

Lockdown during COVID-19 Pandemic: The Psychological Responses and Coping Strategies among Medical Students in a Public University in Malaysia

Ting Chuong Hock¹, Tew Aik Kai², Joel Petrus Chin², Lim Jia Yi², Rubeni Siva², Tamendaren Salvem², Denver Nichol²

¹Department of Psychological Medicine, Faculty of Medicine and Health Sciences,
Universiti Malaysia Sarawak (UNIMAS)

²Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS)

Ting Chuong Hock

Corresponding author

Department of Psychological Medicine,

Faculty of Medicine and Health Sciences, Universiti Malaysia Sarawak (UNIMAS)

Sarawak, Malaysia

Email: chtung@unimas.my

Abstract

World Health Organization (WHO) had promulgated Coronavirus Disease 2019 (COVID-19) as a pandemic in the early year 2020. Following that, the National Security Council of Malaysia had announced the implementation of the Movement Control Order (MCO) in March 2020 to curb the disease. This social distancing measure had inevitably induced undesirable psychological responses among the public, including medical students. In this study, we aim to determine the psychological responses of medical students during the MCO period and their coping strategies. This cross-sectional study was conducted among 245 medical students of Universiti Malaysia Sarawak (UNIMAS) from 24th to 30th April 2020, using an online questionnaire comprising demographic data, Depression, Anxiety, Stress Scale (DASS-21), and Brief COPE questionnaire. Nearly 30% of

Manuscript Received Date: 31/12/20

Manuscript Acceptance Date: 31/03/21

Manuscript Published Date: 30/04/21

©The Author(s) (2021). Published by USIM Press on behalf of the Universiti Sains Islam Malaysia. This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact usimpress@usim.edu.my

doi: <https://doi.org/10.33102/uj.vol33no1.279>



Universiti Sains Islam Malaysia
<https://uijournal.usim.edu.my>

medical students experienced stress, anxiety, or depression. Among all, 9.4% had reported severe anxiety. There were significant differences between avoidance coping strategies and negative psychological responses. In general, the medical students preferred approach coping strategies ($M = 29.19$, $SD = 9.27$). Religion ($M = 5.62$, $SD = 2.10$) was the most favored coping strategy while the least had abused substance ($M = 2.16$, $SD = 0.77$). A significant statistical difference was revealed in the choice of coping between the genders, for positive reframing, religion, humour, and substance abuse. Pre-clinical students were noted to have significant stress and anxiety levels and more inclined to use avoidance coping strategies. Psychological interventions are essential to address the mental health problems among university students during current and future disasters based on the understanding of their coping strategies.

Keywords: *COVID-19, psychological response, coping strategies, medical students*

1. Introduction

Coronavirus disease 2019 (COVID-19) is a new acute respiratory disease and was announced as a pandemic by the World Health Organization (WHO) on 11th March 2020. Symptoms presented by patients with COVID-19 infection include fever, cough, fatigue, sputum production, shortness of breath, sore throat, headache, myalgia or arthralgia, chills, nausea or vomiting, nasal congestion, diarrhea, hemoptysis, and conjunctival congestion, however, they can also be asymptomatic (World Health Organization, 2020a, 2020b). A study reported that the incubation period for COVID-19 is in the range of 2 to 14 days. COVID-19 can be transmitted through respiratory droplets and physical contact routes (Lauer et al., 2020).

The Centers for Disease Control and Prevention (CDC) (2017) recommended that isolation and quarantine help in protecting the public by preventing exposure to those who have or may have a contagious disease. In Malaysia, Movement Control Order (MCO) has been implemented since 18th March 2020 as a cordon sanitaire by the federal government of Malaysia towards the COVID-19 pandemic (News Straits Times, 2020). COVID-19 and social distancing measures that were implemented in many countries had caused some disruptions to everyday activity, especially among students (Lee, 2020). Due to the current academic burden, college students, especially medical students are more vulnerable since their studies can be affected tremendously (Lee, 2020). The mental health of college students has been influenced by the continuous spread of this pandemic as it causes further isolation measures and affects their everyday school and university schedules (Chen et al., 2020; Mei et al., 2011; Xiang et al., 2020). As the COVID-19 pandemic is inducing fear, hence, a timely understanding of mental health status is urgently needed to implement intervention (Xiang et al., 2020).

Coping with stress is important for survival and can be defined as the process of managing external or internal demands that are perceived as taxing on personal capacities and resources (Rout & Rout, 1993). The options for coping with stress are to approach the problem or avoid aversive conditions, therefore, approach and avoidance are shorthand terms for the cognitive and emotional activity that is oriented either toward or away from a threat (Roth & Cohen, 1986). Approach coping includes behaviors that attempt to reduce stress by alleviating the problem directly, whereas, avoidance

coping includes behaviors that reduce stress by distancing oneself from the problem (Carver et al., 1989; Krohne, 1993). Based on a study about stress and coping strategies of students in a medical faculty in Malaysia, the students used more active coping strategies such as religious coping, positive reframing, and acceptance, compared to avoidant strategies such as denial, self-blame, and alcohol or substance use (Al-Dubai et al., 2011).

