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Effect of metacognition appraisal and insight on the severity of obsessional beliefs among patients with obsessive compulsive disorder

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Abstract
Background: One of the ten most severe mental disorders is obsessive compulsive disorder (OCD). Psychiatric nurses play an important role in providing care to affected clients. **Aim:** this study explore the effect of metacognition appraisal and insight on the severity of obsessional beliefs among patients with obsessive compulsive disorder. **Design:** A descriptive correlational was used in the current study. **Setting:** The study was conducted in the out-patient clinics of Assiut university psychiatric hospital. **Subjects:** A purposive consecutive non-probability sample of 69 OCD patients. **Tools:** Demographic and clinical data questionnaire; Yale-Brown Obsessive Compulsive Scale (Y-BOCS); Metacognitions Questionnaire (MCQ-30); and Overvalued Ideas Scale (OVIS) were used to collect the data. **Results:** The patients' scores of the Y-BOCS, OVIS and MCQ-30 were significantly higher. There was a significant positive correlation between Y-BOCS severity and OVIS insight scores (r=0.459).The multivariate analysis showed that the OVIS score is the strongest independent positive predictor of the Y-BOCS severity score, while good family relations was a negative predictor. Regarding the MCQ-30, the control thoughts score was a positive predictor and the self-consciousness score was a negative predictor for it. **Conclusion:** Patients with OCD have more maladaptive metacognitive beliefs. Also, poor insight had negative impact on the severity of obsessive compulsive disorder. **Recommendation:** The effects of metacognition require further researches and designed educational program to improve patient's insight to reduce severity of obsessional beliefs.

Keywords: Insight, Metacognition appraisal, OCD patients, Obsessive beliefs& Y-BOCS.

Introduction
Obsessive Compulsive Disorder (OCD) is the most severe psychiatric disorders and the prevalence is 2.3% in the world **(American Psychiatric Association, 2020)**. It is marked by obsessions, in which the patient has persistent, unwanted urges ideas that raise anxiety and distress as well as compulsions, which are repetitive ritualistic acts or mental processes carried out to ease such anxiety or suffering. It is characterized by obsessions, in which the patient has persistent, urges ideas that raise anxiety and distress as well as compulsions, which are repeated ritualistic behavior or mental processes carried out to relieve anxiety or suffering. OCD sufferers are unable to control their obsessional thoughts or compulsions, while being aware of how powerful and illogical they are. Their lives are negatively impacted by the time spent doing their rituals, which leads to conflicts with others, negatively affecting both their family life and their employment. Such patients in comparison to the general community, these patients frequently have low socioeconomic level and high rates of divorce and unemployment **(Pedley et al, 2019).**
American Psychiatric Association,(2013) cited that whether or not these activities are noticeable to others, OCD sufferers engage in ritualistic activity, and they use "stop signals" or specific internal rules to dictate how these rituals must be performed and when to stop them. These "stop signals" are typically satisfaction-like metacognitive emotions. This is demonstrated by the phrase of questionnaire as (I must wash my hands till it feels right). Planning, monitoring, evaluating, and altering behavior for OCD sufferers may involve processes known as metacognition or Old reference cognitive insight. It plays a significant role in the development and perpetuation of their pathologic anxiety **(Kim et al., 2021).**
Metacognitive structure of OCD is explained by the self-regulatory executive functions model as the source of the unfavorable perception of intrusive thoughts. This model categorizes patients' metacognitive beliefs regarding intrusive ideas into three groups: "thought-action fusion," where patients believe that thinking about a specific action is the same as actually doing it, or that the thought will cause the action; "thought-event fusion," where patients believe that having a specific thought caused, causes, or will cause an event; and "thought-object fusion," where patients believe that thoughts and feelings can be objectively observed **(Miegel et al., 2020)**. Any deviation from the metacognitive principles may change the nature and intent of

cognition, which may lead to ruminations (**Rintala et al., 2017)**. The symptoms of OCD patients have improved as a result of training them to enhance their metacognition. Metacognitive beliefs is linked to OCD while modulating the disorder's effect on patients' anxiety. But it's still unknown what sort of metacognitive notion **(Gutierrez et al., 2020)**.

