



Original Research Article

To Study Obsessive Compulsive Spectrum Disorder Among The Schizophrenia Patients In Tertiary Care Hospital, Muzaffarnagar

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Abstract

Background: Obsessive-compulsive symptoms (OCS) and obsessive-compulsive disorder (OCD) are increasingly recognized as important comorbidities in schizophrenia and may adversely influence illness severity, treatment response, and functional outcome.

Objective: To determine the prevalence of OCS and OCD among patients with schizophrenia and to evaluate their association with illness duration, schizophrenia severity, and the correlation between obsessive-compulsive symptom severity and psychotic psychopathology.

Methods: This hospital-based observational study included 90 patients with schizophrenia attending the Psychiatry Outpatient and Inpatient Departments of Muzaffarnagar Medical College and Hospital. Socio-demographic and clinical data were recorded using a structured proforma. Schizophrenia severity was assessed using the Positive and Negative Syndrome Scale (PANSS), while obsessive-compulsive symptom severity was evaluated using the Yale-Brown Obsessive Compulsive Scale (Y-BOCS). Statistical analysis was performed using SPSS version 22.0, and a p-value <0.05 was considered statistically significant.

Results: OCS were present in 43.3% of patients, while 13.3% fulfilled the diagnostic criteria for comorbid OCD. Patients with OCS had an earlier age at onset (22.6 ± 4.8 vs. 25.3 ± 5.4 years; $p=0.015$), longer duration of illness (10.9 ± 6.1 vs. 8.1 ± 5.2 years; $p=0.024$), and significantly higher PANSS total scores (115.16 ± 12.26 vs. 93.57 ± 9.48 ; $p<0.001$). A strong positive correlation was observed between Y-BOCS and PANSS total scores ($r=0.818$, $p<0.001$).

Conclusion: Obsessive-compulsive symptoms are common among patients with schizophrenia and are associated with greater illness severity and longer disease duration. Routine screening for OCS may facilitate early identification and improve individualized management strategies.

Keywords: Chronic obstructive pulmonary disease, COPD, six-minute walk test, 6MWD, spirometry, FEV₁, exercise capacity.

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Introduction

Schizophrenia is a chronic, severe psychiatric disorder characterized by disturbances in thought, perception, emotion, and behavior, resulting in significant impairment in social and occupational functioning. Affecting approximately 0.3–0.7% of the global population, it remains one of the leading causes of disability among young adults despite advances in pharmacological and psychosocial

treatment. Although positive symptoms such as hallucinations and delusions are central to diagnosis, increasing evidence highlights the contribution of negative symptoms, cognitive impairment, and psychiatric comorbidities to long-term outcomes and quality of life [1,2].

Among these comorbidities, obsessive-compulsive symptoms (OCS) and obsessive-compulsive

disorder (OCD) have gained considerable clinical importance. OCS include intrusive obsessions and repetitive compulsions performed to relieve anxiety, occurring either independently or alongside psychotic symptoms. Epidemiological studies indicate that OCS are present in approximately 10–30% of patients with schizophrenia, while OCD affects 7–15%, rates substantially higher than those observed in the general population [3–5].

Historically, obsessive and psychotic symptoms were considered mutually exclusive. However, subsequent studies have demonstrated that obsessive-compulsive phenomena frequently coexist with schizophrenia, leading to the concept of a "schizo-obsessive" subtype characterized by persistent obsessive-compulsive features accompanying psychosis. This coexistence suggests shared neurobiological mechanisms involving serotonergic and dopaminergic dysfunction [6].

The etiopathogenesis of OCS in schizophrenia is multifactorial. Symptoms may precede psychosis, emerge during the course of illness, or develop following antipsychotic treatment. Particular attention has focused on second-generation antipsychotics, especially clozapine, which has been implicated in the emergence or worsening of OCS through its serotonergic and dopaminergic effects. Nevertheless, the occurrence of OCS in drug-naïve patients and those receiving first-generation antipsychotics indicates that intrinsic disease-related mechanisms also contribute significantly [7–9].

