Effects of Insight With Obsessive Beliefs and Metacognition Appraisal On Symptoms' Severity Among Patients With Obsessive Compulsive Disorder

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Research Article

Keywords: insight, OCD, metacognition appraisal, obsessive beliefs

Posted Date: November 18th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-986960/v1>

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Abstract

Background: Obsessive Compulsive Disorder (OCD) is among the top ten devastating mental disorders. Psychiatric nurses have significant roles in its diagnosis and management.

Aim of the study: to investigate the effects of insight with obsessive beliefs and metacognition appraisal on the severity of symptoms among patients with OCD.

Subjects and methods: This case-control study was conducted in the outpatient clinics at El Maamoura Mental Health Hospital. It included 69 OCD patients recruited from the setting, and 69 age- and gender-matched healthy controls. A self-administered questionnaire Yale Brown OCD Scale, Overvalued Ideas Scale (OVIS), and Metacognitions Questionnaire (MCQ-30) was used in data collection. The fieldwork was from October 2020 to March 2021.

Results: Most patients were diagnosed with OCD at <30 years age (78.3%), and 39.1% tried self-management. OCD patients' scores of Yale Brown, OVIS, and MCQ-30 were significantly higher than controls ($p < 0.001$). A significant positive correlation was found between Yale Brown severity and OVIS insight scores ($r = 0.459$). The multivariate analysis revealed that OVIS score is the strongest independent positive predictor of the Yale Brown severity score, while good family relations is a negative predictor. As for the MCQ-30, the control thoughts score was a positive predictor, and the self-consciousness score a negative predictor.

Conclusion and recommendations: OCD patients have poorer insight and more maladaptive metacognitive beliefs in comparison with healthy controls. Although poor insight has a significant negative impact on OCD severity, the effects of metacognition still need further research. The study recommends training programs to improve the insight of OCD patients. Further research addressing the role of metacognition in OCD is warranted.

Introduction

Worldwide, Obsessive Compulsive Disorder (OCD) is among the top ten devastating mental disorders. Its lifetime prevalence is estimated around 2.3% (American Psychiatric Association, 2020). The condition is characterized by obsessions where the patient has recurrent pushy undesirable thoughts or urges that lead to increased anxiety and distress. It also involves compulsions, which are ritualistic deeds or mental actions performed repeatedly to mitigate such anxiety or distress. Although the patients with OCD often comprehend that their obsessions and/or compulsions are extreme and irrational, they are unable to overpower them. This has negative impacts on their lives, affecting their family life and their work due to the time spent in performing their rituals leading to conflicts with others (Rosa et al., 2012). Such patients are often of low socioeconomic status, with high rates of divorce and unemployment in comparison with the general population. Their utilization of healthcare services is also more frequent (Erfan and Rakhawy 2010).

The patients suffering from OCD engage in ritual behaviors, whether seen or unseen, and use “*stop signals*” or specific internal rules to decide how these rituals must be performed and when to stop them. Usually these “stop signals” are metacognitive experiences such as a feeling satisfied. An example of this is “*I must wash my hands until it feels right*” (American Psychiatric Association, 2013). Metacognition or cognitive insight may describe the processes OCD patients use in planning, monitoring, assessing, and changing their behaviors (Myers and Wells, 2005). It is an essential factor in the etiology and persistence of their pathologic anxiety (Kim et al., 2021).

The Self-Regulatory Executive Functions (S-REF) model explains OCD metacognitive structure as a basis of the negative interpretation of OCD intrusive ideas. According to this model, the metacognitive beliefs concerning intrusive ideas are categorized into “thought-action fusion” or the belief that having particular thoughts leads to uncontrolled and undesirable actions; “thought-event fusion” or the belief that having a thought caused, causes or will cause an event; and “thought-object fusion” or the belief that thoughts and feelings can be got from or passed into an object (Myers and Wells, 2005). Any divergence from the metacognitive beliefs can affect cognition meaning and function, leading to ruminations (Matthews and Wells, 2002). Training OCD patients to improve their metacognition has resulted in improvement in their symptoms (Miegel et al., 2020). However, although metacognitive beliefs are implicated in OCD, mediating its effect on patients’ anxiety, yet the type of metacognitive belief is still unidentified (Gutierrez et al., 2020).