Many studies had been done regarding the psychological response and mental health of individuals being quarantined, in lockdown, and isolated during a pandemic outbreak such as severe acute respiratory syndrome (SARS) and H1N1 (Bai et al., 2004; Y. Wang et al., 2011). As the pandemic and MCO had significantly affected clinical clerkships and classes held in hospitals, medical students are likely to be affected tremendously. To date, there are limited studies on psychological response and coping strategies during the MCO due to the COVID-19 pandemic in Malaysia among medical students. Therefore, the objective of this study was to determine the psychological response and its relationship with their coping strategies among medical students from a public university in Malaysia during MCO due to the COVID-19 pandemic. The outcome of the study could help the authority to develop suitable intervention and support for medical students, in safeguarding their psychological well-being.

2. Materials and Methods

Study design

This cross-sectional study was conducted to collect background information, the psychological response and coping strategies of medical students from Universiti Malaysia Sarawak (UNIMAS), during the Movement Control Order (MCO) as a result of the COVID-19 pandemic. Inclusion criteria were undergraduate medical students (Year 1 to 5) who were attending the medical degree program, those who gave consent and could understand English. Students who refused to participate and those who were not in the medical program were excluded. The total number of UNIMAS undergraduate medical students is 696. The sample size was calculated using a Type I error of 5% and a power of 95%. A total of 245 samples were recruited using a simple random sampling.

Data collection instruments

The data was collected by using a set of questionnaires of 55 questions. The questionnaire was divided into three parts, namely Part 1: Demographic profile of respondents, Part 2: Depression, Anxiety, and Stress Scale (DASS-21), and Part 3: Brief-Coping Orientation to Problems Experienced (BRIEF-COPE).

Part 1 comprises six questions, including age, gender, ethnicity, year of medical study, pre-existing physical or mental illness, and place of stay during MCO.

Part 2 comprises 21 questions. DASS-21 is a set of three self-report scales designed to evaluate emotional states of depression, anxiety, and stress. Respondents reported their symptoms using a 4-item Likert scale ranging from 0 (Did not apply to me at all) to 3 (Apply to me most of the time). The scores for relevant items were summed up to calculate the scores for depression, anxiety, and stress (Lovibond & Lovibond, 1995). DASS-21 scale was shown to be a reliable and valid

measurement when assessing psychometric properties for undergraduate students in Malaysia with Cronbach's alpha value of 0.91, 0.85, and 0.86 for depression, anxiety, and stress subscale respectively, and the overall Cronbach's alpha value was 0.93 (Noorlila et al., 2018).

Part 3 comprises 28 questions. Brief COPE was designed to measure effective and ineffective ways to cope with stressful life events. Scores are rated by the four-point Likert scale, ranging from "I haven't been doing this at all" (score one) to "I have been doing this a lot" (score four). In total, there are 2 overarching coping styles which are avoidant coping and approach coping. Avoidant coping includes six subscales which are self-distraction, denial, substance use, behavioral disengagement, venting, and self-blame. Approach coping is characterized by the subscale of positive reframing, planning, active coping, acceptance, seeking emotional support, and seeking informational support. Humour and religion are neither approach nor avoidance coping. The Brief COPE questionnaire is a reliable and validated instrument that could be used for the Malaysian population, based on the acceptable internal consistency (Cronbach's $\alpha = 0.25-1.00$) (Yusoff et al., 2010).

Data collection procedure

The questionnaire was set up using an online survey platform, Google Forms. All potential respondents were invited via email, Telegram, and WhatsApp groups. An online survey was done due to the restriction during the MCO period from 24 April to 30 April 2020. All respondents are required to fill the informed consent after reading the information sheet that was attached to the Google form.

Data entry and analysis

The collected data were coded and analyzed using the Statistical Package for Social Sciences Program (SPSS) software version 22.0. The descriptive analysis including frequencies and percentages were calculated for demographic data. The scores of DASS-21 subscales were expressed as frequencies and percentages based on the level of depression, anxiety, and stress. For the Brief-COPE, the score for each section of coping strategies was expressed as means and standard deviation. Independent T-test was used to determine the association between demographic data and depression, anxiety, and stress level. The association between demographic data and coping strategies was analyzed by an independent T-test. The association between depression, anxiety, and stress level and coping strategies of students was analyzed by one-way analysis of variance (ANOVA). A p-value of less than 0.05 is considered statistically significant.

Ethical approval

The identity and personal information of the students were kept confidential to ensure the personal information of the students were not disclosed. Information on helplines available in the campus and non-governmental organizations in the community were provided in the respondent information sheet, in case the respondents required further psychological intervention. The ethics approval was obtained from the ethics committee of the Faculty of Medicine and Health Sciences, UNIMAS [Ref: UNIMAS/NC-21.02/03-02, JId.4 (69)].

3. Results

Socio-demographic characteristics

Out of the 245 students, 71.0% were females and 52.2% were clinical year students, 48.6% were Malays and 61.2% were having a scholarship. Almost half (48.6%) of the students were staying with their families during the MCO period, and a vast majority (97.6%) of them were physically healthy (Table 1).