The clinical significance of OCS in schizophrenia remains an area of active investigation. Several studies have reported that patients with comorbid OCS exhibit higher Positive and Negative Syndrome Scale (PANSS) scores, greater general psychopathology, poorer insight, increased functional impairment, and reduced quality of life compared with patients without OCS [10,11]. However, other studies have reported inconsistent findings, emphasizing the heterogeneity of this clinical presentation [12]. Obsessive-compulsive symptom severity is commonly assessed using the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), and several studies have demonstrated a positive correlation between Y-BOCS and PANSS scores, suggesting that increasing obsessive-compulsive symptom severity parallels worsening psychotic symptoms [13].

Duration of illness has also been proposed as a determinant of OCS expression, with chronic schizophrenia potentially increasing the risk through progressive neurobiological changes, psychosocial stress, and prolonged antipsychotic exposure. Although some studies have reported a higher prevalence of OCS in patients with longer illness duration, findings remain inconsistent, highlighting

the need for further research, particularly in developing countries [14].

Evidence from India regarding the prevalence of OCS and OCD in schizophrenia and their association with illness severity remains limited. Therefore, the present study was undertaken to determine the prevalence of OCS and OCD among patients with schizophrenia, evaluate their relationship with illness duration and schizophrenia severity using PANSS, and examine the correlation between Y-BOCS scores and psychotic symptom severity. The findings may facilitate early identification of this important comorbidity and contribute to more comprehensive, individualized management strategies.

Methodology:

Study Design and Setting

This hospital-based observational, cross-sectional study was conducted in the Department of Psychiatry, Muzaffarnagar Medical College and Hospital, Muzaffarnagar, Uttar Pradesh, India. The study was carried out over a period of 18 months, comprising 12 months of patient recruitment and data collection followed by 6 months of data analysis and manuscript preparation.

Study Population

The study included patients attending the Psychiatry Outpatient Department (OPD) and those admitted to the Psychiatry Inpatient Department (IPD) who had a diagnosis of schizophrenia with obsessive-compulsive symptoms (OCS) or obsessive-compulsive disorder (OCD). Eligible participants were aged between 15 and 60 years.

Sample Size and Sampling Technique

A total of 90 consecutive eligible patients were enrolled in the study using purposive sampling. Patients fulfilling the predefined eligibility criteria during the study period were recruited until the desired sample size was achieved.

Eligibility Criteria

Inclusion Criteria

Patients were included if they fulfilled all of the following criteria:

- Age between 15 and 60 years.
- Diagnosis of schizophrenia with obsessive-compulsive symptoms or obsessive-compulsive disorder according to the International Classification of Diseases (ICD-10/ICD-11) and Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnostic criteria.
- Willingness to participate in the study and provision of written informed consent.

Exclusion Criteria

Patients were excluded if they had any of the following:

- Age below 15 years or above 60 years.
- Current psychoactive substance abuse or dependence.
- Presence of organic brain disease or structural neurological disorders.
- Progressive neurological illness or severe systemic medical illness.
- Mini-Mental State Examination (MMSE) score <25.
- Pregnancy or lactation.
- Refusal to provide informed consent.

Study Procedure

After obtaining Institutional Ethics Committee approval, eligible patients attending the Psychiatry OPD or admitted to the Psychiatry IPD were screened according to the inclusion and exclusion criteria. Written informed consent was obtained from all participants before enrollment.

Detailed socio-demographic information including age, sex, marital status, educational status, occupation, residence, and socioeconomic status was recorded using a predesigned structured proforma. Clinical details including age at onset of schizophrenia, duration of illness, family history, duration of treatment, antipsychotic medication, and relevant psychiatric history were also documented.

The diagnosis of schizophrenia and obsessive-compulsive disorder was established by consultant psychiatrists according to ICD-10/ICD-11 and DSM-5 diagnostic criteria. All enrolled participants subsequently underwent standardized psychiatric assessment using validated rating scales.

