International Journal of Biomedical and Clinical Sciences
Vol. 5, No. 3, 2020, pp. 217-228
http://www.aiscience.org/journal/ijbcs

Fear, Anxiety and Coping Mechanism During COVID-19 Pandemic Among Undergraduates

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Abstract

There are various studies which investigates the psychological impact of COVID-19 upon the general population in different countries. However, there is little data on the mental consequences of COVID-19 on the people of Malaysia. Therefore, there is a call for such studies into this important matter. An analytical cross-sectional study was conducted among undergraduate medical and dental students in their clinical years in Melaka-Manipal Medical College (MMMC), Malaysia between May and June 2020. It aims to determine the fear, anxiety, and coping mechanisms during COVID-19 among undergraduate students of MMMC. It also looks into the comparison of fear and coping mechanisms during COVID-19 between different sociodemographic characteristics such as age, sex, race, religion and history of mental illness among undergraduate students of MMMC. The students of each semester were selected by a non-probability purposive sampling method and a validated questionnaire via Google forms was sent online to them. The questionnaire comprised 4 sections with informed consent given beforehand. The first section was on socio demographic data. Second section contained 7 items regarding fear. The third section had 22 items regarding anxiety. The last section had 9 items regarding coping mechanisms. A total of 332 undergraduate students of MMMC that completed the questionnaire provided neutral or disagree responses and scored a mean score of 16.6 (SD=5.1) for fear. The undergraduate students also showed low anxiety and has developed positive coping mechanisms during COVID-19. There is no significant association between gender, age, race and history of mental illness with fear of COVID-19 among the undergraduate students of MMMC. However, there is significant association between religion and fear of COVID-19 among the undergraduate students of MMMC. The study also showed that there is no association between gender, race, age and history of mental illness with coping mechanisms, but there is significant association between religion and the coping mechanism of undergraduate students during the COVID-19 pandemic. Hence, education via campaign, media ads, and counselling would be an ideal method to reach out and educate the undergraduate students of MMMC in Malaysia on how to cope with their fear and anxiety during this COVID-19 pandemic.

Keywords

COVID-19, Fear, Anxiety, Coping, Psychological Impact, Undergraduate Students

Received: June 15, 2020 / Accepted: July 16, 2020 / Published online: August 18, 2020

1. Introduction

On 5 January 2020, WHO had published a disease outbreak news of 44 cases of pneumonia of unknown aetiology detected in Wuhan City, Hubei Province of China. According to the authorities report that all patients were operating dealers or vendors in Huanan Seafood market. The concerned market in Wuhan was closed on 1 January for environmental sanitation and disinfection [1]. The Chinese authorities identified and isolated a new type of coronavirus (novel coronavirus, nCoV) on 7 January. China began sharing the genetic sequence of the novel coronavirus on 12 January which may help other countries to diagnose patients. The

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clinical signs and symptoms reported are fever, difficulty breathing, and chest radiographs showing invasive pneumonic infiltrates in both lungs [2]. By 30 January, a total of 7818 confirmed cases worldwide have been reported and the WHO Director-General accepted the recommendation by the Emergency Committee (EC) and declared the novel coronavirus outbreak (2019-nCoV) a Public Health Emergency of International Concern (PHEIC) [3]. On 11 February, WHO announced COVID-19 as a new name for the new coronavirus disease and by 11 March, WHO declared COVID-19 as a pandemic [4]. On 19th May, the number of cases globally are 4,618,821 with 311,847 deaths while in Malaysia the number of cases is 6,978 with 114 deaths. [5]

The COVID-19 pandemic reached Malaysia in January 2020 [6]. The reported cases remained low and were confined to only imported cases, until localised clusters began to emerge in March [7]. As there was escalation in cases occurring in early March, measures to control the outbreak were later announced by the Prime Minister of Malaysia on 13 March 2020, by 16 March, a nationwide "Movement Control Order" (MCO), intended to reduce the spread of COVID-19 through social distancing [8]. On 10 May, the Conditional Movement Control Order was extended until 9 June [9].

