

Comparison of Patients with Schizophrenia, Obsessive-Compulsive Disorder, and Schizophrenia with Accompanying Obsessive-Compulsive Symptoms

Gülcan GÜLEÇ, Elif GÜNEŞ, Çınar YENİLMEZ

Abstract

Objective: The present study aimed to determine if schizophrenic patients with OC-symptoms represent a subtype of schizophrenia and to evaluate the differences between schizophrenic patients with OC symptoms and OCD patients.

Methods: The study included 20 patients diagnosed with OCD, 40 schizophrenic patients, and 20 schizophrenic patients with OC symptoms. While the distribution and the severity of psychotic symptoms in the OC-schizophrenia group were compared to those of the schizophrenic patients, and while the distribution and severity of obsessive-compulsive symptoms of the OC-schizophrenia group were compared to OCD patients, all 3 groups were compared to each other in terms of demographic data and other clinical characteristics.

Results: There were no differences in the distribution and severity of psychotic symptoms between the OC-schizophrenia group and the schizophrenia group. Moreover, the distribution and severity of OC symptoms in the OC-schizophrenia group were no different than those in the OCD group. Brief Disability Questionnaire scores were significantly higher in the OC-schizophrenia group than in the other 2 groups. Hamilton Depression Scale and Hamilton Anxiety Scale mean scores were significantly higher in the OCD and OC-schizophrenia groups than in the schizophrenia group. Moreover, Yale-Brown Obsessive-Compulsive Scale total scores were not correlated to the Scale for the Assessment of Negative Symptoms or the Scale for the Assessment of Positive Symptoms scores in the OC-schizophrenia group.

Conclusion: According to our results OC-schizophrenia might be a sub-type of schizophrenia, which doesn't have more severe psychotic symptoms, but more severe depression and anxiety, which are related to greater disability.

Key Words: Obsessive-compulsive disorder, schizophrenia, obsessive-compulsive symptoms, disability

INTRODUCTION

Schizophrenic patients may have obsessive-compulsive (OC) symptoms and patients that have obsessive-compulsive disorder (OCD) may have psychotic symptoms. The lifetime comorbidity rate of schizophrenia and OCD was reported to be higher than the individual lifetime prevalence rate of each disorder and, therefore, researchers suggest that there might be a psychopathological relationship between schizophrenia and OCD (Tippo and Warneke, 1999; Ohta et al., 2003; Bottas et al., 2005). Both disorders have early age of onsets. Both disorders have a chronic course and affect males and females similarly. Both disorders are characterized by disturbing thoughts and bizarre behaviors (Özerdem,

1998; Payurovsky and Koran, 2005). There is a common assumption that both disorders affect the same anatomical pathways, and that afferent impulses are not filtered adequately by the thalamus (Demir and Aslan, 2005). Although the neurobiological basis of schizophrenia and OCD have been explained with comparative studies, and despite all supportive epidemiological and biological findings, the relationship between OCD and schizophrenia is not well understood (Bottas et al., 2005).

The frequency of OC symptoms in schizophrenia is lower according to studies that were conducted during the first half of the 20th century than in studies conducted during the second half. Researches suggested that OC symptoms in schizophrenic patients delay dissocia-

Received: 12.04.2007 – Accepted: 27.08.2007

Gülcan Güleç MD., e-mail: gulcangulec@yahoo.com

tion in personality and act to improve the prognosis of schizophrenia, or they reflect recovery from schizophrenia (Hwang et al., 2001; Bottas et al., 2005). In later studies, the number of OC symptoms in schizophrenic patients was found to be high. Studies conducted within the last 30 years showed that the prevalence rates of OC symptoms in schizophrenic patients are between 10 % and 52 %; and rates are between 7.8 % and 36 % among schizophrenic patients with a comorbid OCD diagnosis (Bottas et al. 2005). Studies indicated during this period that functionality and disease course are worse and the frequency of neuropsychiatric problems is higher in schizophrenics (Hwang and Hollander, 1993; Hwang et al., 2001). Research that compared schizophrenic patients with OC symptoms to those that didn't suggest that there is no difference in the severity of their symptoms. There are contradicting results about the severity of symptoms in low positive or negative; high positive or negative (Öngür and Goff, 2005).

