

COMPARATIVE ANALYSIS OF OVERVALUED IDEAS AND ITS RELATIONSHIP TO COGNITIVE FUNCTIONING IN PATIENTS WITH OBSESSIVE COMPULSIVE DISORDER AND SCHIZOPHRENIA

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Abstract

Objective: To compare the overvalued ideas and its relationship to cognitive functioning in patients with Obsessive Compulsive disorder and Schizophrenia. **Methods:** The present study was conducted on 20 patients of OCD and 20 patients of schizophrenia. A detailed interview to fill the socio-demographic and clinical data sheet was initially undertaken. After that all part apparatus were administered the neuropsychological assessment (WCST), Making Test, Trail Stroop Colour – Word Test, and Overvalued Ideas Scale (OVIS), with inclusion of screening tests. The collected data were analyzed by using statistics; tests are t- test, Mann-Whitney U-test, Chi-square, F tests and Pearson correlation test. **Results:** The comparison of the neuropsychological profiles of OCD and schizophrenia patients, were significant differences between the two groups in almost all the neuro-cognitive tests. Also there were significant differences between the groups in failure to Maintain Set, Attention and Concentration, Immediate Recall, Recognition and Word Score. This suggested that both OCD and schizophrenia patients were poorly performed on problem solving ability, response inhibition, set-shifting, planning, immediate recall and recognition. In the study was found that significant positive correlation between overvalued ideas and Delayed Recall in OCD patients. **Conclusion:** The study found that OCD patients with overvalued ideas showed correlation relation difference in neuro-cognitive functions as the patients with schizophrenia. Findings of current study showed that patients with OCD of low overvalued ideas score (OVIS), performed better than OCD of high OVIS and schizophrenia and it was also found that OCD with high OVIS, performed better than schizophrenia on cognitive functioning.

Keywords: *Overvalued ideas, Cognitive functioning, OCD and Schizophrenia*

INTRODUCTION

Obsessive-compulsive disorder (OCD) is represented by a diverse group of symptoms that include intrusive thoughts, rituals, preoccupations and compulsions. These recurrent obsessions or compulsions cause severe distress to the person, and interfere significantly with the person's normal routine, occupational functioning, usual social activities or relationships. The overvalued ideation is currently conceptualized as falling in the middle of a continuum between rational thought processes on the one end, and delusions on the other (Kozak and Foa, 1994).

As individuals experience their obsessions as more realistic, 'insight' gets poorer and overvalued ideation increases until it becomes delusional in quality. It is important to distinguish insight from overvalued ideas, as the two cannot be different psychological phenomena. In the case of insight, this is a term describing a gradation of personal awareness into one's disorder as giving rise to disorder specific beliefs. There have been different positions adopted regarding the relation between overvalued ideas and psychopathology. For example, it was determined that overvalued ideas were the source of attention disturbance and impaired judgement (Wernicke, 1906).

Recently it was suggested that overvalued ideas lie on a continuum between rational thoughts and delusions, with fluctuations along this continuum over time (Kozak and Foa, 1994). In another study it was identified the spatial working memory (SWM) and spatial recognition memory (SRM) impairments in OCD but not pattern recognition memory (PRM) impairment (Purcell et al., 1998). It was also confirmed SRM deficits in another study using OCD patients (Barnett et al., 1999). The replicational findings of SRM impairment and no PRM impairment (Nielen and Den Boer, 2003), but in contrast the results of another study indicated no statistically significant SWM impairment (Purcell et al., 1998). DSM-IV classification regards OCD with poor insight essentially as an anxiety disorder.

In schizophrenia, cognitive impairment has been reported for several aspects of cognition such as attention, verbal memory and executive functions (Saykin and Shtasel, 1994). When the disease severity and the neurocognitive functions in patients with schizophrenia without OCD are compared to those with schizophrenia and OCD, the course of the disease is more severe in those with OCD than in those without OCD (Hwang et al, 2000) and the abnormalities in cognitive functions are more evident (Hwang et al, 2000; Lysaker et al, 2000). It was found that the positive correlation between overvalued ideas and verbal learning-memory and working

memory (Kitis et al., 2007). He also concluded the study suggesting that there were significant negative correlations between OCD patients among Yale Brown Obsessive Compulsive Scale (YBOCS) total scores and Wisconsin Card Sorting Test (WCST) category, and also the study shows that significant positive correlation with perseverative error, and Trail-A and B scores. It was demonstrated that there were no significant correlations between cognitive test scores and PANSS scores (Kitis et al., 2007).