Meanwhile, research demonstrated that 15-30% of patients with OCD have low or no insight into their symptoms and their severity (Catapano et al., 2010). As per insight definition, these patients are unable to perceive external reality and separate it from its subjective facets, and are often unaware of the causes and significance of their own experiences. The patients with poor insight are also not aware of their mental disorder (Fistikçi et al., 2016). Such poor insight leads to increased severity of the symptoms (de Avila et al., 2019), with low response to treatment (Catapano et al., 2010), longer disease trajectory (Bellino et al., 2005), depression, functional impairment, and low quality of life (Remmerswaal et al., 2016; Rintala et al., 2017). Recognizing the heterogeneity of insight among the patients with OCD, the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, includes a span of insight options as a part of the diagnosis. This tends to improve the diagnostic specificity (American Psychiatric Association, 2013).

Psychiatric nurses have significant roles in the diagnosis and management of OCD patients at risk for poor insight. Their support is important to help these patients manage their anxiety and distress. These nurses can encourage OCD patients to talk about their feelings in details since they often attempt to hide their rituals and obsessions, which is critical in their management. This may help relieve some of the burden these patients secretly bear. Moreover, the nurse can train the patient in relaxation techniques and guided imagery, but this should be done only when he/she has a low level of anxiety to be more effective (Stein and Lochner, 2017).

Significance of the study: Although OCD is a common disorder with significant impairment of patients' life, the research investigating the relations among insight, metacognition, and the type and severity of obsessive beliefs is scarce (Ekinci and Ekinci, 2016), and more research is needed in this area for better understanding, management and nursing care for patients with OCD (Gillan, 2021). This present study is an attempt to disentangle these composite relationships.

Aim of study: to investigate the effects of insight with obsessive beliefs and metacognition appraisal on the severity of symptoms among patients with OCD.

Research Question: What are the effects of insight with obsessive beliefs and metacognition appraisal on OCD symptoms' severity among patients with obsessive compulsive disorder?

Subjects And Methods

Research design: A case-control design was utilized where a study group comprising OCD patients is compared to a control group of healthy persons.

Setting: The study was conducted in the outpatient clinics at El Maamoura Mental Health Hospital. It is the largest of the five mental health hospitals affiliated to the Ministry of Health in Egypt. The hospital provides care for patients diagnosed with acute and chronic psychiatric disturbances that need institutionalized care. Outpatient services are provided daily from 8:00 am to 1:00 pm.

Subjects: The subjects consisted of two groups

Case group: This consisted of 69 OCD patients recruited from the study setting. The inclusion criteria were being diagnosed with OCD according to DSM IV, age 18 to 50 years, and able to read and write. Those patients having an active psychiatric disease comorbid to OCD, having visual and/or auditory hallucinations, or with active use of alcohol and/or substance abuse were excluded.

Control group: This comprised 69 age- and gender-matched healthy persons who volunteered to participate. They included patients' relatives as well as hospital employees. The inclusion and exclusion criteria were the same as the study group except for OCD diagnosis. In addition, they had no psychiatric complaints and were not diagnosed with any disorders during their mental examination.

The sample size was calculated to estimate differences in the scores of Yale Brown, OVIS, and MCQ-30 between cases and controls with a moderate effect size (0.50) based on Hulley et al (2013), using a 1.0 standard deviation at 95% level of confidence and 80% power. Accordingly, the required sample size is 64 subjects (Chow et al., 2008). This was increased to 69 to compensate for an expected non-response rate of around 10%. A purposive consecutive non-probability sampling technique was used in recruiting cases and controls according to inclusion and exclusion criteria, with age and gender matching of the two groups.

Data collection tools: A self-administered questionnaire with three standardized tool was used, in addition to a section for participants' characteristics. This section covered personal data as age, gender, level of education, marital and job status, and income, with questions about regular physical exercise, and having friends. For the OCD patients, this section included details about the age at diagnosis, trials of self-management, previous hospital admission and treatment used, smoking, relations with family and neighbors, suicidal ideas and attempts, and family history. Participant's height and weight was appended to this section.