The speculation surrounding the mode and rate of transmission, the alarming spread around the globe, rises in cases and death tolls, and no known definitive treatment can instil fear in the general population resulting in erratic behaviour. Cambridge dictionary defines fear as an unpleasant emotion or thought that you have when you are frightened or worried by something dangerous, painful, or bad that is happening or might happen [10]. The rapid spread of news and rumours about COVID-19 may only serve to stroke fear among the people. In the recent outbreak of SARS in 2004, fear heightened from underlying anxiety about an unknown disease and possible fatal outcome as the media reported dramatic stories about the disease using worldwide headlines [11]. Fear and anxiety of falling sick or dying, helpless, or blame of other people who are ill, can trigger a mental breakdown precipitating new psychiatric symptoms. [12] The WHO recommends minimising watching, reading or listening to news about COVID-19 that causes anxiety and stress. The people can definitely have worries with the sudden and constant stream of news reports on an outbreak. Getting the facts and not rumours may help to minimise fears [13]. With high levels of fear, fear-related behaviours like stigma and blame are also targeted at communities affected by the outbreak by other countries due to fear of infection [11]. It is vital to avoid this stigma as it can make people hide their illness and not seek health care immediately. A recent article, The Four Horsemen of Fear, where it highlights fear experiences during COVID-19, that is (1) fear of/for the body, (2) fear of/for significant others, (3) fear of knowing/not knowing, and (4) fear of action/inaction. These types of fear are important to be addressed so that their impact to the people are reduced [14].

Based off a study regarding the study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic, every individual is affected in variable extents with their respective anxiety and concerns. Individuals that were kept in isolation proved to experience a significant amount of distress which comes in the form of anxiety, anger, confusion and post-traumatic stress disorder based of a recent evidence from a study. [15] Mental health issues are also a major concern and it is expected to increase day by day during this pandemic. Based on the American Psychiatric Association (APA), there is around 62% of Americans which are suffering from symptoms of anxiety due to the COVID-19 pandemic while 59% feels that the virus has greatly affected their daily lives. [16] Other than that, research done during the previous pandemic have shown that isolation and quarantine precipitate to anxiety and feelings of anger. [17] Another study in UK found that a large proportion of the public may be experiencing depression, anxiety, and a sense of social, economic, and personal loss as a result of adhering to the new social distancing measures. [18] Anxiety also arises due to fear of getting infected and inadequate clarity of social distancing guidelines, which is often worsened by the fear mongering of less reliable media. [19]

A study of 1,354 Canadian adults in February 2020 showed that one-third of the interviewer were worried about the virus and 7% of them were "very worried". [20] Levels of stress, anxiety and depression which conducted in the study of Basque Autonomous Community in Spain was lower than the study in China initially. However, the sample showed higher mean levels of symptoms of the stay-at-home order. The youngest one mostly university students showed higher levels of stress than older individuals in the study samples. [21] In Singapore, there is integration of hospital and community resources to strengthen the community's mental health by providing online counselling support for COVID-related issues. In hospital, individual psychiatric department has been provided extra clinical sessions and given some psychological and emotional support especially to those in the Emergency department. [22]

The recent pandemic has caused a surge of mental health issues throughout the globe. This affects everyone including undergraduates. Studies have shown that many have experienced fear of being infected by the virus. The symptoms of the illness and detrimental effects of tis treatment could lead to worsening of anxiety which

eventually lead to mental distress. [23] High level of stress is also seen in patients in medical isolation as evidence of delay in normalization of indicators of psychological stress such as levels of circulating cell-free mitochondria DNA and levels of circulating cell-free genomic DNA. There is also a decrease values of phosphorus, calcium and haematocrit. The increase in the level of stress will consequently increase the level of mental distress. This association has been described in previous studies. There's also a 3 to 4-fold increase in incidence of functional neurological symptom disorder as well seen during a lockdown. Hence isolation increases the level of stress and anxiety in a person which leads to mental distress. [24]

There is very limited data regarding the effects of COVID-19 on the mental health of the society in Malaysia. In 2016, the psychiatrist group from the Ministry of Health in Malaysia came up with the Malaysian Mental Healthcare Performance in 2016 where it is stated that mental disorders were estimated to affect the Malaysia's Disability-Adjusted Life Year (DALY) at 8.6%. [25] Currently with the ongoing Covid-19 pandemic, it is expected for these figures to rise drastically. The suspension of studies and the lack of job opportunities due to the financial burden in Malaysia could further affect the undergraduates in Malaysia which may give rise to insecurities and anxiety whilst affecting their mental health. [26]