Another epidemiological approach to evaluating the comorbidity of OCD and schizophrenia is to evaluate psychiatric symptoms among patients first diagnosed with OCD. The frequency of psychotic symptoms in OCD was reported to be between 0.7% and 12.3% in a retrospective study; but in another recent study, the frequency of psychotic symptoms in OCD was 14 % and the frequency of schizophrenia diagnosis was 4.0 % (Tibbo and Warneke, 1999). Thomsen and Jensen (1994) reported that 5% of 135 OCD patients that presented were subsequently diagnosed with schizophrenia. In 2 studies conducted in Turkey researchers compared patients with schizophrenia and OC symptoms to non-schizophrenic patients with OC symptoms, and reported that there was no difference in the severity of symptoms (Özen et al., 1999; Özdemir et al., 2000). Özdemir et al. (2000) suggested that comorbidity of OCD and schizophrenia does not occur with a frequency sufficient to describe such patients as a subgroup. Özen et al. (1999) suggested that the severity of OC symptoms in schizophrenic patients is related to the severity of positive symptoms. Sevincok et al. (2006) suggested that these 2 groups are separate because OC symptoms are more severe in OCD patients and because there is no relationship between the severity of symptoms in OCD and schizophrenia; therefore, schizophrenia with OC symptoms should be categorized as a separate subgroup of schizophrenia.

Despite all the research conducted, researchers cannot determine if schizophrenic patients with OC symptoms are a distinct group or a subgroup of schizophrenia, or a group that had two distinct comorbid disorders.

The present study aimed to determine if there is a subgroup of schizophrenic patients that have OC symptoms and if there is a difference between OC symptoms seen in schizophrenia and in OCD. For this purpose OCD, OC-schizophrenia, and schizophrenia groups were compared in terms of clinical and demographic variables.

METHOD and INSTRUMENTS

Sample

Our sample consisted of 20 OCD patients, 40 patients with schizophrenia, and 20 schizophrenic patients with OC symptoms (OC-schizophrenia), according to DSM-IV diagnostic criteria (American Psychiatric Association, 1994). One interviewer evaluated all the patients. We selected an equal number of male and female patients that consecutively presented to our clinic for each group. Mean age in the OCD group was 33.50 ± 11.13 years, 34.92 ± 9.45 years in the schizophrenic group, and 32.10 ± 8.82 years in the OC-schizophrenic group. There were statistically significant differences in age between the groups.

We selected patients aged between 18 and 60 years; those with at least a primary school education, and those that agreed to participate in the study. We excluded patients with neurological disorders, mental retardation, or any condition that would not allow for a collaborative relationship during the study. The local ethics committee approved the study protocol.

Procedure and Instruments

We administered a sociodemographic information form, the Brief Psychiatric Rating Scale (BPRS), Brief Disability Questionnaire (BDQ), Hamilton Depression Scale (HAM-D), and Hamilton Anxiety Scale (HAS) to all patients. The OCD and OC-schizophrenia groups were also administered the Yale-Brown Obsession-Compulsion Scale (YBOC-S). The schizophrenic and OC-schizophrenia groups were additionally administered the Scale for the Assessment of Negative Symptoms (SANS) and Scale for the Assessment of Positive Symptoms (SAPS). In assessing obsessions and compulsions we utilized the following definitions of obsession and compulsion by Eisen et al. (1997): Obsessions are involuntary, coercive, and repetitive thoughts that are independent of the patient's delusions, whereas compulsions are behaviors that are repetitive and ritual, goal oriented, and different than the bizarre face and eye movements, or posture (mannerism) seen in schizophrenia.