First tool: Yale Brown OCD Scale: This was developed by Goodman et al. (1989) to measure the types and severity of symptoms of OCD, with good psychometric properties. The Arabic version was used (Okasha et al., 1996). The scale is composed of five items assessing obsessions and five items for compulsion. The response to each item is on a 5-point Likert type scale: "no symptom, mild, moderate, severe, and extreme." These are scored from 0 to 4 respectively. The items' scores are summed for a total score ranging between 0 and 40. The cut-off score of clinically significant OCD symptoms is 16.

Second tool: Overvalued Ideas Scale (OVIS): This tool was developed to assess the severity of the overvalued ideation (Neziroglu et al., 1999), with high validity and reliability (Neziroglu et al., 2001). It is an 11-item scale asking about belief strength, reasonableness, accuracy, lowest and highest belief, adherence to others, differing views, effectiveness of compulsions, insight strength of resistance, and duration of belief. The response to each item is on a 10-point numeric scale. The lowest end of the scale indicates higher insight, with tendency of overvaluing towards the end of the scale. The scores of the 11 items are summed and divided by 11 to provide an average total score ranging from 1 to 10. A higher total score represent greater overvalued ideas, which has been considered as a reliable indicator of poor insight in OCD patients. Those patients with a score 6 or higher are classified as having poor insight (Neziroglu et al., 2001).

Third tool: Metacognitions Questionnaire (MCQ-30): This was originally created by Cartwright-Hatton and Wells (1997), and a short form was developed by Wells and Cartwright-Hatton (2004). It consists of 30 items equally divided into five subscales. These are: Positive Beliefs about worry (PB) relating to belief that worrying is actually useful; Cognitive Confidence (CC) relating to efficacy of one's attention and memory functioning; Uncontrollability and Danger (UD) for concerns about uncontrollable worry that needs to be controlled for better functioning; Cognitive Self-consciousness (CS) for the degree of focus on own thinking, and the need to control thoughts; (NCT) for control of negative beliefs regarding responsibility, punishment, and superstition. The responses are on a 4-point Likert-type scale from "do not agree" to "agree very much." These are scored from 1 to 4, respectively so that a higher score indicates more maladaptive metacognitive beliefs and more unhelpful metacognitions. The scores of the items of each subscale are summed to range from 6 to 24, and for the total scale to range from 30 to 120. The tool has high reliability and validity in measuring metacognition in OCD patients (Grøtte et al., 2016).

Validity and reliability of the self-administered questionnaire: The three tools used are standardized with reported high validity and reliability as indicated above. Moreover, their reliability was assessed in the

present study through assessing their internal consistency. They demonstrated high levels of reliability with Cronbach's alpha coefficients 0.89, 0.81, and 0.92 for the Yale Brown, OVIS, and MCQ-30 scales.

Administrative and ethical Considerations: Ethical approval of the study protocol was obtained from the Research Ethics Committee at the Faculty of Nursing Marsa Matrouh University (Approval number: 2020-186). The study was also approved by the Research Ethics Committee of El Maamora Hospital for Mental Health. All research ethics principles were complied with according to Helsinki Declaration. The patients and controls who met the eligibility criteria were invited to participate and gave their written informed consents after being informed about the aim and procedures of the study. They were informed about their rights to refuse or withdraw at any time. They were reassured about the confidentiality of any information, and their privacy was secured through anonymity. No actual or potential harms were foreseen from conducting the study on participants.

Pilot study: A pilot study was carried out on about 10% of the study sample to test the clarity of the tools and feasibility of the study. Necessary modifications were done according to the results of the pilot. Those patients were not included in the main study sample.

Fieldwork: Upon obtaining the agreement to conduct the study from the hospital director, the researchers embarked on recruiting the study sample and collecting the data. The patients and control persons who met the inclusion and exclusion criteria were recruited in the sample and assigned to their respective groups. The researchers met individually with each subject to explain the nature and purpose of the study. Those who gave their written informed consent to participate were handed the self-administered questionnaire to fill it in the same sitting. They were provided with clear instructions in how to fill the form. The researchers were present all the time to respond to any queries. The fieldwork lasted for 6 months, from October 2020 to March 2021.

