

Overvalued Ideas, Metacognitions, Magical Ideations and Quality of Life in Obsessive-Compulsive Disorder

Meryem Gül TEKSİN¹, Selçuk ASLAN², Gülşen TEKSİN³

¹Sisli Hamidiye Etfal Trainin and Research Hospital, Psychiatry of Department, İstanbul, Turkey

²Gazi University Faculty of Medicine, Psychiatry of Department, Ankara, Turkey

³Memorial Sisli Hospital, Psychiatry of Department, İstanbul, Turkey

Abstract

The importance of metacognitive processes is very important in the reinforcement of obsessive thoughts and compulsions in Obsessive Compulsive Disorder (OCD). In clinical practice, obsessions can sometimes be seen as Overvalued Ideas (OVI). In these patients, the obsessions are not delusional but lack insight. Magical thinking (MT), which are defined as a faulty causality relationship in the literature can also be seen in OCD. Presence of MT in OCD may affect the quality or quantity of obsessive symptoms. In this study, we aimed to assessment the association of OVI with metacognition and MT in OCD by comparing with controls and examining the impact of these clinical features on the severity of the OCD and the quality of life (QoL). For this purpose, 54 OCD and 55 control groups were included in the study. According to clinical interview and Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) symptom list, patients were divided into two groups as autogenous (n: 23) and reactive (n: 31). Then Overvalued Ideas Scale (OVIS) was applied one-to-one by a same clinician to patients. All participants completed the Metacognitions Questionnaire-30 (MCQ-30), Magical Ideation Scale (MIS), World Health Organization Quality of Life Assessment-Bref-TR (WHOQOL-Bref-TR), Maudsley Obsessional Compulsive Inventory (MOCI). In the results of the study, the WHOQOL-Bref-TR, MCQ-30 and MOCI total scores were significantly higher in the patient group compared to the control group; MIS total scores were found to be similar between the two groups. In addition; the QoL decreased as the MCQ-30 scores and the severity of MT increased in patients. Obsessive-compulsive disorder patients with autogenous and reactive obsessions were compared according to MCQ-30, WHOQOL-BREF, MOCI, Y-BOCS, MIS, and OVIS total and subscale scores. There was no statistically significant difference in the total MCQ-30 score between these two groups. While the OVIS scores of the patients with reactive obsessions were higher than the patients with autogenous obsessions, the "Uncontrollability and danger" subscale score of the MCQ-30 scale with autogenous obsessions was higher than the patients with reactive obsessions. High metacognition scores and severity of magical ideations indicate poor quality of life among OCD patients. Also, similar metacognitive pathologies in the OCD subtype groups support the thought of using Metacognitive Therapy as a treatment option with no consideration of the subtype.

Keywords: obsessive-compulsive disorder; metacognition; overvalued idea; magical ideation; quality of life.

Öz

Obsesif-Kompulsif Bozuklukta Aşırı Değerlendirilmiş Düşünceler, Üstbilişler, Büyüsel Düşünceler ve Yaşam Kalitesi

Obsesif Kompulsif Bozukluk (OKB) kişilerin yaşam kalitesini olumsuz etkileyerek yeti yitimine yol açan heterojen doğaya sahip bir bozukluktur. Hastaların obsesif düşüncelerinin ve kompulsiyonlarının sürdürülmesinde üst bilişsel süreçlerin önemi yadsınmaz. Klinik pratikte obsesyonlar zaman zaman Aşırı Değerlendirilmiş Düşünceler (ADD) olarak görülebilir. Bu hastalarda obsesyonlar sanırsal düzeyde olmasa da içgöründen yoksundur. Bununla birlikte literatürde hatalı nedensellik ilişkisi olarak tanımlanan, herhangi bir psikiyatrik rahatsızlığı bulunmayan kişilerde stres durumunda ortaya çıkabilen büyüsel düşünceler OKB hastalarında da görülebilmektedir. Obsesif kompulsif bozukluk hastalarında büyüsel düşüncelerin varlığı obsesif semptomların niteliğini veya niceliğini etkileyebilir. Tüm bu bilgiler ışığında bu çalışmada amacımız OKB hastalarında ADD'lerin varlığının, klinik özellikler, üstbilişsel süreçler, büyüsel inançlar ile ilişkisini değerlendirmek, bu parametreleri sağlıklı kontrol grubuyla kıyaslamak ve bu klinik özelliklerin hastalık şiddeti ve yaşam kalitesine olan etkisini incelemektir. Bu amaçla, ek ruhsal hastalığı olmayan 54 OKB ve 55 kontrol grubu çalışmaya dâhil edilmiştir. Klinik görüşmeye ve Y-BOCS semptom listesine göre hastalar otojen (n: 23) ve reaktif (n: 31) olarak iki ayrı gruba ayrılmışlardır. Obsesif kompulsif bozukluk tanılı hastalara tek bir klinisyen tarafından OVIS uygulanmış olup sonrasında MCQ-30, MIS, WHOQOL-Bref-TR ve MOCI ölçeklerinin hastalar ve kontrol grubu tarafından doldurulması sağlanmıştır. Çalışmanın sonuçları incelendiğinde OKB tanısı almış hasta grubunda WHOQOL-Bref-TR, MCQ-30 ve MOCI total puanlarının kontrol grubuna göre anlamlı olarak yüksek, MIS toplam puanlarının ise her iki grup arasında benzer olduğu tespit edildi. Ek olarak OKB hastalarında MCQ-30 puanları ve büyüsel inançların şiddeti arttıkça yaşam kalitelelerinin azaldığı saptandı. Ayrıca otojen ve reaktif obsesyonları olan OKB hastaları MCQ-30, WHOQOL-Bref, MOCI, Y-BOCS, MIS ve OVIS toplam ve alt ölçek puanlarına göre karşılaştırıldı. Bu iki grup arasında toplam MCQ-30 puanında istatistiksel olarak anlamlı bir fark yoktu. Otojen obsesyonları olan hastaların OVIS puanları otojen obsesyonları olan hastalardan daha yüksek iken, otojen obsesyonları olan hastaların MCQ-30 ölçeğinin "Kontrol edilemezlik ve tehlike" alt ölçeğinin puanı reaktif obsesyonları olan hastalardan daha yüksekti. Yüksek üst bilişsel puanlar ve büyüsel düşüncelerin şiddeti, OKB hastalarında düşük yaşam kalitesine işaret eder. Ayrıca OKB alt tip gruplarında benzer üstbilişsel patolojilerin olması, alt tip dikkate alınmadan üstbilişsel terapinin bir tedavi seçeneği olarak kullanılmasını düşüncesini desteklemektedir.

