

Quality of Life in Patients with Obsessive-Compulsive Disorder: Relations with Cognitive Functions and Clinical Symptoms

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SUMMARY

Objective: To compare quality of life in patients with obsessive-compulsive disorder with that in healthy subjects and to relate quality of life to cognitive functions and the severity of clinical symptoms.

Methods: Twenty-three patients who met DSM-IV criteria for obsessive compulsive disorder and 22 healthy subjects were included in the study. Quality of life (Turkish Quality of Life Scale-Brief Form) and cognitive functions were investigated in all subjects. In the patient group the relation of quality of life to the cognitive functions and to the severity of clinical symptoms and in the control group the relation of quality of life to the cognitive functions was investigated.

Results: The comparison of quality of life between the patient and control groups showed a significant difference ($F=2.60, p=0.04$). The significant differences between the two groups in psychological and social scores were responsible for the overall significant difference. The scores of quality of life were correlated with the scores of the cognitive tests (Trail Making Test, Auditory Consonant Trigram Test and Digit Span Test) and the severity of obsessive-compulsive symptoms.

Conclusion: The present study revealed that quality of life is lower in patients with obsessive-compulsive disorder than in healthy subjects and is related to cognitive functions and the severity of obsessive-compulsive symptoms.

Key Words: Obsessive-compulsive disorder, quality of life, symptoms

INTRODUCTION

Negative effects of psychiatric disorders on social, occupational, physical and psychological aspects of life are well known. Consequently, the importance of assessing quality of life in psychiatric disorders is growing. Therefore, the role of quality of life in psychiatric disorders and its importance in therapeutic effectiveness are emphasized in DSM-IV (American Psychiatry Association 1994).

The concept of "quality of life" may be defined in different ways. It reflects the subjective satisfaction from life and generally being well and functional as opposed to the quantitative evaluation of life (Mendlowics and Stein 2000, Angermeyer and Killian 1997).

Obsessive-compulsive disorder is a chronic disease which affects academic, occupational, social and family functions of the patients leading to disability (Hollander et al. 1996). A limited number of studies have revealed decrease in quality of life in patients with obsessive-compulsive disorder (Koran et al. 1996, Schneider 1997). The interpretation about the relationship between of quality of life and the characteristics of the disorder was limited in these previous studies.

Neuropsychological deficits reported in previous studies have indicated a brain dysfunction particularly a fronto-striatal dysfunction in the pathogenesis of obsessive-compulsive disorder.(Savage et al. 1999, Purcell

et al. 1998). Thus, cognitive dysfunction is an important aspect of the disorder. Cognitive impairments in executive functions, non-verbal memory and visual-spatial abilities are common in obsessive-compulsive disorder (Christensen et al. 1992, Lucey et al. 1997, Purcell et al. 1998, Schmidtke et al. 1998). To our knowledge, there is no study investigating the relationship between quality of life and cognitive impairment in obsessive-compulsive disorder in the literature.

The aim of the present study was to compare quality of life in patients with obsessive compulsive disorder with healthy individuals and relate quality of life to cognitive functions and the severity of clinical symptoms.

METHOD

Sampling

Twenty three subjects who were in follow up at out-patient clinic with the diagnosis of "Obsessive Compulsive Disorder" according to DSM-IV diagnostic criteria (American Psychiatric Association, 1994) and 22 healthy individuals were included in the study. Inclusion criteria were determined as absence of known physical or neurological disorder, Hamilton Depression Rating Scale less than 16 points and negative history of electro-convulsive therapy within last 6 months. Healthy individuals without self or family history of psychiatric diseases constituted the control group. Mean disease duration was 10.7 ± 9.6 years and age of onset was 22.9 ± 6.3 years in patient group. There were no statistically significant differences between two groups in age, gender, hand preferences and educational level (Table 1). Written consent was taken from all patients and control subjects. Patient enrollment and data collection were completed within 6 months (January-June 2002).

Procedure and Materials

Quality of life scales and neuropsychological tests were performed in all patients and control subjects.

All subjects were assessed by a psychiatrist initially. The patients who were diagnosed as obsessive-compulsive disorder and found to be eligible for the study in the first interview were directed towards a second investigator who was

not unblinded to the diagnosis. Neuropsychological tests and clinical rating scales were performed by the same investigator. The mean duration of the tests was approximately two hours. In the same day, quality of life scale was given to all subjects following a detailed instruction.

