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Original Research Article

Obsessive Belief and Dimensional Aspect of Obsessive Compulsive Symptoms in Schizophrenia

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Abstract

Introduction: Schizophrenia(SZ) is a psychotic disorder with chronic and relapsing courses with generally incomplete remissions. According to World Health organization (WHO), schizophrenia is a chronic as well as a severe mental disorder that affects 20 million individuals globally. The prevalence research evaluating schizophrenia in India reported that the rate was between 1.5 to 2.5 per 1,000. As compared to general population, schizophrenia has high prevalence of OCD (3.5–14%) and OCS (20%).

Material and Methods: The design of the study was a cross-sectional observational study.100 subjects of schizophrenia seeking psychiatric treatment at the Department of Psychiatry, ABVIMS & Dr. R.M.L. Hospital were recruited. Positive and Negative Syndrome Scale (PANSS) and Yale Brown obsessive compulsive scale (YBOCS) were applied to assess the prevalence of obsessive compulsive symptoms in patients of schizophrenia**.** Obsessive Beliefs Questionnaire-44 (OBQ-44)) to measure beliefs considered important in the development as well as maintenance of OCD. Hamilton Depression Rating Scale (HAM-D) was used to rule out depression. Brown Assessment of Beliefs Scale (BABS) to evaluates insight or delusionality in several disorders dimensionally (as continuum of insight) as well as categorically (that is, dichotomously, e.g., delusional versus nondelusional). MINI International Neuropsychiatric Interview was applied to rule out other psychiatric disorders. Global Assessment of Functioning (GAF) to assess the severity of illness.

Results: Among 100 cases of schizophrenia, OCD was present in 33% of cases, with mean scores of obsessions (15.79 ± 2.48), significantly higher components of contamination (66%), significantly higher mean score of compulsions (14.7), with significantly higher components of Cleaning/washing compulsions (54.55%).

Conclusion: In patients with schizophrenia, the presence of OCD/OCS is a rather common finding wherein we report a 33% prevalence of obsessive-compulsive disorder in schizophrenia. The occurrence of OCD/OCS showed a significant association with poor insight. Moreover, the presence of more number of dimensions led to a significant decrease in the insight and global functioning of the patients. However, patients with OCD/OCS in

schizophrenia showed similar positive and negative symptoms on the PANSS scale indicating that type and number of dimensions of OCD/OCS had no association with the symptoms of schizophrenia.

Keywords: Obsessive compulsive disorder , OCD, ,Schizophrenia, OCS, ,OBQ, BABS, PANSS

Introduction

Schizophrenia(SZ) is a psychotic disorder with a chronic and relapsing course with generally incomplete remission. It is characterized by several symptoms such as disorganized speech, hallucination, delusion, impairment in cognitive ability, and negative symptoms such as alogia, anhedonia, apathy, and avolition apathy. It also has alterations in sense of self, language, emotions, thinking, perception, and behavior. It causes significant functional decline, increased psychiatric as well as medical co-morbidities, and increases mortality. [1]

According to World Health Organizationtion (WHO), schizophrenia is chronic severe mental disorder that affects 20 million individuals globally. [2] The prevalence of schizophrenia in India has been reported to be between 1.5 to 2.5 per 1,000. The frequency of the illness among rural and urban regions was not consistently different. There is a lack of studies evaluating the incidence; the annual incidence is estimated to be 0.35 to 0.38 per 1,000 in urban population and 0.44 per 1,000 in the rural population.

In schizophrenia, OCS is defined in several forms and as part of schizophrenia for a long duration. They may exist as obsessive compulsive symptoms (OCS) or as obsessive-compulsive disorder (OCD). There are differences in presentations of OCS in schizophrenia including “sexual, contamination, religious or somatic themes with or without accompanying compulsions such as hoarding, checking, arranging, or repetitions. [3] To develop more clinically useful subtyping methodologies and comprehend the neurobiological basis of schizophrenia spectrum disorder, there has been an increase in interest in a wide range of psychopathology in schizophrenia during the past ten years, including obsessive-compulsive disorder.