Statistical analysis: Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the scales through their internal consistency. Quantitative continuous data were compared using the non-parametric Mann-Whitney. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. In larger than 2x2 cross-tables, no test could be applied whenever the expected value in 10% or more of the cells was less than 5. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the independent predictors of the Yale Brown, OVIS, and MCQ-30 scores, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

Results

The patients and controls had similar age and gender distribution, with the majority being below 30-year age, and slightly more females as shown in Table 1. Meanwhile, statistically significant differences were revealed in all their other socio-demographic characteristics. It is clear that the control group subjects were having higher level of education, with higher percentages of them being married, working, and having sufficient income.

Table 1
Socio-demographic characteristics of OCD patients and controls

	Group				X ² test	p-value
	OCD (n=69)		Control (n=69)			
	No.	%	No.	%		
Age:						
<30	54	78.3	48	69.6		
30+	15	21.7	21	30.4	1.35	0.24
Gender:						
Male	33	47.8	31	44.9		
Female	36	52.2	38	55.1	0.12	0.73
Education:						
Basic	16	23.2	1	1.4		
Intermediate	38	55.1	43	62.3	16.04	<0.001*
High	15	21.7	25	36.2		
Marital status:						
Unmarried	58	84.1	47	68.1		
Married	11	15.9	22	31.9	4.82	0.03*
Job status:						
Unemployed	19	27.5	0	0.0		
Working	50	72.5	69	100.0	22.03	<0.001*
Income:						
Insufficient	23	33.3	12	17.4		
Sufficient	46	66.7	57	82.6	4.63	0.03*
(*) Statistically significant at p<0.05						

As presented in Table 2, most patients were diagnosed with OCD at <30 years age (78.3%), with median 25.0 years. Approximately two-fifth (39.1%) of them tried self-management, and 34.8% had previous hospitalization. The majority had medical treatment (65.2%). More than a half of them were smoking (59.4%) and had good relations. Slightly less than a half of them were having suicidal ideas or attempts, and 58% had a family history of OCD.

Table 2
Disease and health characteristics of OCD patients

	Frequency	Percent
Age at diagnosis:		
<30	54	78.3
30+	15	21.7
Range	17.0-45.0	
Mean±SD	26.3±6.2	
Median	25.0	
Tried self-management of OCD	27	39.1
Previous hospital admission	24	34.8
Treatment:		
Medical	45	65.2
Psychic	11	15.9
Both	13	18.8
Smoking	41	59.4
Good relations with:		
Family	35	50.7
Neighbors	50	72.5
Had suicidal:		
Ideas	34	49.3
Attempts	32	46.4
Family history of:		
OCD	40	58.0
Psychiatric problem	50	72.5

Table 3 demonstrates that significantly more control subjects were practicing regular exercise ($p=0.002$). On the other hand, the OCD patients had significantly more friends ($p=0.03$). The table also shows that 92.8% of the OCD patients had normal BMI, compared with 55.1% of the control group, with statistically significant difference in the mean BMI ($p<0.001$).

Table 3
Health and social habits of OCD patients and controls

	Group				X ² test	p-value
	OCD (n=69)		Control (n=69)			
	No.	%	No.	%		
Regular exercise	17	24.6	35	50.7	10.00	0.002*
Have friends	67	97.1	59	85.5	5.84	0.02*
No. of friends:						
Range	1-24		0-48			
Mean±SD	6.5±5.0		5.2±6.1		4.73	0.03*
Median	6.0		3.0			
Body mass index (BMI):						
Normal	64	92.8	38	55.1		
Overweight	4	5.8	23	33.3	–	–
Obese	1	1.4	8	11.6		
Range	15.0-30.4		21.1-41.6			
Mean±SD	21.0±2.9		25.4±3.6		49.14	<0.001*
Median	21.30		24.60			
(*) Statistically significant at p<0.05 (–) Test result not valid						

Table 4 points to statistically significant differences between the OCD patients and controls' scores of Yale Brown, OVIS, and MCQ-30 ($p<0.001$). In all these comparisons, the scores of OCD patients were higher in comparison with the control group.

