

A Comparative Study of Cognitive Functions and Quality of Life in Persons with Schizophrenia versus Obsessive-Compulsive Disorder

Aditi Mahajan¹, Harful Singh², Isha Choudhary¹

¹Junior Resident, Department of Psychiatry, Sardar Patel Medical College, Bikaner, Rajasthan, India. ²Professor, Department of Psychiatry, Sardar Patel Medical College, Bikaner, Rajasthan, India

Abstract

Background: Schizophrenia (SCZ) and Obsessive-Compulsive Disorder (OCD) are chronic and debilitating psychiatric illnesses characterized by significant cognitive impairment and impaired Quality of Life (QoL). Though widely studied individually, comparative research in the Indian context is sparse. The aim and objective is to conduct a comparative analysis of cognitive functions and its relationship with Quality of Life in persons with Schizophrenia versus Obsessive-Compulsive Disorder. **Material and Methods:** This cross-sectional observational study was conducted on 60 clinically stable patients (30 SCZ and 30 OCD) aged 20–45 years at the Department of Psychiatry of tertiary care hospital in North-western Rajasthan. Cognitive function was assessed using PGI-BBD and Quality of Life using WHOQOL-BREF(Hindi). **Results:** Schizophrenia group showed significantly greater cognitive impairment across recent and remote memory, verbal comprehension and arithmetic abilities compared to OCD group. QoL scores were significantly lower in SCZ group across all the domains of WHOQOL-BREF (Hindi). Cognitive dysfunction significantly correlated with QoL in both study groups. **Conclusion:** Cognitive dysfunction was more pronounced in schizophrenia group, leading to poorer QoL outcomes.

Keywords: Schizophrenia, Obsessive-Compulsive Disorder, Cognitive Functions, Quality of Life, PGI-BBD.

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INTRODUCTION

Schizophrenia (SCZ) and Obsessive-Compulsive Disorder (OCD) are chronic and debilitating psychiatric disorders associated with cognitive dysfunction and poor Quality of Life (QoL).^[1] In SCZ, psychotic symptoms dominate clinical focus, while the more disabling cognitive deficits persist even during remission.^[2] OCD is defined by obsessions and compulsions, with neurocognitive impairments in executive function, processing speed, sustained attention and nonverbal memory.^[3,4]

Both disorders exhibit significant overlap in visuospatial skills, visual memory, attention, executive function, goal-directed behavior, response inhibition, and social cognition.^[5] QoL is further compromised by stigma, discrimination, compulsive behaviours in OCD, and negative symptoms in SCZ, leading to social isolation.^[6]

Despite extensive individual research, comparative studies on cognition and QoL in SCZ versus OCD, particularly in the Indian context, are limited. This study seeks to address this gap.

MATERIALS AND METHODS

This cross-sectional observational study was conducted at the Department of Psychiatry at tertiary care hospital in North-western Rajasthan from July–December 2024 with prior ethical clearance. Sixty patients (30 SCZ, 30 OCD), aged 20–45 years, diagnosed as per ICD-10, clinically stable on medications atleast for a period of 1 month, with ≥ 2 years

illness duration, who were willing to participate, meeting inclusion criteria, were recruited by convenience sampling after informed consent. Inclusion criteria mandated minimum primary education, able to converse in Hindi or English and cooperative. Patients with comorbid psychiatric/neurological illness, substance use (except nicotine), severe medical/surgical illness, history of head trauma, developmental delay, dementia, received Modified Electroconvulsive Therapy within past 6 months, who presented with acute symptoms in past 3 months and have been hospitalized for the same or had recent change in dose/medication in past 1 month were excluded.

Tools used included PGI Battery of Brain Dysfunction (PGI-BBD) for cognitive function and WHOQOL-BREF (Hindi) for Quality of Life.

Data was analyzed using Epi Info v7.2.1.0 with t-tests, chi-square tests, and Pearson correlation (significance at $p < 0.05$).

Address for correspondence: Dr. Isha Choudhary,
Junior Resident, Department of Psychiatry, Sardar Patel Medical College, Bikaner,
Rajasthan, India
E-mail: isha.choudhary015@gmail.com

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RESULTS

Socio-demographic variables (age, gender, marital status, religion, type of family, residence, education, socioeconomic status) did not differ significantly between groups. However, occupation held after onset of illness ($p=0.035$) and current employment status ($p=0.009$) in both the groups were statistically significant.