As compared to the general population, there is higher prevalence of OCD (3.5–14%) and OCS (20%) among patients who are at “clinical high risk (CHR) for schizophrenia”. [4,5] and an association is found with positive symptoms, depressive symptoms, and suicidal ideation at trend level.

In the study by Tonna M et al, [6] there was a comparison of clinical features of the OC dimension in patients with schizophrenia and those with OCD only. This was discovered that the "severity, resistance, interference, and control" of the OC phenomena in both groups were identical. In addition, in the group with schizophrenia, a positive correlation was discovered between washing compulsions and delusions as well as between hoarding obsessions and delusions. Patients with OCD also had greater incidences of aggressive, contamination-related, sexual, and somatic themes. According to the findings, patients with schizophrenia display a smaller spectrum of obsessive content than OCD patients.

Studies for the determination of OCS in patients with schizophrenia and its associated effects among Indian patients

have been sparse. Thus, present study was conducted to estimate the prevalence of OCS/OCD in schizophrenia and to assess the obsessive beliefs and dimensional aspect of OCS in schizophrenia subjects and its effect on the executive functioning and disability of the patients in a tertiary care hospital in India.

Methodology

After obtaining approval from the Institutional Ethical Committee and prior written informed consent from all patients or their relatives bilingually (English and Hindi), the study was conducted in the Department of Psychiatry at A.B.V.I. M.S. & Dr. Ram Manohar Lohia Hospital on patients with schizophrenia.

It was an observational cross-sectional study which recruited patients from 1st January, 2021 to 30th April, 2022**.**

The study of Devi et al, [7] observed that the prevalence of obsessive-compulsive symptoms in schizophrenia was 24%. Considering this value as reference, the minimum required sample size with 9% margin of error and 5% level of significance is 87 patients. For decreasing the margin of error, sample size taken was 100.

The formula was:-

$N \geq (p(1-p))/(ME/z\ \alpha)\ 2$

Where Z α is the value of Ztwo-sidedided alpha error of 5%, ME is margin of error and p is the prevalence rate.

Calculations:-

n>=((.24*(1-.24))/(.09/1.96)2 =86.50= 87(approx.)

Inclusion Criteria

- Aged 18-60 years.
- Fulfills DSM 5 Criteria for diagnosis of Schizophrenia.
- Willing to provide written informed consent.

Exclusion criteria

- History of substance or alcohol dependence or abuse (except for nicotine)
- Any other co-morbid psychiatric and neurological disorders

Statistical Analysis

The presentation of the Categorical variables was done in the form of numbers and percentagese (%).The quantitative data were presented as the means±SD and as median with 25th and 75th percentiles (interquartile range). Kolmogorov-Smirnov test was used for calculating data normality. In the cases, where the data was not normal, non-parametric tests were used. The statistical tests used for findings were following:

1. The Mann-Whitney Test was used for finding the association of the variables that were quantitative and not normally distributed in nature.

2. The Chi-Square test was used for finding the association of the variables which were qualitative in nature. In case of any cell having an expected value <5,the study used "Fisher's exact test".

3. Spearman rank correlation coefficient was used for correlation of Y-BOCS scale with positive syndrome scale, negative syndrome scale, composite scale, General Psychopathology Scale, global assessment functioning, OBQ-44 total score, and Brown assessment of beliefs scale(BABS).

The P-value < 0.05 was taken into account as statistically significant.

Results

Table 1: Association of positive and negative syndrome scale(PANSS) with OC symptoms.