Severity of schizophrenia was assessed using the Positive and Negative Syndrome Scale (PANSS), which evaluates positive symptoms, negative symptoms, and general psychopathology. Obsessive-compulsive symptom severity was assessed using the Yale-Brown Obsessive Compulsive Scale (Y-BOCS). Cognitive screening was performed using the Mini-Mental State Examination (MMSE) to exclude significant cognitive impairment. Additional clinical assessment tools, including a structured somatic symptom checklist, Beck Depression Inventory (BDI), and General Health Questionnaire (GHQ), were administered whenever clinically indicated to evaluate associated psychiatric symptoms and overall psychological health.

The primary outcome was the prevalence of obsessive-compulsive symptoms and obsessive-compulsive disorder among patients with schizophrenia. Secondary outcomes included the

association of OCS/OCD with duration and severity of schizophrenia and the correlation between Y-BOCS and PANSS scores.

Outcome Measures

The following outcome measures were evaluated:

- Prevalence of obsessive-compulsive symptoms among patients with schizophrenia.
- Prevalence of comorbid obsessive-compulsive disorder.
- Association between obsessive-compulsive symptoms and severity of schizophrenia.
- Association between duration of schizophrenia and occurrence of obsessive-compulsive symptoms/OCD.
- Correlation between obsessive-compulsive symptom severity (Y-BOCS score) and schizophrenia severity (PANSS score).

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using IBM Statistical Package for the Social Sciences (SPSS) version 22.0 (IBM Corp., Armonk, NY, USA).

Continuous variables were expressed as mean $\pm$ standard deviation (SD) or median (interquartile range) depending on data distribution, whereas categorical variables were presented as frequencies and percentages.

The normality of continuous variables was assessed using the Shapiro-Wilk test. Comparisons between two groups were performed using the Independent Student's t-test for normally distributed variables and the Mann-Whitney U test for non-normally distributed variables. Associations between categorical variables were analyzed using the Chi-square test or Fisher's exact test, as appropriate.

Correlation between PANSS and Y-BOCS scores was evaluated using Pearson's correlation coefficient for normally distributed data or Spearman's rank correlation coefficient for non-parametric data. A two-tailed p-value <0.05 was considered statistically significant.

Ethical Considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki and the applicable institutional guidelines for biomedical research involving human participants. Approval was obtained from the Institutional Ethics Committee (IEC) of Muzaffarnagar Medical College and Hospital before commencement of the study. Written informed consent was obtained from all participants or their legally authorized

representatives prior to enrollment. Participant confidentiality and anonymity were strictly maintained throughout the study, and all collected data were used exclusively for research purposes.

Results:

A total of 90 patients diagnosed with schizophrenia were included in the study. The findings are presented under the following headings.

The baseline demographic and clinical characteristics of the study population are presented in Table 1. The mean age of the participants was 33.4 ± 7.2 years, with an age range of 18–58 years. The mean age at onset of schizophrenia was 24.1 ± 5.3 years, while the mean duration of illness was 9.3 ± 5.8 years. The mean PANSS total score was 102.44 ± 15.09 , and the mean Y-BOCS total score was 12.8 ± 9.6 (Table 1).

The distribution of participants according to age group and sex is summarized in Table 2. Most patients belonged to the 18–30 years (43.3%) and 31–40 years (34.4%) age groups. Males constituted 60.0% of the study population, while females accounted for 40.0% (Table 2). The age and sex distribution is illustrated in Figure 1.

The prevalence of obsessive–compulsive symptoms (OCS) and obsessive–compulsive disorder (OCD) among patients with schizophrenia is shown in Table 3. OCS were identified in 39 (43.3%) patients, whereas 51 (56.7%) patients did not exhibit OCS. Among the total study population, 12 (13.3%) patients fulfilled the diagnostic criteria for comorbid OCD, while 78 (86.7%) did not (Table 3). The distribution of OCS and OCD is graphically represented in Figure 2.