Table 4
Scores of Yale-Brown OCD, Overvalued Ideas Scale (OVIS), and Metacognition in OCD patients and controls

Scales	OCD (n=69)		Control (n=69)		Mann-Whitney Test	p-value
	Mean±SD	Median	Mean±SD	Median		
Yale Brown OCD:						
Obsession (max=20)	11.9±3.2	11.00	0.9±1.6	0.00	105.46	<0.001*
Compulsion (max=20)	13.6±3.2	13.00	0.6±1.6	0.00	112.59	<0.001*
Total (max=20)	25.5±6.0	23.00	1.5±3.2	0.00	105.20	<0.001*
Overvalued Ideas Scale OVIS (max=10)	7.2±1.8	6.50	2.3±0.5	2.00	107.33	<0.001*
Metacognitions Questionnaire MCQ-30 (max=24):						
Cognitive confidence	20.6±2.0	21.00	13.4±3.7	14.00	86.62	<0.001*
Control thoughts	20.5±2.2	21.00	13.9±3.8	14.00	78.49	<0.001*
Negative belief	20.1±3.0	21.00	13.9±3.6	14.00	69.07	<0.001*
Positive belief	19.7±2.5	20.00	12.3±4.2	13.00	78.09	<0.001*
Self-consciousness	19.9±2.5	20.00	15.7±3.6	16.00	50.07	<0.001*
Total (max=120)	100.9±10.8	104.00	69.1±14.5	72.00	79.57	<0.001*
(*) Statistically significant at p<0.05						

As displayed in Table 5, those OCD patients with poor insight had higher Yales Brown scores, both types and for the total. However, the difference was statistically significant only for the obsession score ($p=0.023$), and it was of borderline significance for the total score. As regards the MCQ-30 scores, they were slightly higher among those patients having poor insight, but the differences were not statistically significant.

Table 5
Relations between OCD patients' scores of Yale-Brown OCD and Metacognition (MCQ-30) and their insight

	Insight				t-test	p-value
	Good (OVIS<6)		Poor (OVIS 6+)			
	Mean	SD	Mean	SD		
Yale Brown OCD:						
Obsession	10.63	2.13	12.28	3.34	-2.363	0.023*
Compulsion	12.88	2.19	13.83	3.42	-1.324	0.193
Total	23.50	3.97	26.11	6.42	-1.969	0.056
MCQ-30:						
Cognitive confidence	21.06	2.46	20.49	1.86	0.998	0.322
Control thoughts	20.69	2.30	20.45	2.15	0.376	0.708
Negative belief	19.69	2.87	20.28	3.07	-0.690	0.493
Positive belief	19.44	2.31	19.81	2.58	-0.520	0.605
Self-consciousness	19.44	3.10	20.09	2.34	-0.911	0.366
Total	100.31	12.00	101.13	10.59	-0.263	0.793
(*) Statistically significant at p<0.05						

Table 6 demonstrates a statistically significant moderate positive correlation between Yale Brown severity and OVIS insight scores ($r=0.459$). Meanwhile, MCQ-30 score was not significantly correlated to any of these two variables. It also shows that scores of Yale Brown had significant negative weak and moderate correlations with the level of education and BMI, respectively. OVIS score had similar correlations, in addition to a negative correlation with income and a positive correlation with the age at diagnosis. Lastly, the MCQ-30 had significant negative weak and moderate correlations with the level of education and BMI, respectively, and a positive correlation with the numbers of friends.

Table 6
Correlation matrix of total scores of Yale-Brown (YB) and OVIS and MCQ-30
with patients' characteristics

	Spearman's rank correlation coefficient		
	YB	OVIS	MCQ-30
YB total	1.000		
OVIS	.459**	1.000	
MCQ-30:	-.097	-.185	1.000
Characteristics:			
• Age	-.038	-.039	-.024
• Education level	-.292**	-.423**	-.279**
• Income	-.153	-.225**	-.124
• No. of friends	.101	.141	.253**
• BMI	-.549**	-.549**	-.504**
• Age at diagnosis	.223	.266*	-.045
(*) Statistically significant at $p < 0.05$ (**) Statistically significant at $p < 0.01$			

The multivariate analysis for the effects of OVIS and MCQ-30 on OCD patients' Yale Brown scores (Table 7) revealed that OVIS score is the strongest independent positive predictor of the Yale Brown severity score, while good family relations is a negative predictor. As for the MCQ-30, only two dimensions remained in the analysis with borderline significance. These are the control thoughts score, which is a positive predictor, and the self-consciousness score, which is a negative predictor. The model explains 48% of the variation in the Yale Brown score.

