



# Prevalence of Obsessive-Compulsive Disorder among Medical Students at Taibah University, Saudi Arabia

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## Authors' contributions

This work was carried out in collaboration among all authors. Author NMM contributed to the conception and designed the study, performed the statistical analysis, guarantor of the manuscript. Author Abdulrahman Mohammad Alharbi managed the literature searches. Author ASA performed the clinical studies. Author Ammar Mousa Aljohani did the data analysis. Author HKJ prepared the manuscript. Author SSA edited the manuscript. All authors read and approved the final manuscript.

## Article Information

DOI: 10.9734/JPRI/2023/v35i307457

## Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/108951>

Original Research Article

Received: 11/09/2023

Accepted: 16/11/2023

Published: 20/11/2023

## ABSTRACT

**Background:** Obsessive-compulsive disorder (OCD) is a prevalent mental disorder. It has an onset during the late teens, thus putting university students at higher risk as a target group. They live in an environment that is full of stressors and factors that may lead to the expression of

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obsessive compulsion symptoms. The objective of the present research is to explore the prevalence of OCD and its associated symptoms among medical students.

**Materials and Methods:** Cross-sectional analytic research at Taibah University in which medical students participated during a year period from December 2021 to 2022. Data collection was through an online self-administered questionnaire with 18 questions on the Obsessive-Compulsive Inventory-Revised scale (OCI-R) filled out anonymously as well as voluntarily.

**Results:** According to the OCI-R used in the study, 69 out of 263 (26%) participants are found to have probable OCD. There was a statistically significant association between participants who reported a history of mental illness and the probability of OCD [ $p=0.002$ ]. Also, age groups showed statistically significant differences [ $p=0.007$ ] as well as between academic years [ $p=0.003$ ], with an increase in the probability of OCD with younger age and early academic years

**Conclusions:** This current study has shown a high OCD prevalence among medical students at Taibah University, consistent with other similar studies. There were significant correlations with age, academic year, and history of mental illnesses, especially depression and anxiety.

*Keywords: Obsessive-compulsive disorder (OCD); OCD symptoms; medical students; Taibah; Saudi.*

## 1. INTRODUCTION

Obsessive-Compulsive Disorder (OCD) manifests with distressing and persistent thoughts, referred to as obsessions, and repetitive, time-consuming behaviors known as compulsions. These compulsions can substantially disrupt daily functioning and cause significant distress to individuals affected by the condition [1]. According to the American family physician, obsessive-compulsive disorder is a disorder where there are recurring, undesirable thoughts, ideas, or sensations (obsessions) that lead to repetitive behaviors that significantly impede a person's social life and daily interactions [2]. These patients could present in one or multiple groups of symptoms, including hoarding, checking, washing, neutralizing, ordering, and obsession [3]. It has a high association with other mental illnesses, usually with anxiety disorders; 76% and 36% can have a history of mood disorder [4,5]. Therefore, OCD can be associated with a high level of comorbidity and impaired function for individuals in the long term [5]. Although the cause of OCD is not fully understood, research suggests that it may be influenced by multiple factors. Genetic factors are believed to play a significant role, as up to 65% of the variability in OCD can be attributed to genetics [6]. Other risk factors include difficulty tolerating uncertainty, a heightened sense of responsibility, and engagement in magical thinking [7]. In the United States, OCD has a 12-month prevalence estimate of 1.2% and a lifetime prevalence estimate of 2.3%. Females are more likely to experience its onset between adolescence and maturity, whereas men tend to report its onset earlier in life [8]. The average age for symptoms

to appear is 19 years old [4]; thus, medical students are the main target. They are constantly exposed to contamination and diseases during their medical courses, which may cause excessive concerns about self-hygiene, and this is one of the most prominent concepts of obsessions, thus making this population particularly vulnerable to obsessive compulsion symptoms [9]. Medical students tend to have a stressful lifestyle as they are in contentious competition with their colleagues, under pressure not to make mistakes as they are learning how to deal with patient's life, and have less time to spend on leisure activities compared to other specialties [5]. Additionally, a recent study conducted among medical students in Saudi Arabia reports a high prevalence of mental illnesses among them. Therefore, considering their age and stressors, they are at increased risk of developing OCD [4,10]. It is significant to acquire such information about this population in order to influence planning and policies to provide better development for mental health care services and prevention. A few studies were conducted in Saudi Arabia to determine the OCD prevalence among medical students. According to a study conducted in Riyadh, 36% of medical students had probable OCD, which is considered a high percentage compared to a survey done among the overall populace in the southern area of Saudi Arabia [5,11]. Currently, there is a scarcity of research on the frequency of OCD among medical students in Saudi Arabia. The objective of this research was to investigate the frequency of OCD and its related symptoms among medical students enrolled at Taibah University. Our hypothesis posited that the study's findings would align with previous research indicating a substantial occurrence of