The comparison of demographic and clinical characteristics between patients with and without OCS is presented in Table 4. There was no statistically significant difference in the mean age of the two groups ($p = 0.468$). However, patients with OCS had a significantly earlier age at onset of schizophrenia (22.6 ± 4.8 vs. 25.3 ± 5.4 years; $p = 0.015$) and a significantly longer duration of illness (10.9 ± 6.1 vs. 8.1 ± 5.2 years; $p = 0.024$) compared with patients without OCS. Furthermore, the mean PANSS total score was significantly higher among patients with OCS (115.16 ± 12.26) than those without OCS (93.57 ± 9.48) ($p < 0.001$) (Table 4). These findings are illustrated in Figure 3.

The comparison of schizophrenia severity according to the presence of OCS is summarized in Table 5. Patients with OCS demonstrated significantly higher PANSS total scores than those without OCS, with a mean difference of 21.59 points. Independent sample t-test showed that this difference was highly statistically significant ($t = 9.41$, $p < 0.001$) and associated with a very large effect size (Cohen's $d =$

2.02) (Table 5). These findings indicate that the presence of obsessive–compulsive symptoms is associated with greater severity of schizophrenia.

Pearson's correlation analysis demonstrated a strong positive correlation between Y-BOCS total score and PANSS total score ($r = 0.818$, $p < 0.001$), indicating that increasing obsessive–compulsive symptom severity was associated with greater schizophrenia psychopathology (Table 6). In addition, Y-BOCS scores showed a moderate positive correlation with duration of illness ($r = 0.431$, $p < 0.001$) and a weak negative correlation with age at onset of schizophrenia ($r = -0.298$, $p = 0.004$) (Table 6). These findings suggest that patients with more severe obsessive–compulsive symptoms tend to have more severe psychotic symptoms, a longer duration of illness, and an earlier onset of schizophrenia.

Table 1. Demographic and Clinical Characteristics of the Study Population (n = 90)

Variable	Value
Age (years), Mean $\pm$ SD	33.4 ± 7.2
Age range (years)	18–58
Age at onset (years), Mean $\pm$ SD	24.1 ± 5.3
Duration of illness (years), Mean $\pm$ SD	9.3 ± 5.8
PANSS Total score, Mean $\pm$ SD	102.44 ± 15.09
Y-BOCS Total score, Mean $\pm$ SD	12.8 ± 9.6

Table 2. Age and Sex Distribution of the Study Population (n = 90)

Variable	n	%
Age group (years)		
18–30	39	43.3
31–40	31	34.4
41–50	14	15.6
>50	6	6.7

Sex		
Male	54	60.0
Female	36	40.0

Table 3. Prevalence of Obsessive–Compulsive Symptoms and Obsessive–Compulsive Disorder (n = 90)

Variable	n	%
Obsessive–compulsive symptoms (OCS) present	39	43.3
OCS absent	51	56.7
Comorbid OCD	12	13.3
No OCD	78	86.7

Table 4. Comparison of Clinical Characteristics According to Presence of Obsessive–Compulsive Symptoms

Variable	OCS Present (n=39)	OCS Absent (n=51)	p value
Age (years), Mean $\pm$ SD	32.8 $\pm$ 6.8	33.9 $\pm$ 7.5	0.468
Age at onset (years), Mean $\pm$ SD	22.6 $\pm$ 4.8	25.3 $\pm$ 5.4	0.015
Duration of illness (years), Mean $\pm$ SD	10.9 $\pm$ 6.1	8.1 $\pm$ 5.2	0.024
PANSS Total score, Mean $\pm$ SD	115.16 $\pm$ 12.26	93.57 $\pm$ 9.48	<0.001

Table 5. Comparison of PANSS Total Scores According to Presence of Obsessive–Compulsive Symptoms

Group	Mean $\pm$ SD	Mean Difference	t value	p value	Cohen's d
OCS Present (n=39)	115.16 $\pm$ 12.26				
OCS Absent (n=51)	93.57 $\pm$ 9.48	21.59	9.41	<0.001	2.02

Table 6. Correlation between Y-BOCS Score and Schizophrenia Severity (PANSS Total Score)

Variables	Correlation coefficient (r)	p value
Y-BOCS Total vs PANSS Total	0.818	<0.001
Y-BOCS Total vs Duration of illness	0.431	<0.001
Y-BOCS Total vs Age at onset	–0.298	0.004