Table 7
Best fitting multiple linear regression model for the effects of OVIS and MCQ-30 on Yale Brown OCD scores

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Dependent variable: Yale Brown OCD total score							
Constant	6.15	5.97		1.030	0.307	-5.78	18.08
Good family relations	-2.77	1.10	-0.23	-2.527	0.014	-4.97	-0.58
OVIS score	2.44	0.33	0.71	7.483	<0.001	1.79	3.09
Control thoughts score (MCQ-30)	0.84	0.45	0.30	1.882	0.064	-0.05	1.73
Self-consciousness score (MCQ-30)	-0.70	0.38	-0.29	-1.837	0.071	-1.46	0.06
r-square=0.48Model ANOVA: F=14.48, p<0.001							
Variables entered and excluded: age at diagnosis, gender, job status, relations with neighbors, previous hospitalization, other MCQ-30 scores							

Dicussion

This study investigated the effects of insight with obsessive beliefs and metacognition appraisal on the severity of symptoms among patients with obsessive compulsive disorder (OCD). The findings point to a significant effect of insight. As for metacognition, the effects are contradictory with a trend to significance of two of its dimensions, namely self-consciousness and control of thoughts.

The study used a case-control design to compare the demographics of patients with OCD and healthy controls. It also served to verify and give more credibility to the tools used in collection of data, and the comparisons of all scales and subscales of the three measurement tools showed wide and statistically significant differences between the study and control groups. A similar case-control approach was used by Yılmaz et al. (2020) in a study in Turkey, where significant differences were reported in their Yale Brown subscales' scores. Furthermore, Kim et al. (2021) in Korea found that metacognition scores were significantly higher in the OCD group in comparison with healthy controls.

The two groups in the present study were matched for age and gender, but the patients suffering from OCD tended to have lower educational attainment, were mostly unmarried, unemployed, with insufficient income. These are typical characteristics of the OCD patients who tend to have low socioeconomic standards. This is also supported by the negative correlation between the Yale Brown severity score and

the level of education. In congruence with this, a studies examining the correlates of OCD reported a higher prevalence of low education, unemployment, and low income among these patients (El Dawla et al, 2015; Elmasry et al, 2020; Williams et al., 2021). Conversely, Sheikhmoonesi et al. (2014) reported that no significant relation could be shown between the prevalence of OCD and marital status.

Concerning the OCD disease characteristics among the patients in the current study, the age at diagnosis was mostly below 30, i.e. in early adulthood. It could even start early in childhood as reported by Ozkan et al. (2021) in a recent study in Turkey. The early age of onset has also been identified as a risk factor for more severe symptoms of OCD (Tibi et al., 2021). Nonetheless, a third peak of OCD onset was reported in the geriatric in a study in Portugal (Fernandes et al., 2021).

In the present study sample, the main line of treatment was medical therapy, which was reported by the majority of the patients with OCD, whether alone or with psychic treatment. Recent research in neurobiology indicated that the pharmacotherapy of OCD is quickly developing with new prospects in new medications, including genetic therapy (Goodman et al., 2021). Around two-fifth of the patients in the current study have attempted self-management of their disorder. This would actually delay proper management of the condition, with associated poorer prognosis as highlighted in a study in Singapore (Subramaniam et al., 2020). The current study has also revealed that more than a half of the patients with OCD were smokers, and were having a positive family history of OCD. These were reported as risk factors predicting OCD in a study in Iran (Mohammadi et al., 2021).

According to the present study findings, approximately one-half of the patients with OCD in the sample reported having suicidal ideation, or even suicidal attempts. These high rates are quite alarming. They are clearly high when compared with those reported in a study in Egypt, where the rates were 27% for suicidal ideation and 33% for attempts (Nagy et al., 2020). These higher rates would certainly indicate more severe disorder among our patients as suicidal ideations and attempts were shown to be correlated with the severity of OCD symptoms (Eskander et al., 2020).