Studies have shown that 15 to 30% of patients with OCD have little understanding of the severity of their symptoms **(Remmerswaal et al., 2016).** According to the definition of insight, these individuals are unable to distinguish between objective reality and its subjective components and frequently have no understanding of the origins or importance of their own experiences. **Sehlo, Youssef & El-Gohari (2021) reported that** these patients seek about medical services more frequently. According to **Fistikci et al. (2016)** found that people with weak insight are also unaware of their mental illness. Also, **Avila et al (2019)**

Revealed that inadequate understanding causes symptoms to become more severe, with poor treatment response, a longer disorder trajectory, depression, functional impairment, and poor quality of life. In acknowledgement of the diversity of insight among OCD patients, the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, includes a variety of insight options as part of the diagnosis. This generally improves the diagnosis' specificity **(American Psychiatric Association, 2013)**.

The diagnosis and management of OCD patients who run the risk of having impaired insight are under the purview of psychiatric nurses. Their support is essential in helping these individuals manage their misery and worry. Since OCD patients frequently try to conceal their rituals and obsessions, nurses can urge them to communicate their feelings freely. Additionally, the nurse can teach the patient how to relax and use guided imagery for maximum effectiveness **(Stein & Lochner, 2017)**.

Significance of the study:

There is a little data on the types and severity of obsessive beliefs, metacognition, and insight. More studies are required in this area for improved management and nursing care for patients with OCD. Although OCD is a common disorder that significantly impairs patients' lives, more research in this area is needed **(Gillan, 2021)**. So, the current study aimed to explore the effect of metacognition appraisal and insight of obsessional beliefs on the symptoms' severity of patients with OCD.

Research Question: Is there effect of metacognition appraisal and insight of obsessional beliefs on symptoms' severity among patients with obsessive compulsive disorder?

Subjects and Methods

Materials

Design: A descriptive correlational design was used to conduct this study.

Research design: descriptive correlational research design was utilized.

Study setting: The study was conducted in the out-patient clinics at Assiut university psychiatric hospital.

Subjects: The study participants were 69 patients with OCD selected based on the following inclusion criteria: The patients diagnosed according to DSM-5; both males and females; between the ages of 18 to 50 years; and who are able to read and write.

The exclusion criteria: Patients with significant comorbidity medical or mental problems, such as personality disorders, ADHD, anxiety, or depression; Individuals experiencing auditory or visual hallucinations; Patients who currently alcohol or other substances use (must have >90 days of abstinence).

Sample size: Based on **Hulley et al., (2013)** the sample size was determined to estimate differences in the scores of the MCQ-30, Y-BOCS, and OVIS with a moderate effect size (0.50), utilizing an 80% power and a 95% degree of confidence with a 1.0 standard deviation. So, 64 participants are needed for the sample size **(Chow et al., 2008).** This was raised to 69 in order to account for an anticipated 10% drop-off or non-response rate.

Sampling technique: A purposive consecutive non-probability sampling was used according to inclusion and exclusion criteria.

Data collection tools: Self-administered questionnaires, demographic and clinical data with three standardized tools were used. Demographic data sheet includes personal data as age; gender; level of education; marital and job status; physical exercise, and having friends. Clinical data sheet includes the age at diagnosis; previous hospital admission; treatment used; trials of self-management; smoking; relations with family and neighbors; patients' height and weight; and family history of OCD.

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

This tool was developed by **Goodman et al. (1989)** and translated into Arabic language by **(Okasha et al., 1996)** to assess the types and severity of OCD symptoms. The scale composed of 5 items assessing obsessions and 5 items assessing 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 total score ranging between 0 and 40, the cutoff point of clinically significant OCD symptoms is 16.

Second tool: Metacognitions Questionnaire (MCQ-30):

This tool created by **Cartwright-Hatton and Wells (1997)**, modified by **Wells and Cartwright-Hatton (2004)** and translated into Arabic language by the researchers used translation back translation. There are 30 items total, distributed to five subscales. Positive Beliefs (PB) center on the idea that worrying can be beneficial; Cognitive Self-consciousness (CS) focus on one's own thinking and the need to control thoughts; Cognitive Confidence (CC) relates to the effectiveness of one's attention and memory functioning; Uncontrollability and Danger (UD) concerns about uncontrollable worry that needs to be controlled for better functioning; Cognitive Self-consciousness (NCT) for control of negative beliefs regarding responsibility, punishment, and superstition. The responses ranged from "do not agree" to "agree very lot" on a 4-point Likert-style scale. These are rated from 1 to 4, and a higher score denotes more unhelpful metacognitions and maladaptive metacognitive beliefs.