Table 1: Socio-demographic Characteristics of Participants (N=245)

Socio-demographic characteristics	n (%)	
Sex	Male	71 (29.0)
	Female	174 (71.0)
Year of study	Year 1	56 (22.9)
	Year 2	61 (24.9)
	Year 3	52 (21.2)
	Year 4	52 (21.2)
	Year 5	24 (9.8)
Race	Malay	119 (48.6)
	Chinese	39 (15.9)
	Indian	27 (11.0)
	Bumiputera Sarawak	47 (19.2)
	Bumiputera Sabah	10 (4.1)
	Others	3 (1.2)
Financial income	Scholarship	150 (61.2)
	Loan	44 (18.0)
	Parents	51 (20.8)
Place of stay	Residential college	93 (38.0)
	Outside residential college	33 (13.5)
	Staying with family	119 (48.6)
Health status	Healthy	239 (97.6)
	Pre-existing medical illness	3 (1.2)
	Pre-existing mental illness	3 (1.2)

Levels of depression, anxiety, and stress among respondents

The psychological responses of medical students during MCO using DASS-21 was shown in Figure 1. Most of the students (70.2%) reported having no depression. There were 54 students (22.0%) who reported having mild or moderate depression, while 19 students (7.8%) had severe or extremely severe depression. For anxiety, most of the students (65.3%) reported having no anxiety. There were 53 students (21.6%) who reported having mild or moderate anxiety, while 32 students (13.1%) reported having severe or extremely severe anxiety. Similarly, most of the students (72.7%) reported having no stress. There were 58 students (23.6%) who reported having mild or moderate stress, while 9 students (3.6%) reported having severe or extremely severe stress.

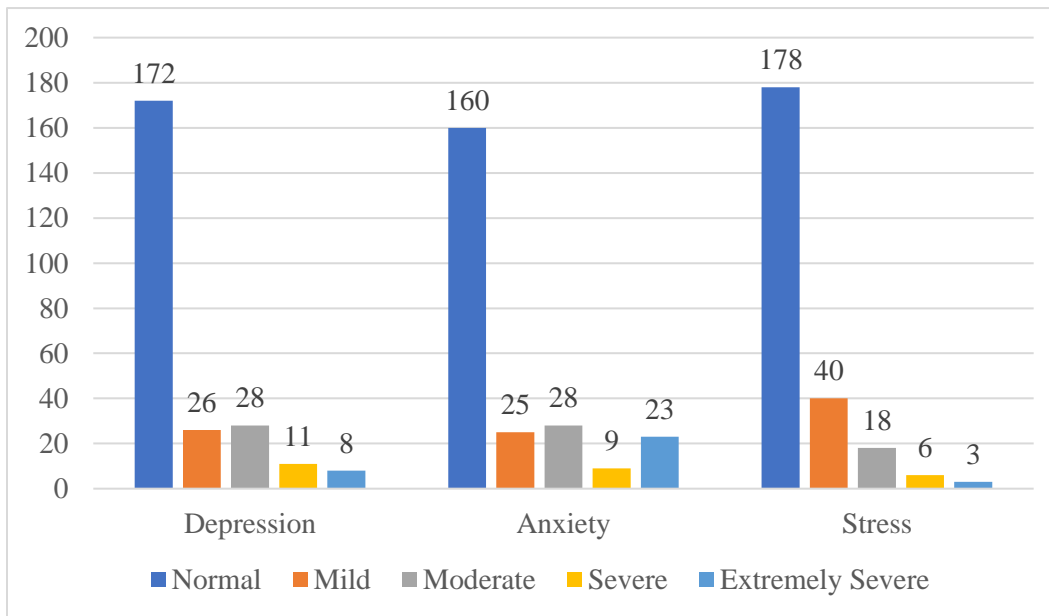


Figure 1: Psychological response among respondents

Coping strategies used by medical students during MCO

The most common coping strategies used by students during the MCO were religion with a mean (SD) of 5.62 (2.10); acceptance, 5.58 (1.92); positive reframing, 5.31 (1.88); self-distraction, 5.24 (1.89); and planning, 4.91 (1.92). Overall, approach coping strategy was the preferred coping strategy with a mean (SD) of 29.19 (9.27), while some adopted the avoidant coping strategy with a mean of 19.64 (5.30).

Table 2: Coping Strategies Used by Students During the MCO (N=245)

Coping strategy	Mean (SD)
Active coping	4.90 (1.80)
Self-distraction	5.24 (1.89)
Denial	2.64 (1.09)
Substance abuse	2.16 (0.77)
Emotional support	4.31 (1.94)
Informational support	4.19 (1.97)
Behavioural disengagement	2.62 (1.11)
Venting	3.56 (1.46)
Positive reframing	5.31 (1.88)
Planning	4.91 (1.92)
Humour	3.42 (1.68)
Acceptance	5.58 (1.92)
Religion	5.62 (2.10)
Self-blame	3.40 (1.62)
OVERALL	
Avoidant	19.64 (5.30)
Approach	29.19 (9.27)

Comparison between demographic characteristics and depression, anxiety, and stress levels

As shown in Table 3, there was a significant difference between years of study and the means score of anxiety. The mean anxiety level for pre-clinical year students was 7.9 (SD = 8.06) while the mean for clinical year students was 5.0 (SD = 6.78). For stress level, there was a significant difference between years of study and the mean. The mean score of stress for pre-clinical year students was 9.2 (SD = 8.46) while that of clinical year students was 6.9 (SD = 7.57). Otherwise, there was no other significant mean difference between demographic characteristics and depression, anxiety, and stress levels.