The mean illness duration of illness was significantly longer in SCZ group (10.52 ± 6.56 years) than OCD group (6.93 ± 5.30 ; $p=0.023$). The difference in insight status ($p=0.001$), median number of hospitalisations and MECT earlier than past 6 months were statistically significant among both groups ($p<0.001$).

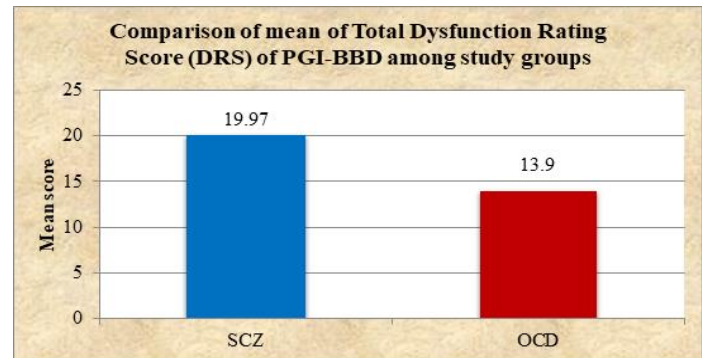


Figure 1: Comparison of mean of Total Dysfunction Rating Score (DRS) of PGI-BBD among study groups.

Table 1: Comparison of mean Total Dysfunction Rating Score (DRS) of PGI-BBD among study groups

Group	n	Mean Total Dysfunction Rating Score (Mean $\pm$ SD)	p value
SCZ	30	19.97 $\pm$ 9.57	$t = -2.609$; at 58 df; $p = 0.012$ (S)
OCD	30	13.90 $\pm$ 8.40	

The mean Total Dysfunction Rating Score (DRS) of PGI-BBD in Schizophrenia group was more (19.97 ± 9.57), as compared to OCD group (13.90 ± 8.40). This difference in

mean Total Dysfunction Rating Score (DRS) among both groups was found statistically significant ($p=0.012$).

Table 2: Comparison of Dysfunction Rating Score (DRS) of PGI Memory Scale among study groups

	SCZ group	OCD group	P value
	Mean $\pm$ SD	Mean $\pm$ SD	
Remote memory	1.23 $\pm$ 1.22	0.6 $\pm$ 0.93	0.028 (S)
Recent memory	1.2 $\pm$ 1.19	0.33 $\pm$ 0.88	0.002 (S)
Mental Balance	0.97 $\pm$ 1.25	0.53 $\pm$ 1.01	0.144
Attention and concentration	1.67 $\pm$ 1.18	1.07 $\pm$ 1.2	0.056
Delayed Recall	1.43 $\pm$ 1.41	1.33 $\pm$ 1.32	0.778
Immediate Recall	0.47 $\pm$ 0.97	0.4 $\pm$ 0.81	0.774
Retention for similar pairs	1.7 $\pm$ 1.12	1.13 $\pm$ 1.11	0.053
Retention for dissimilar pairs	2.47 $\pm$ 0.82	1.93 $\pm$ 1.08	0.035
Visual retention	1.07 $\pm$ 1.2	1.2 $\pm$ 1.27	0.678
Recognition	1.53 $\pm$ 1.25	1.23 $\pm$ 1.22	0.352

For Dysfunction Rating Score (DRS), SCZ group had significantly higher dysfunction in Remote Memory (1.23 ± 1.22 vs. 0.6 ± 0.93 , $p = 0.028$) and Recent Memory (1.2 ± 1.19 vs. 0.33 ± 0.88 , $p = 0.002$). Although higher dysfunction was noted in SCZ group for Mental Balance, Attention and Concentration, and Retention for Similar Pairs among others, these differences were not statistically significant.

The mean Koh's Block Design Test Quotient score was $96 \pm$

16.64 for SCZ group and 95.03 ± 9.79 for OCD group. The mean Pass-A-Long Test Quotient score was slightly higher in the SCZ group (100.7 ± 16.04) compared to OCD (98.97 ± 13.63). The P/K*100 score was higher in the SCZ group (127.55 ± 36.7) compared to the OCD group (114.67 ± 20.12). These differences were not found to be statistically significant.

