

Original Research

A Study to Assess the Neurocognitive Profile of Patients with OCD & Depression (In Remission Phase)

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ABSTRACT:

Introduction: Obsessive-compulsive disorder (OCD) is an often disabling condition, characterized by recurrent, intrusive thoughts (i.e., obsessions) and repetitive and stereotypical rituals (i.e., compulsions) that interfere with daily functions and cause significant distress.

Aim: To investigate the neurocognitive profile of patients of OCD and Depression disorder in remission phase and their comparison with healthy controls **Material and methods:** It was a cross sectional study, which was conducted at the department of Psychiatry and Deaddiction, (DIMHANS) PBM Hospital, Bikaner. After taking permission from Institutional ethical and review board, patients of OCD (currently in remission), Depression (currently in remission) attending Psychiatry OPD and controls from staff members of the institute were recruited. **Results and conclusion:** The present study does not provide evidence for a localized neuropsychological/cognitive impairment in patients with OCD in remission phase in comparison to healthy controls. However patients of unipolar depression in the remission phase exhibit statistically significant differences cognitive deficits within the domain of mental flexibility (executive control over actions) in comparison to healthy controls.

Key words: Neurocognitive, Obsessive-compulsive disorder.

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INTRODUCTION:

Obsessive-compulsive disorder (OCD) is an often disabling condition, characterized by recurrent, intrusive thoughts (i.e., obsessions) and repetitive and stereotypical rituals (i.e., compulsions) that interfere with daily functions and cause significant distress.¹ OCD is considered twice as prevalent as schizophrenia, with a worldwide prevalence of 1.5%–3%.^{2,3} According to the World Health Organization, OCD is the sixth most disabling psychiatric disorder.⁴ In the absence of effective treatment, obsessive-compulsive disorder (OCD) tends to have a chronic course, and is associated with poor quality of life and severe impairment of functioning in various domains of life including work, relationships, social life, health, and home

responsibilities.^{5,6,7} There is now promoted awareness that like schizophrenia, mood disorders and neurological disorders, OCD may be associated with a distinct pattern of cognitive impairment. Current approaches to OCD suggest that neurobiological abnormalities are involved in its pathogenesis. Brain imaging studies have suggested a putative fronto-striatal biological basis for the neuropsychological deficit in OCD.^{8,9} However structural neuroimaging studies have been less consistent, with some investigations reporting abnormal volumes of the caudate nucleus and orbitofrontal cortex relative to healthy controls.¹⁰ Studies on neuropsychological functioning in OCD have documented deficits in several cognitive domains, particularly visuospatial abilities, executive

functioning, motor speed and memory.¹¹ Clinical observations have also suggested the presence of fundamental processing deficits but abnormalities in several other cognitive domains including executive functions, memory, and visuospatial skills are inconsistent.¹²

Depression is a common illness worldwide, with more than 300 million people affected. It is estimated that by the year 2020 if current trends for demographic and epidemiological transition continue, the burden of depression will increase to 5.7% of the total burden of disease and it would be the second leading cause of disability-adjusted life years (DALYs), second only to ischemic heart disease.¹³ Depression is known to affect mood, movement and cognition and cognitive deficits are considered as the epiphenomena of the disorder.¹⁴

Various studies have demonstrated the presence of neuro-psychological deficits in actually depressed patients with verbal and visual memory as well as Executive Functioning.^{15,16,17} The decrement in cognition has been attributed to reduced motivation, attenuated attentional capacity, impaired concentration, intrusive thought and slowness. Melancholic depression shows more cognitive deficit in comparison with non-melancholic depression.¹⁸ Drevets et al showed reduced blood flow to the subgenual area of the prefrontal cortex in bipolar and unipolar depression.¹⁹

Austin et al showed impairment in Executive Functioning in the Trail Making Test, part B, which worsened with the level of depression.²⁰

Indian studies have also suggested that definite cognitive impairments are present in the domains of intelligence and memory (Bhatia's Battery test or the Weschler Adult Performance Intelligence Scale and PGI memory scale) in the depressed state but these don't persist following recovery.^{21, 22, 23} It is also reported that subjects with depression perform poorly on the Wisconsin Card Sorting Test (WCST) as compared to controls suggesting cognitive inflexibility and prefrontal dysfunction.

