

Are the Symptom Dimensions in Obsessive Compulsive Disorder Related to Thought-Action Fusion, Magical Thinking, and Schizotypal Personality Traits?

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ABSTRACT

Introduction: This study aimed to investigate the relationship between symptom dimensions within obsessive-compulsive disorder and thought-action fusion, magical thinking, and schizotypal personality traits.

Methods: This research was designed as a cross-sectional case-control study. The study population involved patients with obsessive-compulsive disorder, and healthy controls who did not exhibit any psychiatric disorders following the Structured Clinical Interview for DSM-IV (SCID-I). Thought-Action Fusion Scale (TAFS), Magical Ideation Scale (MIS), Vancouver Obsessional-Compulsive Inventory (VOCI), Schizotypal Personality Questionnaire (SPQ), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI) were administered to all participants. The two groups were compared in terms of sociodemographic variables and scale scores, Spearman's correlation analysis was performed to examine the relationship between TAFS total and all subscale scores, magical thinking, schizotypal personality traits and OCD symptom dimensions scores.

Results: The study comprised 37 patients with OCD and 36 healthy controls. The patient group exhibited significantly higher scores in TAF total and all subscales, MIS, SCQ, BDI, and BAI, compared to the healthy control group. Positive correlations between magical ideation scores and VOCI-obsessions and VOCI-hoarding subscale scores and between schizotypal personality scores and VOCI-obsessions, VOCI-hoarding, VOCI-just right, VOCI indecisiveness scores was found.

Conclusions: The relationship between symptom dimensions in obsessive-compulsive disorder such as sexual, religious, aggression, hoarding, symmetry/ordering and magical thinking and schizotypal personality traits shows that these variables are among the determining factors for OCD symptoms.

Keywords: Magical thinking, schizotypal personality traits, thought action fusion

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INTRODUCTION

According to the cognitive-behavioral theory of obsessive-compulsive disorder (OCD), compulsive and intrusive thoughts form the basis of obsessive thoughts. Thus, obsessions result from the tendency of individuals to misinterpret these thoughts and to attribute excessive importance to them. Individuals hold themselves accountable for these thoughts, giving rise to emotions ranging from shame to guilt (1,2). It is the individual's belief in these thoughts that makes them distressing and perpetuates a cyclical pattern. The hypothesis that the thought is "equivalent to performing the action" contributes to the ongoing cycle in OCD. This phenomenon is defined as *the thought-action fusion* (3–5). The thought-action fusion consists of two subdimensions: *Morality (TAF-M)* and *Likelihood (TAF-L)* (3,4). In the morality subdimension of thought-action fusion, individuals perceive having unacceptable or unwanted thoughts as equal to actually engaging in the corresponding event. According to TAF-L, the other subdimension of thought-action fusion, the presence of these unacceptable and unwanted thoughts increases the perceived likelihood of the event actually occurring. Both TAF subdimensions can lead to an exaggerated sense of responsibility, accompanied by feelings of shame and guilt. Thus, specific symptom dimensions of OCD amplify the sense of responsibility and contribute to feelings of guilt associated

Highlights

- There are few studies examining the factors associated with OCD symptom dimensions.
- Magical ideation is associated with OCD symptoms dimensions.
- Schizotypal personality traits are associated with OCD symptoms dimensions.
- The impact of interventions targeting magical ideation should be examined.

with obsessions and related compulsions. According to a study published in 2020, it was found that TAF was associated with the harm-aggression subdimension in individuals with OCD (6).