Anahtar Kelimeler: obsesif kompulsif bozukluk, büyüsel düşünce, üstbiliş, aşırı değerlendirilmiş düşünceler, yaşam kalitesi

Correspondence / Yazışma:

Meryem Gül TEKSİN, Sisli Hamidiye Etfal Trainin and Research Hospital, Psychiatry of Department, İstanbul, Turkey

Phone: +90 554 253 31 33

E-mail: gultekin@gmail.com

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INTRODUCTION

Obsessive-compulsive disorder (OCD) is a psychiatric disorder characterized by obsessive-compulsive (O-C) symptoms which impairs the quality of life of affected individuals by negatively affecting their physical, occupational, social, and familial functions (Hou, Yen, Huang, Wang, & Yeh, 2010; Kugler, Lewin, Phares, Geffken, Murphy, & Storch, 2013; Schwartzman, Boisseau, Sibrava, Mancebo, Eisen, & Rasmussen, 2017). Metacognition is based on beliefs about thinking and strategies used to regulate and control thinking. Metacognitive processes play a role in the etiology and maintenance of O-C symptoms (Fisher & Wells, 2008). Metacognition has five sub-dimension: positive beliefs (PB) in which it is necessary to worry in order to plan and solve problems (i. e., worry is beneficial); cognitive confidence (CC) in which the individual does not trust their own attention and memory; uncontrollability and danger (UD) in which the worries cannot be controlled and the individual should control these worries in order to function and be safe; cognitive awareness (CA) in which the individual is constantly preoccupied with their own thought process; and the need to control thoughts (NCT), which is related to the need to control negative beliefs around the themes of responsibility, punishment, and superstition.

Metacognitive beliefs about intrusive thoughts can be divided into three: thought–action fusion, thought–event fusion, and thought–object fusion (Myers & Wells, 2005; Shafran, Thordarson, & Rachman, 1996). Thought-action fusion is the belief that having a thought will cause undesirable actions. For example, if a person thinks that they will physically harm a loved one, they may develop a belief that such harm will eventually be carried out. Thought-event fusion means that having any thought will cause the event that is the subject of that thought to happen or that event has already happened in the past. For example, if a thought occurred to the patient that she might have become pregnant due to semen contamination after using a communal restroom, she may believe it must have happened. Thought–object fusion is the belief that thoughts, feelings, or memories can be transferred to objects and other people or can be transferred from objects and other people to the patient (Myers & Wells, 2005; Shafran et al., 1996). An example of this is the inability to stop one's thoughts that something bad may happen to them when they see a black cat (Fisher & Wells, 2008; Myers & Wells, 2005).

The tendency to have an erroneous causal relationship with one's thoughts and external reality is called magical thinking (West & Willner, 2011). As in metacognitive processes, thought-action fusion, thought-event fusion, and thought-object fusion in patients with OCD can be considered as different manifestations of magical thinking (Amir, Freshman, Ramsey, Neary, & Brigidi, 2001; Einstein & Menzies, 2004). In a study, pretreatment magical thinking scores were correlated with treatment resistance in patients with OCD, and the improvement in symptoms and the decrease in magical thinking scores were correlated (Einstein & Menzies, 2008). In patients with OCD, magical thinking can activate neutralization behavior to cope with and respond to a perceived threat (Bocci & Gordon, 2007; McFall & Wollersheim, 1979; Molding & Kyrios, 2006). To the best of our knowledge, no study has evaluated the relationship between metacognitive processes and magical thinking of patients with OCD.

Overvalued ideas (OVI) is an irrational belief that has not acquired a delusional character but lacks sufficient insight (Jaspers, 1997; Kozak & Foa, 1994; López Santín & Molins Gálvez, 2011). Similar to the prognostic effects of magical thinking, poor treatment outcomes are associated with OVI (Başoğlu, Lax, Kasvikis, & Marks, 1988; Lelliott, Noshirvani, Başoğlu, Marks, & Monteiro, 1988). Since it is associated with insight in some sources (Bulut, Fıstıkcı, & Topçuoğlu, 2014; Yılmaz, Boyraz, Kurtulmuş, Parlakkaya, & Öztürk, 2020), it is a factor that predicts poor treatment response (Neziroglu, Pinto, Yaryura-Tobias, & McKay, 2004; Neziroglu, Stevens, McKay, & Yaryura-Tobias, 2001) and may delay the help-seeking behavior of the patient. Overvalued ideas can be measured using tools such as the Brown Assessment of Beliefs Scale, which measures the level of insight in psychiatric disorders (Eisen, Phillips, Baer, Beer, Atala, & Rasmussen, 1998). However, evaluation tools are still limited. It is important to distinguish between OVI in OCD and insight, which express different psychological entities (Neziroglu et al., 2001). Jaspers (1997) defined insight as being aware of the illness and then as being aware of the symptomatology, which is currently used in the field of psychiatry. In contrast, OVI have been defined as obsessions that are not delusional but can intensify in a delusional direction (Jaspers, 1955; López Santín & Molins Gálvez, 2011). Kozak and Foa (1994) posited that OVI should take place in the middle of a spectrum of obsessive thoughts that have reached delusional intensity at one end and obsessive