MATERIAL AND METHODS:

It was a cross sectional study, which was conducted at the department of Psychiatry and Deaddiction, (DIMHANS) PBM Hospital, Bikaner. After taking permission from Institutional ethical and review board, patients of OCD (currently in remission), Depression (currently in remission) attending Psychiatry OPD and controls from staff members of the institute were recruited by purposive sampling as per following criteria:-

Inclusion criteria-

- 1) Age 18-60 yrs
- 2) Literate enough to read and understand the questionnaires.

Exclusion criteria-

- 1) Substance use within last 6 months
- 2) History of head injury with any documented cognitive sequel or with loss of consciousness
- 3) Neurological disease or damage
- 4) Mental retardation
- 5) Medical illness/Procedure that may significantly impair neurocognitive function
- 6) History of manic/ Hypomanic episodes in the past
- 7) At the time of interview, not under immediate influence of drugs affecting cognition

STUDY GROUP-

Inclusion criteria

A. For OCD Group

- 1) Confirmed diagnosis of OCD according to ICD-10 (F-42) having good insight about illness
- 2) Yale Brown's obsessive compulsive scale score < 7
- 3) HAMD-17 scale score < 7 to rule out co morbid depression

B. For Depressive disorder Group (Depression Group)

- 1) Confirmed diagnosis of Depressive disorder according to ICD-10 (F-32 & F-33)
- 2) HAMD-17 scale score < 7

C. For Control Group

- 1) Socio-demographic matched for age, sex and education from staff members of the institute.
- 2) General Health Questionnaire-12 (Hindi version): A score of ≤ 2 for ensuring their health status.

After applying above selection criteria, 30 patients of OCD (currently in remission phase) and 30 patients of Depression (currently in remission phase) attending Out Patient Department (OPD) were selected and they made patient groups. Likewise 30 healthy subjects were included in Control group and thus total 90 subjects were included in the study. Diagnosis of OCD and Depression (currently in remission phase) was firmly established by two separate Psychiatrist with the help of ICD-10. Informed consent was taken from every participant.

Statistical product and service solutions (SPSS) 24 software was used for statistical analysis. For comparison of dichotomous variables chi-square test and for comparison of two groups Student t-test, for three groups ANOVA test was used.

RESULTS:

Table 1 shows Socio-demographic details in OCD group, Depression group & Control group with regard to their gender, religion, residence and family type.

Regarding gender, 19(63.3%) were males followed by 11(36.7%) females in OCD group while in Depression

group, 21(70%) were male followed by 9(30%) female. Similarly in Control group, 22(73.3%) were male followed by 8(26.7%) female. There wasn't any statistically significant difference between all three groups regarding gender (p value = 0.696).

With respect to religion, in OCD group 22(73.3%) were Hindu and 8(26.7%) Muslim while in Depression group, 24(80%) were Hindu followed by 6(20%) Muslim. Similarly in Control group, 26(86.7%) were Hindu and 4(13.3%) Muslim. There was statistically no significant difference between all three groups regarding religion (p value = 0.435).

About their residence, 8(26.7%) hailed from rural areas and 22(73.3%) from urban area in OCD group while 4(13.3%) hailed from rural areas and 26(86.7%) from urban area in Depression group. Similarly in Control group, 6(20%) were hailing from rural areas and 24(80%) from urban area. There was no statistically significant difference among all three groups regarding residence (p value = 0.435).

Coming to their family type, 20(66.7%) belonged to nuclear family and 10(33.3%) to joint family in OCD group while 26(86.7%) belonged to nuclear family and 4(13.3%) from joint family in Depression group. Similarly in Control group, 12(40%) belonged to nuclear family and 18(60%) from joint family. There was statistically highly significant difference among all three groups regarding family type with p value of 0.001.

