Original Article

Prevalence of obsessive-compulsive symptoms among adult population in primary care centers in Bahrain – A cross-sectional study

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ABSTRACT

Background: The global increasing prevalence of obsessive-compulsive disorders and symptoms among various age groups and nationalities is considered a great clinical challenge. However, limited data are available on this topic in the Middle East and Gulf Council Countries. This study aimed to raise awareness of obsessive-compulsive symptoms among adults in Bahrain by determining its prevalence and risk factors among patients attending primary healthcare centers. **Materials and Methods:** A cross-sectional study was conducted among adult patients attending primary healthcare centers in Bahrain. A self-administered online questionnaire using Google form, a free online survey-creating website, was distributed through WhatsApp messages. A snowball sampling technique was used. The questionnaire consisted of three parts: the socio-demographic data of participants, the Maudsley Obsessional-Compulsive Inventory, and the Yale-Brown Obsessive-Compulsive Scale. Descriptive and inferential analyses were conducted. **Results:** A total of 614 participants were included with a mean age of 30.04 ± 13.04 years. Most participants were females (82.5%) and single (n = 347, 56.5%). The estimated prevalence of obsessive-compulsive symptoms among the participants was 15%; most of them reported mild symptoms (85%). Significantly higher obsession and compulsion symptoms were found among non-Bahraini (P < 0.001 and P < 0.002), single (P < 0.001 and P < 0.033), and student participants (P < 0.001 and P = 0.002) compared to their counterparts, respectively. In addition, undergraduates reported higher obsessions compared to other participants (P = 0.005). **Conclusions:** Approximately, one in every eight people in Bahrain were found to suffer from obsessive-compulsive symptoms, especially single, students, and non-Bahraini participants. These findings highlight the need for raising awareness of obsessive-compulsive disorder and its symptoms as well as the importance of early detection and management of obsessive-compulsive disorder.

Keywords: Compulsion, mental, obsessions, obsessive, psychiatry

Introduction

Obsessive-compulsive disorder (OCD) is a mental condition characterized by the presence of obsessions or intrusive thoughts and compulsions such as repetitive

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behaviors performed in a rigid ritual context.[1] Typically, patients with OCD have both obsessions and compulsions, but some patients might have obsessions or compulsions alone.[2]

Globally, OCD affects approximately 3% of the world's population, making it one of the most prevalent mental health problems.[3] In the Gulf Council Countries region, the rate of OCD was studied. Two published studies conducted in Saudi Arabia examined obsessive-compulsive symptoms (OCS) in students at Taif and Abha Secondary Girls' Schools and determined a prevalence of OCS of 23.1% and 12.3%, respectively.[4,5] Another study conducted in Qatar at primary health care centers on 1475 Qataris, between the ages of 18 and 65 years, detected OCD in 11% of the targeted sample.[6] Moreover, a study performed in Oman at the Psychotherapy Clinic at Sultan Qaboos University – a tertiary care hospital – detected a 5% prevalence of OCD in their patients.[7] In Bahrain, out of a sample of 329 psychiatric hospital outpatients aged between 18 and 65 years, 6.1% were found to have OCD or had a history of OCD.[8] In contrast, an older study done in 1998 revealed that OCD affected 0.05% of the general population in Bahrain.[9] From a more regional standpoint, a study to assess OCS in Egyptian adolescents studying at secondary schools reported that 15.5% exhibited OCS, while 2.2% were diagnosed with OCD. Furthermore, a study conducted in Iran to investigate the prevalence of OCS in adolescent high-school students detected OCS in 11.2% of the targeted sample.[10]

The pathogenesis of OCD is influenced by many risk factors, including environmental and genetic factors. Studies showed that almost 25% of patients with OCD may have at least one blood relative diagnosed with OCD; likewise, OCS may be inherited in 27%–60% of the population. Other risk factors include age, stress, pregnancy, postpartum period, Pediatric Autoimmune Neuropsychiatric Disorders associated with Streptococcal Infections (PANDAS), and the presence of other mental or neurological conditions that may contribute to the development of OCD. OCD tends to develop in early childhood or late adolescence and among females compared to males. Moreover, pregnancy and the postpartum period may worsen OCD due to hormonal fluctuations and changes. Moreover, OCD symptoms often occur during stressful major life changes and events, such as the loss of a loved one, divorce, or abuse, as well as instabilities in relationships, at school or at work. [11,12]

Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5) criteria are the gold standard tool to diagnose OCD. Nonetheless, several tools can be used to screen for OCD and OCS. The Maudsley Obsessional-Compulsive Inventory (MOCI) is one of the most widely used tests for assessing OCD symptoms (OCS).[13]

Obsessions may come in one or many forms such as fear of contamination, religious thoughts, superstitious ideas, perfectionism, causing harm, losing control, and unwanted sexual thoughts. On the other hand, compulsions may include behaviors such as checking, repeating, washing, cleaning, mental compulsions, hoarding, ordering, and arranging. In some studies, religious obsessions and compulsions are common among some societies. OCD frequently coexists with other psychiatric disorders, especially particularly depression and anxiety. According to a study carried out among OCD patients in Bahrain, almost two-thirds of patients with OCD had depression and 26% had anxiety disorders.[9,14,15]

This research was undertaken due to the limited data available on OCS and OCD in Bahrain and to raise clinicians' awareness on the gravity of OCS. This study aimed to identify the prevalence of OCS among adult patients in Bahrain. It also aims to examine the relationship between the participants' demographic characteristics and OCS and to determine whether OCS can predict OCD diagnosis when the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) scores meet OCD cutoff points.

Materials and Methods

This cross-sectional study was conducted among adult patients attending primary healthcare centers in Bahrain. Patients aged 18 years and older were eligible to be included. Patients with an underling psychiatric disorder or intellectual disability and those who did not complete the questionnaire were excluded. As COVID-19 pandemic prevented patients from attending primary healthcare centers in person, the data were collected through WhatsApp, a social media platform.

Considering a confidence level of 95% (z-score = 1.96), a margin of error of 5%, and a prevalence of 11% based on previous studies, a target sample size of 239 was determined. A pilot study was conducted on 10 participants to identify possible challenges in the data collection process. The sequence of the questions was modified accordingly.

Data were collected using an online survey using Google form, a free online survey-creating website. The form consisted of three parts. The first section assessed the sociodemographic data of the participants such as age, gender, nationality, social status, employment status, and education level. The second section included the MOCI questionnaire to measure four sub-scales of OCS: checking compulsions, washing, or cleaning, slowness, and doubting, while the third section assessed the severity of OCS using Y-BOCS scale. MOCI questionnaire consisted of 30 True-False items. The Y-BOCS consisted of 10 items, with each item rated from '0' indicating no symptoms to '4' indicating extreme symptoms, making up a total range from 0 to 40.[16,17] Both scales were used in order to determine the prevalence and characteristics of OCS. According to the Y-BOCS scale, a score of 16 or more indicated presence of OCS. For Y-BOCS, a score less than 8 indicated very mild symptoms that do not require any treatment, a score between 8 and 11 indicated mild symptoms that can interfere with daily life, a score between 11 and 23 signifies moderate symptoms, a score between 24 and 31 indicated remarkable symptoms, and a score between 32 and 40 indicated severe symptoms.[18,19] Eligible participants were asked to fill in the

survey. English and Arabic versions of the tool were provided as these languages are the most commonly used languages in Bahrain.

The test–retest reliability of MOCI was at 0.92, and the scores' internal consistency was at 0.76. On the other hand, the Y-BOCS had very good test–retest reliability at 0.94 and excellent internal consistency at 0.96.[20] Similar regional studies were referenced to validate both scores.

