

Obsessive-Compulsive Symptoms and Its Relation to Emotional Disturbances among Dental Students during Covid-19 Pandemic

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Abstract

This study aimed to assess the rate of obsessive-compulsive symptoms and their relation to anxiety and depressive symptoms among dental students during the COVID-19 pandemic. A total of 138 Dental students were recruited in this cross-sectional study via an online self-rated questionnaires which were Obsessive-Compulsive Inventory-Revised (OCI-R), General Anxiety Disorder Scale-7 (GAD-7) and Patient Health Questionnaire (PHQ-9) to assess the obsessive-compulsive symptoms, anxiety and depression namely respectively. A rate of 56.5% of students were at high risk of obsessive-compulsive disorder (OCD). Obsessive-compulsive symptoms were significantly associated with anxiety and depressive symptoms. There was no significant difference between genders and OCD symptoms, however, students in clinical years were at higher risk for OCD. OCD symptoms are prevalent among dental students during the COVID-19 pandemic and many dental students suspected of having OCD will have anxiety and depression.

Keywords:

Obsessive-compulsive disorder (OCD), anxiety, depression, dental students, COVID-19

Introduction

COVID-19, a new coronavirus disease, has overrun the globe, producing a worldwide pandemic. It has caused damage to everyone's life in unknown measures. As stated by the World Health Organisation (WHO), there have been approximately 755 million confirmed cases of COVID-19 with 6 million fatalities worldwide as of 10 February 2023 ^[1]. A rise in the number of confirmed cases daily has led to fear, stress, anxiety and depression. University students were said to be more stressed and anxious during the COVID-19 pandemic as they were worried about their academics, health, and lifestyle challenges ^[2]. Psychological distress during the COVID-19 pandemic is occurring at a high rate among dental students and the level is increased in students with avoidant coping strategies ^[3]. Students in the healthcare professions are even more affected by this pandemic as clinical training is an important part of their study where they need to be in close contact with patients. Dental students are especially more at risk of contracting the virus due to close contact with the patient's mouth and the aerosol-producing dental procedures ^[4] which may subsequently put the students at higher risk for development of obsessive-compulsive disorder (OCD).

Obsessive-compulsive disorder (OCD) is a chronic condition that can be debilitating and distressing. It is a complicated condition with a wide range of symptoms and presentations, some of which go unnoticed. According to the National Institute of Mental Health, people suffering from OCD may be present with obsessions, compulsions or both. Obsessions are repeated thoughts or ideas that may trigger anxiety ^[5]. These include fear of germs or contamination, fear of losing and forgetting something, aggressive thoughts about others or oneself and the desire for things to be in perfect symmetry or order. On the other hand, compulsions are repetitive actions that a person feels compelled to engage in reaction to an obsessive idea. It is commonly described as excessive hand washing or cleaning, arranging, or ordering goods in a certain, precise manner and checking everything over repeatedly. These symptoms can be distressing and disrupt their daily routines as they are unable to stop the obsessive thoughts or compulsive activities even when they realize it. They will keep having these thoughts around and they will temporarily be relieved by performing the routines ^[5].

Since the presence of OCD symptoms leads to a higher risk for the development of emotional disturbances in the form of anxiety, depression and stress, it is expected that students who are experiencing OCD symptoms will also have anxiety and stress ^[6].

Depression is defined by the (DSM-5) as a mental illness that is characterized by either a low mood or inability to feel pleasure in all activities in addition to at least four other symptoms within a duration of at least two weeks. Symptoms include, significant weight loss/weight gain, disturbed sleep, diminished concentration, fatigability, psychomotor agitation or retardation, feeling of worthlessness or inappropriate guilt, thoughts of death or recurrent suicidal ideations ^[7]. While anxiety is a condition that is characterized by intense feeling of dread, fear and worries accompanied by somatic symptoms that indicate a hyperactive autonomic nervous system, it also impairs cognition and may produce distortions of perception ^[8].

OCD usually begins and peaks in late adolescence which eventually makes university students a prime target for this study ^[9] particularly, dental students are likely to acquire OCD during this pandemic as they need to have strict infection control by reinforcing handwashing and cleaning routines to prevent contamination. Consequently, the presence of OCD symptoms in dental students will hinder their ability to perform clinically and will subject them to higher rate of emotional disturbances in the form of depression and anxiety. Previous study highlighted the effect of COVID-19 on the deterioration in the function of students with OCD, which may result in impaired academic performance^[10] Never the less, this important issue has not been addressed sufficiently in literature particularly in Malaysia and so our study aims to fill

this research gap to assess the obsessive compulsive symptoms and its relation to emotional disturbances among dental students. However, limited studies discussed OCD and emotional disturbances among dental students. Thus, this study aims among dental students.

