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The Effect of COVID-19 Pandemic on Psychological Wellness among Dental Students of a Malaysian Public University

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Abstract

COVID-19 pandemic has caused a profound effect on the public mental health around the world. Fear and anxiety of this new disease and uncertainties about the future has led to stress to the society and especially to university students. The objective of this study is to assess depression, anxiety, and stress level experienced by dental students of the Faculty of Dentistry, Universiti Sains Islam Malaysia (USIM) during the first period of Movement Control Order (MCO) by Malaysia government. A Depression, Anxiety and Stress Scale (DASS-21) was distributed online to all USIM's dental students to assess their psychological impact and mental health status. The questionnaire included demographic characteristics of the respondents. A total of 175 students were involved in this study. Majority of the respondents are female (79.4%), first year dental students

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(25.7%) and were staying at home with their family (94.9%) in the midst of the outbreak. Overall, the depression, anxiety and stress (DASS-21) scores were normal. However, the proportion of student's anxiety level was apparently higher than depression and stress. A significant finding showed that students who stayed at home were more anxious than those who stayed at hostel (p=0.035). Pandemic COVID-19 lockdown had impacted the psychological state of the USIM's dental students mainly on their anxiety level. Mental health among the students should be carefully monitored by the university particularly at the faculty level to prevent further mental breakdown.

Keywords: *anxiety, stress, depression, COVID-19, dental students*

1. Introduction

COVID-19 is a highly contagious virus that spreads from person to person via respiratory droplets or aerosols containing the virus. It first emerged in Wuhan, Hubai province, China in December 2019 and was declared as a public health emergency of international concern in January 2020. On 15th March 2020, the World Health Organization (WHO) declared it as a global pandemic as the spread crossed international borders, affecting a large number of population around the world (World Health Organization, 2020).

The Malaysian government imposed the first Movement Control Order (MCO) to begin on 18th March 2019 to halt the infection spread (Tang, 2020). The impact of coronavirus spread had created uncertainty to higher education sectors. The quarantine forced colleges and universities to suspend their face to face learning activities and make swift changes to distant learning methods. Ongoing lab research temporarily stopped, student exchange programmes and academic conferences have had to be rescheduled and enrolment of new students had to be deferred. To date, the pandemic has interrupted almost one billion students in 130 countries around the globe (UNESCO, 2020).

Lockdown or quarantine are necessary as protective measures for physical health but staying too long at home can be detrimental to one's mental health. This unprecedented rule had significantly altered the lifestyles and social relationships among the people and had presumably developed deep levels of anxiety along with the fear of contracting the infection. In the previous disease outbreaks such as Ebola, the Severe Acute Respiratory Syndrome (SARS) and Middle Eastern Respiratory Syndrome (MERS), studies showed a worrying mental health burden during endemics. One study showed a positive response to feeling panicked, depressed or emotionally disturbed during the H1N1 pandemic in China (Gu et al., 2015). During the SARS outbreak in Taiwan, a population-based survey showed post-crisis mental distress (Peng et al, 2010). Meanwhile, the COVID-19 outbreak has caused or resulted in mental health issues affecting various groups of the population. Although these studies have assessed mental health issues during outbreaks, most of it have focused on healthcare workers, patients, children and the general population (Lai et al., 2020; Xie et al., 2020; Wang et al., 2020; Worsley, Williams, 2020; Yang et al., 2020).

The imposition of MCO and closure of the faculty is one of the biggest challenges for dental students. Due to close exposure to aerosols and infected droplets from patients' oral cavity, they are restricted from seeing, treating or managing patients. Courses like dentistry and medicine which are designed to include interaction and hands-on experiences such as clinical, practical labs and simulations have a clear disadvantage in regards to the evaluation of students (Sahu, 2020). One cannot deny that didactic and clinical skills are two different outcomes of education. No virtual sessions can duplicate the close experience with patients (Hattar et al., 2021). The switch to online

learning, particularly in courses that were not originally designed for online delivery has likely increased psychological distress among students. Dental students also undergo academic stress (fear of inability to comprehend the desired knowledge in due time, or the burden in the increase of the curriculum content) and professional stress (fear of making poor choice of profession, lack of professional progress, or fear of inability to earn in future).

