



Obsessive and Compulsive Symptoms During COVID-19 Pandemic Crises Among the General Population in Makkah Region Saudi Arabia, A Cross-Sectional Study

Salman Anwar Thabet^{1*}, Raghad Khorshid², Rami Ahmad³ and Faisal Alarabi⁴

¹Department of Psychiatry, Mental Health Hospital, Ministry of Health, Jeddah, Saudi Arabia

²Psychiatry Section, Medicine Department, Ministry of National Guard – Health Affairs, Jeddah, Saudi Arabia

³King Abdullah International Medical Research Center, Jeddah 21423, Saudi Arabia

⁴Staff Physician, King Abdulaziz Medical City, Jeddah, Saudi Arabia

*Corresponding e-mail: DrSalmanThabet@hotmail.com

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ABSTRACT

Background: The Coronavirus Disease 2019 (COVID-19) has led to several changes internationally, nationally, and personally. The purpose of this study was to assess the obsessive-compulsive behaviors and symptoms among the Saudi population, specifically Makkah region, and to investigate the relationship between knowledge regarding the novel Coronavirus knowledge and Obsessive thoughts. **Methods:** The questionnaire included items related to the knowledge of COVID and a screening tool for OCD called the OCI-12 scale. Data collection took place from August to October 2021. **Results:** 73.9% of the participants had a positive OCI-12 score during the COVID pandemic, which indicated the possible presence of OCD. Females had more 'obsessing' symptoms than males. Participants who agreed that "antibiotics help in the treatment of COVID" were associated with more 'checking' symptoms than the rest of the participants. Regarding the knowledge, the majority of the participants had the correct knowledge and information regarding COVID. **Conclusion:** A high prevalence of participants had a positive score on the OCD-12 scale. There were significant associations that were found between specific demographics as gender, employment status, whether participants had children or not, and whether participants were exposed to covid or had COVID before with the presence of obsessive-compulsive symptoms. Also,

associations were found between knowledge participants had about COVID with the presence of obsessive-compulsive symptoms.

Keywords: Attention deficit hyperactivity disorder, Burden, Caregivers, Mental health

INTRODUCTION

The recent global pandemic, which was caused by the Coronavirus Disease 2019 (COVID-19), has led to several changes internationally, nationally, and personally [1]. In addition to these changes, there were strict safety measures that were advised to the public in order to achieve protection from the Coronavirus. The World Health Organization (WHO) advises individuals to wash their hands regularly with soap and water or alcohol-based hand rub, avoid touching eyes, nose, and mouth, maintain at least 1 meter (3 feet) between others, avoid going to crowded areas, and to self-isolate ourselves [2]. A specific mental disorder that is characterized by repetitive practicing of safety behaviours is called Obsessive-Compulsive Disorder (OCD).

According to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), OCD is a mental disorder characterized by the presence of obsessions or compulsions [3]. Obsessions include thoughts or urges that are persistent and recurrent. Compulsions include repetitive behaviours that are done as a response to the obsessions. Symptoms or examples of obsessions include fear of contamination, unwanted and distressing thoughts, or the urge to have things arranged in a symmetrical or specific order. Symptoms of compulsions include excessive cleaning or hand washing, repeatedly checking on things, repeating words silently, or arranging things in a specific way [3,4]. While the cause of OCD is unknown, there are several risk factors that are associated with OCD including genetics, environmental factors such as childhood trauma, and a specific brain structure and functioning [3,4].

The pandemic of Severe Acute Respiratory Syndrome Coronavirus 2 has constituted a global crisis in various dimensions [5]. Travel restrictions, closure of private businesses, social distancing, and quarantine were only some of the ensuing socioeconomic challenges [6]. The ramifications of COVID-19 have also extended to detrimentally impact societal mental well-being on a global level [5]. The unpredictability, social isolation, and uncertainty of the future are among several factors thought to significantly contribute to distress and mental morbidity during this pandemic [7]. This warranted the necessity of implementing psychological supportive measures for the public and vulnerable groups, in particular [8].