Positive and negative syndrome scale(PANSS)	Patients without OC symptoms (n=67)	Patients with OC symptoms (n=33)	Total	P value
Positive syndrome scale				
Mean ± SD	22.34 ± 4.13	21.91 ± 3.77	22.2 ± 4	0.715‡
Median(25th-75th percentile)	22(19-24)	21(20-24)	21(19-24)	
Range	16-37	16-32	16-37	
Negative syndrome scale				
Mean ± SD	11.39 ± 3.46	11.73 ± 4	11.5 ± 3.63	0.944‡
Median(25th-75th percentile)	10(9-12)	11(8-13)	11(9-13)	
Range	7-24	7-21	7-24	
Composite scale				
Mean ± SD	10.96 ± 5.17	10.18 ± 5.34	10.7 ± 5.21	0.544‡
Median(25th-75th percentile)	11(8-14)	10(7-13)	11(8-13)	
Range	-4-27	-5-21	-5-27	
General Psychopathology Scale				
Mean ± SD	23.06 ± 6.28	24.33 ± 6.87	23.48 ± 6.48	0.304‡
Median(25th-75th percentile)	20(18.5-26)	23(19-27)	21.5(19-26)	
Range	16-39	16-43	16-43	

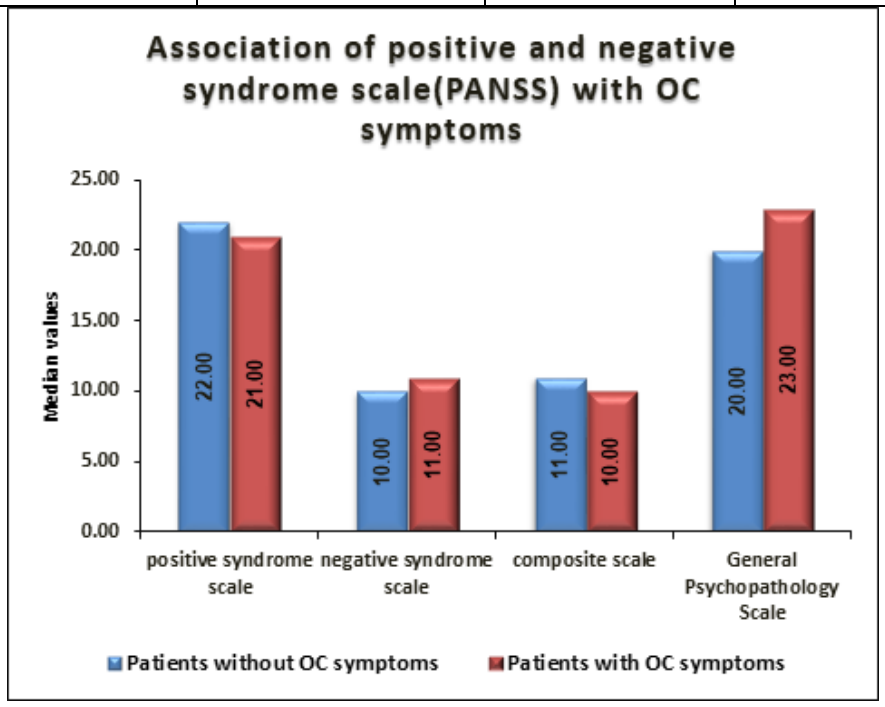

Figure 1: Association of positive and negative syndrome scale(PANSS) with OC symptoms

No significant association was seen in positive syndrome scale (p value=0.715), negative syndrome scale(p value=0.944), composite scale(p value=0.544), General Psychopathology Scale(p value=0.304) patients without and with OC symptoms. Median(25th-75th percentile) of positive syndrome scale, negative syndrome scale, composite scale, and General Psychopathology Scale in patients without OC symptoms was 22(19-24), 10(9-12), 11(8-14), 20(18.5-26) respectively and in patients with OC symptoms were 21(20-24), 11(8-13), 10(7-13), 23(19-27) respectively with no significant association between them.

Table 2: Association of Brown assessment of beliefs scale(BABS) with OC symptoms.