Quality of Life Scale-Brief Form in Turkish (WHOQOL-BREF-TR)

Quality of Life Scale-Brief Form (WHOQOL-BREF-TR) has been developed by World Health Organisation (WHO) and its validity in Turkish was completed by Eser and colleagues (1999). It includes 26 questions and four domains of WHOQOL-100. These four domains are physical, psychological, social relationship and environmental domains. This scale includes likertquert type, close ended questions. Individual subjectivity is specially emphasized. The scale evaluates the perception of clinical signs and symptoms and the effect of the disorder on physical activity, social relationships and environment. The answers reflect the severity and incidence of the patient's experiences and his own comment and capacity on these events. The scale is self-reported. The physical domain has questions related to daily activities, treatment compliance, pain and discomfort, sleep and rest, energy and fatigue. In psychological domain, there are questions of positive and negative feelings, self-esteem, body image and physical appearance, personal beliefs and attention. The social relationship domain is related to personal relationships, social support, and sexual activity. The environmental domain explores physical security and safety, financial resources, health and social care and their availability, opportunities for acquiring new information and skills, and participation in and opportunities for recreation and transport.

Neuro-psychological Tests

1. Verbal Learning and Memory

Rey Auditory Verbal Learning Test

The objective of this test is to evaluate verbal learning and memory. A list of words is repeated five times and the subjects are asked to recall the words which they remember. A second list is given and then recall rate of the first list is tested after 20 minutes. Standard Turkish form was

TABLE 1. Comparison of patients with controls in age, gender, hand preference and education level.

	Patients with Obsessive-Compulsive Disorder	Healthy individuals	Comparisons
Age	32.1±11.4	32.8±12.6	t= 0.2, p= 0.8
Gender (%)			
Female	73.9	59.1	X ² =1.1, p= 0.2
Male	26.1	40.9	
Hand preference (%)			
Right	82.6	86.4	X ² = 2.1, p= 0.3
Left	8.7	13.6	
Mixed	8.7		
Education level (%)			
Primary school	43.5	36.4	X ² = 0.3, p= 0.8
High school	17.4	22.7	
University	39.1	40.9	

prepared by Açıkgöz in 1995. Total number of the words recalled after five times' repeating and 20 minutes delay were used as measurements in the present study.

2. Verbal Fluency Test

Controlled Word Association Test

The objective of this test is to evaluate the recalling of words which begin with a given letter within a certain time interval. Most frequently, F, A or S are used. In Turkish standardization K, A or S are proposed (Umaç 1997). In this study total number of recalled words were assessed.

3. Attention

Digit Span Test

Digit Span Test (DST) is a subunit of WAIS-R (Wechlers 1987, Lezak 1995). This test has two sections, "Digits Forward" and "Digits Backward". In the "forward" section the patient repeats the numbers told to him/her by the rater and in the "backward" section, the patient repeats the numbers told to him/her backwards. The score is the sum of the correct recalled numbers in forwards and backwards sections and the total of the both sections as well.

4. Executive Functions and Visual-Motor Tracking

Wisconsin Card Sorting Test (WCST)

The objective of this test is to measure abstraction ability and the ability to change the behavior when needed with the help of the

feedbacks (Spreen and Strauss 1998). Total number of completed categories, total count of correct replies, and count of errors were taken into consideration. In the present study, computerized form of the test was used.

Trail Making Test

This test assesses attention, mental flexibility, visual tracking and motor abilities (Spreen and Strauss 1998). In part A, dots numbered between 1 and 25 are combined with a continuous line and in part B, each letter is combined with a number alternatively. In this study the durations required to complete two separate parts were taken into account.

5. Working Memory

Auditory Consonant Trigram Test

The objective of this test is to measure short-term memory, divided attention and information processing in adults. This test is a measure of working memory. Study for validity and reliability in Turkish was completed (Anıl et al. 2003). Total number of recalled letters were used in evaluation.