In response to the COVID-19 crisis, the WHO announced some mental health and psychosocial considerations to combat the virus-induced stress and anxiety that is affecting the whole population [9,10]. This increase in stress and anxiety among the general population could very much add to the existing obsession and fear over the virus itself and its infectivity [10,11]. This obsession and fear of being infected or spreading the virus could fuel Obsessive-Compulsive Symptoms (OCS) [12,13].

Several studies have highlighted the effect of COVID-19 on mental health, specifically obsessions and compulsion. A systematic review stated that people with or without OCD had a worsening of OCD-related symptoms during the pandemic [14]. A cross-sectional study, conducted in Saudi Arabia, concluded that around 62.4% of participants had obsessive-compulsive symptoms during the pandemic [15]. They also studied the factors contributing to obsessive-compulsive symptoms as Increasing age, male gender, married individuals, higher income groups, higher educational levels, and being employed [15].

The purpose of this study was to assess the obsessive-compulsive behaviors and symptoms among the Saudi population, specifically the Makkah region, affected by the COVID-19 pandemic. The study also investigated the relationship between knowledge regarding COVID-19 and Obsessive-compulsive symptoms and assessed the correlation between specific demographics and Obsessive-compulsive symptoms.

MATERIALS AND METHODS

This study was conducted in the Makkah Region of Saudi Arabia. The study design was a cross-sectional study. Regarding the inclusion and exclusion of this study, all the participants of any gender and nationality living in the Makkah region who were over the age of 18 and agreed to participate were included in the study. We excluded all participants who did not fill in the questionnaire completely.

The sample size was calculated to be 385 people using the Rao Online Software (Raosoft, Inc. Seattle, WA). The margin of error is 5% with a 95% confidence level and response distribution of 50%. The population size is estimated to be 4,493,135 residents in the Makkah Region, who are aged 19 or above, according to the most recent and available population estimate (2017) from the Saudi General Authority for Statistics [16].

The sampling technique used was a non-probability consecutive sampling because not all the population has the same chance of being selected, only all the participants that received the questionnaire

The data was collected using a questionnaire in the Arabic language made on Google Forms by the investigators of this study. Data collection took place from August to October 2021. The investigators sent the form to family, and friends, and uploaded it on several social media platforms. The questionnaire was divided into 3 sections. The first section contained the sociodemographic data which included age, gender, monthly income, occupation, and level of education, if they had ever been infected with COVID-19, COVID-19 vaccination status, and other relevant demographics. It was specifically asked which city the participant was from, in order to ensure that the participant was from the Makkah region. The second section included the knowledge questions involving the COVID-19 pandemic which was extracted from the official websites of the WHO, CDC, and the FDA [17-22]. The final section included the questions of the 'OCI-12 scale,' which is a valid 12-item self-report scale. The 12 items are divided into 4 groups of symptoms, checking, ordering, washing, and obsessing [23]. Each group has 3 items, adding to a total of 12 items. The OCD-12 aids in identifying specific symptoms related to OCD. The internal consistency of the OCI-12 scale in Arabic had a Cronbach's alpha of 0.87 [23]. The answers contain a 5-point Likert scale (not at all, a little, moderately, a lot, extremely) to measure the frequency of obsessive symptoms and compulsive behaviors. The point score of this scale increases as the symptom frequency increases. the scoring system is as follows: not at all =0, a little =1, moderately =2, a lot =3, extremely =4.

Regarding the data analysis, the data was automatically transferred from Google Forms to Microsoft Excel 2021 and was stored in a password-protected device. The data was analyzed using IBM SPSS Version 21 (IBM, 2013). The association between the OCI-12 and the demographics/clinical characteristics was investigated. We also investigated the association between the OCI-12 and COVID-19 knowledge. Bonferroni correction for multiple comparisons in the subscales (checking, ordering, washing, and obsessing). The significance level was set to 0.01. P value<0.05 was considered statistically significant.

This study was approved by the Institutional Review Board committee of King Abdullah International Medical Research Center (KAIMRC). The approval number was SP20/238/J.