Currently there are no studies which touch on the areas such as fear, anxiety level and coping mechanism during Covid-19 pandemic among undergraduates. It is important to assess the psychological impacts of the current pandemic towards the undergraduates. Thus, it is highly important to have such study in Malaysia as it can help provide a certain understanding regarding how many people are actually affected during a pandemic and how they have coped with these hard times. Therefore, there is a call for a study of the psychological impacts of COVID-19 on the undergraduates of Malaysia. This study will touch on areas such as fear, and anxiety level among undergraduates which may contribute to it. It will also assess the perceived mental healthcare needs among undergraduates due to the COVID-19. This will provide insight to a need of concern of mental health due to COVID-19. Other than that, this study will also find out coping mechanisms employed by the undergraduates during the MCO which may be helpful to determine protective factors against the psychological impact due to the COVID-19. Data regarding fear and anxiety among different races, gender and religion will be taken to account to assess their individual severity. This study aims to assess fear, anxiety and coping mechanism among MMMC students during COVID-19 pandemic. We also aimed to determine the association of fear with gender and religion and also to assess the coping mechanism for fear, and anxiety during Covid-19 pandemic.

2. Methodology

2.1. Study Design, Study Time, Study Setting, Study Population

A cross sectional study was conducted from April 2020 to May 2020 in our college, Melaka Manipal Medical College (Muar Campus), which is a private medical college situated in Muar, Malaysia. Our college has two campuses; one based in Muar, Johor and the other is based in Malacca. The Muar campus offers Bachelor of Medicine and Bachelor of Surgery (MBBS) Semester 6 and 7, while the Malacca campus offers Bachelor of Dental Surgery (BDS), Foundation in Science (FIS) and MBBS Semester 8, 9 and 10.

This study aims to determine the relationship between fear, anxiety and coping mechanism during the COVID-19 pandemic among the undergraduate students, and therefore a study population of 300 students consisting of medical and dentistry students from MMMC was selected.

2.2. Sample Size

Epi Info™ 7 application used in this research to calculate sample size.

The calculation was shown below.

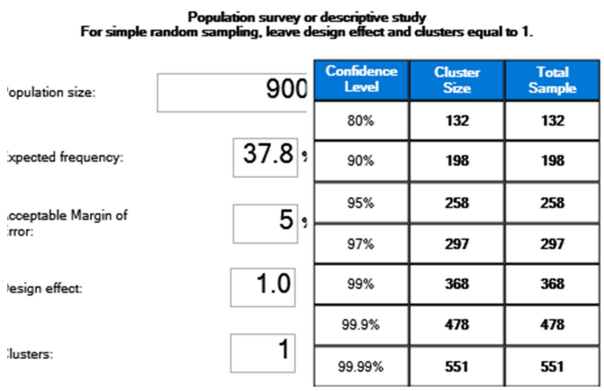

Figure 1. Sample size.

Population Size: 900 students in MMMC of Malaysia

Expected frequency: 37.8% of student are paranoid about acquiring Covid-19 infection which less than 40%

Acceptable margin of error: 5.0%

Hence, Sample size used in Epi Info™ is 900.

For the sample size according to confidence level 95% is 258.

Minimum sample size required is 258.

The maximum percentage of non-response rate allowed is 20% which included in the formula below to calculate the

final sample size.

$$n_{final} = \frac{n(calculated)}{1-(non-response\ rate)}$$

$$n_{final} = \frac{258}{1-(0.2)\%}$$

$$n_{final} = 322.5 \approx 323$$

The final sample size obtained for this study is 323 after rounding off.

2.3. Sampling

The sampling method used in this study was non-probability purposive sampling method.

The inclusion criteria of this study were 1) undergraduate students 2) voluntarily agreed to participate in the study 3) given informed consent 4) filled up the online questionnaires completely 5) previous history of mental illness. While the exclusion criteria of this study were 1) who disagree to participate 2) did not fill up the consent form 3) irrelevant responses given.

2.4. Data Collection

The questionnaire consisted of four parts with an informed consent form. The questionnaire was taken from previous studies from the aspect of fear, anxiety, coping mechanism during a pandemic. In a total it consists of 44 items and it was distributed to 325 students.