Third tool: Overvalued Ideas Scale (OVIS):

This tool was developed by **(Neziroglu et al., 1999)** and translated into Arabic language by the researchers used translation back translation. It has a good level of validity and reliability and was created to evaluate the seriousness of inflated ideation. It comprises 11-item that asks about belief strength, rationality, accuracy, lowest and greatest belief, adherence to others, divergent viewpoints, the efficacy of compulsions, the strength of insight in resisting, and the length of belief. Each response is scored out of 10 on a numerical scale. The lowest point denotes greater insight, and the highest point tends to overvalue. The average total score ranged from 1 to 10, is calculated by adding the scores of the 11 components and dividing them by 11. A higher overall score indicates more overvalued concepts, which has been shown to be a reliable sign of limited insight in OCD patients. Patients who have scored of six or higher are considered to have weak insight **(Neziroglu et al., 2001).**

Validity and reliability of the study tools: The three tools used are standardized and reported high validity and reliability as indicated above. Moreover, their reliability was evaluated 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 Y-BOCS, OVIS, and MCQ-30 scales.

Administrative design

A written official approval to conduct the study was obtained from responsible authorities. Tool I (the Socio-Demographic and Clinical Data Structured Interview Schedule) was developed by the researcher. Tool III (self-concept clarity Scale) was translated into the Arabic language. Then this tool was tested for content validity by five experts in the field of psychiatric nursing.

Ethical consideration:

Ethical approval of the study proposal was obtained from the Research Ethics Committee, faculty of nursing, Assiut University. Written informed consents from participants were obtained after being informed about the aim and procedures of the study, their rights to refuse or withdraw at any time, confidentiality, and their privacy was secured through anonymity.

Pilot study:

It was carried out on 7 patients representing 10% of the computed sample size to test the clarity and applicability of the tools and the feasibility of the research process. Needed modifications were carried out based on the pilot study results, and the tools were finalized accordingly. The 7 patients were excluded from the total sample.

Field work:

The researchers met each patient personally. After explaining the purpose of the study, handing out the self-administered questionnaire, give precise instructions on how to fill the instruments, and answer any questions. The fieldwork lasted for 12 months, from March 2021 to March 2022.

Statistical analysis:

Using SPSS 20.0, data entry and statistical analysis were performed (statistical software package). For qualitative and quantitative variables, respectively, means, standard deviations, and medians were used to present the data using descriptive statistics. In order to compare quantitative continuous data, the non-parametric Mann-Whitney test was used. Instead, the Fisher exact test was performed when the anticipated values in one or more cells of a 2x2 table were fewer than 5. When the predicted value in 10% or more of the cells was less than 5, no test could be run on cross-tables larger than 2x2. The interrelationships between ranked and quantitative variables were evaluated using Spearman rank correlation. Finding the independent Y-BOCS predictors required

Results

Table (1): Demographic characteristics of studied patients with OCD (No. = 69)

Demographic characteristics	Frequency	Percent
Age:		
<30	54	78.3
30+	15	21.7
Gender:		
Male	33	47.8
Female	36	52.2
Education:		
Basic	16	23.2
Intermediate	38	55.1
High	15	21.7
Marital status:		
Unmarried	58	84.1
Married	11	15.9
Job status:		
Unemployed	19	27.5
Working	50	72.5

Table (2): Clinical data of the studied patients with OCD (No. = 69)

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:		
Psychopharmacological	45	65.2
Psychotherapy	11	15.9
Both	13	18.8
Smoking	41	59.4
Good relations with:		
Family	35	50.7
Neighbors	50	72.5
Family history of:		
OCD	40	58.0
Psychiatric problems	50	72.5

Table (3): Health and social habits of studied patients with OCD (No. = 69).

Health and social habits	Frequency	Percent
Regular physical exercise	17	24.6
Have friends	67	97.1
No. of friends:		
Range	**1-24**	
Mean±SD	**6.5±5.0**	
Median	**6.0**	
Body mass index (BMI):		
Normal	64	92.8
Overweight	4	5.8
Obese	1	1.4
Range	**15.0-30.4**	
Mean±SD	**21.0±2.9**	
Median	**21.30**	

Table (4): Scores of Y-BOCS, Overvalued Ideas Scale (OVIS), and Metacognition among patients with OCD (No. = 69)

Scales	patients with OCD (n=69)	
	Mean±SD	Median
Y-BOCS:		
Obsession (max=20)	11.9±3.2	11.00
Compulsion (max=20)	13.6±3.2	13.00
Total (max=20)	25.5±6.0	23.00
Overvalued Ideas Scale OVIS (max=10)	7.2±1.8	6.50
Metacognitions Questionnaire MCQ-30 (max=24):		
Cognitive confidence	20.6±2.0	21.00
Control thoughts	20.5±2.2	21.00
Negative belief	20.1±3.0	21.00
Positive belief	19.7±2.5	20.00
Self-consciousness	19.9±2.5	20.00
Total (max=120)	100.9±10.8	104.00