obsessive-compulsive disorder (OCD) among medical students.

## 2. MATERIALS AND METHODS

Ethical approval was obtained from the Review Ethical Committee of the Faculty of Medicine at Taibah University. The study ensured voluntary participation, allowing participants the right to withdraw from the research at any time. Answers provided were treated with the utmost confidentiality, solely for the purpose of the study.

The study took place within the Faculty of Medicine at Taibah University, situated in Saudi Arabia, with data collection spanning from December 2021 to December 2022. A cross-sectional research design was employed through an online questionnaire distributed among medical students at Taibah University. Informed consent was a prerequisite before respondents completed the questionnaire. The survey consisted of two sections, the first capturing sociodemographic and personal information, including family history of OCD, place of residence, academic level, marital status, gender, age, and a history of mental illness. The second section contained questions concerning obsessive-compulsive disorder (OCD) assessed through the OCI-R Scale, encompassing various dimensions such as washing, ordering, obsessing, neutralizing, hoarding, and checking.

The study population comprised medical students and interns at Taibah University, and the sampling method employed was a simple random sample, based on convenience. Inclusion criteria specified individuals aged 18 and above, enrolled at Taibah University's medical program, while exclusion criteria excluded individuals below the age of 18 and those pursuing other specialties. The sample size was determined using the OpenEpi program, yielding a minimum of 255 participants based on a 36.2%±5% expected frequency of OCD among Taibah University's medical students at a 95% Confidence Level.

Measurement tools included the OCI-R questionnaire, administered online to eligible medical students. It assessed various sociodemographic factors and features of OCD. The OCI-R Scale comprised 18 questions, each rated from 0 (not at all) to 4 (extremely), with a maximum total score of 72. A score exceeding 27 on this scale served as the cutoff point for identifying potential OCD cases [12,13].

Data management and analysis were executed carefully. An online Google form questionnaire link was shared with undergraduate medical students through social media for data collection. The collected data were subsequently analyzed using the SPSS program. Descriptive statistics were utilized to characterize sample variables, with qualitative variables presented as percentages and frequencies, while quantitative variables were assessed in terms of central tendency and dispersion.

## 3. RESULTS

The total number of participants in the study is 263. Regarding the sociodemographic characteristics, majority of them 50 (57%) were female. The age of most responders was between 21-23 years old (63.9%); about one-third of them were in the 3rd academic year, 78 (29.7%), and 11 (4.2%) were married (Table 1).

Study findings showed a positive history of medical illness in 11 (4.2%) of the participants, a positive history of mental illness in 54 (20.5%), mostly reported as either a form of anxiety or depression, and positive family history of OCD in 42 (16%) (Table 2).

According to the OCI-R used in the study, 69 (26%) of participants are found to have probable OCD and need further clinical assessment to confirm the diagnosis, while 194 (74%) are found to be normal (Fig. 1).

Participants' answers for the OCI-R 18 items. The item "I get upset if others change the way I have arranged things," which represents the ordering symptoms, is the highest item answered as "a lot or extremely" 73(27.7%), followed by the other ordering item "I get upset if the objects are arranged properly" 64(24.4%). Regarding Hoarding symptoms, 58(22%) Answered a lot or extremely on the item, "I avoid throwing things away because I am afraid, I might need them later." 52(19.8%) of participants find it A lot or extremely difficult to control their own thoughts, representing the obsessing subscale. Checking symptoms are represented mostly by the item "I check things more often than necessary," with 50(19%) of participants answering a lot or extremely. 35(13.3%) find themselves forced to count on doing things as neutralizing symptoms. The lowest percentage, 26(9.9%), is for the washing item: "I find it difficult to touch an object knowing it has been touched by certain people" (Table 3).