Scales for Rating Severity of Clinical Symptoms

In patient group Yale-Brown Obsessive Compulsive Scale (YBOCS) was used in order to assess the severity of obsessive compulsive symptoms (Goodman et al. 1989, Tek et al. 1995). In order to evaluate high-valued ideas, Overvalued Ideas Scale (OIS Neziroğlu 1999)

TABLE 2. Comparison of Patients with Obsessive-Compulsive Disorder with Healthy Individuals According to Quality of Life

Quality of Life Domains	Obsessive-Compulsive Disorder	Normal	F	p
Physical	12.7 ± 2.5	12.9±1.5	0.07	0.7
Psychological	12.5 ± 2.3	14.2±1.5	7.8	0.008
Social	13.04 ± 4.2	15.3±2.8	4.5	0.04
Environmental	13.7 ± 3.0	14.0±2.1	0.1	0.7

and to rate the severity of depressive symptoms Hamilton Depression Rating Scale (HDRS, Hamilton 1960, Akdemir et al. 2001) were used. In the patient group, the mean of YBOCS score was 22.74 ± 7.74 , the mean of OIS score was 64.90 ± 30.14 and the mean of HDRS score was 6.04 ± 5.15 . In the control group the mean of HDRS score was 1.36 ± 1.00 .

Statistical Analysis

SPSS 11.0 was used for statistical analysis. Before analysis, all data were examined for normal distribution via histogram graphics and as concluded to show normal distribution parametric tests were applied. Comparison of patients with control group for scores of quality of life domains was performed with multiple variance analysis (MANOVA). Each domain score was compared between the two groups with one-way variance analysis (ANOVA). Neuropsychological test scores of the groups were compared via MANOVA. Again, each test score was compared between the two groups with one-way ANOVA. The relationship between the scores of quality of life scale and neurocognitive tests was assessed with Pearson correlation test. The relationship between the scores of quality of life scale and clinical rating scales were assessed with Pearson correlation test, as well.

RESULTS

Comparison of patients with obsessive-compulsive disorder with healthy individuals for quality of life and cognitive functions

When patients and controls were compared for all domains of quality of life with multiple variance analysis (MANOVA), the difference was statistically significant between two groups ($F=2.60$, $p=0.04$). When each domain was assessed separately with variance analysis (ANOVA), this difference was found to be due to the difference in psychological and social

domains (Table 2).

When patients and control subjects were compared for neuropsychological test scores with multiple variance analysis (MANOVA, $F=1.63$, $p=0.12$) and each score has been assessed separately with variance analysis (ANOVA), no statistically significant difference was detected (Table 3).

The relationship between quality of life and cognitive functions in patients with obsessive-compulsive disorder and healthy individuals

There were significant correlations between the scores of quality of life domains and Trail Making Test, Auditory Consonant Trigram Test and Digit Span Test scores in the patient group (Table 4). The psychological domain score was correlated with the score of part B in Trail Making Test, total score of Auditory Consonant Trigram Test, scores of total and backwards section of Digit Span Test. The social relationship domain score was correlated with total scores of Digit Span Test. The environmental domain score was correlated with the score of part A in Trail Making Test. The worse the subjects perform the neuropsychological tests, the lower scores they get in domains of quality of life. There was no significant correlation between quality of life and neuropsychological test scores in healthy individuals.

The relationship between quality of life and clinical characteristics in patients with obsessive-compulsive disorder

The relationship between quality of life domain scores and clinical rating scale scores was assessed with Pearson correlation test. The psychological domain score was correlated with the scores of total ($r=-0.53$, $p=0.01$) and compulsion subscale scores ($r=-0.47$, $p=0.02$) in YBOCS. Moreover, scores of obsession subscale

TABLE 3. Comparison of Patients with Obsessive-Compulsive Disorder with Healthy Individuals According to Cognitive functions.

Neurocognitive Tests	Obsessive-Compulsive Disorder	Normal	F	p
Rey Verbal Learning and Memory Test				
Total learning scores (1-5)	51.74 ± 9.30	50.45 ± 8.05	0.24	0.62
Delayed recalling scores	11.09 ± 2.50	10.68 ± 2.50	0.30	0.60
Controlled Word Association Test				
Total scores	25.57 ± 13.72	34.91 ± 15.51	1.5	0.2
Digit Span Test				
Forwards section score	6.09 ± 2.31	5.82 ± 2.36	0.10	0.70
Backwards section score	5.78 ± 2.25	6.05 ± 2.55	0.10	0.70
Total scores	11.87 ± 4.08	11.51 ± 4.10	0.001	0.10
Wisconsin Card Sorting Test				
Category score	4.04 ± 2.51	4.32 ± 2.07	0.15	0.70
Total correct score	66.17 ± 14.4	67.41 ± 12.44	0.10	0.76
Total error score	43.00 ± 28.47	36.64 ± 27.87	0.57	0.45
Trail Making Test				
Part A	36.87 ± 23.15	33.27 ± 22.17	0.28	0.60
Part B	126.30 ± 98.62	99.55 ± 54.87	0.20	0.27
Auditory Consonant Trigram Test				
Total scores	47.10 ± 9.10	48.05 ± 8.0	0.12	0.72