In comparison, data obtained through the Arabic version of the survey demonstrated satisfactory factorial validity.[21] The test–retest reliability of the Arabic version of the Y-BOCS was at 0.68, $P = 0.004$. The overall reliability of the Arabic version is not as solid as in other languages.[22]

Statistical analysis

Quantitative variables were expressed as means and standard deviations, while qualitative variables were expressed as frequencies and percentages. As appropriate, Pearson Chi-square, independent sample *t*-test, and one-way analysis of variance test were used to compare between groups. Tukey's test was used to conduct pairwise comparisons of the groups' social status and jobs; these results were represented using blots and error bars. In addition, the Pearson correlation coefficient was used to measure the linear relationship between the MOCI and Y-BOCS. A P value of less than 0.05 was considered statistically significant. All analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 27.

Ethical consideration

Ethical approval was obtained from the Ethics Committees of Ministry of Health at the Kingdom of Bahrain and the Arabian Gulf University. In addition, informed written consent was taken from all participants in the study. No identifying data were obtained from the participants.

Results

A total of 614 participants were included in the present study, with a mean age of 30.04 years (SD = 13.04). Most participants were females ($n = 506$, 82.5%), Bahraini ($n = 592$, 96.4%), and single ($n = 347$, 56.5%). Students ($n = 263$, 42.8%) and undergraduates ($n = 439$, 71.5%) constituted most of the cohort. Table 1 lists the sociodemographic data of the participants.

The prevalence of OCS among the participants was 15%. Most of the cohort reported mild symptoms of OCD that did not interfere with their activities (68.3%), while one in six patients (16.8%) reported mild symptoms that interfered with daily life. In addition, 11.2% scored reported moderate symptoms, 3.3% reported remarkable symptoms, and only 0.5% reported severe symptoms, Figure 1.

As shown in Table 2, there was no statistically significant difference in OCS and patient's sex. Non-Bahraini participants ($P < 0.001$

Table 1: Sociodemographic characteristics of the study sample

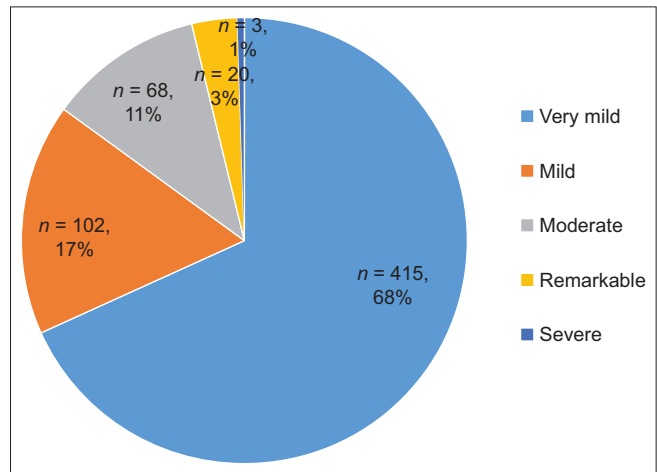| Variables	n (%)
Age (Years)	
Mean±SD	30.64±13.04
Gender	
Male	107 (17.5)
Female	506 (82.5)
Nationality	
Bahraini	592 (96.4)
Non-Bahraini	22 (3.6)
Social Status	
Single	347 (56.5)
Married	245 (39.9)
Divorced	16 (2.6)
Widowed	6 (1.0)
Employment Status	
Student	263 (42.8)
Employed	168 (27.4)
Unemployed	91 (14.8)
Retired	92 (15.0)
Education Level	
Secondary	125 (20.4)
Undergraduate	439 (71.5)
Postgraduate	50 (8.1)

Figure 1: The percentage and characteristics of Y-BOCS levels

and $P < 0.002$), single participants ($P < 0.001$ and $P < 0.033$) and students ($P < 0.001$ and $P = 0.002$) had a higher frequency of obsessions and compulsions compared to their counterparts. In addition, undergraduates reported higher obsessions compared to other participants ($P = 0.005$).

A pairwise comparison of the mean differences using Tukey's post-hoc test was performed to determine which of the group means included in the ANOVA was statistically significant. The results found statistically significant higher rates of OCS among single participants compared to married and divorced individuals. In addition, students had a higher OCS frequency compared to employed and retired participants, Figure 2.