Table I. Comparison of the sociodemographic characteristics of the study groups.

	OCD		OC-schizophrenia		Schizophrenia		x	P
	S	%	S	%	S	%		
Birth place								
City	9	45	6	30	24	60	8.42	P > 0.05
Village	3	15	6	30	6	15		
Administrative district	8	40	7	35	10	25		
Abroad	0	0	1	5	0	0		
Marital status								
Married	8	40	4	20	12	30	8.17	P > 0.05
Single	11	55	13	65	24	60		
Widowed	0	0	2	10	0	0		
Divorced	1	5	1	5	4	10		
Level of education								
Literate	1	5	1	5	0	0	7.22	P > 0.05
Primary school	1	5	4	20	10	25		
Secondary school	2	10	4	20	4	10		
High school	9	45	7	35	16	40		
University	7	35	4	20	10	25		
Occupational status								
Regular job	5	25	2	10	6	15	12.56	P > 0.05
Irregular job	0	0	1	5	1	2.5		
Unemployed	13	65	16	80	23	57.5		
Retired due to disability	1	5	1	5	6	15		
Retired	1	5	0	0	4	10		
Economic status								
Self-sufficient	18	90	10	50	23	57.5	8.28	P < 0.05
Need help from others	2	10	10	50	17	42.5		
Mood disorder in the family								
Present	5	25	3	15	2	5	8.41	P < 0.05
Absent	15	75	17	85	38	95		
Schizophrenia in the family								
Present	0	0	6	30	4	10	9.75	P < 0.05
Absent	20	100	14	70	36	90		
Anxiety problems in the family								
Present	2	10	2	10	2	5	3.65	P > 0.05
Absent	18	90	18	90	38	95		

P > 0.05: not significant.

P < 0.05: significant.

Sociodemographic Information Form: In consideration of the aims of this study the researchers developed this form, which collected data on place of birth, marital status, level of education, occupational status, and economic status of the patients. The form also gathered data on the presence of any mood disorders, anxiety disorders, and schizophrenia in first-degree relatives (mother, father, sibling) of the patients.

Brief Psychiatric Rating Scale (BPRS): This scale was developed by Overall and Gorham (1962), and measures general psychopathology and severity of symptoms. Soykan (1989) conducted the reliability study of this scale in Turkey. The interviewer answers some of the scale's items by observing the patient while conducting a semi-structured interview. Other items are completed considering the patient's behavior during the last 72 h.

Table II. Comparison of age and duration variables related to disorders among the 3 study groups.

	OCD Mean $\pm$ SD	OC-schizophrenia Mean $\pm$ SD	Schizophrenia Mean $\pm$ SD	F	P
Age of onset of OC symptoms	21.45 $\pm$ 10.49	21.58 $\pm$ 7.91		.001	P > 0.05
Age of onset of psychotic symptoms		23.15 $\pm$ 8.34	22.37 $\pm$ 6.97	.144	P > 0.05
Duration of disorder (month)	136.20 $\pm$ 105.14	107.05 $\pm$ 81.48	143.10 $\pm$ 110.86	.837	P > 0.05
Age at first intervention	24.75 $\pm$ 11.26	24.10 $\pm$ 8.39	24.02 $\pm$ 6.35	.054	P > 0.05
Duration of illness at first intervention (year)*	3.15 $\pm$.87	2.70 $\pm$.92	2.50 $\pm$.96	3.25	P < 0.05
Age at first hospitalization	27.66 $\pm$ 11.16	26.82 $\pm$ 7.23	26.20 $\pm$ 6.78	.119	P > 0.05
Number of hospitalizations*	1.35 $\pm$ 3.41	2.20 $\pm$ 1.82	3.77 $\pm$ 3.74	4.05	P < 0.05
Duration of hospitalizations (month)*	35.50 $\pm$ 74.44	84.30 $\pm$ 97.57	158.47 $\pm$ 174.62	5.69	P < 0.01

*ANOVA, duration of illness at first intervention; OCD > schizophrenia Number of hospitalizations; OCD < schizophrenia Duration of hospitalization; OCD < schizophrenia

P > 0.05: not significant.

