

# Assessment of Psychological Distress and Coping Strategies among Dental Undergraduate Students in a Malaysian University during COVID-19 Pandemic

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## ABSTRACT

**Objective:** Drastic changes took place in Malaysia due to COVID-19 pandemic including education where the students had to undergo remote teaching and learning at their respective hometown to prevent the spread of COVID-19. This change in the mode of learning is a stressful event faced by the students. This study aimed to assess the psychological distress and the coping strategies of undergraduate dental students during COVID-19 pandemic.

**Materials and Methods:** A cross sectional study was conducted on a sample of 224 undergraduate students of Faculty (Kulliyah) of Dentistry in the academic session of 2020/2021. The psychological distress level was assessed using the Kessler psychological distress scale (K10) and the coping mechanisms of the students were determined using the Brief-cope questionnaire.

**Results:** The rate of severe psychological distress was found to be 40.18%, while 22.32% and 18.75% had mild and moderate distress respectively. Students that are less than 21 years old showed a significantly lower mean of psychological distress compared to students above 21 years old. There was no statistically significant difference in psychological distress in terms of gender. More students showed approach coping strategy than avoidant coping. Approach coping showed a negative correlation with psychological distress while avoidant coping showed a statistically significant positive correlation with psychological distress.

**Conclusion:** Psychological distress during COVID-19 pandemic is occurring at a high rate among dental students. Psychological distress level is increased in students with avoidant coping strategies.

**Keywords:** Coping strategy; COVID-19; dental student; Malaysia; psychological distress (Siriraj Med J 2022; 74: 350-356)

## INTRODUCTION

Psychological distress is characterized by as a state of emotional suffering that may manifest two major form of symptoms such as depression (e.g. hopelessness, sadness, lack of interest) and anxiety (e.g. palpitations, lightheadedness, restlessness). Each of these forms

consists of two types of symptoms which are mood and malaise. Mood refers to feelings such as sadness or angst while malaise refers to somatic manifestations such as restlessness and stomach upset.<sup>1</sup> Psychological distress is widely used as an indicator of public mental health or as an outcome for intervention studies and

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clinical trials. University students are generally at risk of developing symptoms of depression and anxiety as the prevalence of psychological distress is high among university students compared to the general population data.<sup>2</sup> Students can be impacted in a variety of ways, their ability to learn and their ability to interact and function, mental health well-being, and general health. All of these are due to the presence of stressors during their education in the university.<sup>3</sup> In addition to the academic stressors, in terms of technology, schooling, culture and society, almost everything is fast-paced today. This causes high societal expectations on students to perform various roles which may be ambiguous, contradictory and unachievable in the present and even in the future, which then causes heavy stress on students.<sup>4</sup>

Being in the transition from adolescence to adulthood is a crucial stage of development for university students and they are more likely to experience mental illnesses as a result of this transition.<sup>5</sup> A survey conducted in Malaysia also have demonstrated that people in the age of 16–24 year age group had the highest prevalence of acute and chronic suicidal ideation compared to the other age group.<sup>6</sup> In addition to that, sudden drastic changes to the learning environment of the students due to the COVID-19 situation has caused psychosocial changes to the students during home quarantine.<sup>7</sup> Together with this pandemic situation, the effect of COVID-19 may amplify these stresses. A study done in Malaysia among medical students using The Depression, Anxiety, and Stress Scale (DASS-21) concluded that COVID-19 led to significant mental health issues among students whereby 15.8% of the students had mild stress, 4.2% moderately stressed, and 2% severely stressed.<sup>8</sup> While another study in Malaysia also using DASS-21 among 1,005 students found a total percentage of 22.0% of students suffering from stress.<sup>9</sup> Also a study done among undergraduate students of the three faculties (Medicine, Dentistry and Health Sciences) using the General Health Questionnaire-12 showed the level of psychological disorder among university students has been high during the pandemic where 36% of the students had distress.<sup>10</sup>

Since the studies assessing psychological distress among dental students in Malaysia during COVID-19 pandemic are limited. Hence, the aim of this study is to determine the level of psychological distress and assess the coping strategies and their relation with psychological distress among dental students during COVID-19 pandemic.