thoughts that are irrational at the other end. This led to the development of the overvalued ideas scale (OVIS) (Neziroglu, McKay, Yaryura-Tobias, Stevens, & Todaro, 1999) which assesses O-C symptoms as irrational, to assess OVI that differ from insight. The OVIS is a scale that evaluates the characteristics that a person attributes to a thought or belief.

Obsessions are divided into two categories based on the nature of obsessive symptoms: autogenous and reactive obsessions (Lee & Kwon, 2003). Autogenous obsessions are obsessions that often occur without any stimulus, are alien to the self, and include sexual, religious, and aggressive themes. Reactive obsessions, on the other hand, are obsessions that are triggered by a noticeable external stimulus, and include more realistic, rational-seeming themes such as contamination, symmetry, and somatic obsessions. Lee and Kwon's (2003) approach, is important in distinguishing between these two types of obsessions because they claim that the two types of obsessions are sustained and exacerbated through different psychological mechanisms. To our knowledge, there is currently no study in the literature that investigates magical thinking and overvalued ideation in reactive and autogenous groups. Studies investigating the relationship between both sub-dimensions and metacognition are conflicting and few. In a study conducted by Doğan et al. (2013) the metacognitions of autogenous and reactive groups were compared, and no statistically significant differences were found between the groups (Doğan, Solak, Özdel, & Türkçapar, 2013). In their research conducted with a normal sample, Corcoran and Woody (2008) asked participants to evaluate socially unacceptable thoughts related to aggression, sexuality, and sin and found that evaluations such as viewing the thoughts as those of a bad character, associating them with a mental disorder, and perceiving them as immoral were associated with obsessive-compulsive symptoms (Corcoran & Woody, 2008).

The aim of this study is to assess the relationship between the presence of OVI, metacognition, and magical thinking in OCD patients, and to compare these parameters with the control group. Also, we aimed to examine the effects of these clinical features on the severity of symptomatology and quality of life. In addition, we divided the OCD patient group into autogenous and reactive groups and compared the mentioned parameters (OVI, metacognition, magical thinking, the severity of symptomatology, and quality of life) between these two groups. We

hypothesized that OVI, metacognitive beliefs, and magical thinking may show parallelism in patients with OCD and, as the intensity of these thinking styles increases, the clinical severity of the disease may increase and the quality of life may decrease. We also thought that OVI, metacognitive beliefs, and magical thinking might result in significantly higher rates in the autogenous group.

MATERIALS AND METHODS

Participants

The study included 54 consecutive patients with OCD diagnosed according to the DSM-5 criteria who were admitted to the psychiatry outpatient clinic. The control group was selected from 55 hospital personnel who did not have a psychiatric history and did not have any psychiatric complaints. We obtained the informed consent of the patients and volunteers. Exclusion criteria included i) age less than 18 years and older than 65 years; ii) refusal to participate in the study; iii) schizophrenia, other psychotic disorders, bipolar affective disorder, and major depressive disorder according to DSM 5; iv) self-reported presence of a severe physical, neurological, metabolic or active inflammatory disease; and v) a documented history of serious physical, neurological, metabolic or active inflammatory disease in the past medical records. Ethics committee approval numbered 99950669/145 was obtained at the meeting of the Turgut Özal University Faculty of Medicine Ethics Committee, dated 28 May 2015 and numbered 07.

Materials

Sociodemographic Data Form (SDF): In this form created by the researchers, sociodemographic and clinical descriptive information of the patients were recorded.

Maudsley Obsessive-Compulsive Inventory (MOCI):

This inventory is a 30-item rating scale for assessing the presence of O-C symptoms (Hodgson & Rachman, 1977). The original scale includes checking, cleaning, slowness, and doubt subscales. The Turkish version (Erol & Savaşır, 1988) includes 7 additional rumination items adapted from the Minnesota Multidimensional Personality Inventory.

Yale-Brown Obsessive-Compulsive Scale (Y-BOCS):

It is a clinician-rated scale for assessing the severity of O-C symptoms (Goodman, Price, Rasmussen, Mazure,

Delgado, et al., 1989; Goodman, Price, Rasmussen, Mazure, Fleischmann, et al., 1989). The validity and reliability study of the Turkish version has been established (Karamustafalıoğlu, Uçışık, Ulusoy, & Erkmen, 1993).

Metacognitions Questionnaire-30 (MCQ-30): It is a 4-point Likert-type scale developed by Cartwright-Hatton and Wells (Cartwright-Hatton & Wells, 1997). It has 5 sub-dimensions called positive beliefs (PB), cognitive confidence (CC), uncontrollability and danger (UD), cognitive awareness (CA), and the need to control thoughts (NCT). The validity and reliability study of the Turkish version of the scale was carried out by Tosun and Irak (Tosun & Irak, 2008).

