GHQ is made to assess psychological well-being and also to assess them who were not able to carry out daily routine care and have symptoms and signs of depressive disorder.
- Beck Depression Inventory (BDI) (7,8,9,10) mostly used test for assessing the status of depression.
- Barratt Impulsiveness Scale (BIS-11) (11) Designed by ES Barratt, it is also self-assessed test and works on three components of impulsiveness. They are:
 - Motor component.
 - Non planning component.
 - Attentional component.
- Decision Style Inventory (DSI) (12): it detects the decision making style of a person, It works on the way of thinking capacity of the person. There can be Directive, Analytical, Conceptual, Behavioural way of reacting in different circumstances and situations.

Procedure

The study was done at GIMSH, Durgapur, West Bengal. The diagnosis was made during outpatient work up according to ICD-10 guidelines showing symptoms of Severe Depression. Patients were assessed on Beck Depression Inventory (BDI). Detailed history including present, past, family, treatment history, mental status examination, general physical examination and Detailed Pathological investigations (Thyroid profile ,complete blood count, blood sugar, Kidney Function Test, Liver Function Test) was done in all 3 groups to rule out any abnormality. Whereas relatives of first degree and healthy matched comparison controls were assessed on GHQ-12 and it is clearly seen that there should be no history suggestive of any psychiatric illness in family members of healthy matched comparison control.

Statistical Analysis

Appropriate Statistics was applied to analyse the data. Categorical socio-demographic variables and study variables were applied to analyse with mean with standard deviation and with appropriate correction when cell count is less than five. ANOVA is used for analysis of Data and post hoc Bonferroni test (also known as Bonferroni correction or Bonferroni adjustment) is used here to test the equality of variance. Above statistics will be applied to analyse the data using Statistical package used here for calculations of Social Sciences (SPSS, ver16, 2007). The significance level of 0.05 and 0.01 were used in the study.

Table1:

Table1: Social and demographic characteristics of SDD (Patient N=40) , FDR(Relatives=40) and normal control(Control=40)				
Variables		Patient N=40	Relative N=40	Control N=40
Sex	Male	30	30	30
	Female	10	10	10
Marital	Married	28	26	26

status	Unmarried	12	14	14
Religion	Hindu	38	38	38
	Non-Hindu	2	2	2
Occupation	Employed	28	34	30
	Unemployed	12	6	10
SES	Lower	10	4	0
	Middle	30	36	40
Domicile	Rural	10	12	4
	Urban	30	28	36

Table1: depicts the comparison of social and demographic components in all 3 groups. All the groups had 10 female subjects each.70%of the subjects in patient group was married whereas 60% in other 2 groups which were statistically insignificant. Most of the subjects (114of 120 subjects) in all groups followed Hindu religion and resided in urban area of the state of West Bengal where the study was conducted. Most of them were employed (n=28, 34, 30 respectively) and belonged to middle socio-economic group (pt=3, fdr=36, control=40)

TABLE 2: Social and demographic features of depressive patients (N=40) their relatives FDR (N=40) and control (N=40){they were continuous variables}

Variables	Depressio n Patient	Relative	Compariso n control	F(df =)	P
Age (in years)	30.5±8.0	30.0±8.0	30.25±8.0	0.059	0.837
Education (in years)	15.4±2.2	15.0±2.2	15.4±1.6	0.961	0.467

TABLE 3: Data showing Clinical history of SDD patients.

Variables	Range	Mean	SD
Onset (in years)	18-36	22.4	6.72
Duration of illness (in years)	1-10	6.8	4.0

TABLE 4: Comparison of impulsiveness among three study groups

Variables	Patient	Relativ e	Control	Fdf=	P	Post hoc
BIS Attention facet I	14.8 ±2.20	7.05 ±1.74	5.8 ±1.62	100.01* *	<0.01	P>R ,C
BIS Attention facet II	8.5 ±1.2	5.42 ±2.0W	5.40 ±0.78	20.613* *	<0.01	P>R ,C
BIS motor facet I	18.8 ±3.2	16.04 ±1.1	12.5 ±.7	17.34**	<0.01	P,R >C
BIS motor facet II	8.4 ±2.4	8.0 ±1.1	7.8 ±1.4	1.404**	<0.01	P,R >C
BIS Planning facet I	18.5 ±3.1	10.4 ±2.4	8.6 ±1.2	58.19**	<0.01	P>R ,C
BIS Planning facet II	13.1 ±2.8	9.11 ±1.8	8.8 ±2.1	14.42**	<0.01	P>R ,C