Magical ideation is defined as the tendency to establish unrealistic causal relationships between thoughts and external events that are not widely

accepted in a person's society or cannot be explained by physical laws, even if there is no reasonable connection between the feared outcome and its assumed cause. Magical ideation is associated with individuals' belief in the power to control or create events (7,8). While the tendency toward magical ideation has been reported in patients with schizophrenia and schizotypal personality disorder, it is also observed in individuals with OCD (9–11). Situations perceived as dangerous activates magical ideation, and it is also evident in rituals performed by individuals with OCD to exert control over thoughts or events that cause distress (9). Magical ideation represents a distinctive form of TAF, and schizotypal personality traits correlate with TAF. Similar to TAF, cognitive distortions play a role in schizotypal features, particularly in reference thoughts, superstitious beliefs, and magical ideation (12). The associations between obsessive-compulsive symptoms and schizotypal personality traits with both magical ideation and TAF have been explored in both clinical patient and nonclinical sample groups (13–18). In a study conducted on a nonclinical sample, it was reported that a relationship between schizotypal characteristics and the TAF-L subdimension persisted even after controlling for the effects of obsessive symptoms, anxiety, and depression symptoms (13). In other studies conducted on nonclinical samples, a significant relationship was identified between obsessive symptoms and both magical ideation and TAF (14–16). In a study conducted with a patient group in this field, it was demonstrated that magical ideation scores were significantly higher in patients with OCD than healthy controls (17). In another study conducted in 2004 with 60 patients with OCD, a significant relationship was identified between TAF and both obsessive symptoms and magical ideation (19).

Assessment of cognitive distortions such as TAF and magical ideation, in OCD is crucial for comprehending the nature of the illness and formulating effective treatment strategies (20). It has been reported that schizotypal personality traits are observed at higher rates in obsessive-compulsive disorder compared to the general population, with rates reaching up to 48% (21). This condition has been noted to negatively impact the response to treatment (22). Therefore, gaining a better understanding of magical ideation, which may be related to schizotypal personality traits, along with its specific manifestation, TAF, is crucial to gain insights into the course of OCD, where disturbing thoughts lead to obsessions and compulsions (7,23). Studies have reported that factors such as male sex, early disease onset, learning disability, counting compulsion, and specific phobias increase the prevalence of schizotypal personality traits in individuals with OCD. Furthermore, these studies have proposed that cognitive functions tend to be more impaired in OCD patients with schizotypal personality traits compared to those without such traits. Additionally, it has been suggested that low doses of antipsychotic drugs should be incorporated into the treatment for individuals with OCD who exhibit schizotypal traits (24,25). It has been reported that control, aggression, and somatic obsessions, as well as control, counting, and ordering compulsions, are observed at higher rates in individuals with OCD who exhibit schizotypal personality traits (26,27).

It has been reported that OCD exhibits distinct clinical features when associated with TAF and magical ideation and in the presence of schizotypal personality traits. However, there is a limited number of studies examining the interplay of symptom dimensions and these variables, highlighting the need for further research in this area. In this context, the objective of this study was to investigate the relationship between OCD symptom dimensions and TAF, magical ideation, and schizotypal personality traits. The primary hypothesis of this study is that thought-action fusion, magical ideation, and schizotypal personality traits are more prevalent in patients with OCD compared to healthy controls, suggesting a relationship between OCD symptom dimensions and thought-action fusion, magical ideation, and schizotypal traits.

METHOD

Sample

This study was designed as a cross-sectional case-control study. This study included participants aged between 18 and 65, with a minimum educational qualification of primary school, who underwent outpatient or inpatient treatment at the Hacettepe University School of Medicine Psychiatry Department from October 2018 to May 2019 and were subsequently diagnosed with OCD following clinical assessments conducted by two different psychiatrists, adhering to the DSM-IV diagnostic criteria. The healthy control group comprised hospital staff and their relatives who matched the patient group in terms of age and gender. Members of the control group had no documented history of psychiatric illness, and they had neither been previously admitted to a psychiatric department nor used psychiatric medication. Psychiatric conditions were ruled out in the control group by utilizing the Structured Clinical Interview for DSM-IV Axis 1 Disorders (*SCID-I*). The study received approval from the medical ethics committee for non-interventional studies of the Faculty of Medicine at Hacettepe University, Türkiye (September 25, 2018/GO 18/784-41).

