

Research Article**Comparative Study of Cognitive Function in Schizophrenia with and without Obsessive-Compulsive Disorder****Kumar Mahesh*¹, Sharma Pradeep², Goel Nikhil³**^{1,3}Senior Resident, Department of Psychiatry, BPS Government College for Women, Khanpur, Sonapat, Haryana, India²Professor, Department of Psychiatry, SMS Medical College, Jaipur, Rajasthan, India***Corresponding author**

Dr. Mahesh Kumar

Email: drmanu28@yahoo.in

Abstract: Non-schizophrenic psychopathologies in schizophrenia patients such as, obsessive-compulsive symptoms are often neglected. But recent studies provide support for the legitimacy of a putative schizo-obsessive diagnostic entity. Compared to schizophrenia, schizo-obsessive patients have distinct clinical features and exhibit more deficits in neurocognitive functioning. The aim and objective of the study was to compare the cognitive function of schizophrenic patients with and without significant obsessive-compulsive symptoms (OCS). 100 consecutive schizophrenia patients were taken in the study from psychiatry outpatient department and were assessed using cognitive tests. We then categorized patients into three groups depending on total Y-BOCS score. Those scoring ≥ 16 were put in 1st group, 8-15 in 2nd group and < 8 in 3rd group. The correlations among symptom profile of patients were analyzed using SPSS17. In our study, performance on all cognitive domains, was significantly poor among group 1 and 2. There was significant correlation of Trail A with YBOCS compulsive and total score in group1&2 but not in group3. There was also significant negative correlation between composite Neurocognitive index (NCCI) and total score of YBOCS in Group1. Finding of our study suggests that patients with Obsessive compulsive symptoms and schizophrenia were more impaired across a variety of neuropsychological domains than schizophrenia alone.

Keywords: Obsessive-compulsive disorder, Schizophrenia, Cognitive function.

INTRODUCTION

In schizophrenia virtually every patient presents with the different constellation of symptoms. Besides, even in the same patient, symptoms can show dramatic change over time, and there is significant reciprocity between different sets of symptoms. But there is a common tendency to treat schizophrenia as a single unitary disorder. Hierarchical acceptations underlying diagnostic system have largely kept these comorbid symptoms hidden from attention and hampered the study of their clinical validity.

Additional non-schizophrenic psychopathologies in schizophrenia patients such as depression, obsessive-compulsive disorder and anxiety disorder are often ignored. In contrast to positive, negative and cognitive symptoms, obsessive-compulsive symptoms are not considered primary features of schizophrenia [1]. However, it is being recognized increasingly nowadays that comorbidity in schizophrenia is very common, and it might substantially contribute to the patient's morbidity, course and outcome. The question then remains whether Obsessive Compulsive (OC) symptoms are manifestations of comorbid OCD or whether they are

characteristics of a distinct subtype of schizophrenia. There are some points which provide basis for a relationship between schizophrenia and obsessive-compulsive disorder like, frequent comorbidity of these two conditions, Initiation or exacerbation of obsessive-compulsive symptoms (OCS) in patients with schizophrenia treated with atypical antipsychotics [2], and subsequent development of schizophrenia or psychotic symptoms in patients with a prior primary diagnosis of OCD [3].

Early investigators concluded that the presence of OCS confers protection against cognitive deficits and functional impairment associated with schizophrenia [4, 5]. Psychodynamic theories hypothesized that obsessions constitute a defense against psychosis and prevent progression of the disease [5]. In case of cognition functioning, various studies have compared the profiles of neurocognitive deficit in patients with schizophrenia only and in patients with both schizophrenia and OCS or OCD [6]. These neuropsychological studies have shown ambiguous results. Some studies suggest that patients with comorbid OCD and schizophrenia represent a special category of the schizophrenic patients, OCD may

represent a distinct cluster of symptoms in schizophrenia [7]. “Schizo-obsessive” distinct subtypes of schizophrenia have been proposed for these patients or even a separate disorder.

We studied to compare the clinical characteristics of stable schizophrenia outpatients with OC symptoms, by standardized diagnostic interview schedules and valid psychometric instruments, with groups having schizophrenia alone. Thus, we were interested in examining the cross-sectional relationships between OC symptoms and schizophrenia.