RESULTS

The majority of the participants had Saudi nationality and were from the city of Jeddah. Some participants were from different cities as Makkah, Taif, Rabigh, and others. A total of 391 participants were included in the study. The average age of the participants was 32 years. Most of the participants were female, single, and at the university level. Only 16 participants out of 391 have been previously diagnosed with OCD and 31 out of the 391 have been diagnosed with other mental disorders. (Table 1).

Table 1 Descriptive statistics for demographic and clinical variables

Variable	N (% or mean \pm SD) (n= 391)
Age, years	31.5 \pm 11.1
Gender	
Male	134 (34.3)
Female	257 (65.7)
Marital status	
Single	199 (50.9)
Married	175 (44.8)
Others*	17 (4.3)
Education	
School	65 (16.6)
University	293 (74.9)
Postgraduate	33 (8.4)
Have you been diagnosed with OCD before?	
No	375 (95.9)
Yes	16 (4.1)
Have you been diagnosed with any other mental disorder?	
No	360 (92.1)
Yes	31 (7.9)
If yes, which mental disorder?	
Anxiety disorders	14 (3.6)
Depressive disorders	14 (3.6)
Others^	2 (0.5)
Unspecified	8 (2.0%)
*Others: divorced and widow ^Others: Bipolar disorder	

Prevalence of OCI

This table shows the Mean of OCI-12 in total and the subscales. The OCD-12 consists of 12 items on a Likert scale out of 5 (0-4). The total is 48 points. The mean of OCI-12 was 17.0 \pm 9.27 (range 0-48) (Table 2).

Table 2 OCI-12 mean and subscales

Item	Mean±SD	Range
Checking	3.51±2.71	(0-12)
Ordering	5.04±2.98	(0-12)
Washing	4.09±2.76	(0-12)
Obsession	4.39±3.26	(0-12)
OCI-12	17.0±9.27	(0-48)

Table 3 shows the prevalence of OCD based on the OCI-12. The clinical cutoff score was extracted from a previous study by Abramovitch A, which is 11 out of 48, which indicates the possible presence of OCD of any severity. 73.9% of participants have a positive score (Table 3) [23].

Table 3 Prevalence of Obsessive-compulsive disorder

OCD Score Cutoff score (≥11)	Frequency N (%)
Negative	102 (26.1)
Positive	289 (73.9)
Total	391 (100)

Table 4 describes the severity of the OCD symptoms, The classification of OCD severity has also been extracted from the study of Abramovitch A. The highest severity was mild, followed by moderate, and then severe. (Table 4) [23].

Table 4 Severity of obsessive-compulsive symptoms.

Severity of OCD or obsessive-compulsive traits	Frequency N (%)
Mild	142 (36.3)
Moderate	128 (32.7)
Severe	121 (30.9)

Table 5 contains the statements that were used to assess the knowledge of the participants. The table provides whether the statements were true or false.

Table 5 Knowledge statements

Statement	True/false
Coronavirus spreads by the exposure to droplets of infected people through coughing or sneezing [17].	TRUE
Antibiotics contribute to the treatment of corona infection [18].	FALSE
Unlike the common cold, symptoms of sneezing, sore throat, and a runny nose are less common in Corona infection. [19].	FALSE
People with corona do not transmit the infection if they do not have a fever [20].	FALSE
After going out to a public place or after coughing or sneezing, you should wash your hands with soap and water or use hand sanitizer containing 60% alcohol (at least) for at least 20 seconds [21].	TRUE
Avoid touching the eyes, nose, or mouth when hands are not washed [22].	TRUE

Figure 1 represents the responses the participants had regarding COVID-19 knowledge. The majority of the participants had the correct knowledge and information regarding COVID. The first statement, which is SARS-CoV-2 spread through respiratory droplets, which occur when infected people cough and sneeze. The statement is true and 96.7% answered correctly. The second statement, ‘Antibiotics are an effective treatment for COVID-19’, is false, and 67.8% answered correctly. The third statement, ‘unlike the common cold, congestion, runny nose, and sneezing are less common in people infected with SARS-CoV-2’, is false and 45% answered correctly, meaning the majority answered this question wrong. The fourth statement is false, and it states that ‘people infected with SARS-CoV-2 cannot transmit the virus to others when a fever is not present’, and 92.8% answered correctly. The fifth statement, ‘after going out to a public place or after coughing or sneezing, you should wash your hands with soap and water or use hand sanitizer containing 60% alcohol (at least) for at least 20 seconds,’ is true, and 92.6% answered correctly. The last statement, which is people should avoid touching their eyes, nose, and mouth with unwashed hands, is true and 96.4% responded correctly (Figure 1).