Table 3: Comparison between Demographic Characteristics and A. Depression, B. Anxiety and C. Stress Levels (N=245)

Table 3A

Sociodemographic	Depression (^a SD)	t-stats (^b df)	Mean difference (95% ^c CI)	^d p value
Gender				
Male (n=71)	7.4 (7.87)	0.409 (243)	0.454	0.683
Female (n=174)	7.0 (7.91)		(-1.737, 2.645)	
Race				
Malay (n=119)	7.5 (8.31)	0.823 (243)	0.830	0.411
^f Non-Malay (n=126)	6.7 (7.47)		(-1.157, 2.817)	
Year of studies				
^g Pre-clinical (n=117)	7.9 (8.64)	1.644 (243)	1.652	0.102
^h Clinical (n=128)	6.3 (7.07)		(-.328, 3.632)	
Financial income				
Scholarship (n=150)	7.5 (7.61)	0.917 (243)	0.948	0.360
^j Non-Scholarship (n=95)	6.5 (8.31)		(-1.089, 2.985)	
Place of stay				
^j Surrounding campus (n=93)	8.3 (8.31)	1.829 (243)	1.890	0.627
Staying with family (n=152)	6.4 (7.56)		(-.145, 3.925)	
Health status				
Healthy (n=239)	7.1 (.51)	0.236 (243)	3.266	0.813
^k Pre-Existing Illness (n=6)	6.3 (2.60)		(-5.661, 7.204)	

Table 3B

Sociodemographic	Anxiety (^a SD)	t-stats (^b df)	Mean difference (95% ^c CI)	^d p value
Gender				
Male (n=71)	6.2 (7.30)	-0.316 (243)	-0.337	0.752
Female (n=174)	6.5 (7.66)		(-2.433, 1.759)	
Race				
Malay (n=119)	6.7 (7.94)	0.600 (243)	0.579	0.549
^f Non-Malay (n=126)	6.1 (7.16)		(-1.323, 2.480)	

Year of studies				
^a Pre-clinical (n=117)	7.9 (8.06)	3.016 (227.66)	2.883	0.003 ^e
^b Clinical (n=128)	5.0 (6.78)		(1.014, 4.752)	
Financial income				
Scholarship (n=150)	6.2 (7.08)	-0.438 (243)	-0.434	0.662
ⁱ Non-Scholarship (n=95)	6.7 (8.24)		(-2.385, 1.518)	
Place of stay				
^j Surrounding campus (n=93)	6.1 (7.27)	-0.487 (243)	-0.485	0.627
Staying with family (n=152)	6.6 (7.72)		(-2.443, 1.474)	
Health status				
Healthy (n=239)	6.3 (7.49)	-1.625 (243)	-5.049	0.105
^k Pre-Existing Illness (n=6)	11.3 (8.73)		(-11.169, 1.071)	

Table 3C

Sociodemographic	Stress (^a SD)	t-stats (^b df)	Mean difference (95% ^c CI)	^d p value
Gender				
Male (n=71)	7.6 (8.72)	-0.463 (243)	-0.527	0.644
Female (n=174)	8.2 (7.81)		(-2.770, 1.716)	
Race				
Malay (n=119)	8.6 (8.55)	1.125 (243)	1.161	0.262
^f Non-Malay (n=126)	7.4 (7.58)		(-.871, 3.192)	
Year of studies				
^a Pre-clinical (n=117)	9.2 (8.46)	2.286 (243)	2.340	0.023 ^e
^b Clinical (n=128)	6.9 (7.57)		(.324, 4.357)	
Financial income				
Scholarship (n=150)	8.3 (7.87)	0.727 (243)	0.770	0.468
ⁱ Non-Scholarship (n=95)	7.5 (8.40)		(-1.317, 2.857)	
Place of stay				

^j Surrounding campus (n=93)	8.4 (8.26)	0.607 (243)	0.645	0.545
Staying with family (n=152)	7.8 (7.97)		(-1.451, 2.742)	
Health status				
Healthy (n=239)	7.9 (8.09)	-0.816 (243)	-2.725	0.415
^k Pre-Existing Illness (n=6)	10.7 (7.23)		(-9.302, 3.852)	

^a standard deviation ^b degree of freedom ^c confidence interval

^d p value for independent t-test

^e p value of less than 0.05 taken as significant

^f includes Chinese, Indian and others

^g includes students from year 1 to year 2

^h includes students from year 3 to year 5

ⁱ includes loans and from parents

^j includes residential college and outside college (rented house)

^k includes physical and mental health problems

Comparison between demographic characteristics and coping strategies used by medical students

Table 4 provides the results of association between demographic characteristics and coping strategies used by medical students.

Female students used more positive reframing and religion more than male students did. There was a significant difference between gender and positive reframing ($p = 0.002$) and religion ($p = 0.006$). However, males used alcohol or substance abuse and humour more than females. There was a significant difference between gender and substance abuse ($p = 0.026$) and humour ($p = 0.002$).