Overvalued Ideas Scale (OVIS): In this scale, which was developed by Neziroğlu, Stuart, Howard, & Crowley (1999), up to 3 beliefs about O-C symptoms that cause distress to the patient and impair functionality are evaluated. The scale assesses the following characteristics of belief: strangeness, truthfulness, constancy, reasonableness, effectiveness of compulsions, prevalence of belief, reasons why others do not share the belief and stability of belief (measured by 2 items). Belief is given a score between 0–10 for each feature. In the modified OVIS developed by Neziroglu et al. (2001), 2 more items were added as resistance to belief and duration of belief stability, and patients were asked to identify a main belief (Neziroglu et al., 2001). In the reliability analyzes of the original scale, the internal consistency coefficient was found to be 0.95, and the correlation coefficient between the raters was 0.95 for the total score.

World Health Organization Quality of Life Assessment-Bref Turkish Form (WHOQOL-Bref-TR): It was developed by the World Health Organization (WHO) and its validity and reliability study was conducted in our country. It covers a total of 26 questions and 4 domains (physical, psychological, social relations and environment) (Group, 1998). As the score increases, the quality of life increases (Fidaner, Elbi, Fidaner, Eser, Eser, & Göker, 1999).

Magical Ideation Scale (MIS): It was introduced by Eckblad and Chapman (1983), and contains 30 items that are scored based on a true/false response format. In both teenagers and adults, a higher MIS score is indicative of more pronounced magical thinking. The validity and reliability study of the Turkish version of the scale was carried out by Atbasoglu, Kalaycioglu, & Nalcaci. (2003).

Clinical Evaluation

Participants who have a score below the cut-off point (<7) of the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) were included in the study. According to the clinical interview and Y-BOCS symptom checklist, the patient group was divided into two subgroups as autogenous and reactive. Overvalued ideas scale was applied to the OCD patient group by the clinician. The control group was selected in accordance with the age, sex, and education level of the patient group. Then MIS, MOCI, MCQ-30, and WHOQOL-Bref-TR were applied to the patient and control groups as self-reported scales.

Statistical Analysis

IBM Statistical Package for Social Sciences (SPSS) program version 16.0 package program was used to analyze the data obtained from the participants. Descriptive statistics are presented in tabular form for continuous variables as mean \pm standard deviation. Categorical variables are summarized as numbers and percentages. The normality test of numerical variables was checked with the Shapiro-Wilk test when $n < 50$, and with the Kolmogorov-Smirnov test when $n > 50$. In the comparison of independent groups, independent samples t-test, which is a parametric test, was used in cases that showed normal distribution and met the $n > 30$ condition, and Mann-Whitney U test was used in cases that did not show normal distribution or had $n < 30$. Pearson's chi-square in 2×2 tables and Fisher-Freeman-Halton's exact test in $R \times C$ tables were used to compare differences between categorical variables. Pearson's correlation coefficient was used to analyze relationships between numerical variables, in cases with normal distribution and fulfilling the $n > 30$ condition. Linear regression analysis was used to investigate the effect of independent variables OVIS, MCQ-30, and MISON MOCI, quality of life, and Y-BOCS. Statistical analyses were performed using the R 3.3.2v (open source) program, and the level of significance was set as 0.05 (p-value).

RESULTS

Sociodemographic and Clinical Features of OCD and Control Groups

Table 1 shows the sociodemographic and clinical characteristics of OCD patients ($n=54$) and the control group ($n=55$). Educational status, the presence of another

Table 1: Sociodemographic characteristics of OCD and Control groups					
N: 109	OCD (n: 54)		Control (n: 55)		p
	M ± SD		M ± SD		
Age (years) ²	31.41±10.92		28.83±7.63		0.156
	N	%	N	%	
Sex¹					
Female	21	38.9	23	41.8	0.755
Male	33	61.1	32	58.2	
Marital status¹					
Single	30	55.6	33	60	0.639
Married	24	44.4	22	40	
Education¹					
Non-university graduate	14	25.9	4	7.3	0.009*
University graduate	40	74.1	51	92.7	
History of PD¹					
No	31	57.4	51	92.7	
Anxiety Disorder	9	16.7	1	1.8	p<0.001*
Depression	14	25.9	3	5.5	
History of OCD in family¹					
(-)	42	77.8	51	92.7	0.027*
(+)	12	22.2	4	7.3	
History of PD in family¹					
(-)	36	66.7	43	78.2	0.178
(+)	18	33.3	12	21.8	

OCD: Obsessive-Compulsive Disorder; PD: Psychiatric Disorder; 1: Independent Samples t Test, 2: Chi-square test, M ± SD: mean ± standard deviation *: p<0.05.

psychiatric disorders in the past, and the presence of individuals diagnosed with OCD in the family were significantly different between groups ($p < 0.05$). Sex, marital status, psychiatric disorders in the family, and mean age showed a similar distribution between the groups ($p > 0.05$).

Comparison of the Mean Scores of the Scales Between Groups

Table 2 shows the mean total and subscale scores of MCQ-30, MIS, WHOQOL-Bref-TR and MOCI between the OCD and control groups. The average MIS total score was not significantly different between groups ($p > 0.05$). Except for the CC subscale, all other subscales of MCQ-30 and the MOCI total scores were significantly higher in the OCD group than in the control group. In addition, WHOQOL-Bref-TR total scores, and all other subgroup

Table 2: MCQ-30, WHOQOL-Bref-TR, MIS and MOCI scores in OCD and Control groups					
N: 109	OCD (n: 54)		Control (n: 55)		p
	M ± SD		M ± SD		
MCQ-30					
Positive beliefs	12.89±4.4		10.35±3.11		0.001*
Uncontrollability and danger	17.87±4.07		11.53±3.34		p<0.001*
Cognitive confidence	13.24±4.18		12.56±4.40		0.413
Need to control thoughts	17.28±3.96		11.56±2.71		p<0.001*
Cognitive self-consciousness	15.81±3.42		13.16±3.3		p<0.001*
Total score	77.09±14.93		59.16±13.23		p<0.001*
WHOQOL-Bref-TR					
Physical	15.49±3.04		12.74±3.88		p<0.001*
Psychological	15.82±2.44		12.63±3.51		p<0.001*
Social relationship	7.82±2.1		5.87±2.38		p<0.001*
Environment	23.78±3.35		20.37±4.74		p<0.001*
General total score	62.91±8.03		51.61±11.5		p<0.001*
MIS total score	8.47±3.55		8.61±4.66		0.862
MOCI total score	66.15±4.39		53.59±6.99		p<0.001*