The distractibility was measured with a digit span task and symptoms with the positive and negative syndrome scale (PANSS) (Addington et al., 1997). There was no relationship between attention and symptoms. The possibility of distractibility being a vulnerability indicator for schizophrenia is discussed. The study with a group of schizophrenic patients found that negative symptoms were correlated with poor performance on the WCST (Addington et al., 1991). Other combined neuropsychological and brain imaging studies in schizophrenic patients have also tried to identify the role of specific brain areas in the performance on other cognitive tests such as Trails A and B, tests of verbal fluency, and digit span. Reduced psychomotor speed as measured by Trails A and B has been associated with frontal atrophy (Benton and Hamsher, 1976; Keilp et al., 1988). The main aim of the study is to compare overvalued ideas and its relationship to Cognitive functioning in patients with Obsessive Compulsive disorder and Schizophrenia.

HYPOTHESES

- There will be no significant difference between the neuropsychological profiles of OCD and schizophrenia patients.
- There will be no significant difference between the cognitive functioning in Schizophrenia patients and OCD patients with high overvalued ideas and low overvalued ideas scores.
- There will be no significant relationship between overvalued ideas and cognitive functioning among OCD patients and schizophrenia patients.

METHODS

This was a prospective cross-sectional study on subjects were conducted on 20 patients of OCD and 20 patients of schizophrenia. The criteria for the diagnosis and remission were considered as per International Classification of Diseases (ICD)-10 Diagnostic Criteria of Research (DCR) (WHO, 1992). Both Clinical groups and samples were taken from Central

Institute of Psychiatry (CIP), Ranchi. All subjects were administered the neuropsychological assessment (WCST), (Heaton et al., 1993), Trail Making Test, (Reitan et al., 1958), PGI memory scale, (Pershad and Verma, 1977) and Stroop Colour – Word Test (Golden, 2002) and Overvalued Ideas Scale (OVIS) (Neziroglu et al., 1999), with inclusion of screening tests. The collected data were analyzed by using probability statistics.

Sample: The present study was conducted on 20 patients of OCD and 20 patients of schizophrenia. The criteria for the diagnosis and remission were considered as per ICD-10 DCR (WHO, 1992). Both Clinical groups, sample was taken from the Central Institute of Psychiatry (CIP), Ranchi.

Inclusion criteria (For OCD Patients)	Exclusion criteria (For OCD patients)
<ul style="list-style-type: none"> ➤ Male and female patients diagnosed as having OCD according to ICD-10, DCR (WHO, 1992). ➤ Patients in the age range 18 -45 years old. ➤ Education range: 6th standard above. ➤ Patients with right hand preference. ➤ Patients who are ready to give informed consent. 	<ul style="list-style-type: none"> ➤ Major medical illness, organic mental disorder and mental retardation or substance related problems. ➤ Patients with moderate to severe depression and anxiety. ➤ Person with obsessive compulsive personality or obsessive- compulsive spectrum disorder. ➤ Patient with any neurological disorder or significant head injury.
Inclusion criteria (For Schizophrenia Patients)	Exclusion criteria (For Schizophrenia Patients)
<ul style="list-style-type: none"> ➤ Patients diagnosed as having schizophrenia according to ICD-10, DCR (WHO, 1992). ➤ Patients matched with OCD group regarding age, sex and education. ➤ Patients with right hand preference. ➤ Patients consenting and co-operative for the study. 	<ul style="list-style-type: none"> ➤ Major medical illness, organic mental disorder and mental retardation or substance related problems. ➤ Patients with severe depression and anxiety. ➤ Patients of schizophrenia with co-morbid OCD and obsessive compulsive personality or obsessive-compulsive spectrum disorder. ➤ Patients with any neurological disorder or significant head injury.

Study procedure: The patients fulfilling the inclusion and but not exclusion criteria will be taken up for the study. Written informed consent will be taken from the patients, after explaining the objectives and procedure of the study in detail. Socio demographic data will be collected. After that (PANSS, HAM-D, HAM-A, HPS and OVIS) will be administered to patients with schizophrenia and (YBOCS, HAM-D, HAM-A, HPS and OVIS) will be administered to patients with OCD, then neuropsychological assessment (WCST, TMT, PGI memory scale, Stroop Colour and word test (SCWT) will be administered to both the patients group.