Age and Sex Distribution of the Study Population (n = 90)

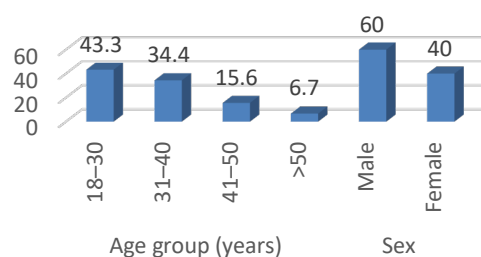


Figure 1 Age and Sex Distribution of the Study Population (n = 90)

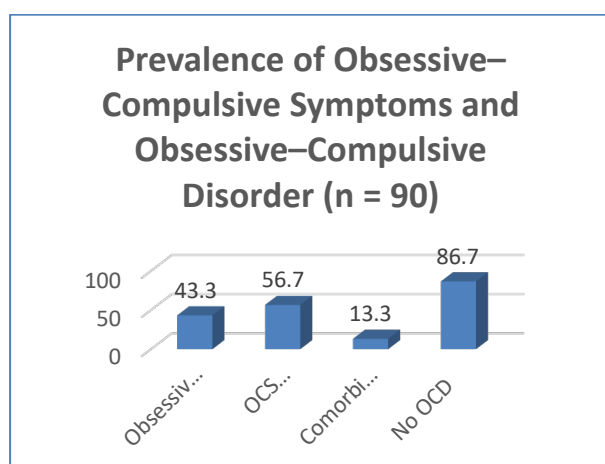


Figure 2 Prevalence of Obsessive–Compulsive Symptoms and Obsessive–Compulsive Disorder (n = 90)

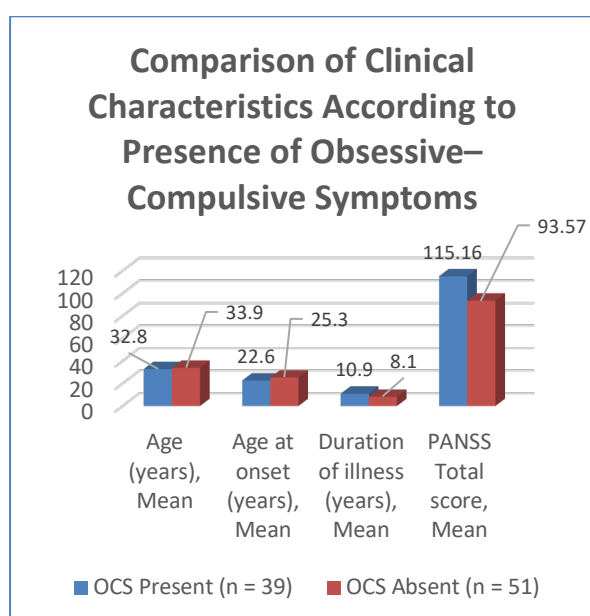


Figure 3 Comparison of Clinical Characteristics According to Presence of Obsessive–Compulsive Symptoms

Discussion

The present study was conducted to determine the prevalence of obsessive–compulsive symptoms (OCS) and obsessive–compulsive disorder (OCD) among patients with schizophrenia and to evaluate their association with illness duration and schizophrenia severity. The relationship between obsessive–compulsive symptom severity, assessed using the Yale–Brown Obsessive Compulsive Scale (Y-BOCS), and psychotic symptom severity

measured by the Positive and Negative Syndrome Scale (PANSS) was also examined.

In the present study, 43.3% of patients with schizophrenia exhibited OCS, while 13.3% fulfilled the diagnostic criteria for comorbid OCD. These prevalence rates are higher than those reported in the general population and are consistent with previous evidence demonstrating that obsessive–compulsive phenomena are common in schizophrenia. Swets et al.[15], in a meta-analysis of 43 studies including 3,978 patients, reported pooled prevalence rates of 30.7% for OCS and 12.3% for OCD, with higher prevalence among patients with chronic schizophrenia. Grover et al.[16] similarly reported a substantial burden of OCS/OCD among patients with schizophrenia, while another cross-sectional study of 200 patients also confirmed that obsessive–compulsive manifestations represent an important clinical subgroup. The relatively higher prevalence observed in our study may reflect differences in illness chronicity, referral bias in a tertiary care setting, and diagnostic methodology.