Table 2: Association of Y-BOCS scores and sociodemographic data

Variables	Category	Obsession			Compulsion			Total		
		Mean	SD	P	Mean	SD	P	Mean	SD	P
Gender*	Male	3.40	3.56	0.260	2.66	3.81	0.997	6.09	7.04	0.277
	Female	4.37	4.16		2.66	3.74		6.95	7.40	
Nationality*	Bahraini	4.08	3.97	0.000	2.57	3.68	0.002	6.59	7.16	0.000
	Non-Bahraini	7.32	5.38		5.14	4.76		12.45	9.60	
Social Status**	Single	4.79	4.18	0.000	3.04	3.94	0.033	7.79	7.58	0.001
	Married	3.55	3.83		2.21	3.48		5.68	6.87	
	Divorced	2.00	3.22		1.44	2.85		3.44	6.03	
	Widowed	2.17	2.79		2.33	2.58		4.50	5.24	
Employment Status**	Student	5.03	4.31	0.000	3.18	4.14	0.002	8.20	7.95	0.000
	Employed	3.83	3.97		2.53	3.70		6.28	7.18	
	Unemployed	4.29	3.99		2.65	3.54		6.70	6.80	
	Retired	2.41	2.85		1.45	2.41		3.90	4.99	
Education Level**	Secondary	3.51	3.73	0.005	2.76	3.59	0.925	6.29	6.99	0.249
	Undergraduate	4.53	4.17		2.65	3.80		7.10	7.44	
	Postgraduate	3.02	3.60		2.52	3.76		5.54	7.09	

*Independent Sample *t*-test; **Analysis of Variance (ANOVA)

Table 3: Association between various sociodemographic variables and Y-BOCS levels

| Variables | Category | Y-BOCS Levels | | | | | | | | | | P |
| | | Very Mild | | Mild | | Moderate | | Remarkable | | Severe | | |
		n	%	n	%	n	%	n	%	n	%	
Gender	Male	79	19.0	15	14.9	8	11.8	3	15.0	1	33.3	0.504
	Female	336	81.0	86	85.1	60	88.2	17	85.0	2	66.7	
Nationality	Bahraini	407	98.1	98	96.1	61	89.7	17	85.0	3	100.0	0.001
	Non-Bahraini	8	1.9	4	3.9	7	10.3	3	15.0	0	0.0	
Social Status	Single	215	51.8	68	66.7	44	64.7	16	80.0	1	33.3	0.180
	Married	182	43.9	31	30.4	23	33.8	4	20.0	2	66.7	
	Divorced	13	3.1	2	2.0	1	1.5	0	0.0	0	0.0	
	Widowed	5	1.2	1	1.0	0	0.0	0	0.0	0	0.0	
Employment Status	Student	159	38.3	47	46.1	39	57.4	15	75.0	1	33.3	0.002
	Employed	117	28.2	33	32.4	11	16.2	4	20.0	2	66.7	
	Unemployed	63	15.2	12	11.8	13	19.1	1	5.0	0	0.0	
	Retired	76	18.3	10	9.8	5	7.4	0	0.0	0	0.0	
Education Level	Secondary	87	21.0	22	21.6	12	17.6	2	10.0	1	33.3	0.774
	Undergraduate	291	70.1	75	73.5	49	72.1	17	85.0	2	66.7	
	Postgraduate	37	8.9	5	4.9	7	10.3	1	5.0	0	0.0	
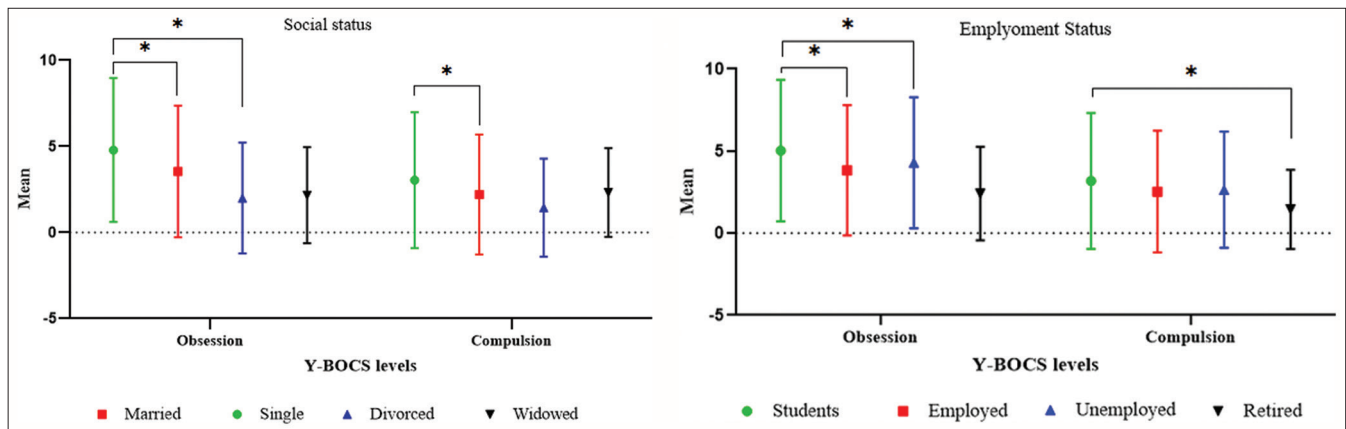
Figure 2: Results of Tukey's test identifying statistically significant differences in mean obsession-compulsion according to social and employment statuses