Table no.4 shows comparison of impulsive behaviour measures among the three study group. ANOVA is used to compare means and unequal variance is calculated by Bonferroni post hoc analysis. BIS is applied to assess the impulsive behaviour. Comparative analysis showed significantly higher values in scoring of Attention facet in patients (AFI mean 14.8) (AFII mean 8.5) when compared to relatives (FDR)(AFI mean 7.95) (AFII mean 5.45) and control group (AFI mean=5.8)(AFII mean=5.40). Comparative analysis showed a significantly higher value in scoring of motor facet in patients (MFI mean=18.8) (MFII mean=8.4) and a slightly increased value is reported in relatives (FDR)(MFI mean=16.04)(MFII mean = 8.0) when compared to control group. Comparative analysis showed a higher value in scoring of planning facet(I)(II) in patients(PFI mean=18.5)(PFII mean=13.1)when compared to first degree relatives(PFI mean=10.4)(PFII mean=9.11) and healthy control group(PFI mean=8.6)(PFII mean=8.8).

TABLE 5: Comparison of Decision-making ability among the three comparison groups

Variables	Patient	Relative (FDR)	Control	Fdf=	P	Posthoc
DSI Directive	53.5 ±3.2	82.2 ±3.6	84.4 ±2.6	44.32*	<0.01	P<R=C
DSI Analytic	50.05 ±3.6	84.4 ±2.8	88.6 ±4.0	48.67*	<0.01	P<R=C
DSI Conceptual	56.05 ±2.8	90 ±4.0	98.2 ±2.4	40.72*	<0.01	P<R=C
DSI Behavioral	52.9 ±3.8	88.9 ±2.9	97.2 ±5.0	36.88*	<0.01	P<R,C

Table no. 5 shows comparison of Decision making ability among the three study groups. ANOVA is applied here to compare means and unequal variance is calculated by Bonferroni post hoc analysis in three groups. Decision style inventory test was applied to assess the decision-making ability. ANOVA of Decision-making ability showed significant impairment in decision making ability of the patient with major depressive disorder when compared to their first-degree relatives and normal healthy matched control group whereas on post hoc analysis of the result significant impairment is reported in patient group as compared to relatives and normal control group.

Discussion

This study aims to investigate the impulsivity and decision-taking ability in major depression, their unaffected relatives of first-degree and healthy matched comparison control group. This is a variant of end phenotypic study where only one of the first-degree relatives of the patients was thoroughly studied. Our study also attempted at minimizing the variable of cultural and environmental factors by taking controls among the guardians accompanying the patients to hospital who are from similar background. They were mostly selected from patients spouses or member of in-laws family or a friend, but from similar socio-cultural and geographical background as that of patient or their relatives.

A few studies done previously had shown a relationship between impulsivity and Depression. Predictability of impulsive attitude and depressive mood is seen very early⁽¹³⁾. There is a strong association between suicide, depression and Impulsivity⁽¹⁴⁾⁽¹⁵⁾.

Impaired decision-taking ability is noticed in Depression⁽¹⁶⁾. In our study the trait of Impulsivity is maximum in the patient group, whereas it is also reported in relatives of first degree on motor component of BIS as compared to healthy matched control group.

Comparison of Decision-making ability among the three study groups in our study we found that the decision-making ability is highly impaired in-patient group whereas no impairment found among unaffected relatives of first-degree and healthy matched comparison control group⁽¹⁷⁾.

Conclusion

Impulsivity is prominently found in severe depressive patients who leads them towards impulsive attempts to commit suicide even without thinking about the consequences on their action. Decision making ability is also gets impaired in these patients whereas their first degree relatives also shown traits of impulsive behaviour. Further studies needs to be

done for correlating the impulsivity and decision making ability in depression.

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