Table 2 shows Socio-demographic details in OCD group, Depression group & Control group with regard to their marital status, education, occupation and monthly family income.

Regarding their Marital status, 24(80%) of the participants were married and 6(20%) were single in OCD group while 20(66.7%) of the participants were married and 10(33.3%) were single in Depression group. Similarly in Control group, 18(60%) of the participants were married and 12(40%) were single and difference among all three

group was not found to be statistically significant (p value= 0.234).

In OCD group, 6(20%) were educated upto high school, 10(33.3%) upto intermediate/Diploma and 14(46.7%) were graduate or postgraduate while in Depression group, the figures were 8(26.7%), 10(33.3%) and 12(40%) respectively. Similarly for Control group, 4(13.3%) were educated upto high school followed by 6(20%) intermediate/Diploma and 20(66.7%) Graduate/Postgraduate. There was statistically no significant difference among all three groups regarding education (p value = 0.306).

Considering occupation, 22(73.3%) were self employed/unskilled worker followed by 6(20%) skilled/semiskilled worker and 2(6.7%) were professional/semiprofessional in OCD group while 16(53.3%) were self employed/unskilled worker followed by 8(26.7%) skilled/semiskilled worker and 6(20%) were professional/semiprofessional in Depression group. Similarly for Control group, 8(26.7%) were self employed/unskilled worker followed by 6(20%) skilled/semiskilled worker and 16(53.3%) were professional/semiprofessional. There was statistically significant difference in all groups regarding occupation with p-value 0.001.

As far as the family income is concerned, 4(13.3%) participants in OCD group had monthly family income in range ≤10000 Rs followed by 8(26.7%) in between 10001-15000 Rs, 10(33.3%) in between 15001-20000 Rs and 8(27%) more than 20000 Rs while in Depression group the figures were 4(13.3%), 8(26.7%), 8(26.7) and 10(33.3%) respectively. Similarly for Control group, 4(13.3%) participants had monthly family income in range ≤10000 Rs and in between 10001-15000 Rs each followed by 11(36.7%) in between 15001-20000 Rs and more than 20000 Rs. There was no statistically significant difference in the three groups regarding family income with p value 0.861.

Table 1: Socio Demographic Profile of OCD, Depression and Control with regard to their gender, religion, residence and family type.

| Variables | | OCD Group N=30 | Depression Group N=30 | Control Group N=30 | Chi square Value | df | p value |
|-------------|---------|-------------------|--------------------------|-----------------------|------------------|----|---------|
| | | n (%) | n (%) | n (%) | | | |
| Gender | Male | 19 (63.3) | 21 (70) | 22 (73.3) | .726 | 2 | .696 |
| | Female | 11 (36.7) | 9 (30) | 8 (26.7) | | | |
| Religion | Hindu | 22 (73.3) | 24 (80) | 26 (86.7) | 1.667 | 2 | .435 |
| | Muslim | 8 (26.7) | 6 (20) | 4 (13.3) | | | |
| Residence | Rural | 8 (26.7) | 4 (13.3) | 6 (20) | 1.667 | 2 | .435 |
| | Urban | 22 (73.3) | 26 (86.7) | 24 (80) | | | |
| Family Type | Joint | 10 (33.3) | 4 (13.3) | 18 (60) | 14.353 | 2 | .001 |
| | Nuclear | 20 (66.7) | 26 (86.7) | 12 (40) | | | |

Table 2: Socio Demographic Profile of OCD, Depression and Control group with regard to their marital status, education, occupation and monthly family income.