Statistical Analysis: Hypothesis proposed was tested by using version of SSPS 16.0 for Windows. Independent samples t- test and Mann-Whitney U-test were used for statistical analysis and Chi-square was used in order to compare the discrete demographic variables between the two groups. F tests with Post hoc analysis was used to compare the three groups for significant differences, whereas Pearson bivariate correlation was used to identify correlations between both clinical groups with socio-demographic variables and clinical variables was also used in the study.

RESULTS

Patients with schizophrenia showed lesser neurological activities than the OCD groups. The attention seeking and concentration capacities, immediate recall of the past things and recognition of the peoples was not much observed in the schizophrenic cases than OCD cases. The detailed comparative analysis of neuropsychological profiles of OCD and schizophrenia patients was depicted in table 1.

Table 1: Comparison of the neuropsychological profiles of OCD and schizophrenia patients

Variables		OCD (n=20) Mean rank	Schizophrenia (n=20) Mean rank	U test	P value
WCST	Total Number Correct	25.45	15.55	101.00	0.007**
	Total Number of Errors	15.55	25.45	101.00	0.007**
	Percent Errors	15.42	25.58	98.500	0.005**
	Conceptual Level Response	25.30	15.70	104.00	0.009**
	Percent Conceptual Level Response	25.25	15.75	105.00	0.009**
	Failure to Maintain Set	24.45	16.55	121.00	0.033*

Memory Scale	Attention and Concentration	24.55	16.45	119.00	0.028*
	Immediate Recall	24.48	16.52	120.50	0.030*
	Recognition	24.28	16.72	124.50	0.040*
SCWT	Word Score (W)	25.15	15.85	107.00	0.011*
	Color Score (C)	25.25	15.75	105.00	0.009**

* $p \leq 0.05$; ** $p \leq 0.01$

[**Table 1:** This table shows that there were significant differences between the two groups in almost all the tests especially in Total Number Correct ($U=101.00$, $p = 0.007$), Total Number of Errors ($U=101.00$, $p = 0.007$), Percent Errors ($U= 98.500$, $p = 0.05$), Conceptual Level Response ($U=104.00$, $p = 0.009$), Percent Conceptual Level Response ($U=105.00$, $p = 0.009$) and Color Score ($U=105.00$, $p = 0.009$). Also there were significant differences between the groups in Failure to Maintain Set ($U=121.00$, $p = 0.033$), Attention and Concentration ($U=119.00$, $p = 0.028$), Immediate Recall ($U=120.50$, $p = 0.30$), Recognition ($U=124.50$, $p = 0.040$) and Word Score ($U=107.00$, $p = 0.011$)]

By determining the memory of the patients groups, the high and low over valued idea scores have moderate observations whereas the schizophrenia subjects are higher and details were impregnated in table 2.

Table 2: Comparison of the cognitive functioning between schizophrenia patients and OCD patients with high overvalued ideas and low overvalued ideas scores

Variables		Group (A) HIGH OVIS OCD N=12 Mean±SD	Group (B) LOW OVIS OCD N=8 Mean±SD	Group (C) Schizophreni a N=20 Mean±SD	F df=	P	Post hoc Test (Bonferroni)
WCST	Total Number Correct	68.58± 11.78	76.00± 8.97	56.95± 15.73	6.5 2	0.004* *	B > A > C
	Total Number of Errors	59.41± 11.78	52.00±8.97	71.05±15.73	6.5 2	0.004* *	B > A > C
	Percent	46.33±9.33	40.50±6.92	55.65±12.23	6.7	0.003*	B > A > C

	Errors				9	*	
	Conceptual Level Response	47.75±15.2 0	56.62±13.6 0	35.80±18.27	5.0 5	0.011*	B > A > C
	Percent Conceptual Level Response	37.25±12.0 0	48.62±18.8 5	28.05±14.29	5.8 4	0.006* *	B > A > C
PGI-Memory scale	Immediate Recall	8.66±3.36	9.50±1.41	7.60±2.45	7.2 8	0.002* *	B > A > C
SCWT	Color Score (C)	56.33±14.6 6	56.37±17.8 4	43.15±14.32	3.7 9	0.032*	B > A > C

* $p \leq 0.05$; ** $p \leq 0.01$, A = high OVIS OCD, B = low OVIS OCD, C = schizophrenia