OCD, Obsessive-Compulsive Disorder; MCQ-30, Metacognitions Questionnaire-30; MIS, Magical Ideation Scale; MOCI, Maudsley Obsessional Compulsive Inventory; WHOQOL-Bref-TR, World Health Organization Quality of Life Assessment-Bref-TR; Independent Samples t Test Descriptive statistics: mean ± standard deviation (M ± SD) *: p<0.05.

domains of quality of life were also significantly higher in the control group.

The Relationship Between Scales and Subscales in the OCD Group

Table 3 shows the correlation between scales and subscales applied to patients with OCD. The results of the Pearson correlation analysis in the OCD group revealed that a significant negative correlation was found between WHOQOL-Bref-TR total scores and MIS total scores, Y-BOCS total scores (**: $p < 0.01$; *: $p < 0.05$). There was a significant positive correlation between MCQ-30 total scores and Y-BOCS, MIS, MOCI total scores, as well as a negative correlation between MCQ-30 total scores and WHOQOL-Bref-TR total scores (**: $p < 0.01$; *: $p < 0.05$). In addition, we have found a significant negative correlation between WHOQOL-Bref-TR total scores and MIS total scores, Y-BOCS total scores (**: $p < 0.01$; *: $p < 0.05$).

Table 3: Pearson correlation analyze MCQ-30, WHOQOL-Bref-TR, MIS, MOCI, Y-BOCS scores in OCD

		PB	UD	CC	NCT	CSC	MCQ-30	WHOQOL-Bref-TR	MOCI	MIS	OVIS
WHOQOL-Bref-TR	r	-0.200	-0.410**	-0.363**	-0.331*	-0.197	-0.405**				
MOCI	r	-0.290*	-0.380**	-0.201	-0.340*	-0.276*	0.399**	0.234			
MIS	r	0.122	0.391**	0.288*	0.334*	0.231	0.365**	-0.278*	0.441**		
OVIS	r	0.316*	-0.195	0.088	-0.164	-0.011	0.019	0.134	-0.220	-0.023	
Obsession Subscale	r	0.206	0.492**	0.135	0.393**	0.244	0.393**	-0.446**	-0.345*	0.375**	0.047
Compulsion Subscale	r	0.208	0.419**	0.226	0.406**	0.377**	0.433**	-0.377**	-0.410**	0.384**	0.129
Y-BOCS	r	0.223	0.489**	0.197	0.430**	0.338*	0.446**	-0.442**	-0.409**	0.409**	0.097

OCD, Obsessive-Compulsive Disorder; **MCQ-30**, Metacognitions Questionnaire-30; **WHOQOL-Bref-TR**, World Health Organization Quality of Life Assessment-Bref-TR; **MIS**, Magical Ideation Scale; **MOCI**, Maudsley Obsessional Compulsive Inventory; **OVIS**: The Overvalued Ideas Scale; **Y-BOCS**, Yale-Brown Obsessive Compulsive Scale; **PB**, Positive beliefs; **UD**, Uncontrollability and danger; **CC**, Cognitive confidence; **NCT**, Need to control thoughts; **CSC**, Cognitive self-consciousness; Pearson correlations *: p<0.05 **: p<0.001.

Evaluations Related to Sociodemographic and Clinical Data Between Autogenous and Reactive Groups

Table 4a shows the sociodemographic and clinical characteristics of the reactive (n=31) and autogenous OCD groups (n=23); The autogenous and reactive OCD groups show a similar distribution in terms of age, sex, educational status, and other clinical data. Table 4b shows the comparison of the groups in terms of MCQ-30, WHOQOL-Bref, MOCI, Y-BOCS, MIS and OVIS total and subscale scores. While OVIS scores of patients with reactive obsessions were higher than those of patients with autogenous obsessions, UD scores of patients with autogenous obsessions were higher than those of patients with reactive obsessions (p <0.05).

Linear Regression Analysis Results in the OCD Group

The Table 5 shows the results of a regression analysis. Three independent variables (OVIS, MCQ-30, and MIS) were used to examine their effect on the dependent variables MOCI, Y-BOCS, and quality of life. The results showed that the regression model was statistically significant for both MOCI (F=7.473, p<0.001) and Y-BOCS (F=6.861, p=0.001). The model explained 26.8% and 24.9% of the variance in MOCI and Y-BOCS, respectively.

The OVIS score did not have a statistically significant effect on either MOCI or Y-BOCS. The MCQ-30 score had a statistically significant positive effect on both MOCI (β=0.126, p=0.039) and Y-BOCS (β=0.148, p=0.013). The MIS score also had a statistically significant positive effect on both MOCI (β=0.522, p=0.008) and Y-BOCS (β=0.451, p=0.018).