Brown assessment of beliefs scale(BABS)	Patients without OC symptoms (n=67)	Patients with OC symptoms (n=33)	Total	P value
13-17{Poor insight}	6 (8.96%)	2 (6.06%)	8 (8%)	1*
>=18{Absent insight/delusional beliefs}	61 (91.04%)	31 (93.94%)	92 (92%)	
Mean ± SD	20.4 ± 2.08	21.39 ± 1.62	20.73 ± 1.99	0.003‡
Median(25th-75th percentile)	21(19.5-22)	22(21-22)	21.5(20-22)	
Range	13-24	16-23	13-24	

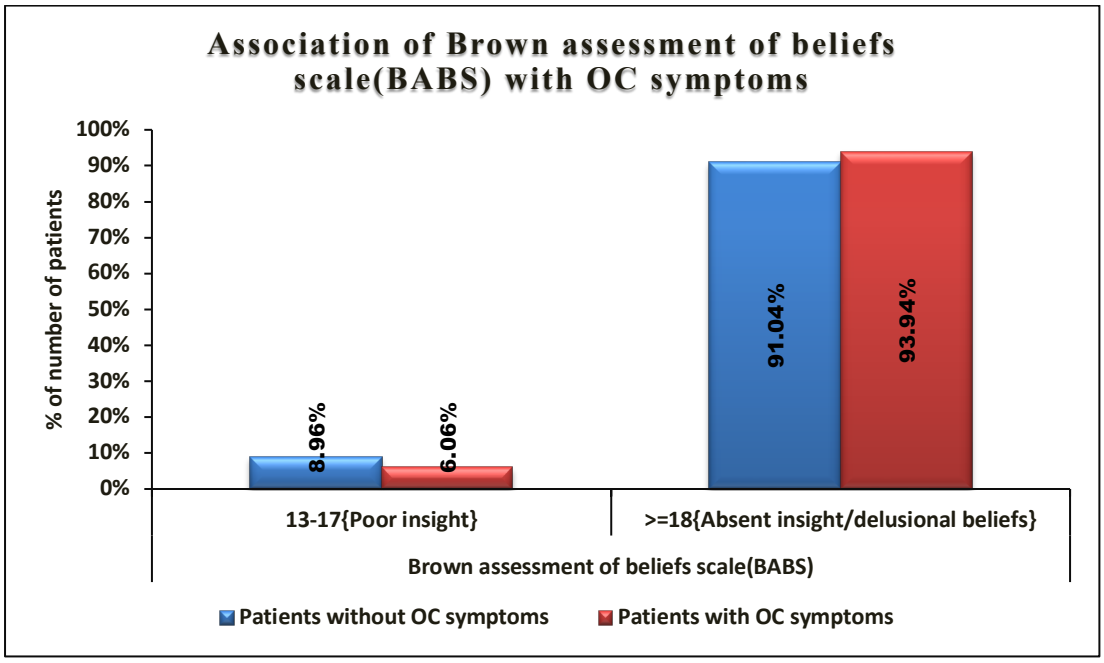

Figure 2:bAssociation of Brown assessment of beliefs scale(BABS) with OC symptoms.

The distribution of Brown Assessment of Beliefs Scale (BABS) was comparable between patients without and with OC symptoms. (13-17{Poor insight}:- 8.96% vs 6.06% respectively, >=18{Absent insight/delusional beliefs}:- 91.04% vs 93.94% respectively) (p value=1).

On analyzing quantitatively, the median(25th-75th percentile) of the Brown Assessment of Beliefs Scale(BABS) in patients with OC symptoms was 22(21-22) which was significantly higher as compared to patients without OC symptoms (21(19.5-22)). (p value=0.003)

Table 3: Correlation of Y-BOCS scale with positive syndrome scale, negative syndrome scale, composite scale, General Psychopathology Scale, Global assessment functioning, OBQ-44 total score, and Brown assessment of beliefs scale(BABS).