All participants underwent assessments using the Thought-Action Fusion Scale (TAFS), the Magical Ideation Scale (MIS), the Vancouver Obsessional-Compulsive Inventory (VOCI), the Schizotypal Personality Questionnaire (SPQ), the Beck Anxiety Inventory, and the Beck Depression Inventory.

Study Instruments

Thought-Action Fusion Scale (TAFS): This is a 5-point Likert-type scale that assesses the fusion of thoughts and actions. It is composed of three subscales – *TAFS-Morality*, *TAFS-Likelihood-Self*, and *TAFS-Likelihood-Others* – comprising a total of 19 items (4). The total score ranges from 0 to 76, with higher scores indicating stronger TAF. The Turkish validity and reliability study of the scale was conducted by Yorulmaz et al. (28).

Vancouver Obsessional-Compulsive Inventory (VOCI): This is a 5-point Likert-type scale designed to assess the severity of symptoms in obsessive-compulsive disorder. It is composed of six subscales: Checking (6 items), Contaminations (12 items), Hoarding (7 items), Obsessions (12 items), Just Right (12 items), and Indecisiveness (6 items), totaling 55 items. A Turkish validity and reliability study was conducted (29,30).

Magical Ideation Scale (MIS): The scale, designed for assessing magical ideations, includes a total of 30 items, with 7 items being inversely rated and 23 items being positively rated. The Turkish version of the scale was validated in a study conducted by Atbaşoğlu et al. (7,31). A higher score on the scale indicates a higher tendency toward magical ideation.

Schizotypal Personality Questionnaire (SPQ): This scale consists of a total of 74 questions designed to evaluate different dimensions of schizotypy, with a maximum achievable score of 74 (32). This scale comprises 9 subscales, including ideas of reference, social anxiety, odd beliefs/magical thinking, unusual perceptual experiences, eccentric/odd behavior, no close friends, odd speech, constricted affect, and suspiciousness. Each subscale consists of 7–9 items. The scale evaluates cognitive-perceptual, interpersonal, and disorganized schizotypy factors. The cognitive-perceptual schizotypy score is calculated by summing the scores on ideas of reference, odd beliefs/magical thinking, unusual perceptual experience, and suspiciousness traits; the interpersonal schizotypy score is calculated by summing the scores on suspiciousness, social anxiety, constricted affect, and no close friends traits; the disorganized schizotypy score is calculated by summing the scores on eccentric/odd behavior and odd speech traits. The Turkish validity and reliability study of the scale was conducted by Şener et al. (33).

Beck Anxiety Inventory (BAI): This is a 4-point Likert-type scale, consisting of 21 items, developed to assess the severity of anxiety symptoms (34). The Turkish version of the scale was validated in a study conducted by Ulusoy et al. (35).

Beck Depression Inventory (BDI): This is a 4-point Likert-type scale comprising 21 items. It was developed by Beck in 1961 to assess symptoms of depression (36). The cutoff point for the scale is set at 17 points. The Turkish version was adapted by Hisli in 1989 (37).

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I): It is a structured clinical interview designed for DSM-IV and developed to assess axis I diagnoses (38). The Turkish version of the scale was adapted and validated by Özkürkçügil et al. in 1999 (39).

Statistical Analysis

Statistical analyses were performed using the IBM Statistical Package for Social Sciences (SPSS) program version 23.0 software package. The conformity of the data to a normal distribution was assessed using the *Shapiro-Wilk* test. Descriptive statistics for continuous variables that followed a normal distribution were presented as mean and standard deviation. Continuous variables that did not adhere to a normal distribution were expressed as median, minimum, and maximum values. Categorical variables were presented as numbers and percentages. The independent samples t-test was employed to compare numerical variables with a normal distribution between the groups, while the Mann-Whitney U test was utilized for numerical variables without a normal distribution. The Chi-square test was used to compare categorical variables. The adequacy of the sample size was assessed based on the observed power asymptotic relative efficiency (A. R. E.) method using G*Power 3.1 (40). The correlations between the variables were examined using *Spearman's* correlation coefficient. Bonferroni correction for Spearman's correlation coefficients was conducted using the STATA statistical software program (STATA version 13.0). The level of statistical significance was determined at a *p-value* of less than 0.05.