Table 3: Comparison of DRS score of Verbal Adult Intelligence Scale (VAIS) among study groups

	SCZ group	OCD group	P value
	Mean $\pm$ SD	Mean $\pm$ SD	
T.Q. on Information	0.33 $\pm$ 0.76	0.33 $\pm$ 0.76	1.000
T. Q. on Digit span	0 $\pm$ 0	0 $\pm$ 0	-
T. Q. on Arithmetic	1.47 $\pm$ 1.11	0.67 $\pm$ 0.96	0.004 (S)
T. Q. on Comprehension	0.5 $\pm$ 0.94	0.2 $\pm$ 0.61	0.147

(T.Q. – Test Quotient)

In Verbal Adult Intelligence Scale (VAIS), the Dysfunction Rating Score (DRS) for the Arithmetic subtest was significantly higher in the SCZ group (1.47 ± 1.11) compared to the OCD group (0.67 ± 0.96 ; $p=0.004$), while no significant differences were found for DRS on Information, Digit Span, and Comprehension subtests.

The Difference in Performance Quotient (P.Q.) and Verbal Quotient (V.Q.), Percepto-motor functioning assessed using the Nahor Benson Test (NBT) and Bender Visual Motor Gestalt Test (BVMGT) did not show statistically significant results.

Table 4: Comparison of WHO QOL – BREF (Hindi) among study groups

	SCZ group	OCD group	P value
	Mean $\pm$ SD	Mean $\pm$ SD	
Q1 (Overall QOL)	2.87 $\pm$ 0.68	3.27 $\pm$ 0.78	0.039 (S)
Q2 (Overall Health)	3 $\pm$ 0.74	3.6 $\pm$ 0.62	0.001 (S)
Domain 1 (Physical)	19.6 $\pm$ 3.76	23.57 $\pm$ 2.69	<0.001 (S)
Domain 2 (Psychological)	18.47 $\pm$ 3.56	20.2 $\pm$ 2.63	0.036 (S)
Domain 3 (Social)	9.6 $\pm$ 1.52	11.43 $\pm$ 1.65	<0.001 (S)
Domain 4 (Environmental)	25.4 $\pm$ 2.72	28.9 $\pm$ 2.48	<0.001 (S)

The mean Overall QOL score was lower in SCZ (2.87 $\pm$ 0.68) than OCD (3.27 $\pm$ 0.78; $p=0.039$), as was Overall Health score (3 $\pm$ 0.74 vs. 3.6 $\pm$ 0.62; $p=0.001$). SCZ group also scored significantly lower across all domains—Physical (19.6 $\pm$ 3.76 vs. 23.57 $\pm$ 2.69; $p<0.001$), Psychological (18.47 $\pm$ 3.56 vs. 20.2 $\pm$ 2.63; $p=0.036$), Social (9.6 $\pm$ 1.52 vs. 11.43 $\pm$ 1.65; $p<0.001$), and Environmental (25.4 $\pm$ 2.72 vs. 28.9 $\pm$ 2.48; $p<0.001$)—indicating poorer QOL in SCZ group.

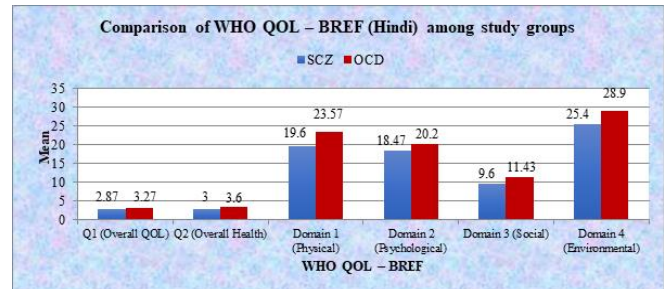


Figure 2: Comparison of WHO QOL – BREF (Hindi) among study groups

Table 5: Correlation between WHO QOL-BREF score and PGI-BBD Total Dysfunction Rating Score in SCZ group

	Correlation coefficient r	P value
Q1 (Overall QOL)	-0.122	0.520
Q2 (Overall Health)	-0.204	0.280
Domain 1 (Physical)	-0.607	<0.001 (S)
Domain 2 (Psychological)	-0.387	0.035 (S)
Domain 3 (Social)	-0.155	0.414
Domain 4 (Environmental)	-0.370	0.044 (S)

A strong negative correlation ($r = -0.607$, $p< 0.001$) was observed between PGI-BBD Total Dysfunction Rating Score and Physical domain in the SCZ group. Moderate negative

correlations were also seen with the Psychological ($r = -0.387$) and Environmental domains ($r = -0.370$).