P < 0.05: significant difference.

P < 0.01: highly significant difference.

The scale consists of 18 items, which are scored between 0 and 6 points. Item scores are added to obtain a total score.

Brief Disability Questionnaire (BDQ): This scale was developed to measure the level of decline in physical and social functioning within the preceding month (Stewart et al., 1988). It was translated into Turkish by Kaplan (1985), who also conducted its test-retest reliability study. It consists of 11 items, including items that measure the number of days the patient has spent in bed and had disturbances on daily works during the preceding month.

Hamilton Depression Scale (HDS): This scale was developed to measure the level of depression (Williams 1978) and consists of 17 questions. The highest score that can be obtained is 53. Scores $\geq$ 14 indicate clinical depression. Akdemir et al. (1996) conducted the reliability and validity study of the Turkish form.

Hamilton Anxiety Scale (HAS): Hamilton (1959) developed HAS in order to measure the presence and severity of anxiety symptoms. HAS consists of 14 items that assess both physical and psychological symptoms of anxiety. The presence and severity of symptoms are assessed by an interviewer. Yazıcı et al. (1998) conducted the reliability and validity study of the Turkish version of the scale.

Yale-Brown Obsession and Compulsion Scale (YBOCS): Goodman et al. (1989a, 1989b) developed this scale that assesses the type and severity of obsessions and compulsions. The first 5 items of the scale measure the severity of obsessions and the other 5 items measure the severity of compulsions. Scores obtained from the 2 parts of the scale are summed to obtain the YBOCS total score. Karamustafalıoğlu et al. (1993) conducted the reliability and validity studies in Turkey. Patient insight into OC symptoms is evaluated by an eleventh item (0 = perfect insight, 4 = no insight).

Scale for the Assessment of Negative Symptoms (SANS): This scale was developed by Andreasen (1983), and the reliability and validity study of the Turkish version of the scale was conducted by Erkoç et al. (1991a). It consists of 5 subscales with which 25 positive symptoms are assessed. These 5 subscales are bluntness of affect, apathy, apathy-avolition, anhedonia-social withdrawal, and attention deficiency.

Scale for the Assessment of Positive Symptoms (SAPS): This scale was developed by Andreasen (1984), and Erkoç et al. (1991b) conducted the reliability and validity study of Turkish version of the scale. The scale measures 34 symptoms on 4 subscales: delusions, hallucinations, weird behaviors, and positive structural thought problems.

Table III. Mean scale scores and comparison of total scale scores between the groups.