Table (5): Relation between OCD patients' scores of Y-BOCS and Metacognition (MCQ-30) and their insight (No. = 69)

Items	Insight				t-test	p-value
	Good (OVIS<6)		Poor (OVIS 6+)			
	Mean	SD	Mean	SD		
Y-BOCS:						
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): Correlation matrix of total scores of Y-BOCS, OVIS, MCQ-30 and characteristics of OCD patients (No. = 69)

Items	Spearman's rank correlation coefficient		
	Y-BOCS	OVIS	MCQ-30
Y-BOCS total	1.000		
OVIS	.459**	1.000	
MCQ-30:	-.097	-.185	1.000
Characteristics:			
• Age	-.038	-.039	-.024
• Education level	-.292**	-.423**	-.279**
• 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*

Table (7): Best fitting multiple linear regression model for the effects of OVIS and MCQ-30 on Y-BOCS scores (No. = 69)

Model	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Dependent variable: Y-BOCS 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=0.48 *Model 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

Table (1): Showed that the majority of the OCD patients were under 30 years old (78.3%); and more than half (52.2%) of them were female. While more than half of them (55.1%) had college education; higher percentages of them (84.1%) were unmarried; worked (72.5%); and had sufficient income (66.7%).

Table (2): Revealed that 78.3% of patients diagnosed with OCD were less than 30 years with a mean ± SD 26.3±6.2 years. A little more than half of them (39.1%) tried self-management, and 34.8% had previously been hospitalized. More than half of them (59.4%) smokers, and the majority (65.2%) received medical attention. A family history of OCD was reported by 58% of respondents.

Table (3): Demonstrated that one quarter of studied OCD patients were practicing regular physical exercise (24.6%). The majority of patients with OCD had friends (97.1%). Also, 92.8% of patients had normal body mass index.

Table (4): Points to that the total mean scores for Y-BOCS, OVIS, and MCQ-30 were 25.5±6.0; 7.2±1.8; and 100.9±10.8 respectively.

Table (5): Demonstrates that patients with impaired insight had higher Y-BOCS scores overall as well as for thoughts and compulsions. The change, however, was only marginally statistically significant for the total score (p-value = 0.023) and statistically significant only for the obsessive score. Although patients with impaired insight had a slightly higher MCQ-30 score, these differences were not statistically significant.

Table (6): Showed that there was a somewhat positive correlation (r = 0.459) between the Y-BOCS severity and OVIS insight scores. While neither Y-BOCS nor OVIS substantially linked with MCQ-30 score. However, there were substantial negative weak correlation between Y-BOCS scores and educational level. Also, strong negative moderate correlations between Y-BOCS scores and body mass index. In addition to a negative link with income and a positive correlation with the age at diagnosis of OCD; the OVIS score also showed comparable correlations. The MCQ-30 had a positive association with the number of friends whereas r = 0.253 and a substantial weak negative and moderate link with the level of education and body mass index, respectively.

Table (7): Demonstrated that a healthy family relationship was a negative predictor, and the OVIS score was the strongest independent positive predictor of the Y-BOCS severity score. Only two MCQ-30 categories, the control thoughts score (a positive predictor) and the self-consciousness score (a negative predictor), were left in the analysis with borderline significance. 48% of the variation in the Y-BOCS score was explained by the model.

Discussion

The present study explored the relationship between insight into obsessional beliefs and metacognition appraisal and the intensity of symptoms experienced by OCD patients. According to the results, insight has a big effect. The findings on metacognition are at odds with a propensity to over emphasize the significance of its two components, self-awareness and thought control.

The demographic characteristics of patients with OCD were used to validate and lend greater authority to the data collection methods. Patients with OCD typically had lower educational status, were single, and unemployed. Participants have low socioeconomic status, and these characteristics are common in OCD patients. This finding goes in line with finding that was reported by **Kim et al. (2021) & Ylmaz et al. (2020).** The inverse relationship between the Y-BOCS severity score and educational level supports this as well. **Eldawla et al, (2015); Elmasry et al, (2020); Williams et al., (2021)** examining patients with OCD, they found that OCD patients have a higher prevalence of unemployment and low levels of education. **Sheikhmoonesi et al.,**

(2014) found no significant relation between marital status and the prevalence of OCD.