There was a significant difference between year of study and active coping ($p = 0.013$), self-distraction ($p = 0.024$), denial ($p = 0.003$), informational support ($p = 0.023$), behavioural disengagement ($p = 0.031$), venting ($p = 0.031$) and self-blame ($p = 0.003$). Overall, pre-clinical students applied more avoidant coping strategies with a mean score of 20.9 (SD = 5.32), with a significant difference between the year of study and avoidant coping strategies ($p < 0.001$).

Also, there was a significant statistical difference among coping strategies used by different races. Malay students adopted more coping strategies like emotional support, informational support, venting, planning, humour, and religion while non-Malay students tend to have substance abuse as coping style.

Table 4: Comparison between Demographic Characteristics (A. Gender; B. Year of Study and C. Race) and Coping Strategies Used by Students (N=245)

Table 4A

Coping strategy	Gender	Mean (SD)	t-stats (df)	Mean difference (95% CI)	p-value
Substance abuse	Male	2.5 (1.29)	3.137 (73.198)	0.484 (0.176, 0.792)	0.002
	Female	2.0 (0.30)			
Positive reframing	Male	4.9 (1.98)	-2.244 (243)	-0.590 (-1.107, -0.072)	0.026
	Female	5.5 (1.82)			
Humour	Male	3.9 (1.74)	3.1 (243)	0.723 (0.265, 1.180)	0.002
	Female	3.2 (1.61)			
Religion	Male	5.0 (2.26)	-2.824 (116.839)	-0.868 (-1.476, -0.259)	0.006
	Female	5.9 (1.99)			

Table 4B

Coping strategy	Year of study	Mean (SD)	t-stats (df)	Mean difference (95% CI)	p-value
Active coping	Pre-Clinical	5.2 (1.69)	2.513 (243)	0.572 (0.124, 1.020)	0.013
	Clinical	4.6 (1.85)			
Self-distraction	Pre-Clinical	5.5 (1.77)	2.274 (243)	0.546 (0.073, 1.018)	0.024
	Clinical	5.0 (1.96)			
Denial	Pre-Clinical	2.9 (1.16)	3.035 (228.007)	0.418 (0.147, 0.689)	0.003
	Clinical	2.4 (0.98)			
Informational support	Pre-Clinical	4.5 (2.03)	2.296 (243)	0.573	0.023

Lockdown during COVID-19 Pandemic: The Psychological Responses and Coping Strategies among Medical Students

	Clinical	3.9 (1.88)		(0.081, 1.064)	
Behavioural disengagement	Pre-Clinical	2.8 (1.22)	2.174 (222.138)	0.310	0.031
	Clinical	2.5 (0.98)			
Venting	Pre-Clinical	3.8 (1.53)	2.164 (243)	0.402	0.031
	Clinical	3.4 (1.38)			
Self-blame	Pre-Clinical	3.7 (1.60)	2.988 (243)	0.609	0.003
	Clinical	3.1 (1.58)			
Avoidant	Pre-Clinical	20.9 (5.32)	3.728 (243)	2.462	0.000
	Clinical	18.5 (5.02)			

Table 4C

Coping strategy	Race	Mean (SD)	t-stats (df)	Mean difference (95% CI)	p value
Substance abuse	Malay	2.1 (0.42)	-2.128 (170.904)	-0.203	0.035
	Non-Malay	2.3 (0.98)			
Emotional support	Malay	4.6 (1.96)	2.565 (243)	0.630	0.011
	Non-Malay	4.0 (1.88)			
Informational Support	Malay	4.5 (1.99)	2.741 (243)	0.681	0.007
	Non-Malay	3.9 (1.89)			
Venting	Malay	3.8 (1.51)	2.332 (243)	0.432	0.021
	Non-Malay	3.3 (1.39)			
Planning	Malay	5.2 (1.87)	2.329 (243)	0.568	0.021

	Non-Malay	4.6 (1.94)		(0.088, 1.046)	
Humour	Malay	5.7 (1.50)	-1.967 (238.811)	-0.417	0.050
	Non-Malay	3.6 (1.81)		(-0.835, 0.001)	
Religion	Malay	6.1 (1.85)	3.871 (239.193)	1.007	0.000
	Non-Malay	5.1 (2.22)		(0.495, 1.520)	
Avoidant	Malay	20.3 (5.25)	2.045 (243)	1.376	0.042
	Non-Malay	19.0 (5.28)		(0.051, 2.702)	
Approach	Malay	30.7 (8.51)	2.535 (241.521)	2.960	0.012
	Non-Malay	27.8 (9.75)		(0.660, 5.260)	

Comparison between depression, anxiety and stress level and coping strategies of students

A one-way analysis of variance (ANOVA) was done to compare the mean difference between depression, anxiety, and stress level and coping strategies practiced by the students (Table 5).

There was a significant mean difference between depression level and avoidant strategy ($p < 0.05$). Post-hoc test with Tukey-HSD indicated that students with severe depression (mean = 28.4, SD = 5.18) had significantly higher avoidant mean score than those with moderate depression (mean = 22.6, SD = 3.54), mild depression (mean = 21.2, SD = 5.36) and normal (mean = 18.0, SD=4.22) ($p < 0.05$).