As highlighted in multiple recent correspondences, there is an urgent need to assess effects of the current pandemic on the mental health and well-being of university students (Zhai & Du, 2020; Araújo et al, 2020; Holmes et al., 2020). A poor psychological wellness can significantly impair students' academic success and affect their future career and personal opportunities. Although many studies have been conducted to look at the psychological wellness among students, most of the data are from China and Western countries. There are limited studies done in Malaysia specifically among dental students. Thus, this study was conducted to assess depression, anxiety and stress level experienced by the dental students of Faculty of Dentistry, Universiti Sains Islam Malaysia (USIM) during the pandemic COVID-19 outbreak.

2. Methods and methodology

To assess the psychological impact and mental health status among students during the MCO period, an exploratory study using cross-sectional online survey was conducted. The study was conducted during the first phase of the MCO period. It involved all 185 students of the Faculty of Dentistry, Universiti Sains Islam Malaysia of session 2019/2020. The survey was created with Google Form and invitation was sent via WhatsApp platform. The participation of students was voluntary and consent was obtained prior to the survey. They were assured regarding confidentiality of the data. The self-report questionnaire in this study included basic demographic, year of study, age, gender and current location of students. At the end of the section, questions to determine the concern of students during pandemic lockdown were also asked. They were given two weeks' time to respond to the questionnaire.

Study instruments

The main instrument used in this study was a validated Malay version of Depression Anxiety Stress Scale 21 (DASS21) (Musa et al., 2007) a translation from English version developed by Lovibond & Lovibond (1995). The questionnaire consists of 21-items that measures the dimensions of depression, anxiety and stress. The scale contains 21 items divided equally into 3 subscales of stress, anxiety and depression; with 7 items per subscale. Total score from each subsection can range from normal to extremely severe. The students responded to the items on a 4-point Likert scale (0 = never a problem, 1=sometimes a problem, 2=often a problem and 3=almost always a problem). Example items include "I found it hard to wind down" (stress), "I was aware of dryness of my mouth" (anxiety), "I couldn't seem to experience any positive feeling at all" (depression).

Statistical analysis

The data were analysed using IBM SPSS software version 24. Data was analysed descriptively using mean and percentage for demographic profile and DASS-21. The Mann–Whitney U tests were further used as appropriate. The significant level was set at $p<0.05$.

3. Results

The response rate for this study was 94.6%. Majority of the respondents were female (79.4%), first year dental students (25.7%) and living at home with their family (94.9%) during the pandemic. Table 1 shows the demographic profiles of the respondents in this study.

Table 1: Demographic profiles of respondents

Variables	**N (%)**
Sex	
Male	36 (20.6)
Female	139 (79.4)
Year of study	
First	45 (25.7)
Second	29 (16.6)
Third	34 (19.4)
Fourth	33 (18.9)
Fifth	34 (19.4)
Location during pandemic	
Home with family	166 (94.9)
College/hostel	9 (5.1)

Table 2 shows the percentage of respondents with depression, anxiety and stress based on DASS-21 classification of severity. Most of the respondents were in the normal range level of depression, anxiety and stress; 76%, 73.1% and 91.4% respectively.

Table 2: Classification of dass-21 according to subset (depression, anxiety, stress)

Level of severity	**N (%)**		
	Depression	**Anxiety**	**Stress**
Normal	133 (76.0)	128 (73.1)	160 (91.4)
Mild	21 (12.0)	13 (7.4)	9 (5.1)
Moderate	19 (10.9)	24 (13.7)	4 (2.3)
Severe	1 (0.6)	5 (2.9)	1 (0.6)
Extremely severe	1 (0.6)	5 (2.9)	1 (0.6)