RESULTS

Sociodemographic and Clinical Characteristics

The study comprised 37 individuals diagnosed with OCD according to DSM-IV diagnostic criteria, and a control group of 36 healthy individuals

matched for age and gender. The median age of the patients was 32.4 years (± 11.9), and the median disease duration was 13.06 \pm 8.5 years. In the patient group, 40.5% had an additional diagnosis of unipolar depression (n=15), 13.5% had anxiety disorders (panic disorder, generalized anxiety disorder, phobias, illness anxiety disorder) (n=5), 2.7% had bipolar affective disorder, and 2.7% had comorbid trichotillomania and unipolar depression (n=1). It was found that 67.6% (n=25) of the patient group used serotonin reuptake inhibitors (SSRIs), 5.4% (n=2) used tricyclic antidepressants (TCAs), 24.3% (n=9) used antipsychotic drug combinations with SSRIs or TCAs, 2.7% (n=1) did not use any medication, and 40.5% (n=15) had previously undergone cognitive-behavioral therapy for at least 1 month. The prevalence of a family history of psychiatric illness was 51.4% and 38.9% in the patient and control groups, respectively. Comparison of sociodemographic characteristics of the groups was shown in Table 1.

When comparing the scores of clinical evaluation scales between the patient and control groups, the patient group showed significantly higher scores in the total and all subscales of the TAFS, Magical Ideation Scale, SPQ, Beck Depression Inventory, and Beck Anxiety Inventory compared to the healthy control group ($p < 0.001$). Table 2 presents the findings regarding the clinical assessment scales of OCD patients and healthy controls.

In the patient group, the correlations between TAFS-total and its subscales, magical ideation, schizotypal personality traits, and OCD symptom dimensions were analysed. It was found that there was no statistically significant correlation between TAFS-total, TAFS-M, TAFS-L, and TAFS-L-Self scores and VOICI total and subscale scores ($p > 0.05$). When analyzing the correlation between MIS scores and VOICI total and subscale scores, a positive correlation was found with VOICI-Obsessions ($r_s=0.638$; $p=0.003$) and VOICI-Hoarding subscale scores ($r_s=0.577$; $p=0.023$). However, no significant correlation was observed between VOICI-Total and subscale scores and MIS scores ($p > 0.05$). A positive correlation was shown between SPQ scores and VOICI-Total ($r_s=0.750$; $p < 0.001$), VOICI-Obsessions ($r_s=0.674$; $p=0.001$), VOICI-Hoarding ($r_s=0.5773$; $p < 0.001$), VOICI-Just Right ($r_s=0.699$; $p < 0.001$), and VOICI-Indecisiveness scores ($r_s=0.713$; $p < 0.001$). However, no significant correlation was seen between SPQ scores and both VOICI-Contaminations and VOICI-Checking subscale scores ($p > 0.05$). The correlations between TAFS-total and subscale scores, magical ideation, schizotypal personality traits, and VOICI total and subscale scores are presented in Table 3.

Table 1. Sociodemographic characteristics of the study sample

	Patients (N=37)	Control (N=36)	P*
n (%)	37 (50.6)	36 (49.4)	
Age (Mean \pm SD)	32.4 (11.9)	28.6 (6.4)	0.091 ^a
Gender			
Male n (%)	13 (35.1)	16 (44.4)	0.416 ^b
Female n (%)	24 (64.9)	20 (55.6)	
Duration of education			
Median (min-max)	14 (5–18)	18 (8–19)	0.001^c
Marital Status			
Married n (%)	17 (45.9)	10 (27.8)	0.11 ^b
Unmarried n (%)	20 (54.1)	26 (72.2)	
Employment Status			
Student n (%)	12 (32.4)	18 (50.0)	0.013^b
Employed n (%)	13 (35.2)	16 (44.4)	
Unemployed n (%)	12 (32.4)	2 (5.6)	
Family history of psychiatric illness	19 (51.4)	14 (38.9)	0.285^b

a: t-test; b: Chi-Square test; c: Mann-Whitney U test; max: maximum; min: minimum; N=number of participants in the sample; SD: standard deviation.