Materials And Methods

A cross-sectional study was conducted among dental students from a local university during the COVID-19 pandemic in Malaysia in the period from December 2021 to June 2022. The participants are undergraduate students from year 1 to year 5 using a convenient sampling method. Ethical Approval was obtained prior to the commencement of the study (IREC 2022-017). An online self-rated questionnaire was carried out using Google Forms. The sample size was determined by using estimating proportion formula. For this study, the level of confidence is 95%. Thus, the Z value is 1.96. The precision value Δ is 8%. The rate of prevalence of OCD among University Tunku Abdul Rahman (UTAR) students was 25.7%^[11]. Hence, the estimated prevalence is 25.7%. Therefore, the minimum sample size, n is 114. The inclusion criteria include all undergraduate dental students who are willing to participate in this study. Students from other courses and students who are not willing to participate will be excluded from this study.

After obtaining ethical approval, the questionnaire was distributed to all dental students through an online platform and a total of 138 respondents participated in this study. The questionnaire comprised four sections. The initial section consisted of the sociodemographic factors such as gender, age, year of study, and economic status. In terms of economic status, there were three distinct classifications, namely the bottom 40% (B40), the middle 40% (M40), and the top 20% (T20). B40 households had a monthly income lower than Ringgit Malaysia RM4,850, while M40 households earned between RM4,851 and RM10,960, and T20 households earned above RM10,960^[12]. A total of three validated questionnaires were used to assess OCD, depression and anxiety. Firstly, the symptoms of OCD were assessed through the Obsessive-Compulsive Inventory-Revised (OCI-R), which consisted of 18 questions. It is a self-report questionnaire that measures OCD symptoms across six subscales, including washing, checking, neutralising, obsessing, ordering, and hoarding. Each question was rated on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely), resulting in a total score that ranged between 0 and 72. The recommended cut-off score was 21^[13]. People were more likely to have OCD if their score was more or equal to 21. The OCI-R has a good psychometric properties and is considered a reliable measure that has good convergent validity and differentiates well between patients with OCD and individuals without OCD^[13,14].

The second questionnaire is the Generalized Anxiety Disorder Scale-7 (GAD-7) which is used to assess the anxiety symptoms among the students. A score of 4 or lower indicated minimal anxiety, 5-9 indicated mild anxiety, 10-14 indicated moderate anxiety, and a score of 15 or higher indicated severe anxiety^[15]. The third questionnaire used was the Patient Health Questionnaire (PHQ-9) to provisionally diagnose depression and grade the severity of symptoms in general medical and mental health settings. It is measured using nine questions, and each question had a 0-3 answer scale where values were referred to as 0 not at all, 1 several days, 2 more than half the days, and 3 nearly every day. The total score for PHQ-9 ranged from 0 to 27. A total score of 0-4 indicated minimal depression, 5-9 indicated mild depression, 10-14 indicated moderate depression, 15-19 indicated moderately severe depression, and 20-27 indicated severe depression^[16]. PHQ-9 has been used extensively for assessing and diagnosing depression^[17].

Data Analysis

Data collected were analysed using (SPSS) software version 26.0. Frequency and percentage were used to describe the categorical variables. Independent t-test and One-way ANOVA were used to assess the association between OCD symptoms, anxiety, depression, and its relation to sociodemographic factors.

Results

A total of 140 responses were received. However, out of 140, only 138 responses were used in this study. 2 of the responses were excluded due to invalid personal data. Table 1 shows the frequency and percentage of the respondents' sociodemographic background. Of 138 respondents, 111 were females while 27 were males. Among the respondents, most of them are clinical year students who are year 3, year four and year five students with a percentage of 64.5% while the rest were the pre-clinical students. This is where in terms of economic status, the B40 and T20 were sharing the same percentage (22.5%). On the other hand, about half of the dental students are coming from middle- or average-income earners.