## **MATERIALS AND METHODS**

This is a cross sectional study using online google form was conducted on a sample of 224 dental students,

faculty (Kulliyyah) of dentistry (KOD) International Islamic University Malaysia during academic session of 2020/2021. The sample size was calculated by using an online sample size calculator by the Australian bureau of statistics. The minimum sample size required was 144. However, to increase the power and precision of the study, sample size was increased to a minimum of 200 undergraduate students from KOD, International Islamic University Malaysia, Kuantan campus comprising year 1 until year 5. Prior to conducting this study, the ethical approval has been approved from the International Islamic University Malaysia Research Ethical Committee.

The study was conducted during movement control order due to COVID-19 pandemic where the students underwent remote online teaching and learning (RTL). The study was also performed during the semester and far away from exams to reduce stressful factors. The inclusion criteria were students who voluntarily accept to participate in the study, and who are currently undergraduate dental students of KOD, IIUM. Students who did not agree to participate and did not provide consent were excluded. The structure of KOD program is a 5 year course which is divided into two phases; the preclinical phase is the first two years of the course and the clinical phase are the remaining 3 years. The sociodemographic of every participant was obtained including information about their age, marital status, gender, year of study, and household income.

The study was conducted online by distribution of the following self-rated questionnaires via emails using google forms. The questionnaires used were the following:

1. Kessler psychological distress scale (K10)<sup>11</sup>
2. Brief-COPE questionnaire.<sup>12</sup>
3. Sociodemographic questionnaire.

The K10 questionnaire is a 10-item questionnaire and each item pertains to an emotional state and has a five-level scale response: 'None of the time', 'A little of the time', 'Some of the time', 'Most of the time' and 'All the time'. Each item is scored from one 'none of the time' to five 'all of the time'. Scores of the 10 items are added up giving a minimum sum of 10 and maximum of 50. Low scores give an indication of low level of psychological distress and vice versa. A set of cut-off scores has been used as a guide for categorizing for psychological distress as adopted by The 2001 Victorian Population Health Survey<sup>13</sup>; 10 - 19 Likely to be well, 20 - 24 Likely to have a mild disorder, 25 - 29 Likely to have a moderate disorder, 30 - 50 Likely to have a severe disorder. K10 has good psychometric properties as it has strong scale reliability with Cronbach's  $\alpha$  greater than 0.88.<sup>14,15</sup>

The Brief-COPE questionnaire, consists of a multidimensional assessment of different strategies used for coping in the face of stressors. There are two main subscales to assess coping; each is made up of 14 items. The two subscales measure approach coping and avoidant coping behaviors. The following coping strategies are assessed: (1) self-distraction, (2) active coping, (3) denial, (4) substance use, (5) use of emotional support, (6) use of instrumental support, (7) behavioral disengagement, (8) venting, (9) positive reframing, (10) planning, (11) humor, (12) acceptance, (13) religion, and (14) self-blame. The scores for each subscale are presented for the two overarching coping styles which were avoidant coping which were associated with poorer physical health among those with medical conditions and approach coping which was associated with more helpful responses to adversity, including adaptive practical adjustment, better physical health outcomes and more stable emotional responding.<sup>16</sup>

Regarding the psychometric properties of Brief-COPE, the reliability and validity of the scale indicated a high Cronbach's alpha values for some domains such as Religion ( $\alpha=0.82$ ) and Substance use ( $\alpha=0.90$ ). Other domains indicated acceptable values of Cronbach's alpha. They are Active coping ( $\alpha=0.68$ ), Planning ( $\alpha=0.73$ ), Positive Reframing ( $\alpha=0.64$ ), Acceptance ( $\alpha=0.57$ ), Humor ( $\alpha=0.73$ ), Using Emotional Support ( $\alpha=0.71$ ), Using Instrumental Support ( $\alpha=0.64$ ), Self-distraction ( $\alpha=0.71$ ), Denial ( $\alpha=0.54$ ), Venting ( $\alpha=0.50$ ), Behavioral disengagement ( $\alpha=0.65$ ) and Self-blame ( $\alpha=0.69$ ).<sup>12</sup>

### Statistical analysis

SPSS 25.0 was used for analyzing the data. The analysis of the variables such as age group, gender, nationality, monthly household income, marital status, year of study, and type of accommodation were presented in numbers and percentages. Mann Whitney U test and Kruskal-Wallis test were used to determine the effects of the socio-demographic characteristics on the psychological distress among undergraduate students. Spearman's correlation test was used to observe the correlation between approach coping and avoidant coping with psychological distress level. A p-value of less than 0.05 was considered statistically significant.