Table 2. Comparison of clinical assessment scales between patient and control groups

	Patient (n=37) Median (min-max)	Control (n=36) Median (min-max)	p*
TAFS-total	26 (0-76)	6.5 (0-29)	<0.001
TAFS-M	22 (0-48)	6.5 (0-28)	<0.001
TAFS-L	2 (0-28)	0 (0-9)	<0.001
TAFS-L-Self	1 (0-12)	0 (0-4)	<0.001
TAFS-L-Others	1 (0-16)	0 (0-6)	<0.001
BDI	7 (0-21)	2 (0-9)	<0.001
SPQ	25 (1-64)	7 (1-28)	<0.001
MIS	14 (0-47)	1 (0-9)	<0.001
BAI	21 (2-48)	2 (0-13)	<0.001
VOCI-Total	92 (9-203)	10 (1-58)	<0.001
VOCI-Contaminations	26 (0-44)	4.5 (0-14)	<0.001
VOCI-Checking	12 (0-24)	0 (0-7)	<0.001
VOCI-Obsessions	17 (1-43)	0 (0-10)	<0.001
VOCI-Hoarding	4 (0-26)	0 (0-6)	<0.001
VOCI-Just Right	21 (0-47)	2 (0-23)	<0.001
VOCI-Indecisiveness	12 (0-24)	2 (0-16)	<0.001

*Mann-Whitney U Test; max: maximum; min: minimum; n: Number of participants.

BAI: Beck anxiety inventory score; BDI: Beck depression inventory score; MIS: magical ideation scale score; SPQ: schizotypal personality questionnaire score; TAFS-L-Others: thought-action fusion-likelihood - others score; TAFS-L-Self: thought-action fusion-likelihood - self score; TAFS-L: thought-action fusion - likelihood score; TAFS-M: thought-action fusion - morality score; TAFS-total: thought-action fusion scale total score; VOIC-Checking: Vancouver obsessional-compulsive inventory checking subscale score; VOIC-Contamination: Vancouver obsessional-compulsive inventory contamination subscale score; VOIC-Hoarding: Vancouver obsessional-compulsive inventory hoarding subscale score; VOIC-Indecisiveness: Vancouver obsessional-compulsive inventory indecisiveness subscale score; VOIC-Just Right: Vancouver obsessional-compulsive inventory just right subscale score; VOIC-Obsessions: Vancouver obsessional-compulsive inventory obsessions subscale score; VOIC-Total: Vancouver obsessional-compulsive inventory total score.

Table 3. Investigation of the correlations between TAFS and its subscales, magical ideation, schizotypal personality traits, and VOIC and its subscales in the patient group (n: 37)