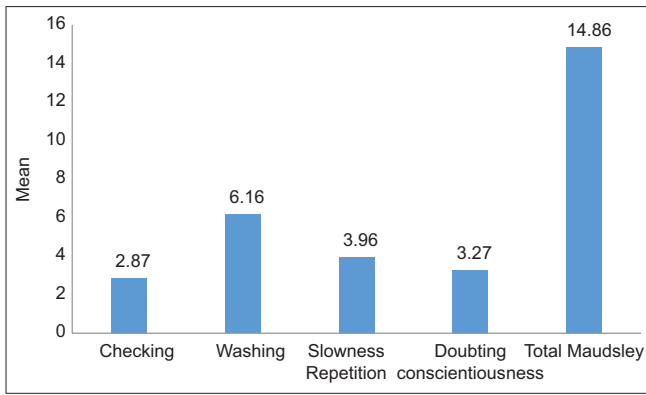**Figure 3:** Mean scores of sub-components of the MOCI scale

Table 4: Relationship between components of the MOCI scale and obsession and compulsion			
	Obsession	**Compulsion**	**Total**
Checking	0.504**	0.471**	0.520**
Washing	-0.172**	-0.122**	-0.160**
Slowness/Repetition	0.259**	0.188**	0.229**
Doubting/Conscientiousness	0.509**	0.458**	0.517**
Total MOCI Score	0.262**	0.262**	0.278**

**Correlation is significant at the 0.01st level

Associations between Y-BOCS levels and certain parameters

This study was able to produce and validate a cut-off score of 16.7 on the MOCI scale that enables the prediction of an OCD diagnosis on the Y-BOCS. Therefore, Y-BOCS can also be used to diagnose OCD without inferring to other scales. A significant association was found between the participant's nationality and the severity of OCS according to Y-BOCS level ($P = 0.001$) [Table 3]. Bahrain participants showed more severe OCD symptoms. In addition, a significant association was found between employment status and severity of OCD ($P = 0.002$). In contrast, there were no significant associations drawn when comparing Y-BOCS levels with gender, social status, and education level variables Table 3.

Relationship between sub-components on the MOCI scale and obsession–compulsion

Table 4 presents the relationship between the components of the MOCI scale and Obsession and Compulsion. Statistically significant positive relationships were found between OCS and frequent checking (r = 0.520, $P < 0.01$), slowness repetition (r = 0.229, $P < 0.01$), and doubting conscientiousness (r = 0.517, $P < 0.01$). In contrast, a negative relationship between frequent washing and OCS was noted (r = -0.160, $P < 0.01$).