Variables	Positive syndrome scale	Negative syndrome scale	Composite scale	General Psychopathology Scale	Global assessment functioning	OBQ-44 total score	Brown assessment of beliefs scale(BABS)
Y-BOCS scale							
Correlation coefficient	0.017	0.061	-0.054	0.133	-0.189	0.486	0.302
P value	0.870	0.544	0.594	0.186	0.060	<0.0001	0.002

A significant positive correlation was seen between the Y-BOCS scale with OBQ-44 total score, brown assessment of beliefs scale(BABS) with correlation coefficient of 0.486, 0.302 respectively. No correlation was seen between the Y-BOCS scale with positive symptom scale, the negative symptom scale, composite scale was correlation coefficient of 0.017, 0.061and , -0.054 respective non-significant mild positive correlation was seen between the Y-BOCS scale and general Psycho-pathology Scale with a correlation coefficient of 0.133 and non-significant mild negative correlation was seen between Y-BOCS scale with global assessment functioning with ca correlation coefficient of -0.189.

Table 4: PANSS scores in different dimensions.

PANSS score	Mean ± SD	Median (25th-75th percentile)	Range
Aggressive obsessions (n=14)	60.79 ± 11.72	60.5 (51.5-64)	47-87
Contamination obsessions (n=22)	57.5 ± 11.82	53.5 (47.5-65.5)	43-87
Sexual obsessions(n=10)	60 ± 11.72	6 (53.25-65.5)	43-81
Hoarding/saving obsessions(n=8)	55.12 ± 5.69	54 (51.75-58.25)	47-64
Religious obsessions(n=5)	57 ± 6.82	57 (52-61)	49-66
Obsession witthe h need for symmetry or Exactness(n=10)	55.8 ± 9.95	56(47.5-60.75)	45-76
Somatic obsessions(n=3)	59.67 ± 5.86	62 (57.5-63)	53-64
Cleaning/washing compulsions(n=18)	57 ± 11.62	53.5 (47.5-64.25)	43-87
Checking compulsions(n=10)	62.2 ± 9.85	64.5 (54.25-68.25)	47-76
Repeating rituals (n=5)	53.8 ± 7.05	52 (49-53)	49-66
Counting compulsions(n=4)	51.25 ± 5.38	52 (50-53.25)	44-57
Ordering/Arranging compulsions (n=6)	51.5 ± 7.01	50.5 (46-55.75)	44-62
Hoarding /collecting compulsions(n=5)	58.8 ± 8.84	57 (55-66)	47-69
Miscellaneous compulsions(n=1)	46 ± 0	46 (46-46)	46-46
Total	57.44 ± 10.18	57 (49-64)	43-87

Mean ± SD of PANSS score in aggressive obsessions was 60.79 ± 11.72, contamination obsessions was 57.5 ± 11.82, sexual obsessions were 60 ± 11.72, hoarding/saving obsessions were 55.12 ± 5.69, religious obsession were as 57 ± 6.82, obsession with the need for symmetry or Exactness was 55.8 ± 9.95, somatic obsessions was 59.67 ± 5.86, cleaning/washing compulsions was 57 ± 11.62, checking compulsions was 62.2 ± 9.85, repeating rituals was 53.8 ± 7.05, counting compulsions was 51.25 ± 5.38, Ordering/Arranging compulsions was 51.5 ± 7.01, hoarding /collecting compulsions was 58.8 ± 8.84 and miscellaneous compulsions was 46 ± 0.

Table 5: Correlation of PANSS score, OBQ-44 total score, Brown assessment of beliefs scale (BABS), and Global assessment functioning(GAF) with a number of dimensions.

Variables	PANSS score	OBQ-44 total score	Brown assessment of beliefs scale (BABS)	Global assessment functioning(GAF)
Number of dimensions				
Correlation coefficient	0.038	0.482	0.319	-0.200
P value	0.705	<0.0001	0.001	0.046

A significant positive correlation was seen between number of dimensions with OBQ-44 total score, Brown Assessment of Beliefs Scale (BABS) with a correlation coefficient of 0.482, 0.319 respectively. A significant negative correlation was seen between a number of dimensions with global assessment functioning(GAF) with a correlation coefficient of -0.2. No correlation was seen between number of dimensions with PANSS score with correlation coefficient of 0.038.