were correlated with physical ($r=-0.45$, $p=0.03$), psychological ($r=-0.54$, $p=0.007$) and environmental ($r=-0.44$, $p=0.04$) domains of quality of life. It has been observed that as the severity of obsessive-compulsive symptoms increased, the scores of quality of life domains decreased. There was no significant relationship between scores of quality of life and "Overvalued Ideas Scale" in patients with obsessive-compulsive disorder.

DISCUSSION

The present study has revealed that psychological and social domains of quality of life were affected in a group of patients with obsessive-compulsive disorder without overt depression when compared to healthy individuals. This result was consistent with the results of previous studies (Koran et al. 1996, Schneider 1997). Bobes et al. investigated quality of life in patients with obsessive-compulsive disorder, schizophrenia, depression, heroin dependants, people taking hemodialysis and renal transplant recipients (2001). They compared these patients with SF-36 and found the lowest quality of life scores in patients with obsessive-compulsive disorder and schizophrenia. In

another study, patients with obsessive-compulsive disorder showed no significant difference in physical domain of quality of life compared to healthy subjects whereas showed decreased quality of life in social and psychological domains (Koran et al. 1996). similarly to the results of the present study.

There were not any significant differences in cognitive functions between patients with obsessive-compulsive disorder and healthy individuals. Although plenty of studies have revealed cognitive disfunction in obsessive-compulsive disorder (Christensen et al. 1992, Lucey et al. 1997, Purcell et al. 1998, Schmidtke et al. 1998), in some other studies no difference could be found in cognitive functions compared to healthy subjects (Moritz et al. 2002, Kivircik et al. 2003). In another study which we performed in a different patient group with a more limited number of neuropsychological tests, there was no significant difference in cognitive functions between healthy individuals and patients with obsessive-compulsive disorder (Kivircik et al. 2003). The differences in the sample sizes, neuropsychological tests or other disease characteristics like having comorbid depression may be responsible for controversial

TABLE 4. The Relationship Between Quality of Life Domains and Cognitive Functions in Patients with Obsessive-Compulsive Disorder.								
	Physical		Psychological		Social		Environmental	
	R	p	R	p	R	p	R	p
Trail Making Test Part B (Duration)		>0.05	-0.45	0.03		>0.05		>0.05
Auditory Consonant Trigram Test		>0.05	0.48	0.02		>0.05		>0.05
Digit Span Test (Forwards section)		>0.05		>0.05	0.42	0.05		>0.05
Digit Span Test (Backwards section)		>0.05	0.56	0.005	0.42	0.05		>0.05
Digit Span Test (Total scores)		>0.05	0.52	0.01	0.47	0.02		>0.05

results among studies. In the present study, the small sample size might be the cause of the negative result. Besides the fact that there was not any significant difference between patients with obsessive-compulsive disorder and healthy individuals in cognitive functions, there was a significant relationship between cognitive functions and different domains of quality of life in the patient group. There were significant correlations between attention, visual tracking and working memory and the psychological, social and environmental domains of quality of life. There was no significant relationship between cognitive functions and quality of life in healthy individuals. We could not reach any study investigating the relationship between cognitive functions and quality of life in obsessive-compulsive disorder in the current literature. However, a number of studies have demonstrated the relationship between cognitive functions and quality of life in schizophrenia, in which cognitive dysfunction is a core feature of the disorder (Meltzer et al. 1996, Aksaray et al.

2003). The results of the present study revealed a significant relation between various cognitive functions and quality of life in obsessive compulsive disorder.

There was a significant relationship between the severity of obsessive-compulsive symptoms and quality of life. Especially the severity obsessive symptoms were correlated with all quality of life domains except social relationship domain. There was no significant relationship between the severity of high-valued ideas and quality of life. In obsessive compulsive disorder, the clinical predictors of quality of life were reported to be the severity of obsessive and depressive symptoms but not the severity of compulsions (Masellis et al. 2003). However the results of the present study showed a relationship between quality of life and the severity of both obsessive and compulsive symptoms. Depression has been reported to affect quality of life in various

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