| Variables | | OCD Group N=30 | Depression Group N=30 | Control Group N=30 | Chi square Value | df | p value |
|-----------------------|---------------------------------|-------------------|--------------------------|-----------------------|------------------|----|---------|
| | | n (%) | n (%) | n (%) | | | |
| Marital Status | Married | 24 (80) | 20 (66.7) | 18 (60) | 2.903 | 2 | .234 |
| | Single | 6 (20) | 10 (33.3) | 12 (40) | | | |
| Education | High School | 6 (20) | 8 (26.7) | 4 (13.3) | 4.825 | 4 | .306 |
| | Intermediate/ Diploma | 10 (33.3) | 10 (33.3) | 6 (20) | | | |
| | Graduate/ Postgraduate | 14 (46.7) | 12 (40) | 20 (66.7) | | | |
| Occupation | Self-employed/ Unskilled worker | 22 (73.3) | 16 (53.3) | 8 (26.7) | 17.924 | 4 | .001 |
| | Skilled/Semiskilled worker | 6 (20) | 8 (26.7) | 6 (20) | | | |
| | Professional/ Semiprofessional | 2 (6.7) | 6 (20) | 16 (53.3) | | | |
| Monthly Family Income | Less than 10000 Rs. | 4 (13.3) | 4 (13.3) | 4 (13.3) | 2.566 | 6 | .861 |
| | Rs. 10001-15000 | 8 (26.7) | 8 (26.7) | 4 (13.3) | | | |
| | Rs. 15001- 20000 | 10 (33.3) | 8 (26.7) | 11 (36.7) | | | |
| | More than Rs. 20000 | 8 (26.7) | 10 (33.3) | 11 (36.7) | | | |

DISCUSSION:

The present cross sectional study was conducted at the department of Psychiatry and De-addiction, (DIMHANS) P.B.M. Hospital, Bikaner. It was designed to assess the Neuro-Cognitive profile in the patients of OCD currently in remission, Depression currently in remission and to compare them with Control group who were socio-demographically matched for age, sex and education. All the three groups had to satisfy rigorous selection criteria.

In the OCD group, most of them were male (63.3%), married (80%), Hindu (73.3%), hailed from urban areas (73.3%) and residing in nuclear family (66.7%). Most of were self employed/unskilled worker (73.3%) and 33.3% had monthly family income in range 15001-20000 Rs followed by more than 20000 Rs in 26.7%.

Similarly for the Depression group, majority were male (70%), married (66.7%) who hailed from urban areas (86.7%), living in nuclear family(86.7%) and belonging to Hindu religion(80%). 53.3% were self employed/unskilled worker and 33.3% had monthly family income more than 20000 Rs. and 26.7% had in range 15001-20000 Rs.

Regarding Control group, most of the subjects were male(73.3%), married (60%) who hailed from urban area(80%), belonging to Hindu religion(86.7%), residing in joint family (60%) and had monthly family income more than 20000 Rs. in 36.7% and 36.7% in range 15001-20000 Rs.

Subjects in all three groups had minimum education up to high school. Mean age in OCD group, Depression group and control group were 32.40±3.94, 33.27±4.37 and 33.2 ± 3.64 years respectively. There was no significant difference among all three groups in respect to age, sex and education in socio demographic profile. (p value > .005) But there is

high number of male patients in OCD and Depression group. That may reflect that males are considered economically productive in our society which brought them earlier to the clinical attention. Our finding is consonance with other studies with respect to socio demographic details. Like Kohli et al. conducted a comparative study between OCD and socio demographic matched healthy control, found the mean age 32.75 years in OCD patients.²⁴ Similarly Holverson et al. in their study found similar age group while assessing neurocognition in remitted depression patients.²⁵

However there was statistically significant difference in regard to family type and occupation among all three groups. (p value < 0.005) This difference in family type may be attributed due to high number of subjects residing in nuclear family in Depression group. A previous study has also suggested that depression is more common in patients living in nuclear family.²⁶ The difference among all three group in regard to occupation may be due to sample of healthy controls as they were recruited from employees of the institute.

CONCLUSION:

The present study assessed the neurocognitive profile of patients of OCD and Depression disorder in remission phase and their comparison with healthy controls. The present study does not provide evidence for a localized neuropsychological/cognitive impairment in patients with OCD in remission phase in comparison to healthy controls. However patients of unipolar depression in the remission phase exhibit statistically significant differences cognitive deficits within the domain of mental flexibility (executive control over actions) in comparison to healthy controls.

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