	OCD Mean $\pm$ SD	OC-schizophrenia Mean $\pm$ SD	Schizophrenia Mean $\pm$ SD	F/t	p
BPRS	17.45 $\pm$ 12.15	30.10 $\pm$ 14.41	31.60 $\pm$ 43.84	1.33	P > 0.05
BDQ*	5.55 $\pm$ 3.26	10.60 $\pm$ 4.19	7.85 $\pm$ 3.46	9.79	P < 0.001
HDS*	11.00 $\pm$ 7.71	11.55 $\pm$ 6.36	6.7 $\pm$ 5.20	5.36	P < 0.01
HAS*	13.25 $\pm$ 8.86	11.85 $\pm$ 9.42	5.97 $\pm$ 4.17	8.82	P < 0.001
Obsession	12.10 $\pm$ 5.41	8.50 $\pm$ 6.58		1.88	P > 0.05
Compulsion	10.15 $\pm$ 6.07	8.25 $\pm$ 6.87		.92	P > 0.05
Insight	1.9 $\pm$.85	2.45 $\pm$ 1.50		-1.42	P > 0.05
YBOCS total	22.25 $\pm$ 7.99	16.75 $\pm$ 11.64		1.74	P > 0.05
Delusions		6.30 $\pm$ 7.18	7.47 $\pm$ 8.67	-.52	P > 0.05
Hallucinations		11.80 $\pm$ 8.88	11.45 $\pm$ 11.99	.11	P > 0.05
Weird behaviors		3.25 $\pm$ 6.75	3.47 $\pm$ 5.55	-.13	P > 0.05
PFTD		4.95 $\pm$ 5.49	5.55 $\pm$ 7.28	-.32	P > 0.05
SAPS total		27.30 $\pm$ 23.48	27.30 $\pm$ 25.09	.00	P > 0.05
Bluntness		18.75 $\pm$ 9.30	14.77 $\pm$ 10.94	1.39	P > 0.05
alogy		7.20 $\pm$ 6.28	6.85 $\pm$ 6.97	.19	P > 0.05
Avolition/apathy		8.00 $\pm$ 5.56	7.20 $\pm$ 6.75	.46	P > 0.05
Anhedonia		12.75 $\pm$ 7.74	10.75 $\pm$ 7.44	.97	P > 0.05
Attention		4.35 $\pm$ 2.94	4.00 $\pm$ 4.75	.30	P > 0.05
SANS total		49.15 $\pm$ 27.76	42.42 $\pm$ 29.51	.85	P > 0.05

BPRS: Brief Psychiatric Rating Scale. HDS: Hamilton Depression Scale. HAS: Hamilton Anxiety Scale. YBOCS: Yale-Brown Obsession Compulsion Scale. PFTD: Positive formal thought distortion. BDQ: Brief Disability Questionnaire. SANS: Scale for the Assessment of Negative Symptoms. SAPS: Scale for the Assessment of Positive Symptoms.

*ANOVA, BDQ; OC-schizophrenia > OCD = schizophrenia. HDS; OCD = OC- schizophrenia > schizophrenia HAS; OCD = OC- schizophrenia > schizophrenia.

P > 0.05: not significant. P < 0.05: significant difference. P < 0.01: highly significant difference.

Data Analysis

Statistical analyses were performed using SPSS v.13.0 for Windows. We collaborated with the biostatistics department and determined that the data were normally distributed. We conducted one-way ANOVA and a post hoc test (Tukey's HSD) to compare the 3 groups. We used t-test to compare the means of 2 groups, chi-square test to compare frequencies, and Pearson's correlations for relationships between

scale scores. Statistical significance was accepted as P = 0.05.

RESULTS

We compared the sociodemographic characteristics of the OCD, OC-schizophrenia, and schizophrenia groups, and there were no differences between them in terms of place of birth, marital status, level of education, and occupational status. There were statistically

significant group differences in economic status ($\chi^2 = 8.28$, $P < 0.02$), the presence of mood disorders ($\chi^2 = 8.41$, $P < 0.04$), and family history of schizophrenia ($\chi^2 = 9.75$, $P < 0.02$). The OCD group was more self-sufficient compared the OC-schizophrenia and schizophrenia groups, which were found to get help from others. Mood disorders occurred with the greatest frequency in the first-degree relatives of the OCD group, followed by those of the OC-schizophrenia group. Schizophrenia occurred most frequently in the family history of the OC-schizophrenia group, followed by that of the schizophrenia group. Comparisons of the groups' sociodemographic characteristics are shown in Table I.