## RESULTS

The overall response rate in this study was 77.77% (224 out of 288 KOD students). The respondents were 56 year 1 students, 61 year 2 students, 25 year 3 students, 50 year 4 students and 32 year 5 students. The overall prevalence of psychological distress among KOD students

was 81.75% which was 182 out of 224 students who had some degree of psychological distress. The rate of severe psychological distress was found to be 40.18%, while 22.32% and 18.75% had mild and moderate distress respectively (Table 1). When assessing factors determining significant psychological distress level, only age ( $p = 0.033$ ) was statistically significant, whereby students that are less than 21 years old showed a significantly lower mean of psychological distress compared to students above 21 years old. (Table 2). There were no significant differences in comparing mean scores of other factors such as gender, marital status, phase of study and household income.

Regarding coping strategies, KOD students practiced approach coping mechanisms more than avoidant coping (Table 3). The most practiced coping mechanisms (in descending order) according to the subscale of Brief-Cope were positive reframing, self-distraction, planning, active coping and use of informational support. (Table 4). Spearman's correlation was performed in this study to correlate psychological distress with different coping strategies; approach coping and avoidant coping. The statistically significant results ( $p < 0.05$ ) was a positive correlation between psychological distress and avoidant coping. Approach also showed a negative correlation however it was not statistically significant (Table 5).

## DISCUSSION

There is no doubt about the disastrous effects of COVID-19 pandemic on the whole world. The education sector has been affected significantly by the sudden drastic change in the mode of delivery of education which was changed to remote teaching and learning which was very new to most students. The most affected students are those undertaking courses that need practical skills and actual face to face interaction. A very good example

**TABLE 1.** Prevalence of psychological distress among KOD students according to K10 scoring.

Psychological Distress Level	N (%)
Not distressed	42 (18.75)
Mild	50 (22.32)
Moderate	42 (18.75)
Severe	90 (40.18)

**TABLE 2.** Factors determining significant psychological distress level.

Variables	N (%)	Mean psychological distress score (SD)	P-value
Gender			0.908
Male	59 (26.3)	26.98 (6.969)	
Female	165 (73.7)	27.39 (8.690)	
Age			0.033
≤ 21	106 (47.3)	26.14 (8.467)	
> 21	118 (52.7)	28.56 (7.867)	
Household income per month			0.306
<RM4369 (B40)	56 (25)	28.46 (8.041)	
RM4369 - RM9196 (M40)	94 (42)	27.17 (8.299)	
>RM9196 (T20)	74 (33)	26.54 (8.382)	
Marital status			0.059
Married	2 (0.9)	39 (5.657)	
Single	222 (99.1)	27.18 (8.212)	

**TABLE 3.** Mean and SD for 2 coping mechanisms according to Brief-Cope.

Coping mechanism	Mean (SD)
Approach Coping	33.1429 (6.1489)
Avoidant Coping	25.95 (5.5255)

of such students are dental students who need to get clinical training on patients and who have a list of clinical procedures that they must fulfill correctly to pass to the next academic year and to graduate. Dental students were affected by the pandemic in more than one aspect; first the change to online learning meant that all their clinical training was withheld till an uncertain time. Second; even in case of being able to do limited clinical training the students faced the fear of contracting the virus through close contact with the patients. These factors and other general factors contributed significantly to development of stress in dental students and from this overview we can expect to find a high level of psychological distress among dental students.