There was a statistically significant difference between age groups ( $P=0.007$ ) as well as between academic years ( $P=0.003$ ), with an increase in the probability of OCD with younger age and early academic years (being a freshman). Also, there was a statistically significant association between participants who reported a history of mental illness and the probability of OCD (Table 4).

#### 4. DISCUSSION

This study aims to detect probable OCD among medical students at Taibah University and its association with sociodemographic features and mental history. The current study is complementary to previous studies, which showed the high prevalence of psychiatric issues among medical students, including stress,

anxiety, and depression [14]. The high prevalence of these psychological challenges in Taibah medical students can be attributed to the demanding academic environment characterized by long hours of practice and study, constant worries, anxieties and nervousness [10,15].

In our study, OCD prevalence among medical students at Taibah University was 26%, which is considerably high compared to the general population of 2-3%, indicating that medical students face unique stressors and challenges that may contribute to the development of OCD [16]. Similarly, another study conducted in Brazil found the prevalence to be higher among medical students relative to the general population [17]. This consistency underscores that the demands and stressors associated with medical education and practice may be common

**Table 1. Sociodemographic characteristics of the participants**

		N	%
<b>Gender</b>	Male	113	43.0%
	Female	150	57.0%
	Total	263	100.0%
<b>Age</b>	18 – 20	44	16.7%
	21 – 23	168	63.9%
	24 – 26	49	18.6%
	27 – 30	2	0.8%
	Total	263	100.0%
<b>Marital statuses</b>	Single	252	95.8%
	Married	11	4.2%
	Total	263	100.0%
<b>Academic Year</b>	2nd year	30	11.4%
	3rd year	78	29.7%
	4th year	45	17.1%
	5th year	48	18.3%
	6th year	32	12.2%
	Intern year	30	11.4%
	Total	263	100.0%

**Table 2. History of Illness in participants**

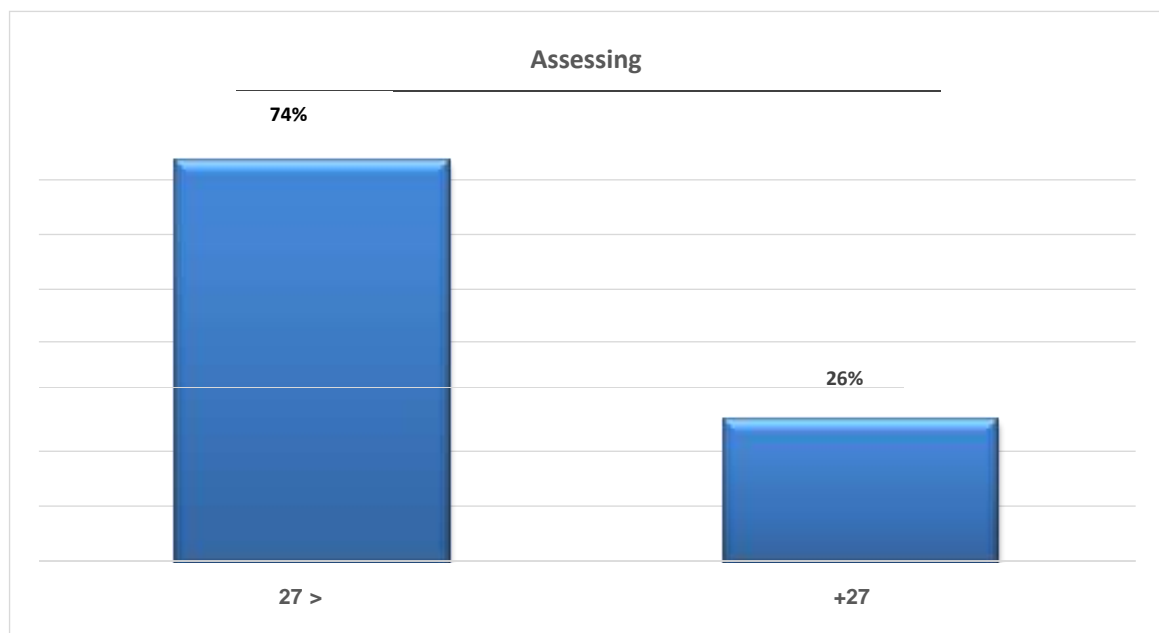
		Assessing				Total		P Value
		< 27		27+		N	%	
		N	%	N	%			
<b>History of medical illnesses</b>	Yes	7	3.6%	4	5.8%	11	4.2%	0.435
	No	187	96.4%	65	94.2%	252	95.8%	
	Total	194	100.0%	69	100.0%	263	100.0%	
<b>History of mental illnesses</b>	Yes	31	16.0%	23	33.3%	54	20.5%	0.002
	No	163	84.0%	46	66.7%	209	79.5%	
	Total	194	100.0%	69	100.0%	263	100.0%	
<b>Family history of OCD</b>	Yes	28	14.4%	14	20.3%	42	16.0%	0.254
	No	166	85.6%	55	79.7%	221	84.0%	
	Total	194	100.0%	69	100.0%	263	100.0%	