There were no statistically significant differences in the age of onset of OC symptoms between the OCD and OC-schizophrenia groups, and no statistically significant differences in the age of onset of schizophrenia between the schizophrenia and OC-schizophrenia groups. There were no group differences in the duration of illness, age at the time of initial intervention, and age at first hospitalization. Duration of illness was significantly longer in the OCD group than in the schizophrenia group ($F = 3.25$, $P < 0.05$). There was no significant difference between the OCD and OC-schizophrenia groups, or between the OC-schizophrenia and schizophrenia groups in terms of the duration of illness. The number of hospitalizations ($F = 4.05$, $P < 0.05$) and total duration of hospitalizations ($F = 5.69$, $P < 0.01$) were higher in the schizophrenia group than in the OCD group. There were no significant differences between the OCD and OC-schizophrenia groups, or between the OC-schizophrenia and schizophrenia groups in terms of the number of hospitalizations or total duration of hospitalizations. A comparison of illness-related age and duration variables are shown in Table II.

When the 3 groups were compared according to BDQ, HDS, HAS, and BPRS scores, there were no group differences, except for BPRS score. BDQ scores were significantly higher in the OC-schizophrenia group than in the other groups ($P < 0.001$). There were significant differences in HDS and HAS total scores between the OCD and schizophrenia groups ($P < 0.01$), and between the OC-schizophrenia and schizophrenia groups ($P < 0.001$).

There were no statistically significant differences between the OCD and OC-schizophrenia groups in terms of total YBOCS score, or its obsession subscale, compulsion subscale, and insight subscale scores ($P > 0.05$). The distribution of OC symptoms was not significantly different between groups ($P > 0.05$). The most frequently

occurring symptoms of OC were dirt and aggressive obsessions, and cleaning and other compulsions in the OCD and OC-schizophrenia groups. There were no statistically significant differences between the schizophrenia and OC-schizophrenia groups in terms of both SAPS and SANS total and subscale scores ($P > 0.05$). A comparison of the 3 groups in terms of the scales is presented in Table III.

We conducted Pearson's correlation analyses of the scale scores of the OC-schizophrenia group. We found that YBOCS score was not significantly related to SAPS or SANS, but was significantly related to HAS total score ($r = 0.585$, $P < 0.01$). SAPS total score was significantly correlated with BDQ total score ($r = 0.694$, $P < 0.01$), HDS total score ($r = 0.579$, $P < 0.01$), and HAS total score ($r = 0.492$, $P < 0.01$). SANS total score was correlated to BDQ total score ($r = 0.748$, $P < 0.01$). BDQ total score was correlated to HDS total score ($r = 0.670$, $P < 0.01$) and HAS total score ($r = 0.588$, $P < 0.01$).

DISCUSSION

The present study determined that there were no differences between the 3 groups of patients in terms of their level of education, marital status, and occupational status. These results are compatible with other studies that reported no differences between schizophrenia patients with and without OC symptoms in terms of age (Nechmad et al., 2003), occupational status (Eisen et al., 1997), marital status, and level of education (Poyurovsky et al., 1999).

In the present study there were no differences between the OC-schizophrenia and schizophrenia patients groups in terms of the age of symptom onset, duration of illness, the age at which they first requested assistance, the number of hospitalizations, duration of illness at the time of their first hospitalization, and duration of hospitalizations. Other researchers have reported similar results (Eisen et al., 1997; Poyurovsky et al., 1999; Poyurovsky et al., 2001).

Fenton and McGlashan (1986) suggested that OC symptoms in schizophrenia are a strong predictor of a poor prognosis; in later years these patients are hospitalized twice as much as other schizophrenia patients. One study reported that schizophrenic patients with OC symptoms whose disorders began in early ages were hospitalized more often and for longer periods of time. They also reported that their relatives have a lower risk of schizophrenia, but a higher risk of unipolar depression (Samuels et al., 1993). In the light of these findings the authors suggest that schizophrenic patients with OC symptoms could be a subgroup for etiological and genet-

ic studies. Poyurovsky et al. (2005) conducted a study to examine the validity of an schizo-obsessive disorder diagnosis that is different from schizophrenia. They found that there was no differences between family members of schizophrenics with OCD and those without OCD in terms of the schizophrenia spectrum. However, researchers found that OCD spectrum disorders were more prevalent in family members of schizophrenics with additional OCD diagnosis compared to latter group. The present study found that while the prevalence rate of schizophrenia was highest in the first-degree relatives of the OC-schizophrenia group, the prevalence rate of mood disorders in first-degree relatives of the OCD group was higher, confirming a relationship between OCD and depression (McKeon and Murray, 1987). In the present study we also detected a familial cluster that formed around the OC-schizophrenia group in terms of schizophrenia, indicating that this patient group could be a group independent of schizophrenia.