		VOIC-Total	VOIC-Contaminations	VOIC-Checking	VOIC-Obsessions	VOIC-Hoarding	VOIC-Just Right	VOIC-Indecisiveness
TAFS-total	r _s	0.219	0.177	0.035	0.315	0.253	0.071	0.218
	p	1.000	1.000	1.000	1.000	1.000	1.000	1.000
TAFS-M	r _s	0.118	0.100	-0.031	0.254	0.137	-0.035	0.122
	p	1.000	1.000	1.000	1.000	1.000	1.000	1.000
TAFS-L	r _s	0.293	0.203	0.095	0.414	0.339	0.160	0.293
	p	1.000	1.000	1.000	1.000	1.000	1.000	1.000
TAFS-L-Self	r _s	0.318	0.234	0.074	0.437	0.354	0.172	0.323
	p	1.000	1.000	1.000	0.815	1.000	1.000	1.000
TAFS-L-Others	r _s	0.217	0.139	0.094	0.291	0.289	0.122	0.210
	p	1.000	1.000	1.000	1.000	1.000	1.000	1.000
BDI	r _s	0.529	0.297	0.342	0.638	0.577	0.392	0.491
	p	0.091	1.000	1.000	0.003	0.023	1.000	0.241
SPQ	r _s	0.750	0.531	0.448	0.674	0.773	0.699	0.713
	p	<0.001	0.087	0.657	0.001	<0.001	<0.001	<0.001
MIS	r _s	0.760	0.629	0.500	0.598	0.709	0.687	0.745
	p	<0.001	0.004	0.002	0.011	<0.001	<0.001	<0.001
BAI	r _s	0.628	0.476	0.417	0.703	0.509	0.484	0.563
	p	0.004	0.347	1.000	<0.001	0.158	0.289	0.034

BAI: Beck anxiety inventory score; BDI: Beck depression inventory score; MIS: magical ideation scale score; SPQ: schizotypal personality questionnaire score; TAFS-L-Others: thought-action fusion-likelihood - others score; TAFS-L-Self: thought-action fusion-likelihood - self score; TAFS-L: thought-action fusion-likelihood score; TAFS-M: thought-action fusion-morality score; TAFS-total: thought-action fusion scale total score; VOIC-Checking: Vancouver obsessional-compulsive inventory checking subscale score; VOIC-Contamination: Vancouver obsessional-compulsive inventory contamination subscale score; VOIC-Hoarding: Vancouver obsessional-compulsive inventory hoarding subscale score; VOIC-Indecisiveness: Vancouver obsessional-compulsive inventory indecisiveness subscale score; VOIC-Just Right: Vancouver obsessional-compulsive inventory just right subscale score; VOIC-Obsessions: Vancouver obsessional-compulsive inventory obsessions subscale score; VOIC-Total: Vancouver obsessional-compulsive inventory total score.

DISCUSSION

In this study, we investigated the relationship between TAF, magical ideation, and schizotypal personality traits in individuals with OCD. Additionally, we aimed to compare between patients with OCD and healthy controls in terms of these variables.

The patient group exhibited higher TAFS-total and subscale scores, MIS, and schizotypal personality traits compared to the control group. In similar studies, it has been reported that both total and subscale scores of the TAF were higher in patients with OCD compared to healthy controls (41,42). In studies conducted on nonclinical samples, it has been observed that

TAFS scores were higher in individuals exhibiting obsessive-compulsive rituals in their daily lives and engaging in ruminative thoughts, such as suppression or neutralization (43).

One of the objectives of the present study was to assess the correlations between symptom dimensions in OCD and TAF, magical ideation, and schizotypal personality traits. In the patient group, no correlation was identified between TAFS-total and subscale scores and VOCI total and subscale scores. However, when examining the relationship between magical ideation and obsessive-compulsive symptoms, a significant correlation was observed between MIS scores and the scores on the VOCI-Obsessions and VOCI-Hoarding subscales, which assess sexual, religious, and harm/aggression themes. The studies in the literature suggest associations between magical ideation and specific obsessions and compulsions, such as sexual/religious and harm/aggression obsessions, checking compulsions, and hoarding/collecting obsessions and its related compulsions in contrast to contamination and cleaning obsessions and compulsions (19). Individuals experiencing obsessions and associated compulsions related to checking, hoarding, sexuality, or religion may find it challenging to explain these behaviors in terms of causality. Conversely, patients with obsessions about contamination and cleaning compulsions related to these obsessions can provide explanations within this framework. Consequently, despite the absence of a relationship between VOCI-contaminations and magical ideation, it is believed that individuals dealing with sexual, religious, and hoarding obsessions, coupled with checking compulsions, may incline toward magical thinking systems in their mental or behavioral activities, deviating from a strict adherence to causality (44). In individuals experiencing obsessions and compulsions within these subdimensions, although magical ideation may appear to increase the perception of threat, it may concurrently attempt to diminish this perception by fostering a sense of regained control and eliciting neutralizing behaviors. (8). Therefore, magical ideation may be more prevalent in individuals dealing with sexual, religious, aggression, and hoarding obsessions, along with associated compulsions, compared to those experiencing contamination obsessions and cleaning compulsions.