MOCI can be used to predict Y-BOCS scores as a statistically significant relationship between total Y-BOCS and MOCI levels at 0.01 (r = 0.278, $P < 0.01$), with a coefficient of determination of 7.73% revealed.

Figure 3 illustrates the mean scores of MOCI scale subcomponents. The highest mean score was noted for washing at 6.16, while the lowest was noted for checking at 2.87.

Discussion

This study aimed to determine the prevalence and determinants of OCS among adult patients attending primary healthcare centers in Bahrain. The results revealed that OCS among Bahraini adults is relatively prevalent. This prevalence is higher compared to the previously reported rates in Bahrain.[8,9] The rate of OCS in this study is comparable to the reported rates in several studies that were conducted in the region.[5,10] In contrast, higher rates were reported in other countries in the region.[4] The variation in the prevalence of OCS across the studies could be attributed to different research tools, research methodologies, different settings, and social factors. Some studies, for example, included adolescents only, while other studies included adults and elderly patients. Additionally, some studies used a self-administered questionnaire, while other studies used interview-based questionnaires. Moreover, the high prevalence of OCS in this could be attributed to the ongoing COVID-19 pandemic, which increased OCS such as the tendency to clean and avoid germs.

Although OCS were more common in females, this finding was not statistically significant. In contrast to our findings, many studies found a significant association between OCS and sex with females being more affected than males.[6,7] The high prevalence rate of OCS among females may be attributed to the physiological and hormonal differences between males and females as well as the fact that women are more involved with cleaning chores in their household. Moreover, most of the study's participants were females, which may could have bolstered a statistical gender bias.

Single patients and students were found to have higher rates of OCS in the present study. This could be due to a lack of social support among these categories compared to their counterparts. In line with these findings, many studies in the literature reported similar findings. For instance, a study showed that unmarried participants and students were at a higher risk of suffering from OCS than married and non-student participants, respectively.[23] Similarly, a study conducted in Oman to investigate the sociodemographic and clinical characteristics of attendees at the psychotherapy clinic at Sultan Qaboos University, a tertiary care hospital, revealed that a majority (54%) of referrals were for single patients, followed by married (42%) and separated, divorced, or widowed individuals (7%).[7] Individuals with OCS are often fearful of contamination from other people or through everyday objects, which may justify the high prevalence of OCD among patients referred to psychotherapy in Oman. Furthermore, the influence of nationality on the risk of OCS symptoms was significant. This could be attributed to the genetic differences across different populations. In addition, this finding could also be explained by the low number of non-Bahraini participants recruited in this study.[24]

The presence of OCS in patients necessitates an early evaluation of high patients to confirm the presence or absence of OCD.

This will help in early management of positive cases and will certainly improve patients' quality of life.[6] Healthcare professionals have an important role in identifying patients with suspected OCD and referring them urgently for further psychiatric assessment and evaluation.

There are some limitations that could affect the interpretation of this study's results, such as the significantly higher number of female participants, the presence of COVID-19 and its mental health implications, the fact that this was a self-reported questionnaire, and the lack of face-to-face communication between investigators and participants due to COVID-19 restrictions. The statistical strength of MOCI predictability was low for determining Y-BOCS cut-off values, which could be explained by the small sample size and the study type, hindering proper interpretation.

Conclusion and recommendation

In conclusion, almost 1 in every 8 people attending primary care centers in Bahrain was found to suffer from OCS, especially single, students, and non-Bahraini participants. Most of the affected patients reported mild-moderate symptoms. A higher prevalence rate of OCS was seen in the present study compared to other epidemiological studies. Therefore, clinicians need to be aware and ask appropriate questions to identify patients with this disorder at an early stage to manage the affected patients as soon as possible. Further prospective and face-to-face studies are needed to accurately estimate the prevalence of OCS in primary healthcare in Bahrain and to identify possible justifications for its high prevalence.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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