In terms of anxiety level, there was a significant mean difference with the avoidant strategy ($p < 0.05$). Severe anxiety (mean = 30.3, SD = 5.66) had significantly higher avoidant mean score than moderate anxiety (mean = 25.2, SD = 4.65), mild anxiety (mean = 23.0, SD = 3.40) and normal (mean = 17.8, SD = 4.20) ($p < 0.05$). There was a significant mean difference between anxiety level and approach strategy ($p < 0.05$). Mild anxiety (mean = 33.4, SD = 6.76) had a significantly higher mean score than moderate anxiety (mean = 32.4, SD=6.31) and severe anxiety (mean = 32.8, SD = 5.54) ($p < 0.05$), but no significant mean difference was found with normal ($p > 0.05$).

For the mean difference between stress level and avoidant strategy, severe stress (mean = 26.7, SD = 5.18) had a significantly higher mean score than moderate stress (mean = 22.6, SD = 4.69), mild stress (mean = 32.5, SD = 8.54) and normal (mean = 27.5, SD = 9.91), and the mean difference was

statistically significant ($p < 0.05$). There was a significant mean difference between stress level and approach strategy ($p < 0.05$). However, there was no significantly higher mean score of severe stress, than moderate, mild, and normal.

Table 5: Comparison between Depression, Anxiety and Stress Levels and Coping Strategies of Students: Bivariate Analysis

Depression level

	Mean (SD)				p-value
	Normal	Mild	Moderate	Severe*	
Avoidant	18.0 (4.22)	21.2 (5.36)	22.6 (3.54)	28.4 (5.18)	<0.001
Approach	28.5 (10.08)	29.9 (7.54)	31.7 (7.18)	30.5 (5.26)	0.319

Anxiety level

	Mean (SD)				p-value
	Normal	Mild	Moderate	Severe*	
Avoidant	17.8 (4.20)	23.0 (3.40)	25.2 (4.65)	30.3 (5.66)	<0.001
Approach	27.7 (9.77)	33.4 (6.76)	32.4 (6.31)	32.8 (5.54)	0.001

Stress level

	Mean (SD)				p-value
	Normal	Mild	Moderate	Severe*	
Avoidant	17.5 (3.85)	21.3 (4.11)	22.6 (4.69)	26.7 (5.18)	<0.001
Approach	27.5 (9.91)	32.5 (8.54)	30.9 (6.42)	33.6 (5.83)	0.001

*Severe = Severe + Extremely Severe Level due to the low prevalence

4. Discussion

The prevalence of depression, anxiety, and stress among the medical students of UNIMAS during the MCO period due to the COVID-19 pandemic was found to be 29.8%, 34.7%, and 27.2% respectively. Students in both schools and colleges tend to have psychological changes, especially

depression, during a pandemic (Taniya, 2020). This could be due to their sedentary lifestyle in which long term closure of schools and colleges can disrupt the daily routine of students, cause loneliness which triggers depression as students have been isolated from college activities and friends, and lack of social life and financial stress (Taniya, 2020).

Besides, our study showed that most UNIMAS medical students experienced no anxiety during this pandemic. This could be because of the decrease in the involvement of medical students in clinical settings and no exposure to COVID-19 patients throughout this pandemic helped them in reducing their anxiety symptoms (Nakhostin-Ansari et al., 2020). Some may have experienced mild anxiety because of the fear of how this pandemic can affect their studies (Cornine, 2020) and future careers (Wang et al., 2020). Those reported having mild to moderate stress during MCO due to the COVID-19 pandemic, probably because they worried about their study and some of them are not satisfied with the classes which are conducted online (Raj & Fatima, 2020).

Every individual has their coping strategies to handle the life situation. We found the most common coping strategy used by students during the MCO was religion. The involvement of religion in the most stressful life situations helped to reduce the stress that an individual copes with (Krause & Van Tran, 1989). Moreover, it helps to boost self-esteem and mental health in that situation. In this study, overall, pre-clinical students were more vulnerable to depression, anxiety, and stress than clinical students. Clinical students have better clinical knowledge and understanding about the current situation which helps to prevent psychological symptoms such as stress and depression and they are much better at handling their mental status (Liang et al., 2020).

Medical students who were staying on campus were more exposed to changes in their mental status compared to students who stayed at home and outside of campus. The gradual increase in the distance among individuals, the further worsening situation in the country, and a reduction in interpersonal communication among family members result in the worsening of mental status among college students (Kmietowicz, 2020; Xiao, 2020). Furthermore, shortages of masks and disinfectants, and the increasing number of cases and deaths added to further anxiety and stress (Ayitney et al., 2020).

This study showed that females used positive reframing and religion more than males did. This could be explained biologically as women have more "feminine" traits like being affectionate, sympathetic, compassionate, tender, and loving to children which makes them more likely to be religious (Swanson, 2016). Male students coped more with humour. Individuals with a better sense of humour deal with the stress in their lives more accurately and realistically (Kuiper & Martin, 1998). Overall, pre-clinical students applied more avoidant coping strategies compared to clinical students. This might be because older students adapt to the college environment better and they have a longer period of contact with mentors than younger students did (Al-Dubai et al., 2011). Younger students might still not adapt well yet, so they tried to cope by using avoidant coping strategies.

Malay students applied more avoidant and approach coping strategies compared to non-Malay students. However, this finding is not consistent with the findings of a study which stated the most used coping strategies were task-oriented followed by avoidance and emotion-oriented coping with insignificant differences regarding ethnicity (Salam et al., 2015).