When examining the associations between schizotypal personality traits and OCD symptom dimensions, it was observed that a significant correlation existed between schizotypal personality traits and VOCI-Total, along with subscales other than VOCI-Contaminations and VOCI-Checking subscales. Lee and Kwon categorized obsessions into two subgroups: autogenous obsessions and reactive obsessions (45). Obsessions characterized by ego-dystonic themes related to sexuality, religion, and aggression, primarily emerging without a detectable stimulus, are termed autogenous. In contrast, reactive obsessions pertain to themes like contamination, symmetry-order, and bodily concerns, occurring in response to a significant external stimulus and exhibiting a more realistic and rational appearance (45,46). It has been reported that autogenous obsessions bear similarities to delusions. Individuals with obsessions falling into this category may display a psychotic appearance because they perceive their obsessions as unrealistic, they either struggle to resist the urges associated with these obsessions or, if they resist, the manner in which they do so is deemed pathological (46,47). It has been demonstrated that thought disorders and schizotypal personality traits are more common in patients with autogenous obsessions. Moreover, patients belonging to this group are more likely to undergo antipsychotic treatment (48,49). Studies involving OCD patients without insight have revealed that subdimensions related to hoarding, ordering, and symmetry obsessions, along with hoarding, repetition, and checking compulsions, tend to be more prominent in this patient group. Additionally, more pronounced schizotypal personality characteristics, treatment resistance, and a poorer prognosis were observed in these individuals (50,51). A relationship between symmetry-order and hoarding/collecting symptoms in OCD patients and schizotypal traits was reported in another study and

it was revealed that both schizotypal personality traits and hoarding were related with emotional deprivation from cognitive schemas. This finding has led to the conclusion that addressing the emotional deprivation schema may be crucial in the treatment of OCD patients presenting hoarding/collecting symptoms (52). The findings mentioned in the literature are supported by the present study, suggesting correlations between schizotypal personality traits and obsessions related to sexuality, religion, and aggression (covered by the VOCI-Obsessions subscale), hoarding obsessions and collecting compulsions (covered by the VOCI-Hoarding subscale), and symmetry/order compulsions (covered by the VOCI-Just Right and VOCI-Indecisiveness subscales). However, further conclusions could not be drawn as the variables related to insight, thought disorder, and treatment were not evaluated. It was thought that a more comprehensive study could provide further perspectives in this regard.

Limitations of this study include using self-report scales and the absence of a separate statistical analysis of data for patients with additional psychiatric diagnoses within the patient group. Considering the fact that differences in education can contribute to intergroup variations in magical thinking and paranormal beliefs, the difference in the duration of education between the patient and healthy control groups may have influenced the results (53).

In conclusion, it is well established that the process from “intrusive, compulsive thinking” to OCD involves various factors, and this study suggests that magical thinking and schizotypal personality traits are among the determinants for OCD symptoms. It suggests that directly addressing magical thinking in the treatment of obsessive-compulsive disorder may yield potential benefits in symptom reduction. Consequently, there is a need for studies evaluating the impact of approaches targeting individuals’ propensity for magical thinking and cognitive bias such as thought-action fusion, on treatment response.

Ethics Committee Approval: The study received approval from the medical ethics committee for non-interventional studies of the Faculty of Medicine at Hacettepe University, Türkiye (September 25, 2018/GO 18/784-41).

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