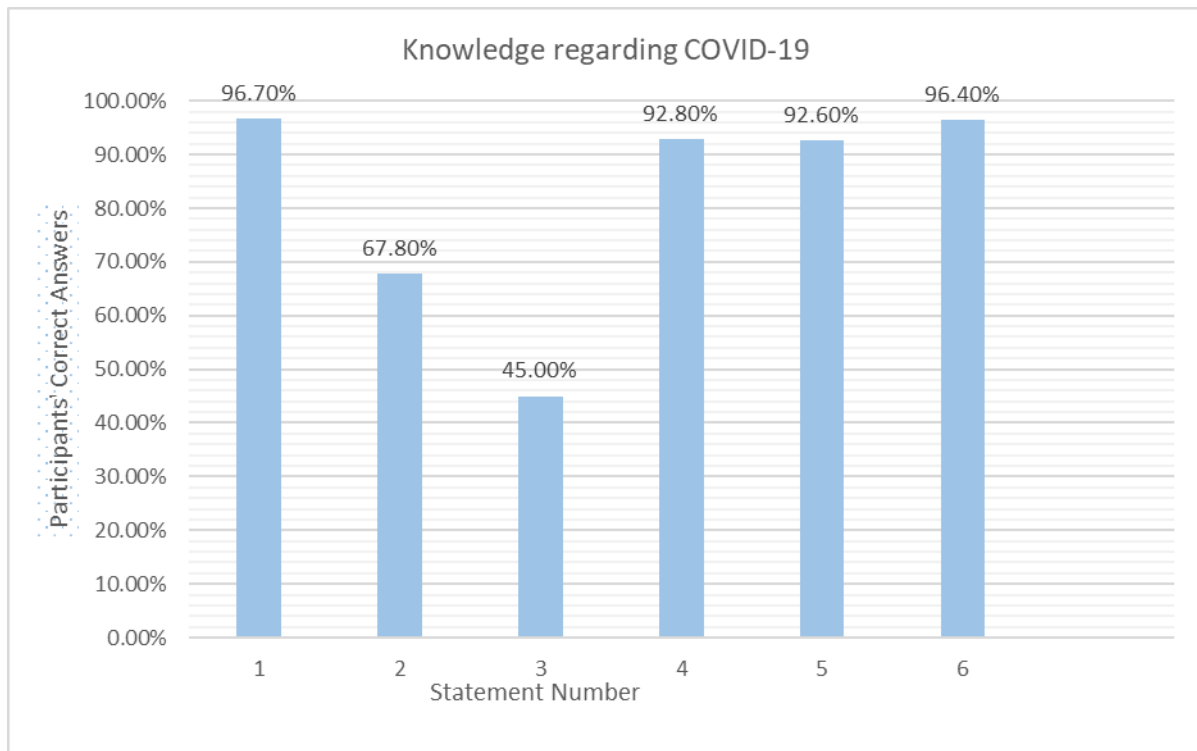


Figure 1 Shows the percentage of participants answering the statement correctly

Table 6 shows the association between the demographics and the sub scores. Females had more ‘obsessing’ symptoms than males ($P=0.008$). Also, participants that did not have children had more ‘washing’ ($P=0.045$) and ‘obsessing’ ($P=0.000$) symptoms than the participants that had children. Participants that did not have a salary/job had significantly more symptoms of ‘obsessing’ ($P=0.038$) than participants with a stable salary. Similarly, participants that feel that their salary is insufficient had more ‘ordering’ symptoms ($P=0.038$). Furthermore, participants that are not exposed to people with COVID at work had more ‘checking’ ($P=0.005$) symptoms than participants that are usually exposed. Participants that have been diagnosed previously with OCD had more ‘checking’ and ‘ordering’ symptoms than participants that have not been diagnosed before (Table 5).