Table 1: Sociodemographic Background

Sociodemographic Background	Variables	Number (n)	Percentages (%)
Gender	Male	27	19.6
	Female	111	80.4
Year of Study	1	13	9.4
	2	36	26.1
	3	18	13
	4	51	37
	5	20	14.5
Economic Status	B40	31	22.5
	M40	76	55.1
	T20	31	22.5

Table 2 shows the prevalence of obsessive-compulsive symptoms among dental students. More than half of the dental students were found probable to have OCD.

Table 2: Prevalence of obsessive-compulsive symptoms among dental students

Prevalence	Number (n)	Percentage (%)
Prevalence of OCD		
OCD	78	56.5
No OCD	60	43.5

Table 3 shows the association between obsessive-compulsive symptoms and depression and anxiety. It was found that there was a statistically significant association between OCD and depression and anxiety with a p-value of 0.000. From the table, it can be concluded that most of the students who were having OCD will be having anxiety or depression.

Table 3: Association between OCD and depression and anxiety

	Anxiety		Depression	
	Mean (Std dev)	p Value	Mean (Std dev)	p Value
No OCD	1.55 (0.723)	0.000	1.83 (1.076)	0.000
OCD	2.37 (0.968)		2.77 (1.308)	

Table 4 shows the association of sociodemographic factors with OCD. The results show that there was no significant association between OCD and gender and economic status. However, there was a significant difference between OCD symptoms within a year of study.

Table 4: The association of sociodemographic factors with OCD

Factor	No	OCD	
		Mean (Std dev)	p Value
Gender	27	26.78 (13.18)	0.205

Male			
Female	111	23.23 (12.96)	
Year of Study			
Year 1	13	19.31 (12.76)	
Year 2	36	22.42 (11.54)	
Year 3	18	30.22 (16.00)	0.001
Year 4	51	27.25 (11.77)	
Year 5	20	15.45 (11.02)	
Economic Status			
B40	31	25.87 (13.82)	0.218
M40	76	24.54 (13.07)	
T20	31	20.92 (11.87)	

*Independent t-test. †One- way ANOVA P values less than 0.05 is considered statistically significant.

Discussion

Obsessive-compulsive disorder is a mental health disorder marked by persistent intrusive thoughts known as obsessions which may lead to repetitive actions or behaviour. This disorder is often under-recognized as the patient may think their thoughts and behaviour are normal as the symptoms may appear or vanish regardless of time. For this reason, they may not seek help from the clinician as well as being diagnosed with this disorder. Subsequently, the symptoms may overlap with other psychological disorders such as anxiety disorder, post-traumatic stress disorder, depression, eating disorder and suicidal thoughts^[9].

A common characteristic feature of OCD is the fear of a negative event that will produce intrusive thoughts in the patient. These thoughts are persistent and will lead to repetitive behaviours (e.g. handwashing or checking) due to fear of this negative event such as fear of contamination ^[18]. Therefore, it can be expected that OCD prevalence will increase due to COVID-19 pandemic. This has been proven in this study as the prevalence of OCD was found to be 56.5% which can be explained due to dental students are at higher risk of acquiring COVID-19 virus as they have to interact closely with patients during clinical training in order to fulfil the requirements for them to be able to graduate. That is why it is expected that these students will develop fear of getting infected which can subsequently lead to OCD. This is inline with a previous study conducted among medical and dental practitioners who practiced in hospital or clinical setting reported that among the dental practitioners, 56 out of 73 of them were having OCD ^[19]. Another study conducted in China among healthcare professionals detected a significantly higher rate of anxiety, depression and OCD symptoms than non-healthcare workers during the pandemic ^[20]. Another study done in Turkey by Ergenic *et al* 2020 showed that healthcare workers in COVID-19 wards had significantly higher levels of anxiety, stress and OCD symptoms than healthcare workers working in non-COVID-19 wards ^[21]. These findings correlate with this study since the prevalence of OCD among dental students was high at 56.6% which is slightly higher than another study conducted among medical students using OCI-R in which the rate was 43% ^[9]. However, a study conducted before COVID-19 among students of College of Applied Medical Sciences using OCI-R found that 20% of the students have obsessive and compulsive symptoms. ^[22] In contrast, another study conducted before COVID-19 pandemic among dental and medical students using the Maudsley Obsessive-Compulsive Inventory found the rate to be 54.4% ^[23].

The COVID-19 pandemic caused a rise in OCD symptoms in the general population. Also, a study in Saudi Arabia showed an emergence of OCD symptoms among the general population due to the pandemic ^[24]. As for the effect of the COVID-19 pandemic on university students, it has been reported that these students were at high risk of stress, anxiety and depression due to the sudden change in their learning modalities and the lockdown that all countries practised to limit the spread of the virus^[25].