**Table 3. Participants response to OCI-R items**

	Not all		A little		Moderate		A lot		Extremely		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
I've stored so much stuff that it's impeding my way.	62	23.6%	92	35.0%	80	30.4%	26	9.9%	3	1.1%	263	100.0%
I do unnecessary checks on things.	47	17.9%	98	37.3%	68	25.9%	42	16.0%	8	3.0%	263	100.0%
I get upset if objects are not arranged properly	53	20.2%	90	34.2%	56	21.3%	52	19.8%	12	4.6%	263	100.0%
While doing tasks, I feel pushed to count.	122	46.4%	63	24.0%	43	16.3%	30	11.4%	5	1.9%	263	100.0%
When I am aware that a certain item has been touched by a stranger or a specific person, I find it challenging to touch it.	124	47.1%	81	30.8%	32	12.2%	19	7.2%	7	2.7%	263	100.0%
I feel trouble controlling my own thoughts.	76	28.9%	89	33.8%	46	17.5%	36	13.7%	16	6.1%	263	100.0%
I collect things I don't need.	99	37.6%	81	30.8%	46	17.5%	30	11.4%	7	2.7%	263	100.0%
I repeatedly check doors, windows, drawers, etc.	162	61.6%	58	22.1%	27	10.3%	11	4.2%	5	1.9%	263	100.0%
If someone changes how I've set up anything, I become upset.	53	20.2%	74	28.1%	63	24.0%	50	19.0%	23	8.7%	263	100.0%
I feel I have to repeat certain numbers.	177	67.3%	48	18.3%	25	9.5%	12	4.6%	1	0.4%	263	100.0%
Sometimes, I feel so filthy that I have to clean or wash myself.	126	47.9%	66	25.1%	48	18.3%	20	7.6%	3	1.1%	263	100.0%
Unpleasant ideas that enter my head against my will make me upset.	105	39.9%	63	24.0%	50	19.0%	25	9.5%	20	7.6%	263	100.0%
I try not to throw things away since I may use them in the future.	72	27.4%	79	30.0%	54	20.5%	40	15.2%	18	6.8%	263	100.0%
I keep turning off the light switches and checking the water and gas taps.	153	58.2%	57	21.7%	34	12.9%	14	5.3%	5	1.9%	263	100.0%
I want things in a certain order.	88	33.5%	90	34.2%	52	19.8%	22	8.4%	11	4.2%	263	100.0%
I believe there are bad and good numbers.	196	74.5%	31	11.8%	24	9.1%	9	3.4%	3	1.1%	263	100.0%
I do more frequent and thorough hand washing than is required.	176	66.9%	46	17.5%	28	10.6%	9	3.4%	4	1.5%	263	100.0%
I often get nasty ideas and find it difficult to get rid of them.	127	48.3%	59	22.4%	39	14.8%	25	9.5%	13	4.9%	263	100.0%