Table 6: Correlation between WHO QOL-BREF score and PGI-BBD Total Dysfunction Rating Score in OCD group

	Correlation coefficient r	P value
Q1 (Overall QOL)	-0.404	0.027 (S)
Q2 (Overall Health)	-0.616	<0.001 (S)
Domain 1 (Physical)	-0.544	0.002 (S)
Domain 2 (Psychological)	-0.508	0.004 (S)
Domain 3 (Social)	-0.180	0.340
Domain 4 (Environmental)	-0.040	0.833

A moderate negative correlation ($r = -0.404$, $p = 0.027$) was observed between PGI-BBD Total Dysfunction Rating Score and Overall Quality of Life in the OCD group. Strong negative correlations were also seen with Overall Health ($r = -0.616$), Physical domain ($r = -0.544$), and Psychological domain ($r = -0.508$).

DISCUSSION

Consistent with earlier findings (Talreja BT et al., 2013; Okutucu FT et al., 2023), SCZ group in our study, had a slightly higher mean age, while OCD patients were predominantly younger. [6,7] The gender distribution did not differ significantly, paralleling patterns seen in Behura S et al. (2016).^[8] Employment loss post-illness onset was more prominent in SCZ group, likely reflecting the disabling effects of negative symptoms and cognitive dysfunction, as previously noted by Srinivasan et al. (2005) and Trivedi et al.

(2006).^[9,10]

Clinically, the SCZ group had longer illness duration, frequent hospitalizations, and poorer insight, supporting earlier studies by Lincoln et al. (2006),^[11] and Kessler et al. (2019).^[12] MECT usage was exclusive to SCZ group, as also observed by Goonathilake et al. (2022).^[13]

Cognitive dysfunction was higher in SCZ group, particularly in recent and remote memory, consistent with Martin et al. (2008),^[14] and Zou et al. (2023).^[5] OCD group showed milder impairment, primarily in reasoning and problem-solving, aligning with earlier findings. While performance intelligence (P.Q.) did not differ, verbal intelligence (V.Q.) in SCZ group showed marginally lower scores on verbal comprehension and arithmetic scores, supporting previous observations by Bhattacharyya et al (2012),^[15] and Dhaka et al (2020),^[16] who linked reduced crystallized intelligence in schizophrenia to illness chronicity and negative symptoms.

QoL was poorer in SCZ group across all WHOQOL-BREF(Hindi) domains, consistent with Swain et al (2016),^[8] and Bystritsky et al. (2001).^[17] Social domain score was lowest in both groups, reflecting the impact of withdrawal and stigma in SCZ, and compulsions in OCD which can restrict social engagement.

In SCZ group, PGI-BBD dysfunction score strongly correlated with poor Physical domain of QoL ($r = -0.607$, $p < 0.001$) and moderately with Psychological and Environmental domains, echoing Green et al. (2004) and Savilla et al. (2008).^[19,20] In OCD, dysfunction correlated with poorer Overall QoL, Health, and Physical/Psychological domains, in line with Eisen et al. (2006).^[21]

CONCLUSION

Schizophrenia group exhibited significantly greater cognitive dysfunction particularly in recent and remote memory, verbal comprehension and arithmetic abilities; accompanied by poorer insight, longer illness duration, higher hospitalization rates, and significantly impacted employment status, with a higher proportion of unemployment after onset of illness compared to OCD group. These impairments were strongly associated with lower Quality of Life across all domains.

Cognitive dysfunction significantly affected Quality of Life in both SCZ and OCD group. In SCZ group, it was strongly linked to poorer scores on physical domain and moderately to psychological and environmental domain. In OCD group, it showed moderate to strong negative correlations with overall quality of life, health perception, and psychological functioning.

Clinical Implications: Findings emphasize incorporating cognitive rehabilitation and psychoeducation into treatment plans for both disorders. Tailored cognitive remediation programs may improve functional outcomes and QoL, especially in schizophrenia. In OCD, cognitive-behavioural strategies, including ERP and mindfulness-based therapies, should be integrated to enhance functioning and well-being.

Limitations: This study had a small, literate sample from an outpatient setting, limiting generalizability to the broader and illiterate population or those with acute illness. Differences in illness duration, treatment history, and unaccounted effects of psychiatric medications may also have influenced cognitive outcomes.

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Conflicts of interest

There are no conflicts of interest.

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