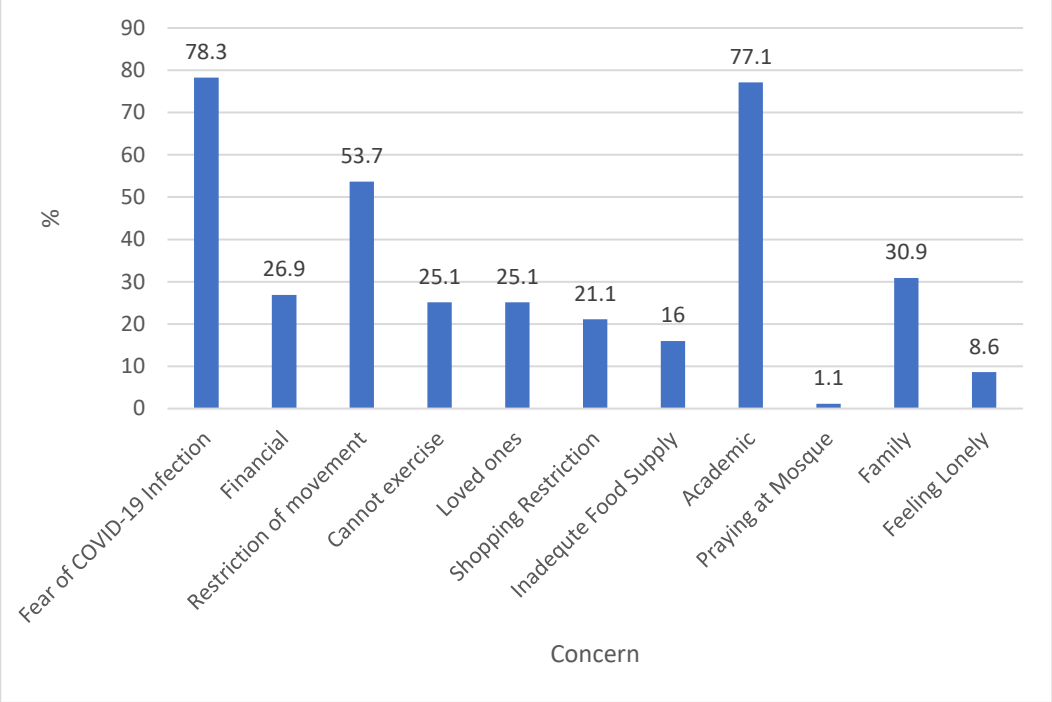
Mann-Whitney U test indicated that students who live with their family at home were more anxious compared to students who stayed at hostel (p=0.035) during the pandemic as shown in Table 3.

Table 3: The comparison of depression, anxiety and stress level scale (dass21) according to sex, year of study and location of the respondents during COVID-19.

Characteristics	Depression			Anxiety			Stress		
	Mean (SD)	Median (IQR)	*p*-value	Mean (SD)	Median (IQR)	*p*-value	Mean (SD)	Median (IQR)	*p*-value
Sex									
Male	4.56	2 (8)	0.115	4.00	2 (6)	0.119	6.17	4 (12)	0.504
Female	(5.73)	4 (6)		(5.68)	4 (8)		(6.63)	6 (8)	
	5.64			5.25			6.56		
	(5.56)			(5.49)			(6.23)		
Year of study									
Preclinical	4.92	4 (8)	0.531	5.43	4 (6)	0.073	6.08	6 (8)	0.900
Clinical	(4.96)	4 (10)		(5.02)	2 (7)		(5.08)	4 (12)	
	5.78			4.67			6.77		
	(6.01)			(5.89)			(7.07)		
Location									
Home	5.52	4 (9)	0.217	5.18	4 (8)	0.035	6.65	6 (10)	0.075
Hostel	(5.61)	2 (5)		(5.61)	2 (2)		(6.33)	0 (7)	
	3.56			1.56			3.33		
	(5.18)			(1.94)			(5.00)		

Figure.1 shows students' concern during the pandemic lockdown. Based on feedback given by the students in the survey, the most common highlighted concerns were predominantly fear of COVID-19 infection, uncertainty about academic related issues and restriction of movement itself.

Figure 1: Students' concerns during lockdown due to COVID-19



4. Discussion

DASS-21 has been translated into various languages including Malay language. The use of this scale is not limited to clinical but also suitable in non-clinical settings especially for research purposes. The scale is found to be valid and reliable to be used in the Malaysian context particularly for undergraduate students (Ahmad et al., 2018). The study revealed a high internal consistency for all three domains namely depression, anxiety and stress. Thus, it can be used to recognize the health status of students with adverse emotional disorders.

The main aim of the present research was to explore the levels of psychological distress (stress, anxiety and depression) among dental students of Faculty of Dentistry USIM. Dentistry is one of the most stressful professions (Myers & Myers, 2004), and dental students also face similar stressors with academic pressures that tend to alleviate over time (Alhajj MN et al., 2018; Ersan et al., 2017). In USIM, the Bachelor of Dental Surgery is a five-year programme comprising two years of pre-clinical courses and the remaining three years for clinical training. The long duration of study may have an impact on students especially during the pandemic. Dental students specifically experience substantial levels of stress in their academic years. Studies indicate that sources of stress are primarily linked to both academic and clinical aspects of education. The main sources of stress for these students were examinations, grades and clinical requirements (Elani et al., 2014).