Table 6 Demographics, means and standard deviation of the sub scores of the OCI-12

Item	Response	Checking mean±SD	P-value	Ordering mean±SD	P-value	Washing mean±SD	P-value	Obsessing mean±SD	P-value
Gender	Male	3.42±	0.623	4.95±	0.647	3.77±	0.092	3.81±	0.008
		2.42		2.9		2.77		2.91	
	Female	3.56±		5.09±		4.26±		4.69±*	
		2.86		3.02		2.74		3.4	
Do you have children	No	3.58±	0.536	4.93±	0.342	4.32±	0.045	4.87±	0
		2.82		3.01		2.74*		3.39*	
	Yes	3.41±		5.22±		3.75±		3.64±	
		2.55		2.92		2.75		2.92	
Do you work in a job with a source of income?	No	3.68±	0.25	4.98±	0.709	3.90±	0.181	4.76±	0.038
		2.82		3.05		2.79		3.33*	
	Yes	3.36±		5.10±		4.27±		4.07±	
		2.62		2.92		2.72		3.18	
Do you feel that this monthly income is sufficient?	No	3.62±	0.358	5.35±	0.013	4.04±	0.641	4.66±	0.052
		2.75		3.17*		2.81		3.21	
	Yes	3.36±		4.61±		4.17±		4.01±	
		2.67		2.63		2.7		3.31	
Does the nature of your work expose you to people infected with corona infection?	No	3.99±	0.005	5.19±	0.423	4.07±	0.886	4.65±	0.2
		2.84*		2.97		2.84		3.37	
	Yes	3.19±		4.94±		4.11±		4.22±	
		2.58		2.98		2.71		3.19	
Have you ever been diagnosed with obsessive-compulsive disorder?	No	3.41±	0.008	4.99±	0.082	4.03±	0.135	4.22±	0
		2.64		2.95		2.68		3.18	
	Yes	6.00±		6.31±		5.63±		8.31±	
		3.37*		3.34*		4.01		2.68	

(*) significant P value <0.05

Table 7 shows the relation between COVID-related knowledge questions in order and the OCI-12 sub scores. Specific questions that had significant results were included in the table. There were a few associations that were found between the information that participants had regarding the COVID pandemic and the obsessive and/or compulsive symptoms they were experiencing. Regarding the first item in the table, participants that agreed that “antibiotics help in the treatment of COVID” were associated with more ‘checking’ symptoms than the rest of the participants. In addition, participants that disagreed with the statement, “in contrast to a common cold, getting sneezing symptoms, sore throat, and a runny nose are less common symptoms of COVID” had more significantly ‘washing’ and ‘obsessing’ symptoms (Table 7).

Table 7 Knowledge of COVID associated with OCD symptoms

Item	Response	Total n(%)	Checking mean±SD	P-value	Ordering mean±SD	P-value	Washing mean±SD	P-value	Obsessing mean±SD	P-value
Antibiotics contribute to the	No	265	3.29± 2.65	0.025	4.89± 2.94	0.141	4.02± 2.75	0.432	4.36± 3.22	0.799

treatment of corona infection	Yes	126	3.97*± 2.80		5.37± 3.05		4.25± 2.77		4.45± 3.36	
	No	176	3.61± 2.76	0.502	5.32± 2.87	0.099	4.41± 2.79*	0.038	4.75± 3.14*	0.048
Unlike the common cold, symptoms of sneezing, sore throat, and a runny nose are less common in Corona infection	Yes	215	3.43± 2.68		4.82± 3.05		3.83± 2.71		4.10± 3.34	
(*) significant P value <0.05										

DISCUSSION

This study used a validated and reliable questionnaire to assess obsessive and compulsive symptoms during COVID 19 pandemic crises among the general population. Pervious outbreaks such as the swine flu, Ebola, Severe Acute Respiratory Syndrome (SARS), and Middle East Respiratory Syndrome (MERS) have all been linked with the worsening of OCD symptoms. [24,25]. This is also true regarding COVID-19, as a study found an increase in the frequency of exacerbation and relapse of OCD symptoms among OCD patients [26].