**TABLE 4.** Mean (SD) of subscale components for coping mechanisms.

Coping mechanism	Mean (SD)
Positive reframing	5.9196 (1.6438)
Self-Distraction	5.8929 (1.6477)
Planning	5.6696 (1.7405)
Active Coping	5.5659 (1.3505)
Use of Informational Support	5.5357 (1.35215)
Self-Blame	5.3304 (2.0482)
Emotional Support	5.3170 (1.5740)
Acceptance	5.1480 (1.3085)
Venting	4.7589 (2.1397)
Behavioural Disengagement	4.0759 (1.6454)
Denial	3.5491 (1.5697)
Substance Use	2.1295 (0.5409)

**TABLE 5.** Correlation of Psychological distress with social support, approach coping and avoidant coping.

Variable	Correlation coefficient	Sig. Level
Approach Coping	-0.092	0.168
Avoidant coping	0.435	0.00

The prevalence of psychological distress in this study was found to be 81.25% of which 40.18% are having severe distress. These results are comparable with the findings from another study using the same tool done among dental students in Bangladesh during COVID-19 pandemic in which the overall rate was 84.1% of which 34.6% are having severe distress.<sup>17</sup> However it is higher than another study which was done among year 5 dental students at University Malaya during COVID-19 lockdown using K10 scale which reported a prevalence of 52.2%<sup>18</sup> this difference can be due to smaller sample size and year of study. A study conducted during the COVID-19 pandemic in Pakistan, showed that COVID-19 has created psychosocial changes and has increased among students during home quarantine.<sup>6</sup> Together with that, a study conducted in China among healthcare students has also demonstrated the increased prevalence of psychological distress compared to their baseline data which were before the COVID-19 pandemic.<sup>19</sup>

Other studies that were conducted on university students before COVID-19 pandemic had varied results with most of them having lower prevalence of psychological distress which was in the range of 30% to 50% compared to our study which was 81.25%.<sup>20-24</sup> Apart from the effect of COVID-19 pandemic, the variations in rates could be due to differences in sample size, study design, and methods of assessing distress, including the type of questionnaire utilized and the cutoff score used.

Pertaining to the factors determining significant psychological distress level, age is a determining factor as students aged 21 years and below had significantly lower psychological distress level compared to students older than 21 years. This may be due to the fact that older students are more affected by online teaching and learning because of reduction of clinical exposure and worries about fulfilling their assignments with a higher academic workload. This can be supported by the

findings from similar previous studies conducted before COVID-19 pandemic showed no significant difference between age groups.<sup>20-22</sup> Gender wise, both males and females were equally affected by psychological distress which is similar with findings of previous studies.<sup>17,23</sup>

A coping mechanism is a psychological strategy or adaptation that a person uses to deal with stress. Sometimes, coping mechanisms are intentional choices, while other times a person may be unaware that they're using them. Coping strategies can be categorized into two broad types which are approach coping and avoidant coping, under these two main types fall different behaviors of coping that allows a person to manage their life and deal with various situations.

It is also to be noted that coping mechanisms also play a role in 'buffering' or intensifying psychological distress levels. Approach coping has been found to be associated with more cognitive appraisals and less negative effects of stressors.<sup>25,26</sup> On the contrary, avoidant coping behavior has been linked to negative outcomes in terms of stress management.<sup>27,28</sup> This can be explained justified because approach coping allows the person to analyze their stressor and take action to deal with the stressful and reduce its effect on the person, while avoidant coping leads to backing out on the problem and avoiding to deal with it which can lead to augmentation of the stressor and increase in psychological distress.

In this study more students practiced approach than avoidant coping mechanisms, this indicates that the students at KOD have the ability to cope with stressful factors however the reason for having high psychological distress in this study maybe due to the overwhelming nature of the current situation of going through a pandemic which they have never been exposed to before. In accordance with other studies, our study found that avoidant coping has positive correlation with psychological distress and this correlation is statistically significant.<sup>29</sup> While approach coping was found to have a negative correlation with psychological distress although it was not statistically significant. The result of this correlation was also parallel with a study that observed the relationship between coping strategies and stress.<sup>30</sup> Previous study has also proven adolescents that practiced approach-oriented coping mechanisms manifest less signs and symptoms of depression compared to adolescents that practiced avoidance-oriented coping mechanisms that exhibit more severe signs and symptoms of depression.<sup>31,32</sup> Implication of this result may be used in counseling sessions in universities to introduce types of coping together with their advantages and disadvantages.



## CONCLUSION

Dental students are affected by a high rate of psychological distress during COVID-19 pandemic. Students using approach coping mechanisms less psychological distress level compared to students that practice avoidant coping mechanisms.

## Limitations and suggestions:

The limitations of this study is that it was only conducted on Faculty of Dentistry students, we suggest to expand the study to include other faculties and to compare between dental students from different universities in Malaysia.

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