Patients with OCS had a significantly earlier age at onset of schizophrenia (22.6 ± 4.8 vs. 25.3 ± 5.4 years; $p = 0.015$) and a longer duration of illness (10.9 ± 6.1 vs. 8.1 ± 5.2 years; $p = 0.024$) compared with those without OCS. These findings suggest that obsessive–compulsive symptoms are more likely to occur in patients with a prolonged disease course. Swets et al.[15] also observed an increased prevalence of OCS/OCD in patients with longer-standing schizophrenia, although some studies have reported inconsistent associations. Prolonged illness duration may contribute through cumulative neurobiological changes, psychosocial stress, or long-term antipsychotic exposure.

A major finding of the study was the significant association between OCS and schizophrenia severity. Patients with OCS had markedly higher PANSS total scores than those without OCS (115.16 ± 12.26 vs. 93.57 ± 9.48 ; $p < 0.001$), indicating a substantially greater psychopathological burden. These findings are consistent with previous studies demonstrating higher PANSS scores and poorer clinical functioning among schizophrenia patients with OCS/OCD.[16] Although some reports have shown conflicting findings, the majority of contemporary evidence supports an association between OCS and greater illness severity.

Y-BOCS scores demonstrated a strong positive correlation with PANSS total scores ($r = 0.818$, $p < 0.001$), indicating that increasing obsessive-compulsive symptom severity parallels worsening psychotic symptoms. Y-BOCS scores also showed a moderate positive correlation with illness duration ($r = 0.431$, $p < 0.001$) and a weak negative correlation with age at onset ($r = -0.298$, $p = 0.004$). Similar associations between Y-BOCS and PANSS scores have been reported by Grover et al.[16], supporting the close relationship between obsessive-compulsive and psychotic symptom severity.

Although medication effects were not specifically evaluated, prolonged illness and long-term antipsychotic treatment may have contributed to the development of OCS. Clozapine has been frequently implicated because of its serotonergic and dopaminergic effects; however, OCS has also been reported in drug-naïve patients, suggesting that both disease-related neurobiology and pharmacological factors play important roles.

Overall, the present study reinforces that OCS and OCD are common comorbidities in schizophrenia and are associated with earlier disease onset, longer illness duration, and significantly greater psychopathological severity. The strong correlation between Y-BOCS and PANSS scores highlights the importance of routine screening for obsessive-compulsive symptoms in schizophrenia, as early recognition and appropriate management may improve clinical outcomes and functional recovery.

Conclusion

The present study demonstrated that obsessive-compulsive symptoms and obsessive-compulsive disorder are common comorbidities among patients with schizophrenia. Patients with OCS had an earlier age at onset, longer duration of illness, and significantly greater schizophrenia severity, reflected by higher PANSS scores. A strong positive correlation between Y-BOCS and PANSS scores further indicated that increasing obsessive-compulsive symptom severity is associated with worsening psychotic psychopathology. Routine screening for OCS in patients with schizophrenia may facilitate early recognition, individualized treatment, and improved long-term clinical outcomes.

Limitations

The present study was conducted at a single tertiary care center with a relatively small sample size, which may limit the generalizability of the findings. Its cross-sectional observational design precludes establishing causal relationships between obsessive-compulsive symptoms and schizophrenia severity. The effects of individual antipsychotic medications, particularly clozapine, were not analyzed separately, and long-term follow-up was not performed to evaluate the progression of OCS over time.

Ethical approval

Ethical approval for this study was obtained from the Institutional Ethics Committee prior to the commencement of the study. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and applicable institutional guidelines.

Informed Consent

Written informed consent was obtained from all participants prior to their enrolment in the study.

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Conflict of Interest Declaration

The authors declare no conflict of interest.

Data Availability Statement

All data generated or analysed during this study are available from the corresponding author upon reasonable request.

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