**Table 4. Association of sociodemographic characteristics with OCD**

		Assessing						P Value
		< 27		27+		Total		
		N	%	N	%	N	%	
Age	18 – 20	24	12.4%	20	29.0%	44	16.7%	0.007
	21 – 23	128	66.0%	40	58.0%	168	63.9%	
	24 – 26	41	21.1%	8	11.6%	49	18.6%	
	27 – 30	1	0.5%	1	1.4%	2	0.8%	
	Total	194	100.0%	69	100.0%	263	100.0%	
AcademicYear	2nd year	16	8.2%	14	20.3%	30	11.4%	0.003
	3rd year	52	26.8%	26	37.7%	78	29.7%	
	4th year	32	16.5%	13	18.8%	45	17.1%	
	5th year	40	20.6%	8	11.6%	48	18.3%	
	6th year	26	13.4%	6	8.7%	32	12.2%	
	Intern year	28	14.4%	2	2.9%	30	11.4%	
	Total	194	100.0%	69	100.0%	263	100.0%	
History ofmedical illnesses	Yes	7	3.6%	4	5.8%	11	4.2%	0.435
	No	187	96.4%	65	94.2%	252	95.8%	
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History ofmental illnesses	Yes	31	16.0%	23	33.3%	54	20.5%	0.002
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	Total	194	100.0%	69	100.0%	263	100.0%	
Family history of OCD	Yes	28	14.4%	14	20.3%	42	16.0%	0.254
	No	166	85.6%	55	79.7%	221	84.0%	
	Total	194	100.0%	69	100.0%	263	100.0%	



**Fig. 1. OCD in participants assessed with OCI-R**

factors contributing to the increased risk of OCD in these populations. Other studies were conducted on the same population in Saudi

Arabia at Imam Mohammad Ibn Saud Islamic University 2021, King Saud Ibn Abdulaziz University 2021, and Umm Al Qura University

2021, found the prevalence to be 36.2%, 35.3%, and 20%, respectively [5,18,19]. According to these results, the prevalence of OCD in our study is lower compared to Imam and King Saud Universities [5,18]. However, it was higher compared to Umm al Qura University [19].

According to our study, we found that there is no significant difference in both genders, similar to Brazil and Iraq studies [17,20]. This suggests that the risk of developing OCD among medical students is not influenced by gender, indicating that the factors contributing to OCD in this specific population are relatively gender-neutral. However, in King Saud studies, the female-to-male ratio was found to be 1.5:1 which is significantly higher in females compared to males [18]. Considering the academic year, our study found that there is a relationship between academic year and OCD, as it tends to be more prevalent in the third year of med school 29.7%, may be indicative of a critical period where the demands and stressors intensify. Similarly, the Iraqi study also found an important relationship between academic year and OCD as its highest prevalence in the first year 34.5% [20]. Nevertheless, the academic year and OCD were not significantly correlated in another research. Regarding the history of mental illnesses, our study was similar to other studies, which found a significant association between mental illnesses and OCD [21], highlights the importance of considering pre-existing mental health conditions in the context of OCD development [22]. We found that anxiety and depression were highly associated with OCD, similar to the result of other studies, which also found a significant relationship [23].

The current research has many limitations that must be taken into account. One approach involves using the self-administration questionnaire, which has the potential to introduce certain biases where some respondents misinterpret the questions, do not answer all questions honestly, or are embarrassed to reveal their private details. Furthermore, we depend on the questionnaire in the diagnosis of OCD. The well-validated questionnaire strongly indicates the presence of OCD but still needs to be followed by clinical interviews for the confirmation of diagnosis. Furthermore, the cross-sectional nature of the research precluded us from making causal inferences on the relationships between the different factors. Furthermore, it did not tell us whether the probability of OCD developed during

medical school or occurred earlier. Third, the convenient sampling method may limit the generalization of the results.

We recommend paying attention to this research and conducting further studies to explore the significant aspects of increased prevalence and severity of OCD among students in other medical colleges; it is important to implement early screening for psychiatric comorbidity and conduct frequent psychosocial assessments starting from the time of diagnosis.

## 5. CONCLUSION

Study findings highlight the need for increased mental health support and awareness within medical education programs. Recognizing the specific symptoms that are more prevalent among this group, such as ordering and hoarding, can aid in developing targeted interventions. Future studies and efforts should aim to reduce the stigma surrounding mental health issues, provide timely clinical assessments, and establish support systems that promote the well-being of medical students. Ultimately, by addressing OCD and related mental health concerns, we can contribute to the overall health and resilience of future health professionals.

## ETHICAL APPROVAL

It is not applicable.

## CONSENT

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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