Aim and Objective

The main aim of this study is to evaluate impact of OCS on cognitive functions in schizophrenia and to compare the neurocognitive deficits in schizophrenic patients with significant OCS and those without significant obsessive-compulsive symptom.

MATERIALS AND METHODS

Source of data for the current study

The proposed aims were accomplished through analysis of data from the study conducted at Psychiatry Centre, Department of Psychiatry, SMS Medical College, Jaipur. It is tertiary referral centre. The study design was approved by the institutional review board.

Study design and Procedure

Data for the current study aims are derived after administering Y-BOCS, Digit span test and Colour Trails test to individuals with schizophrenia. A cross sectional study was carried out. Sample were drawn from Participants with schizophrenia taken between month of June to September 2011 at Psychiatry Centre, Jaipur (Psychiatry department of SMS Medical College). Consecutive 100 patients of schizophrenia (The diagnosis of all patients was reviewed and confirmed by two psychiatrists independently based on DSM-IV criteria) fulfilling inclusion criteria for the study were included.

An informed consent was obtained from the subject prior to participation in the study. To include in study the subject were screened with a specially designed screening pro forma. That encompassed all the exclusion criteria. Those subjects who satisfied the screening process were recruited in the study.

The patient’s socio demographic data was recorded. After that each participant in the study was subjected to clinical instruments (Y-BOCS, Digit span test and Colour Trails test). Patients were divided in three groups on the basis of score achieved on Y-BOCS. We categorized patients into three groups according to severity of OC symptoms score of 0–7 were in group 1st, 8–15 in group 2nd and those achieved 16 or more then 16 were included in group 3rd. Groups were compared, results were drawn and discussed in light of existing literature. Y-BOCS Total Score severity measured as; 0 - 7 subclinical, 8 - 15: mild, 16 - 23: moderate, 24 - 31: severe, 32 - 40: extreme. We required a minimum score of 8 corresponding to mild severity of the OC symptoms on the Y-BOCS. So our first group comprising schizophrenia patient without OCS or only subclinical OCS, second group mild OCS, and third group had at least moderate OCS.

RESULTS

In our study, all the three groups were comparable on age, sex, marital status & religion. No significant difference was found between the groups in occupation, education, economic status, family type & locality. These results are compatible with other studies that reported no differences between schizophrenia patients with and without OC symptoms in terms of age [8], occupational status, marital status, and level of education. There was a preponderance of men in the all the three groups, which is similar to some earlier studies [9].

Prevalence of co-morbidity

In our study thirty-eight patients were found to have clinically significant obsessive – compulsive symptoms, defined as a minimum score of 8 on the Y-BOCS, while fourteen patients scored even more then 16, obsessive – compulsive symptoms of moderate severity. Compare to this a previous study [10], found a co-morbidity rate of 17% in a sample of 63 patients with schizophrenia, using the Y-BOCS (Yale-Brown Obsessive – Compulsive Scale) score of at least 16 to define clinically significant OC symptoms.

Distributions of OC symptoms in all three groups

In our study distributions of OC symptoms (Table 1) in group first 23.14 (SD6.38), in second 11.08 (SD2.38) and in group third were 1.89 (SD2.19).

Table 1: Distribution of OC symptoms in all three groups

Symptoms	Group 1	Group 2	Group 3
	Mean(S.D.)		
Obsessions	11.50(3.48)	5.46(2.28)	0.79(1.18)
Compulsions	11.79(5.28)	5.63(2.68)	1.10(1.49)
Total	23.14(6.38)	11.08(2.38)	1.89(2.19)