Discussion

OCD and Schizophrenia are different entities; however, OCD commonly co-occurs among a significant number of patients with schizophrenia. Co-existence of schizophrenia and OCD has clinical implications because this is related to increased dysfunction, poor quality of life, and an increased number of suicide attempts. [7] There are few Indian studies for the evaluation of OCD in patients with schizophrenia and its associated effects.

In the present study, compared to patients with schizophrenia without OCD/OCS, patients with schizophrenia with OCD/OCS had significantly higher mean score of obsessions (15.79 ± 2.48 vs. 0.01 ± 0.12, P<.0001), with significantly higher components such as aggressive obsessions (42.42% vs. 0%, P<.0001), Contamination obsessions (66.67% vs. 0%, P<.0001), Sexual obsessions (30.30% vs. 0%, P<.0001), Hoarding/saving obsessions (24.24% vs. 0%, P<.0001), Religious obsessions (15.15% vs. 0%, P<.0001), Obsession with need for symmetry or Exactness (30.30% vs. 0%, P<.0001), and Somatic obsessions (9.09% vs. 0%, P<.0001).

On comparing the demographic characteristics between patients without OCD and with OCD in schizophrenia, we found that age (34.19 ± 11.33 vs. 35.06 ± 8.78, P=0.465), gender (males: 58.21% vs. 51.52%, P=0.526), education (P=0.529), domicile (rural 58.21% vs. 60.61%, p=0.819), religion (88.06% vs. 84.85%, P=0.31), Occupation (Private job: 41.79% vs. 54.55%, P=0.119), family income (50,001-1,00,000/annum: 77.61% vs. 84.85%, p=0.395), and marital status (76.12% vs. 87.88%, P=0.557) were comparable between the two groups. [8]

Similar findings were reported by Singh et al[8] (2020), who found that in schizophrenia patients with OCS and without OCS, the mean age (36.22 vs. 34.79 years), gender (55.2% vs. 59.5%), marital status, and

residence were comparable (p>0.05). Seng et al**Error! Bookmark not defined.**also reported that in schizophrenia with OCS and without OCS, patients had similar age (38 vs. 44 years, p=0.128), gender (males: 50% vs. 48.3%, p=0.871), married (27.1% vs. 30.8%, p=0.723), Secondary and below education (62.5% vs. 75.0%, p=0.102), and Unemployed status(79.2% vs. 76.2%, p=0.847).

Nasrollahi N et al [9] also reported similar findings as schizophrenia patients with and without OCD had similar age (34.6 vs. 41.16), gender (male: 70% vs. 60%), education, and marital status. Patel et al**Error! Bookmark not defined.**reinstated that demographic characteristics like "age, gender, residence, marital status, employment status, socioeconomic status" were not significantly correlated with the prevalence of OCS in schizophrenia. Kokurcan et al[10]also found that schizophrenia patients with and without OCD had similar age (36.96 vs. 39.66), gender (male: 70% vs. 70%), education (p=0.951), and marital status (p=0.532). [10]

Devi et al [6] found that YBOCS insight score had significant positive correlation with BABS total score (r = 0.92; p=0.001); significant negative correlation with GAF (r = −0.59; p=0.001) and significant positive correlation with PANSS negative score (r=0.679; p=0.001) and PANSS total score (r=0.45; p=0.001).

Singh et al [11] (2019) found that YBOCS total obsession scores (To) showed significant positive correlation with total PANSS scores (r = 0.358) (p = 0.030), and PANSS general psychopathology subscale scores (Gt) (r=0.395) (p=0.016) and also between total YBOCS scores and PANSS positive subscale scores (r=0.344) (p=0.037).