According to the study finding, the majority of patients with OCD were diagnosed when they were less than 30 years old. This result means that the disorder appears at young adulthood. This result is congruent with study of **Ozkan et al. (2021)** that conducted in Turkey. Early age of onset has also been noted as a risk factor for severity of OCD symptoms **(Tibi et al., 2021)**. Also, a third peak of OCD onset was noted early in adults (**Fernandes et al., (2021)**.

The present study revealed that the majority of OCD patients reported they receiving pharmacological treatment, either alone or in conjunction with psychotherapy. According to contemporary neurobiology research, genetic treatment is one novel medicine with which the pharmacotherapy of OCD offers new options **(Goodman et al., 2021)**.

In the current study, about two fifth of the patients had tried to self-manage their OCD. According to **Subramaniam et al (2020)** found that seeking medical treatment would actually hinder the condition from being handled well, which would lead to a worse prognosis. The current study found that more than half of the OCD patients were smokers and had a family history of the disorder. These finding were similar to study conducted by **Mohammadi et al., (2021)** who identified family history as risk elements for OCD.

The objective of current research was to identify the complex relation between patients' metacognition, insight and the severity of OCD symptoms. The bivariate analysis showed that those with poor insight had severe symptoms which it can lower proper treatment response. Additionally, there was positive significant correlation between the Y-BOCS and OVIS scores, where each increase by one point in OVIS score leads to 2.44 more points in Y-BOCS score. This finding is consistent with study of **Nissen et al., (2020) who** found that patients with poor insight had more severe OCD symptoms.

The current study assessed how the severity of OCD symptoms is affected by metacognition, as measured by the MCQ-30 scale. The findings revealed no correlation between the Y-BOCS severity or insight scores and the MCQ-30 scores, ruling out any potential insight mediation effects. This result is consistent with study conducting by **Ylmaz et al. (2020)** who revealed no association between insight and metacognition scores.

Two of the MCQ-30 dimensions in the current study also showed opposing impacts on the Y-BOCS severity score. As a result of a higher score on the control thoughts dimension, this denotes worse connected metacognition and a worsening of illness severity. The self-consciousness score may have had a reducing effect on the severity of disorder due to the patients' clear ruminative interest in their own realm of thought. The finding of the aforementioned study was in similar line with **Ekinci (2016)** who found no correlation between the severity and prognosis of OCD, insight, or metacognition. The study of **Kim et al. (2021)** confirmed a significant relation between metacognition and OCD severity; however, they used a scale different from the Y-BOCS in assessment the symptoms' severity of OCD. Additionally, in line with the improving effect of the metacognition dimension on OCD that 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 inconsistencies among different studies indicate further investigation is necessary in this area.

The presence of healthy family relationships has also been found to be a negative predictor of the Y-BOCS severity score. Given the significance of a healthy family and home environment in the growth and maintenance of its members' mental health, this is reasonably predicted. Accordingly, an Australian study showed the value of positive family relationships and behaviors on each member's psychopathology, especially in developing children **(Mathieu et al., 2020).** Consequently, it is strongly advised to include the family in the treatment of OCD patients **(Stewart et al., 2020)**.

The present study demonstrate a statistically significant negative moderate associations between the body mass index (BMI) and the scores of OCD severity (Y-BOCS), poor insight (OVIS), and maladaptive metacognitive beliefs (MCQ-30). Low BMI seems to be a factor associated with a worse prognosis and severe symptoms according to research by **Seabrook & Borgland (2020).** Additionally, addressing OCD patients prior to undergoing surgical weight loss generated superior results, according to a study done by **Hosseini et al (2021).** It is necessary for the nurses to more broadly examine the role of insight in OCD. It might be suggested that it is necessary to question the prediction of insight in treatment and in clinical approaches.

Limitation of the study

Due to the pandemic spread of COVID-19, it is essential to take safety precautions such using a mask, keeping a safe distance, keeping the lungs well-ventilated, avoiding crowds, and washing hands when dealing with patients and staff members.

Conclusion

Based on the findings of the current study, it can be concluded that, Patients with OCD exhibit more dysfunctional metacognitive assessment. Lack of insight and significantly have negative impact on the severity of OCD, further study is still needed to

determine how metacognition affects patients' thoughts and behavior.

Recommendation

Based on the findings of the current study, it can be recommended a designed training program to increase OCD patients' insight. It is necessary to conduct more researches on the patients with OCD and metacognition.

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