When testing using DASS-21 in a normal setting, dental students were found to exhibit higher scores for anxiety domain as compared to depression and stress (Basudan et al, 2017). In the context of online learning in dental students, anxiety was found to score (Kharma et al., 2020). In spite of that, our study showed positive findings whereby most of USIM dental students were found to be normal with respect to depression, anxiety and stress (76%, 73.1% and 91.4% respectively).

The religious background of the participants in this study may contribute to the normalcy of the finding with regard to their psychological wellness. All of the respondents are from religious schools who have been exposed to religious education since they were young. A systematic review and meta-analysis of a randomized clinical trial on religious and spiritual interventions in mental health showed additional benefits including in the reduction of anxiety and other clinical symptoms (Gonvalves et al., 2015). Religious education can be an instrument to improve mental health by developing morality and help individuals deal with stressful situations, suffering and problems in life. It enhances acceptance and an individual's ability to face stress and adversity competently (Joshi S, Kumari S & Jain M, 2008).

Nevertheless, our study indicates anxiety as the most prevalent domain among USIM dental students. 20% of the respondent who stayed at home showed a moderate to extremely severe level of anxiety. This finding is similar to most studies using DASS-21 in students' population, where data exhibit higher scores on the domain of anxiety as compared to depression and stress (Asif et al., 2020; Khan et al., 2020; Saraswathi et al., 2020). These findings could be attributed to the closure of universities resulting in uncertainty about the future of their academic progress. It can be said that the students experienced relatively more than just stress during this phase. It can also worsen to a depressive state if their condition is not being monitored. Other than that, a report published in BMJ Open, had reported worrying about contracting COVID-19, feeling lonely and not thinking positively, were all strongly associated with how anxious and depressed people became (Jia et al., 2020).

Screening of students should be conducted on a regular basis to assist faculty in the early detection of highly anxious students. Students who showed symptoms can be guided to obtain assistance from tailored interventions that promote psychological wellbeing, including counselling therapy, mental health support and coping mechanisms.

In this study, 79.4% of our study respondents were females. Females generally express emotions greater than males and the recent pandemic may have exacerbated this situation. Several studies also stated that the presence of more females in a population may explain the possible reason for increased stress scores in the population (Lee, 2012; Lavoie & Douglas, 2012). However, our study did not show such gender discrimination (Denovan et al., 2019; Ramirez & Hernandez, 2007). A possible explanation can be due to most of the students, especially females, staying at home with the family during the lockdown. It makes them feel safe and able to cope well with their loved ones around them rather than staying alone at the hostel.

In a previous research study, year of study had an implication to the anxiety level of the students. It was found that the first, second and third year dental students were more anxious than the senior students. This is because younger students have little experience in managing time and requirements necessary to pass the course as compared to senior students who have more experience and maturity (Radeef & Faisal, 2018; Naidu et al., 2002). Conversely, some studies showed that senior students

were more stressed than junior students due to the burden during the clinical years (Naidu et al., 2002). However, our study has shown no statistical significance between clinical and preclinical years. This is probably due to the student' assumption that the lockdown imposition by the government during the first phase was a short period and will not affect their academic calendar. Nonetheless, further investigations are recommended.

The findings in this study have to be seen in light of some limitations. This study has been conducted online, so there were slight chances of reporting biases. There was also no baseline data on students' mental health prior to testing which could affect the outcomes for this study. The use of descriptive nature in some parts of this study may not allow generalisation of the result as psychological wellness may be caused by other factors other than COVID-19. Nevertheless, despite these limitations, this study provides a baseline information which may be helpful for future research. A longitudinal study and a personal interview to assess more accurate symptoms and reveals more information can be suggested.

5. Conclusion

Pandemic COVID-19 lockdown has certainly impacted USIM's dental students' psychological state mainly on their anxiety level for those who stayed at home. Gender and year of study showed no significant difference. Mental health among the students should be carefully monitored by the university, particularly at the faculty level to prevent unnecessary events. In light of the results obtained through our study, it is generally recommended that the faculty initiates a robust mental health care session for the dental students in order to deal with such situations. The integration of online counselling and stress management programs would help mitigate the stress of students during these challenging times. Nevertheless, further investigations involving other factors, such as socioeconomic status, may provide further clarification.

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