In addition, there are inconsistent results in the literature concerning the severity and distribution of psychotic symptoms in relation to OC symptoms and schizophrenia. It has been suggested that schizophrenic patients with OC symptoms experience severe negative symptoms (Fabish et al., 1997). Moreover, it has been suggested that a patient with OC symptoms has severe positive symptoms (Lysaker et al., 2000). One study compared patients diagnosed only with schizophrenia to schizophrenic patients whose YBOCS score was < 11 and to schizophrenic patients whose YBOCS score was > 12. Group that had more severe OC symptoms had significantly higher scores specifically on the hallucination subscale of SAPS (Öngür and Goff, 2005). Rosen (1957) argued that schizophrenic patients with OC symptoms have less severe psychotic symptoms. Poyurovsky et al. (1999) suggested that schizophrenic patients with OC symptoms have had less severe thought disturbances and lower severity in the bluntness in the mood. It has been argued that schizophrenic patients with OC symptoms have less negative symptoms and have a higher level of functionality. Tibbo et al. reported that negative symptoms seem to be directly related to functionality and course of illness (1999).

In the present study there were no statistically significant differences between the OC-schizophrenia and schizophrenia groups in SAPS and SANS total and subscale scores. Similar to our results, Poyurovsky et al. (2001) suggested that there is no difference in SANS and SAPS total and subscale scores between schizophrenic patients with OC symptoms and schizophrenics without

OC symptoms. The findings in our study are comparable to the findings of Byerly et al. (2005). There were no differences in negative -positive scale scores and social and occupational functionality between the schizophrenic patients with OC symptoms and those without OC symptoms. But our findings indicate BDQ scores of the OC-schizophrenia group were significantly higher than schizophrenia and OCD groups. Ohta et al. (2003) also suggested that there is no difference between schizophrenic patients and OC-schizophrenic patients in terms of age, age of onset of schizophrenia, duration of illness, PNSS (Positive And Negative Symptom Scale) positive symptoms subscale, PNSS negative symptoms subscale, and mean PNSS total score.

Lysaker et al. (2004) suggested that OC symptoms in schizophrenia could be related to a discriminant clinical appearance, which might change from patient to patient. They suggested that there might be 2 distinct schizophrenia patient groups with OC symptoms; while 1 group has low functionality, the other group may have higher functionality.

Additionally, as in studies in which schizophrenic patients with OC symptoms and OCD patients were compared, we found no differences in terms of the level of education level between these groups (Eisen and Rasmussen, 1993; Özen et al., 1999; Sevincok et al., 2006); however, in contrast to previous findings we found that the schizophrenic patients were mostly single (Eisen and Rasmussen, 1993; Özen et al., 1999; Özdemir et al., 2000).

In the present study there were no statistically significant differences in YBOCS total score, YBOCS obsession and compulsion subscale scores, and insight scores between the OCD and OC-schizophrenia groups. There were no statistically significant differences between the groups in terms of the distribution of OC symptoms; in both groups dirt and aggressive obsessions, and cleaning and other compulsions were common. These findings are comparable with the findings of Poyurovsky and Koran (2005), which suggests that the OC symptoms in schizophrenic patients are similar to those in OCD patients, in terms of content, severity, and course of the disorder. Özdemir et al. (2000) also found no differences between OCD and schizophrenics with OC symptoms in terms of social demographic characteristics, distribution of OC symptoms, severity of symptoms, anxiety and depression levels, and frequency of accompanying psychiatric disorders. Additionally, in the present study mean HAS and HDS scores of the OC-schizophrenia group were similar