Table 4a: Sociodemographic characteristics of reactive type and autogenous type

N: 109	Reactive type (n: 31)		Autogenous type (n: 23)		p
	M ± SD		M ± SD		
Age (years)²	28.29±8.25		29.57±6.85		0.156
	N	%	N	%	
Sex¹					
Female	19	61.29	14	60.87	0.975
Male	12	38.71	9	39.13	
Marital status¹					
Single	17	54.84	12	52.17	0.758
Married	14	45.16	10	43.48	
Divorced	0	0	1	4.35	
History of PD¹					
No	19	61.29	10	43.48	
Anxiety Disorder	2	6.45	7	30.43	0.107
Depression	9	29.03	5	21.74	
Other	1	3.23	1	4.35	
History of OCD in family¹					
(-)	25	80.65	17	92.7	0.556
(+)	6	19.35	6	26.09	
History of PD in family¹					
(-)	20	64.52	16	69.57	0.697
(+)	11	35.48	7	30.43	

OCD, Obsessive-Compulsive Disorder; **PD**, Psychiatric Disorder
1: Independent Samples t Test; 2: Chi-square test; M ± SD: mean ± standard deviation; *: p<0.05.

Table 4b: MCQ-30, QoL on WHOQOL-BREF, MTQ, MOCI, YBOCS and OIV scores in reactive type and autogenous type

N: 109	Reactive type (n: 31)	Autogenous type (n: 23)	P
	M ± SD	M ± SD	
MCQ-30			
Positive beliefs	13.52±4.56	12.04±4.13	0.228
Uncontrollability and danger	16.81±4.39	19.30±3.14	0.024*
Cognitive confidence	13.19±4.45	13.30±3.89	0.924
Need to control thoughts	16.39±4.41	18.48±2.95	0.054
Cognitive self-consciousness	15.52±3.74	16.22±2.97	0.462
Total score	62.23±13.36	66.04±10.9	0.268
QoL on WHOQOL-BREF-TR			
Physical	20.19±3.76	19.13±4.03	0.324
Psychological	18.94±3.59	18.22±3.45	0.463
Social relationship	8.94±2.49	8.48±2.48	0.507
Environment	29.48±4.08	29.22±5.59	0.840
General total score	77.55±10.35	51.61±11.5	0.434
YBOCS			
Obsessions Subscale	12.26±3.23	13.04±3.60	0.404
Compulsions Subscale	12.29±3.37	13.09±4.14	0.440
Total score	24.55±6.05	26.13±7.26	0.387
MOCI total score	24.55±6.05	26.13±7.26	0.387
MIS total score	18.13±12.26	21.65±13.38	0.320
OVI	5.59±1.25	3.90±1.30	<0.001*
MCQ-30 , Metacognitions Questionnaire-30; QoL , Quality of Life; MTQ MIS , Magical Ideation Scale; MOCI , Maudsley Obsessional Compulsive Inventory; OVI : The Overvalued Ideas Scale; Y-BOCS , Yale–Brown Obsessive Compulsive Scale; Independent Samples t Test Descriptive statistics: mean ± standard deviation (M ± SD); *: p<0.05.			

Table 5: Linear Regression Analysis Results in the OCD Group

		β^1 (%95 CI)	S. error	β^2	t	p	VIF
MOCI	Constant	1,339 (-8,684 - 11,362)	4,990		0,268	0,790	
	OVIS	0,935 (-0,054 - 1,925)	0,493	0,223	1,898	0,063	1,001
	MCQ-30	0,126 (0,007 - 0,244)	0,059	0,268	2,125	0,039*	1,154
	MIS	0,522 (0,141 - 0,902)	0,189	0,348	2,756	0,008*	1,155
Y-BOCS	Constant	7,861 (-1,879 - 17,602)	4,850		1,621	0,111	
	OVIS	0,415 (-0,547 - 1,377)	0,479	0,103	0,867	0,390	1,001
	MCQ-30	0,148 (0,032 - 0,263)	0,057	0,329	2,569	0,013*	1,154
	MIS	0,451 (0,081 - 0,82)	0,184	0,313	2,449	0,018*	1,155
QoL	Constant	101,436 (81,939 - 120,933)	9,707		10,450	<0,001	
	OVIS	1,333 (-0,592 - 3,258)	0,958	0,172	1,391	0,170	1,001
	MCQ-30	-0,327 (-0,558 - -0,096)	0,115	-0,377	-2,844	0,006*	1,154
	MIS	-0,434 (-1,174 - 0,306)	0,368	-0,156	-1,179	0,244	1,155

β^1 : Non-standardized beta coefficient (95% confidence interval), β^2 : Standardized beta coefficient, (F=7.473, p<0.001, R²=0.31, Adjusted R²=0.268), (F=6.861, p=0.001, R²= 0.292, Adjusted R²=0.249), (F=5.209, p=0.003, R²=0.238, Adjusted R²=0.192). MCQ-30, Metacognitions Questionnaire-30; QoL, Quality of Life; MTQ MIS, Magical Ideation Scale; MOCI, Maudsley Obsessional Compulsive Inventory; OVI: The Overvalued Ideas Scale; Y-BOCS, Yale–Brown Obsessive Compulsive Scale; *: p<.05

For the quality of life variable, the regression model was also statistically significant ($F=5.209$, $p=0.003$), explaining 23.8% of the variance. The OVIS score did not have a statistically significant effect on the quality of life variable. The MCQ-30 score had a statistically significant negative effect ($\beta=-0.327$, $p=0.006$), and the MIS score had no statistically significant effect ($\beta=-0.434$, $p=0.244$).