S.D.- Standard Deviation

Table 2: Correlation of OC symptoms and cognitive scales

Instrument	Group	YBOCS Obsessions r(p)	YBOCS Compulsions r(p)	YBOCS Total r(p)
Trail A	1	0.351(0.219)	0.562(0.037)	0.673(0.008)
	2	0.045(0.834)	0.453(0.026)	0.555(0.005)
	3	-0.026(0.842)	0.174(0.177)	0.104(0.420)
Trail B	1	-0.272(0.347)	-0.003(0.991)	-0.162(0.580)
	2	0.282(0.182)	-0.027(0.889)	0.190(0.373)
	3	0.128(0.321)	0.253(0.048)	0.241(0.059)
DST Forward	1	0.238(0.413)	0.099(0.737)	0.179(0.541)
	2	0.269(0.202)	0.079(0.712)	0.303(0.150)
	3	0.258(0.043)	0.361(0.004)	0.384(0.002)
DST Backward	1	-0.336(0.241)	0.218(0.445)	-0.016(0.995)
	2	0.017(0.937)	0.075(0.729)	0.099(0.645)
	3	0.239(0.061)	0.426(0.001)	0.419(0.001)
NCCI	1	-0.396(0.161)	-0.424(0.131)	-0.559(0.038)
	2	-0.088(0.683)	0.019(0.929)	-0.047(0.827)
	3	-0.453(0.000)	-0.410(0.055)	-0.245(0.001)

r- Pearson Correlation

DISCUSSION**Effect of obsessive – compulsive symptoms on cognition**

In terms of cognitive function, findings from different studies have not been consistent and a clear clinical picture not yet been fully cleared. With regard to cognitive functioning, most studies found an association between comorbid OC symptoms and impaired performance on tests of frontal lobe function.

Impaired performance on the Wisconsin Card Sort Test (WCST) was the most consisted reported finding.

In our study, a composite Neurocognitive index “NCI “ was calculated by sum total of scores on different cognitive tests used, that are Colour Trail A, Colour Trail B, Digit Span Forward and backward. For this purpose z scores were calculated and those of colour trail were subtracted from digit span test scores. Overall better NCI means better cognition. In this study performance on all cognitive domains, including short term memory, attention and concentration planning and sequential behavior, initiating and choosing behaviors, and cognitive flexibility compared.

In our study, performance on all cognitive domains, including attention, verbal memory, and working memory was significantly poor among group 1 and 2. There was significant correlation of Trail A with YBOCS compulsive and total score in group1 & 2 but not in group3 (Table 2). However executive functioning which is measured by Trail B which assesses the individual’s cognitive flexibility had no significant correlation with YBOCS. There was also significant negative correlation between composite Neurocognitive index (NCCI) and total score of YBOCS in Group1.

Consistent with findings from other research studies

In one study conducted by D. D. Patel *et al.* [11] found that schizophrenia patients with OCD exhibited significantly greater impairment on a task of attention set- shifting (extra-dimensional set-shift) compared with a matched group of schizophrenia patients without OCD. In an another study, Whitney *et al.* [12] demonstrated that patients with OCD and schizophrenia were more impaired across a variety of neuropsychological domains (executive and decision-making functions). Other studies have also demonstrated greater impairment of executive function in schizophrenic patients with OCS [10, 13].

On the other hand Borkowska *et al.* [14] pointed that patients with OCD and schizophrenia were less impaired on selected frontal lobe tests than patients with schizophrenia alone, but more impaired than patients with OCD alone. Lee *et al.* [15] studied 27 schizophrenic patients and found that the group of patients with co-morbid OCD performed better in tests involving executive function than the group with schizophrenia alone.

Study showing no differences

Ohta *et al.* [16] observed no significant differences in performance on the WCST (Wisconsin Card Sorting Test) by schizophrenia subjects with or without an SCID diagnosis of OCD. Ongur and Goff [17] found no difference in cognitive impairment between the group of patients with schizophrenia alone and the groups who also had significant OC symptoms.

A possible explanation for the differences in the findings from various studies is that in early stage schizophrenia OCS have a protective effect, whereas in chronic schizophrenia they cause greater impairment [18]. The discrepancies in the results of these studies

might be due to differences in diagnostic criteria, method of evaluation and duration of disease.

Limitations of our study

The small sample size in this study may have limited the ability to detect effects of OCS and there may be difficulty in generalization of results. The cross-sectional design of the study firstly does not allow us to comment more comprehensively on the impact of OCD or OCS on schizophrenia. Lack of information about other comorbidities, most of them can bias results and except for substance abuse other comorbidities were not excluded. Also there was unavailability of information about the family aggregation of both OC and schizophrenic symptoms and the age of onset of OC symptoms in most of the cases.

CONCLUSION

This study lends support for the legitimacy of schizo-obsessive diagnostic entity. Compared with schizophrenia patients, schizo-obsessive patients have distinct clinical features and exhibit more deficits in neurocognitive functioning.

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