to those of the OCD group. Özen et al. (1999) found that schizophrenic patients with OC symptoms were similar to OCD patients in terms of YBOCS total score, but the obsession and compulsion subscale scores were lower in the OCD patients. Furthermore, a significant relationship was observed between SAPS and YBOCS total scores. Sevincok et al. (2006) reported that total YBOCS score and compulsion subscale scores are higher in schizophrenic patients with OC symptoms, but they could not detect any relationship between psychotic and OC symptoms. In another study conducted in Turkey, researchers found that YBOCS total score, PNSS positive symptoms subscale scores, PNSS total score, and Calgary depression scale total score were similar in schizophrenic patients with OC symptoms and OCD patients (Kayahan et al., 2005). There are other studies suggesting that YBOCS total scores were related to SANS and SAPS (Poyurovsky et al., 1999, 2001). The present study found that while YBOCS total scores were related to HAS scores ($r = 0.59$, $P < 0.01$), there was no significant relationship between SAPS and SANS total scores. The lack of a relationship between YBOCS total score, and SANS and SAPS shows that OC symptoms are distinct from the core findings of schizophrenia, Increasing the possibility of schizo-obsessive group as a subtype of schizophrenia (Poyurovsky et al., 2001).

We evaluated patients with OCD, schizophrenia, and schizophrenia with OC symptoms simultaneously. The limitations of our study are as follows: 1. Small sample size; 2. Unspecified schizophrenia types among the schizophrenia patients; 3. OCD and OCD-related disorders in patients' first-degree relatives were not determined; 4. Patients were the only source of information about their family history. Moreover, we did not evaluate the patients for other DSM-IV Axis-I disorders with any diagnostic tools other than HDS and HAS.

Although psychiatric disorders like OCD, depression, and panic disorder are commonly seen with schizophrenia, The hierarchical diagnostic system prior to DSM-IV prevented clinicians to make an additional

diagnosis in the presence of schizophrenia. Epidemiological studies have not clarified that whether researchers should evaluate schizophrenia with OC symptoms as a derivative of schizophrenia or researchers should give both schizophrenia and OCD diagnosis (Bermanzohn et al., 2000). McGlashan (1997) argued that in order to accept the disorders that accompany schizophrenia as comorbid disorders, the prevalence of these disorders must be more common in schizophrenia patients than in the general population. Bland et al. (1987) suggested that in order to accept the clinical validity of symptoms that accompany schizophrenia, 1) the accompanying disorders should not affect the clinical course of schizophrenia, 2) the accompanying disorders should occur with greater frequency in the first-degree relatives of schizophrenia patients with the accompanying disorders than in the first-degree relatives of schizophrenia patients that don't have the accompanying disorders, 3) interventions for these disorders should be similar to those used when these accompanying disorders are seen alone. The lack of a relationship between YBOCS total score, and SAPS and SANS total scores in the present study shows that those findings are not related to psychotic symptoms. Nonetheless, the severity of psychotic symptoms, and the distribution and course of illness in the OC-schizophrenia group was not distinct from those in the schizophrenia group. The high rates of familial schizophrenia in the OC-schizophrenia group supports the notion that this group should not be considered a diagnostic group that is distinct from schizophrenia. Although the severity of the psychotic symptoms in the OC-schizophrenia group were not higher than in the schizophrenia group, BDQ, HAS, and HDS total scores of the OC-schizophrenia group were higher. Despite all the present study's limitations we conclude that the OC-schizophrenia group was not diagnostically distinct, but represented a sub-dimension of schizophrenia with less severe psychotic symptoms and more severe levels of anxiety and depression, which led to more severe dysfunction than was noted in the schizophrenic group.

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