A main objective of the current study was to disentangle the intricate relationships among patients' severity of OCD symptoms and their insight and metacognition. The bivariate analyses demonstrated that the severity of symptoms as measured by Yales Brown scores was higher among those with poor insight, particularly the obsession dimension score. Moreover, the Yale Brown and OVIS scores were moderately and positively correlated, indicating that a poorer insight is associated with more severe symptoms. Furthermore, the multivariate analysis identified OVIS score as the most important positive predictor of the Yale Brown score, where each increase by one point in OVIS score leads to 2.44 more points in Yale Brown score. The finding is in agreement with the results reported in a study in Denmark, where the severity of OCD symptoms found to be increased among those having lower insight (Nissen et al., 2020).

The present study has also examined the effect of metacognition, assessed using the MCQ-30 scale, on the severity of OCD symptoms, either directly or through mediation by insight. The findings demonstrated no correlation between MCQ-30 scores and either of the Yale Brown severity score or the insight score.

This obviates the possible mediating effect of insight. In congruence with this, Yilmaz et al. (2020) in the Turkish study found no significant correlation between the metacognition and insight scores.

Meanwhile, the multivariate analysis in the current study showed a contrasting effect of two of the MCQ-30 dimensions on Yale Brown severity score. Thus, a higher score of the control thoughts dimension, meaning worse related metacognition led to increases in the Yale Brown Score, i.e. it has an aggravating effect on disease severity. Conversely, the self-consciousness dimension score had an alleviating effect on disease severity, which might be attributed to that patients are apparently interested in their own world of thought in a ruminative way. These contradictory effects of the MCQ-30 dimensions might explain the lack of correlation of its total with the Yale Brown score.

These foregoing present study results are in agreement with those of Ekinçi and Ekinçi (2016) whose study in Turkey showed no significant association between OCD severity and prognosis from one side and patients' cognitive insight or metacognition from the other side. Conversely, the study of Kim et al. (2021) demonstrated significant relations between metacognition and OCD severity; however, they used a scale different from the Yale Brown scale in measuring the severity of OCD symptoms. Meanwhile, in line with the alleviating effect of the metacognition dimension on OCD revealed in the present study, a study in Korea reported a similar finding, in addition to a better response to treatment (Park et al., 2020). The discrepancies among different studies indicate that this area warrants more research.

An additional factor identified as a negative predictor of the Yale Brown OCD severity score is the presence of good family relations. This is quite expected given the importance of a healthy family and home environment in the development and maintenance of the mental health of its members. In congruence with this, a study in Australia demonstrated the importance of healthy family relationships and behaviors on the psychopathology of its members, especially the growing children (Mathieu et al., 2020). Hence, the integration of the family in the management of patients with OCD is highly recommended (Stewart et al., 2020).

An interesting result of the present study was the finding of statistically significant negative moderate correlations between OCD patients' BMI and the scores of OCD severity (Yale Brown), poor insight (OVIS), and maladaptive metacognitive beliefs (MCQ-30). Hence, low BMI seems to be a factor associated with more severe symptoms and poor prognosis. This association between BMI and OCD has been studied by Seabrook and Borgland (202) in Canada. They claimed that the orbitofrontal cortex is implicated in both of these conditions. Moreover, a study in Iraq reported better outcomes of surgical treatment of obesity when preceded by management of OCD in the patient (Hosseini et al., 2021).

Conclusion And Recommendations

The patients suffering from OCD have poorer insight and more maladaptive metacognitive beliefs in comparison with healthy controls. Although poor insight has a significant negative impact on OCD severity, the effects of metacognition still need further research. The study recommends training

programs to improve the insight of OCD patients. Further research addressing the role of metacognition in OCD is warranted.

Declarations

Ethical approval

The current study was approved by the Ethical Committee at the Faculty of Nursing, Suez Canal University, Egypt.

Guidelines

All methods were carried out in accordance with relevant guidelines and regulations.

ARRIVE guidelines

The authors confirm that the study was carried out in compliance with the ARRIVE guidelines.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from corresponding author on reasonable request.

CONFLICT OF INTEREST:

The authors declare that there are no conflicts of interest.

Funding

There is no fund.

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