The current study had a total of 391 participants, the majority of whom were female. The mean age of the participants is 31.5 ±11.1. Most of them have a university education. Only 16 participants had been diagnosed with OCD and they were experiencing more checking and ordering symptoms. In contrast, a study that was conducted in turkey in the year 2020 was on patients who were previously diagnosed with OCD. The results showed that these participants had a significant increase in obsessions, specifically contamination, and cleaning/washing compulsions [27]. 31 participants of our study had other mental disorders, the most prevalent psychiatric disorder experiencing OCD symptoms was anxiety disorder. Patients with anxiety disorders had significant checking and obsessive symptoms. It complements what was reported in a study titled ‘Dealing with Coronavirus anxiety and OCD’, where anxiety disorder has a significant correlation with OCD disorder [12].

A similar cross-sectional study conducted in Saudi Arabia concluded that around 62.4% of participants had obsessive-compulsive symptoms during the pandemic [15]. In comparison to our study, 73.9% of participants had significant obsessive-compulsive symptoms. Also, the same study stated demographics that had a higher incidence of OCD as male gender and higher income groups [15]. In contrast, our study showed that females and unemployed individuals had more symptoms of obsession.

A study conducted in Iran in 2020 addressed the difference in obsessive-compulsive symptoms between genders. They concluded that females aged 13-19 had significantly higher symptoms of obsession than men [28]. This is comparable to our study with the difference in age group. Our study concluded that females above the age of 18 had significantly more symptoms of obsession than men. Also, participants who did not have children had more washing and obsessing symptoms than the participants who had children. In addition, participants with low income had more symptoms of obsessing than participants with a high income. Similarly, participants who felt that their salary was insufficient had more ordering symptoms than participants who had a sufficient salary.

A study conducted in China with 1,060 participants, used an online questionnaire that was designed to investigate psychological symptoms among Chinese citizens [12]. Of the 1,060 participants, over 70% showed moderate to higher levels of psychological symptoms especially for obsessive compulsion [12]. Also, Another similar international study was done in Alberta, Canada discussing the prevalence of OCD symptoms among its population [13]. Over 6,000 individuals completed an online survey, and the results showed about 53.8 %-60.3% of the participants showed OCD symptoms during the COVID-19 Pandemic [13]. Similarly, our study concluded that 73.9% of participants had a positive score on the OCD-12 questionnaire, which indicates the possible presence of OCD of any severity.

For knowledge-wise, participants who believe that antibiotics contribute to the treatment of corona infection, which is incorrect, were 32.22%. This is consistent with another study published in 2020 where 35.24% of its participants also believe that antibiotics contribute to the treatment of corona infection [29]. Additionally, participants agreed with the statement “in contrast to a common cold, getting sneezing symptoms, sore throat, and a runny nose are fewer common symptoms of COVID”, which is incorrect, were 55%. Whereas in the other study, only 29.66% agreed with it [29].

LIMITATIONS

Regarding the current study, there are some restrictions that need to be acknowledged. The self-rated questionnaire is the first area of concern. The results could be impacted by self-reported replies that are inflated, respondents who are embarrassed to disclose personal information and numerous biases. The second drawback is that convenience sampling may not fully represent the population being studied. In our sample, more women than men participated, which may be a result of men's unwillingness to take part in such a study. Further studies with larger samples, more structured interviews, and long-term follow-ups are needed on this subject. Also, we did not consider other disorders related to or similar to OCD as stress-related disorders and personality disorders as obsessive-compulsive.

CONCLUSION

Around 73.9% of participants had a positive score on the OCD-12 scale, which indicates the possible presence of obsessive-compulsive disorder. There were significant associations that were found between specific demographics as gender, employment status, whether participants had children or not, and whether participants were exposed to covid or had COVID before with the presence of obsessive-compulsive symptoms. Also, associations were found between knowledge participants had about COVID with the presence of obsessive-compulsive symptoms.

We recommend more public awareness regarding OCD and encouraging people to seek help from mental health practitioners, especially in global pandemics.

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