[**Table 2:** This table shows that One way analysis of variance indicates significant difference among the three clinical groups for WCST total number correct score ($F=6.52$; $p \leq 0.01$), Total Number of Errors ($F=6.52$; $p \leq 0.01$), Percent Errors ($F=6.79$; $p \leq 0.01$), Conceptual Level Response ($F=5.05$; $p \leq 0.05$), and Percent Conceptual Level Response ($F=5.84$; $p \leq 0.01$). Furthermore Bonferroni post-hoc analysis shows that Low OVIS OCD performed better than other two groups and High OVIS OCD performed better than schizophrenia. There was also significant difference observed among the three clinical groups for PGI-Memory scale, Immediate Recall score ($F=7.28$; $p \leq 0.01$), and Color Score ($F=3.79$; $p \leq 0.05$), reveals that Low OVIS OCD performed better than other two groups and High OVIS OCD performed better than schizophrenia]

In this study, the patients with OCD were significantly impaired in tasks that measured visuospatial memory, executive function, verbal memory and verbal fluency, whereas auditory attention was preserved in these individuals. The largest effect size was found in the ability to recall complex visual stimuli. Further, the effects of potentially confounding factors including educational level, symptom severity, medication status and co-morbid disorders were not significant and the detailed descriptions were tabulated (Table 3). The table showed the significant positive correlation between overvalued ideas and Delayed Recall of OCD patients. It

was also shows that there was no significant correlation between overvalued ideas and cognitive functioning of schizophrenia patients (with WCST, TMT, PGI-memory scale and SCWT).

Table 3: Correlation between overvalued ideas and cognitive functioning of OCD patients and schizophrenia patients

Variables		OCD N=20		Schizophrenia N=20	
		Overvalued Ideas			
PGI-Memory scale –Delayed Recall		Pearson (r)	P	Pearson (r)	P
		0.502	0.024*	-.014	0.954
TMT	Trail Making-A	-.122	0.609	-.249	0.289
	Trail Making-B	0.009	0.970	-.134	0.572
SCWT	Word Score (W)	0.296	0.205	-.007	0.975
	Color Score (C)	-.080	0.738	-.057	0.813
	Color-Word Score (CW)	-.228	0.333	0.098	0.681

* $p \leq 0.05$

DISCUSSION

Present study findings showed that there were significant differences between the OCD and schizophrenia patients groups with the various cognitive variables (i.e. Total Number Correct, Total Number of Errors, Percent Errors, Conceptual Level Response, Percent Conceptual Level Response and Color Score ($p \leq 0.01$)). Also there were significant differences between the groups in Failure to Maintain Set, Attention and Concentration, Immediate Recall, Recognition and Word Score ($p \leq 0.05$) (Kitis et al., 2007, Tumkaya et al., 2009, and Whitney, et al., 2004).

Although the subjects initially did not manifest any positive symptoms typical of schizophrenia, such as hallucinations and delusions, but later appeared to transition from obsessive to over-valued ideations (Hamilton, 1959; Hamilton, 1960). The obsession related to taking electronics courses was egodystonic, in that the patients were aware of its inaccuracy and symptomatic nature, which caused their resistance and emotional distress; however, the false beliefs about having a girlfriend and the fragile association of this belief with the refusal to seek government disability aid was an over-valued idea that was egosyntonic (Muzzi and Saide, 2018).

Present study findings showed that there were significant difference among OCD (with high OVIS and low OVIS) and schizophrenia clinical groups with the various cognitive variables (i.e., Total number correct score, Total Number of Errors, Percent Errors, Percent Conceptual Level Response ($p \leq 0.01$) and Conceptual Level Response ($p \leq 0.05$). Furthermore Bonferroni post-hoc analysis showed that low OVIS OCD performed better than other two groups and high OVIS OCD performed better than schizophrenia. There was also significant difference observed among the three clinical groups for PGI-Memory scale, Immediate Recall score ($p \leq 0.01$), and Color Score ($p \leq 0.05$), revealed that low OVIS OCD performed better than other two groups and high OVIS OCD performed better than schizophrenia. This indicates that OCD with low OVIS score performed better than other two groups and OCD with high OVIS score performed better than schizophrenia, because of that they have done better performance on problem solving ability, response inhibition, set-shifting and immediate recall (Kitis et al., 2007)

Present study findings showed that there was significant positive correlation ($p \leq 0.01$) between OCD patients among overvalued ideas and Delayed Recall ($r = .502$). This indicates that OCD patients with low OVIS scores might have done better performance on delayed recall. This indicates that OCD patients with low OVIS scores might have done better performance on delayed recall (Kitis et al., 2007).

This study has its own limitations like small sample size, sampling was done in a purposive manner which if it had been randomized would have led to greater generalizability, effect of medication was not controlled and their impact on task performance is unclear and instead of cross-sectional design, a prospective or longitudinal study would have yielded more information.

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