DISCUSSION

Evaluations Between the OCD Group and Control Group

In this study, the relationship between the presence of OVI and metacognition and magical thinking in OCD and its subtypes was evaluated, and the effects of these clinical features on disorder severity and quality of life were examined. Based on the metacognitive model (Fisher & Wells, 2008), the significant increase in metacognition scores of patients with OCD could be attributed to their negative beliefs about the importance and effects of some intrusive thoughts. Consistent with previous studies (García-Montes, Pérez-Álvarez, Balbuena, Garcelán, & Cangas, 2006; Moritz, Peters, Larøi, & Lincoln, 2010; Nelson, et al., 1999; Reuven-Magril, Rosenman, Liberman, & Dar, 2009; Sica, Steketee, Ghisi, Chiri, & Franceschini, 2007) UD and NCT subscales were significantly higher in patients with OCD than in control groups. This result underlines the significant excess in OCD patients' need to control both what is happening in the environment and their own thoughts. In addition, the high mean score of CA metacognition in patients with OCD shows that the patients are ruminatively interested in their world of thought. Our result also reveals that patients with OCD had a significantly high score for PB (the belief that worrying is an escape or a savior in preventing the catastrophic consequences that they believe may arise if compulsive behavior does not occur), which is also in line with the literature (Tümekaya, Karadağ, Yenigün, Özdel, & Kashyap, 2018; Yılmaz, İzci, Mermi, & Atmaca, 2016). In contrast, CC was not significantly different between groups, which is also consistent with the literature (Yılmaz et al., 2020) and may indicate that not only patients with OCD but also normal healthy individuals may have approached their own attention and memory with suspicion in order to display a more cautious and protective attitude in their predictions.

Magical ideation scale total score averages were not significantly different between groups. Considering the

sociocultural structure of the population, some magical thoughts and superstitions are actually beliefs accepted in the general healthy society. Normal individuals sometimes resort to magical or superstitious thoughts in order to gain a sense of control against certain stressors (Moulding & Kyrios, 2006; Zebb & Moore, 2003). The inclusion of a healthy control group in the present study while creating the research methodology highlighted these findings.

The quality of life and all its subscale domains (psychological, social, physical, environmental) were lower in the OCD group than in the control group, which was in line with the extensive literature (Coluccia, Fagiolini, Ferretti, Pozza, Costoloni, Bolognesi, & Goracci, 2016; Eisen, Mancebo, Pinto, Coles, Pagano, Stout, & Rasmussen, 2006; Kugler et al., 2013; Schwartzman et al., 2017). This result underlines that OCD is a mental disorder that adversely affects quality of life in all areas.

Evaluations in the OCD Group

To the best of our knowledge, no study has yet investigated the relationship between magical thoughts and metacognitive beliefs. In our study, there is a positive correlation between the MCQ-30 total scores and the MIS total scores in patients with OCD. We also found positive correlation between MCQ-30's UD, CC, NCT subscale scores and MIS total scores. Someone who believes that an unwanted thought increases the probability of an event occurring in real life feels the need to control these thoughts. The NCT and UD generally include the need to control one's negative beliefs, including themes of superstition, punishment, and responsibility. These beliefs may have brought forth some magical thoughts that the person will be responsible and punished for the harmful consequences that will occur if the person cannot control them.

In our study, there was a significant positive correlation between the Y-BOCS total scores and the MCQ-30 subscale scores of UD, NCT, CSC, and MCQ-30 total scores. The metacognitive interpretation of the obsession clinically exacerbates the disorder. Similarly, our data show that there is a significant positive correlation between the MOCI total scores and the MCQ-30 total scores and UD, NCT, CSC subscale scores. Also, in linear regression analysis, the MCQ-30 score had a statistically significant positive effect on both MOCI ($\beta=0.126$, $p=0.039$) and Y-BOCS ($\beta=0.148$, $p=0.013$). These results explain the compatibility of metacognitive beliefs about the effort to control thoughts and events, arising from an exaggerated sense

of responsibility in patients with OCD, with the severity of the disease and its clinical appearance (Solem, Myers, Fisher, Vogel, & Wells, 2010; Tümkaya et al., 2018).

Einstein and Menzies (2008) reported that pre-treatment magical thinking scores were associated with resistance to treatment in patients with OCD and that the improvement in O-C symptoms and the decrease in magical thinking scores were associated with each other. In our study, a significant correlation between Y-BOCS total and subscale scores, MOCI total scores, and the presence of magical beliefs in the individual, which shows the clinical severity of the disease, was found in line with our hypothesis. Similarly, The MIS score also had a statistically significant positive effect on both MOCI ($\beta=0.522$, $p=0.008$) and Y-BOCS ($\beta=0.451$, $p=0.018$) in linear regression analysis. These results indicate that the presence of magical thoughts in the person negatively affects the prognosis and clinical severity of the disease.

While few studies examined the effects of magical thoughts and metacognitive processes on the quality of life in OCD patients, the present study found that the quality of life decreased as the intensity of magical thoughts and the severity of metacognitions increased in Pearson correlation analysis. For the quality of life variable, in the regression model, the MCQ-30 score had a statistically significant negative effect ($\beta=-0.327$, $p=0.006$), and the MIS score had no statistically significant effect ($\beta=-0.434$, $p=0.244$). Since there is no reliable background and empirically robust evidence regarding the impact of metacognitive beliefs and magical thinking on the quality of life of individuals with OCD, the findings obtained cannot be explained through published literature. Treatment that aims to modify metacognitive beliefs has been shown to lead to significant reductions in OCD severity in studies such as Fisher and Wells (2008), and Rees and van Koesveld (2008). Given the correlation between OCD severity and quality of life (Kugler et al., 2013), the results of the current study suggest that the metacognitive model is relevant to the understanding and modification of quality of life in individuals with OCD. While the quality of life decreased as the severity of O-C symptoms increased in Y-BOCS in the patient group, the lack of significant correlation between MOCI total scores and quality of life may be because MOCI is a self-report scale and more accurate data may have been obtained since Y-BOCS was administered by the clinician.