Our findings showed that respondents with severe depression used mainly avoidant techniques as their coping strategies. Avoidant techniques may provide some benefit by reducing stress and preventing anxiety from becoming overwhelming (Roth & Cohen, 1986). This research also showed that UNIMAS medical students who experienced anxiety preferred avoidance coping strategies. Students prefer to use problem-focused strategies when there is a controllable situation as they know the outcome of that situation would be better (Lazarus & Folkman, 1984). Our findings showed that respondents with severe and extremely severe stress used both avoidant and approach techniques as coping strategies. This could be because avoidant strategies may reduce stress and prevent anxiety from becoming crippling, whereas approach strategies allow appropriate action and the possibility of making a situation more controllable (Balmores-Paulino R.S, 2018).

This study has several limitations. Firstly, the findings of this study may not be pertinent for generalization among medical students from other universities in Malaysia as the education system and curriculum may differ accordingly. Besides that, due to the limited period for doing this study (one month for collecting data) and the long period of Movement Control Disorder (MCO), the study to compare the psychological response during MCO and after MCO due to the COVID-19 pandemic cannot be done. Another limitation is that self-reported levels of psychological responses, anxiety, depression, and stress may not always be aligned with assessment by mental health professionals. Similarly, respondents might have provided socially desirable responses in terms of satisfaction with the health information received and precautionary measures. Notwithstanding the above limitations, this study provides invaluable information on the psychological responses 5 weeks after MCO started due to the outbreak of the COVID-19 pandemic from respondents in UNIMAS. Our results could be used as a historical reference. Most importantly, our findings directly inform the coping strategies used by respondents. This can help in providing a baseline for evaluating future prevention, control, and treatment efforts.

5. Conclusion

During this MCO due to the COVID-19 pandemic, more than half of the medical students had no depression, no anxiety, and no stress. However, around a quarter of students had mild or moderate depression, anxiety, and stress and a small number of them experienced severe or extremely severe depression, anxiety, and stress. Coping strategies mostly used by students were religion, acceptance, positive reframing, self-distraction, and planning. Overall, approach coping strategy was the preferred coping strategy while fewer students adopted avoidant coping strategy. However, medical students with severe or extremely severe depression and anxiety preferably used avoidance coping strategies, whereas those with severe or extremely severe stress used both avoidant and approach coping strategies. Our study can be a substructure to construct a psychological intervention focusing on the vulnerable group of students during this pandemic to implement indispensable measures to surmount this issue at a very early stage.

6. Acknowledgement

We thankfully acknowledge the students who voluntarily participated in this study. We are grateful for the support from UNIMAS for conducting the research.

References

- Al-Dubai, S. A. R., Al-Naggar, R. A., Alshagga, M. A., & Rampal, K. G. (2011). Stress and coping strategies of students in a medical faculty in Malaysia. *Malaysian Journal of Medical Sciences*, 18(3), 57–64.
- Ayittey, F. K., Ayittey, M. K., Chiwero, N. B., Kamasah, J. S., & Dzuvoor, C. (2020). Economic impacts of Wuhan 2019-nCoV on China and the world. *Journal of Medical Virology*, 92(5), 473–475. <https://doi.org/10.1002/jmv.25706>
- Bai, Y. M., Lin, C. C., Lin, C. Y., Chen, J. Y., Chue, C. M., & Chou, P. (2004). Survey of stress reactions among health care workers involved with the SARS outbreak. *Psychiatric Services*, 55(9), 1055–1057. <https://doi.org/10.1176/appi.ps.55.9.1055>
- Balmores-Paulino R.S. (2018). Avoidance Coping Strategies. In *Encyclopedia of Personality and Individual Differences*. Springer International Publishing. https://doi.org/10.1007/978-3-319-28099-8_645-1
- Carver, C. S., Scheier, M. F., & Weintraub, K. J. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267–283. <https://doi.org/10.1037/0022-3514.56.2.267>
- Centers for Disease and Control Prevention (CDC). (2017). *Quarantine and Isolation*. <https://www.cdc.gov/quarantine/index.html>
- Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., He, L., Sheng, C., Cai, Y., Li, X., Wang, J., & Zhang, Z. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. *The Lancet Psychiatry*, 7(4), e15–e16. [https://doi.org/10.1016/S2215-0366\(20\)30078-X](https://doi.org/10.1016/S2215-0366(20)30078-X)
- Cornine, A. (2020). Reducing nursing student anxiety in the clinical setting: An integrative review. *Nursing Education Perspectives*, 41(4), 229–234.
- Kmietowicz, Z. (2020). Rules on isolation rooms for suspected covid-19 cases in GP surgeries to be relaxed. *BMJ (Clinical Research Ed.)*, 368(February), m707. <https://doi.org/10.1136/bmj.m707>
- Krause, N., & Van Tran, T. (1989). Stress and religious involvement among older blacks. *Journal of Gerontology*, 44(1), 4–13. <https://doi.org/10.1093/geronj/44.1.s4>
- Krohne, H. W. (1993). *Attention and avoidance: Strategies in coping with aversiveness*. Hogrefe & Huber.
- Kuiper, N. A., & Martin, R. A. (1998). *Is sense of humor a positive personality characteristic? In The sense of humor: Explorations of a personality characteristic* (pp. 150–178). Mouton de Gruyter. <https://doi.org/10.1515/9783110804607.159>
- Lauer, S. A., Grantz, K. H., Bi, Q., Jones, F. K., Zheng, Q., Meredith, H. R., Azman, A. S., Reich, N. G., & Lessler, J. (2020). The incubation period of coronavirus disease 2019 (CoVID-19) from publicly reported confirmed cases: Estimation and application. *Annals of Internal Medicine*, 172(9), 577–582. <https://doi.org/10.7326/M20-0504>

- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lee, J. (2020). Mental health effects of school closures during COVID-19. *The Lancet Child and Adolescent Health*, 4(6), 421. [https://doi.org/10.1016/S2352-4642\(20\)30109-7](https://doi.org/10.1016/S2352-4642(20)30109-7)
- Liang, L., Ren, H., Cao, R., Hu, Y., Qin, Z., Li, C., & Mei, S. (2020). The effect of COVID-19 on youth mental health. *Psychiatric Quarterly*, 91(3), 841–852. <https://doi.org/10.1007/s11126-020-09744-3>
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 33(3), 335–343. [https://doi.org/10.1016/0005-7967\(94\)00075-u](https://doi.org/10.1016/0005-7967(94)00075-u)
- Mei, S. L., Yu, J. X., He, B. W., & Ji, L. Y. (2011). Psychological investigation of university students in a university in Jilin province. *Med Soc (Berkeley)*, 24(05), 84–86.
- Nakhostin-Ansari, A., Sherafati, A., Aghajani, F., Khonji, M. S., Aghajani, R., & Shahmansouri, N. (2020). Depression and anxiety among Iranian medical students during COVID-19 pandemic. *Iranian Journal of Psychiatry*, 15(3), 228–235. <https://doi.org/10.18502/ijps.v15i3.3815>
- News Straits Times. (2020, March 16). *14-day Movement Control Order begins nationwide on Wednesday*. <https://www.nst.com.my/news/nation/2020/03/575180/14-day-movement-control-order-begins-nationwide-wednesday>
- Noorlila, A., Samsilah, R., Shamsuddin, O., Shureen, F. A. S., & Abu, Y. A. B. (2018). The validity and reliability of psychometric profile for Depression, Anxiety and Stress Scale (DASS21) Instrument among Malaysian undergraduate students. *International Journal of Academic Research in Business and Social Sciences*, 86(6), 812–827.
- Raj, U., & Fatima, A. (2020). *Stress in students after lockdown due to COVID-19 threat and the effects of attending online classes*. SSRN. <https://doi.org/http://dx.doi.org/10.2139/ssrn.3584220>
- Roth, S., & Cohen, L. J. (1986). Approach, avoidance, and coping with stress. *American Psychologist*, 41(7), 813–819. <https://doi.org/10.1037/0003-066X.41.7.813>
- Rout, U. ., & Rout, J. . (1993). *Stress and general practitioners*. Kluwer Academic Publishers.
- Salam, A., Mahadevan, R., Rahman, A. A., Abdullah, N., Harith, A. A. A., & Shan, C. P. (2015). Stress among first- and third-year medical students at University Kebangsaan Malaysia. *Pakistan Journal of Medical Sciences*, 31(1), 169–173.
- Swanson, A. (2016). *Why women are more religious than men*. The Washington Post. <https://www.washingtonpost.com/news/wonk/wp/2016/03/30/why-women-are-more-religious-than-men/>
- Taniya, C. (2020). *Mental health guide: Dealing with depression and anxiety during COVID-19*. <https://www.abpeducation.com/education-tips/mental-health-guide-dealing-with-depression-and-anxiety-during-covid-19-1.1187246>

- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health*, 17(5), 1729. <https://doi.org/10.3390/ijerph17051729>
- Wang, Y., Xu, B., Zhao, G., Cao, R., He, X., & Fu, S. (2011). Is quarantine related to immediate negative psychological consequences during the 2009 H1N1 epidemic? *General Hospital Psychiatry*, 33(1), 75–77.
- World Health Organization. (2020a). *Coronavirus disease (COVID-19) Q&A*. <https://www.who.int/news-room/q-a-detail/q-a-coronaviruses>
- World Health Organization. (2020b). *Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)*. (Issue February). [https://www.who.int/publications/i/item/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-\(covid-19\)](https://www.who.int/publications/i/item/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-(covid-19))
- Xiang, Y. T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Ng, C. H. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry*, 7(3), 228–229. [https://doi.org/10.1016/S2215-0366\(20\)30046-8](https://doi.org/10.1016/S2215-0366(20)30046-8)
- Xiao, C. (2020). A novel approach of consultation on 2019 novel coronavirus (COVID-19)-related psychological and mental problems: Structured letter therapy. *Psychiatry Investigation*, 17(2), 175–176. <https://doi.org/10.30773/pi.2020.0047>
- Yusoff, N., Low, W. Y., & Yip, C. H. (2010). Reliability and validity of the brief COPE scale (english version) among women with breast cancer undergoing treatment of adjuvant chemotherapy: A Malaysian study. *Medical Journal of Malaysia*, 65(1), 41–44.