Patel et al [12] found that Y-BOCS score was significantly co-related with the PANSS Total score (r=0.366, P=0.004) and PANSS General score (r=0.309, p=0.016).

Kayahan et al [13] found that there was positive correlation between the Y-BOCS score and PANSS Positive score (r=0.349, P<0.005), PANSS General score (r=0.404, P<0.005), and PANSS Total score (r=0.370, P<0.005). [14]

This showed a direct relationship between OCD/OCS and schizophrenia in terms of severity in other studies. The incongruent results in our study might be because of cross-sectional nature of the study wherein the confounding factors like duration of the disease, medication use, family support, and age of onset of disease, were not taken into account or adjusted.

In addition, we also found a significant correlation of the number of dimensions of obsessions and compulsions with OBQ-44 (r=0.482, p<0.0001), BABS (r=.319, p=0.001), GAF (r=-0.2, P=0.046), but not with PANSS score (r=0.038, P=0.705). This showed that with the increasing number of obsessions and compulsions, there was a significant decrease in the global functioning of the patients. But this was irrespective of the severity of schizophrenia.

So overall, OCS is prevalent in schizophrenia as a co-occurring entity with significantly higher obsessive beliefs and poor insight. All the dimensions of obsessions and compulsions hold a significantly higher proportion in patients with OCD + Schizophrenia as compared to patients without OCD in Schizophrenia. Moreover, the increased number of dimensions holds a significant correlation with obsessive beliefs, loss of insight, and global functioning.

Conclusion

To conclude, in patients with schizophrenia, the presence of OCD/OCS is a rather common finding wherein we report a 33% prevalence of obsessive-compulsive disorder among schizophrenia patients. The occurrence of OCD/OCS showed significant association with poor insights. Moreover, the presence of more number of

dimensions led to a significant decrease in insight and global functioning of the patients. However, patients with OCD/OCS in schizophrenia showed similar positive and negative symptoms of the PANSS scale indicating that type and number of dimensions of OCD/OCS had no association with the symptoms of schizophrenia.

Future Recommendations

- More studies should be conducted in the future with prospective study designs for confirming the findings.
- There is a nonlinear relationship between schizophrenia and OCD. There may be different mechanisms and mediators explaining different pathways, so further research is needed to illuminate these pathways.
- Because of the high frequency of OCS and OCD in schizophrenia patients, the findings emphasize the need of screening OCD symptoms in them.
- Poorer insight of OCD symptoms in schizophrenia may also represent a therapeutic problem, as poor insight may indicate a poorer response to typical treatment modalities.
- More research is required to better understand the underlying neurobiology of this comorbidity, as well as prospective studies to better understand the effect of OCD symptoms in the patients with schizophrenia.
- There is enough evidence to establish schizo-obsessive disorder as a distinct diagnostic entity, necessitating further research.

Limitations

- The cross-sectional design of the study was one limitation.
- As present study was a hospital-based study, its findings may lack generalisability.
- The treatment of the patients was not taken into account.
- There were no controls in the study.

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Financial disclosure statement

None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this manuscript.

Declaration of competing interest

None of the authors has a financial interest in any of the products, devices, or the drugs mentioned in this manuscript. All authors have nothing to declare.

Ethical Approval

Ethical approval was given by Institutional Ethics Committee, ABVIMS and Dr. RML Hospital, New Delhi under the chair of Dr. Arun Kumar Agarwal on 22nd December 2020 (Approval Number: IEC/ABVIMS /RMLH/436).

Consent

Written informed consent was obtained from the patients for publication of this randomized controlled trial and accompanying images. A copy of the written consent is available for the review by the Editor-in-Chief of this journal on request.

CREDIT authorship contribution statement

Author AKB wrote the first draft of the manuscript, collected data and managed the literature searches.

Authors AKB and AK, LS, KS were treating psychiatrists.

Author AK was scientific advisor.

All authors read and approved the final manuscript.

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