Few studies could be found in the literature on OVI in patients with OCD. To the best of our knowledge, our

study is the first to investigate the relationship of OVI with metacognitive dimensions and magical thinking in OCD patients. Overvalued ideas scale has also been used as an insight assessment tool in OCD patients. In a study using OVIS as an insight assessment tool, no significant difference was found between the mean metacognition scores of the OCD group with poor insight and the OCD group with good insight (Yılmaz et al., 2020). In another study evaluating the relationship between insight and metacognition in OCD, it was determined that patients with a diagnosis of OCD with good insight had higher MCQ-30 total scores than those with poor insight, but OVIS was not used as an insight measurement tool in this study (Önen, Uğurlu, & Çayköylü, 2013). In our study, no relationship was found between the total scores of metacognition and the total scores of OVIS, which was associated only with the PB subscale of MCQ-30. This may be because the meaning attributed to an obsession is associated with the beliefs about the positive contribution of worry to avoidance of dangers. In this study, the absence of any relationship between OVIS and magical thoughts in the OCD group contradicted our hypothesis. This may be because the cognitive value of these thoughts is more critical for OCD, not the intensity or quality of the thoughts.

Our study found that the OVIS score did not have a statistically significant effect on Y-BOCS, MOCI, and quality of life in the linear regression analysis. In the literature, OVI has been predominantly used as an insight measurement tool, and similar results were obtained in studies (Marazziti, Dell'Osso, Di Nasso, Pfanner, Presta, Mungai, & Cassano, 2002; Insel & Akiskal, 1986). Insight into psychiatric disorders requires awareness of one's illness. A patient's low or lack of insight into their disease may cause them to not view themselves as a patient, resulting in a relatively lower acceptance of the severity of the disease and a less accurate evaluation of their quality of life in this context.

Evaluations Related to Autogenous and Reactive Groups

While the number of participants in both the patient and control groups was limited, our study is one of the rare studies investigating metacognitions in OCD subtypes. Individuals with autogenous obsessions tend to perceive their thoughts as ego-dystonic and try to suppress or control them. On the other hand, individuals with reactive obsessions tend to believe that their thoughts are more reasonable, despite clinicians often describing them as

ego-dystonic and irrational. Therefore, individuals with reactive obsessions try to prevent the unwanted possible consequences of obsessive thoughts rather than suppressing the thoughts themselves (Lee & Kwon 2003; Lee, Kwon, Kwon, & Telch, 2005). In our study, the metacognitions of autogenous and reactive groups were compared with the assumption that these differences might be reflected in metacognitions. It was found that only the UD sub-dimensions in metacognitions was higher in autogenous OCD patients compared to reactive OCD patients. There was no statistically significant difference in the total MCQ-30 score between these two groups. Similarly, in a study by Doğan et al. (2013), no statistically significant difference was observed in the MCQ-30 total scores in reactive and autogenous OCD subtypes. The similarity of the MCQ-30 mean scores in these two OCD subtypes suggests the presence of similar cognitive pathologies. Reactive individuals tend to believe that their thoughts are relatively realistic but express that their thoughts are illogical during clinical interviews. On the other hand, individuals with autogenous obsessions may tend to conceal their obsessions, even though they are ego-dystonic. This could explain the same degree of metacognitive pathology in both groups. Also, similar metacognitive pathologies in the OCD subtype groups support the thought of using metacognitive therapy as a treatment option with no consideration of the subtype.

In a study by Lee and Telch (2005), it was found that individuals with autogenous obsessions focus more on their thoughts when they experience distress and danger perceptions (Lee & Telch, 2005). These findings explain why the “uncontrollability and danger” sub-dimension is significantly different in individuals with autogenous obsessions compared to those with reactive obsessions in our study. Individuals with autogenous obsessions find their thoughts very self-blaming, dangerous, and unacceptable, making it difficult for them to divert their attention away from their thoughts. They may enter into a cognitive effort to continuously control their anxieties. Individuals with reactive obsessions are inclined to organize their environment within the frame of behaviors related to the possible dangerous consequences of obsessions rather than focusing on their thoughts.

In our study, patients with reactive obsessions had higher mean OVIS scores than patients with autogenous obsessions. Individuals with reactive obsessions tend to believe that their thoughts are relatively more realistic or

acceptable or should be accepted by others, even though they tell clinicians that their thoughts are contrary to reason. Therefore, they dedicate themselves to avoiding the possible unintended consequences of thinking rather than fending off these thoughts or making themselves believe that they are irrational (Lee & Telch, 2005). In contrast, doctors tend to prescribe more antipsychotic drugs to patients with autogenous obsessions (Batmaz, Yildiz, & Songur, 2016). In our study, the OCD group comprised Selective serotonin reuptake inhibitors, antipsychotic users, and therapy patients. Since the clinical course of patients with autogenous obsessions is more severe, more antipsychotics may be prescribed for treatment, and thus OVI may have been affected at the cognitive level and detected less frequently in the autogenous group.

This study had some limitations. The patient group comprised primarily OCD patients on medication or treatment, which narrowed the sample group. Applying the tests while our patients continued their drug treatment and psychotherapy may have affected the metacognition, clinical severity of OCD, or OVIS total score. In addition, the significant difference between the patient and control groups in terms of educational status, the sample selection was cross-sectional, the number of our sample was limited, and some of the evaluations were self-reported. Further studies in larger sample groups are required to confirm and support our findings.

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

Ethics Committee Approval: The study was approved by the Ethics Committee of Turgut Özal University Faculty of Medicine (date and number of approval: 26.05.2015 / 83116987-241).

Informed Consent: Informed consent was obtained from all individual participants included in the study.

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