Students in dental schools were affected intensely by the lockdown of their faculties during the pandemic due to the fact that a heavy part of the dental students' curriculum lies in clinical training and fulfilment of the clinical requirements. They fear of loss of manual dexterity skills and so studies have found higher rates of anxiety and stress among these students [26]. Along with that, dental students were also reported to have lower self-confidence in performing clinical skills compared to dental students before the pandemic [27].

Since the beginning of the COVID-19 pandemic, all students around the globe have been affected and mentally drained by the shifting of learning methods. More importantly, dental students are one of the most affected ones as they require clinical or face-to-face sessions in order to fulfil the requirements for them to be able to graduate. Online learning is not enough for them as they need to practice with real patients and acquire the skills to be a dentist. Hence, these modifications will create additional stress for the dental students. Thus, in this study, we assess the association between OCD and depression and anxiety symptoms. Having high levels of OCD among dental students will negatively affect their academic performance and mental wellbeing as they will be more preoccupied with their obsessional thoughts particularly those related to contamination which will lead to spending more time in compulsion to relief the distress caused by these thoughts. They will have problems finishing their clinical task on time and being late to attend class. This will lead to emotional distress.

Which is shown in analysing the association between OCD and depression and anxiety symptoms. It was found that there was a strong association between OCD, anxiety and depression. Most of the dental students who had OCD were more prone to have anxiety than depression. This is consistent with previous studies conducted among medical students [28,29], a study conducted among the healthcare workers in the COVID-19 section concluded that there was significantly increased obsessive-compulsive disorders, depression, and anxiety as compared to the control group [30]. An earlier study in which respondents who developed OCD symptoms only since the start of COVID-19 were more likely to have moderate or high stress, possible generalized anxiety disorder and possible Major Depressive Disorder. This is because obsessive-compulsive disorder symptoms may present with elevated stress [31].

Therefore, dental students are susceptible to OCD especially when they keep on having anxiety or recurring thoughts due to fear of being contaminated which leads them to do repetitive behaviours such as repeated hand washing.

Regarding the association of sociodemographic factors with OCD symptoms, there was no significant difference between genders and OCD symptoms which this is consistent with previous studies [9,28]. On the other hand there was a statistically significant association with the year of study, particularly year three which is the year in which dental students start their clinical training. The dental curriculum is divided into two phases which are preclinical (years 1 & 2) and clinical phases (Years 3-5). Students in the clinical phase have statistically significant OCD mean scores compared pre-clinical phase. Clinical dental students are highly affected as they couldnot attend the clinic or treat any patients [32] This corresponds to the guidelines imposed by the government to minimise the risk of transmission of the virus since most dental treatments are aerosol-generating procedures. It can be inferred that dental students or dentists are at high risk of getting infected of COVID-19 transmission. Therefore, they may feel anxious as they are afraid of being infected or infecting their family and others. A meta-analysis study concluded that dentistry students felt anxious as a result of the COVID-19 pandemic and that there are disparities among students from different parts of the world [33]. This study revealed that clinical students in years 3, 4 and 5 recorded higher number of mean scores for OCD compared to the preclinical years. Out of all clinical years, the mean score for OCD symptoms among year three students was the highest. This is because they are still in the early stage of

treating real patients. They might struggle more compared to other clinical year students since they need to adjust to the new environment.

The study has some limitations since the participants self-rated the survey, they had the freedom to choose with limited options. Although we reached the minimum number of sample size, but it would be better to have more participants involved in this study to increase the strength of the results. In addition, there were no statistics from the previous study as a baseline to compare OCD and emotional disturbance before COVID-19 among dental students.

In recommendation for future studies the authors suggest to do qualitative studies to dig more about the causes of psychological problems during COVID-19 pandemic.

Conclusion

OCD symptoms are prevalent among dental students during COVID-19 pandemic which make the more vulnerable to anxiety and depression. The results were more profound in clinical phase students than pre-clinical phase since they were exposed to the contamination through clinical work. Appropriate steps must be taken for early identification of OCD symptoms and its associated psychological problems to alleviate psychological distress and promote student mental wellbeing which will lead to successful and conducive learning.

Conflict of interest

The authors declare that they have no conflicts of interest relevant to this study.

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