The first section, the participants was asked to fill their sociodemographic characteristic such as age, gender, race, religion, course in MMMC and also history of mental illness. For each question, options were provided accordingly.

In the second section, contains 7 items regarding fear and answer the questions using a 5-point Likert scale; strongly agree, agree, neutral, disagree and strongly disagree. The score is then totalled, and the mean and standard deviation is calculated.

The third section, consists of 22 items regarding anxiety, from that, the first 18 items were to be rated in the 4-point Likert scale format; never, sometimes, often and always. Never and sometimes is grouped together and often and always is grouped together. The remaining 4 items on a Nominal scale; yes or no. The score is evaluated using Binary logistic regression.

In the final section, consists of 9 items regarding coping mechanism. The respondents were to rate each item using a 5-point Likert scale; strongly agree, agree, neutral, disagree and strongly disagree. The score is totalled and the mean and standard deviation is calculated.

These 44 items were then compiled to form a Google Form and were distributed to all the participants and the responses were collected and an excel sheet was formed for interpretation.

2.5. Data Processing and Analysis

Data was collected and tabulated using Microsoft Excel, then analysed by using Epi info version 7 application. The frequency and percentage were used in analysing the age, gender, race, religion, and history of mental illness. While mean and standard deviation used to calculate age, anxiety level, fear level, coping mechanism and perceived healthcare needs. Odds ratio was used to measure the association of this study. The level of significance is 0.05.

Table 1. Independent and dependent variables with statistical test.

Independent variable	Dependent variable	Statistical test
Gender		Unpaired T-test
Age		Unpaired T-test
Race	Fear level	ANOVA
Religion		ANOVA
History of mental illness		Unpaired T-test
Gender		Unpaired T-test
Age		Unpaired T-test
Race	Coping mechanism	ANOVA
Religion		ANOVA
History of mental illness		Unpaired T-test

2.6. Ethical Consideration

An informed consent form was attached with the survey questions on Google Documents regarding the all the relevant and important details of the study. Participants had the option to participate in the study and possessed the option to withdraw from this study, thus participation in this study was strictly voluntary. Information that was provided was kept confidential to ensure their privacy and anonymity is preserved. The approval for this research was received from the Research Ethics Committee, Faculty of Medicine, Melaka-Manipal Medical College, Malacca, Malaysia.

3. Results

Table 2. Sociodemographic characteristics of undergraduate students in MMMC, Malaysia (n=332).

Variables	Frequency (%)
Age	
<22	107 (32.23)
22-25	224 (67.47)
26	1 (0.30)
Mean (SD)	1.6 (22.13)
Gender	
Female	231 (69.58)
Male	101 (30.42)
Race	
Chinese	139 (41.87)
Indian	109 (32.83)
Malay	43 (12.95)
Others	41 (12.35)

Variables	Frequency (%)
Religion	
Buddhist	110 (33.13)
Christian	56 (16.87)
Hindu	96 (28.92)
Islam	56 (16.87)
Others	14 (4.22)
History of mental illness (i.e. Depression, Anxiety, Schizophrenia, etc)	
No	298 (89.76)
Yes	34 (10.24)

The sociodemographic characteristics of our respondents are shown in the Table 2. Most of the respondents (67.5%) are of age category of 22 to 25 years old. Female respondents consist of 69.6% of the study population, with 30.4% of male students.

Out of 332 MMMC undergraduates that answered our research questionnaire, Chinese ethnicity comprised of 41.9%, followed by Indian, Malay and others with 32.8%, 13% and 12.4% respectively. The other race group consists of Sabah and Sarawak natives, and the students from Sri Lanka and Maldives.

In terms of religion, there are 33.1% of the students are Buddhist, 28.9% of Hindu, 16.9% of Christian, 16.9% of Muslim and a minority of 4.2% with other beliefs.

Most of the respondents does not have any history of mental illness i.e. depression, anxiety, schizophrenia, etc (89.8%), while in 10.24% of them history of mental illness is present.

Table 3. Descriptive Statistics of Fear during COVID-19 pandemic among undergraduates in Malaysia (n=332).

Question	Mean (SD)	Median (Q1, Q3)
I am most afraid of COVID-19	3.2 (0.1)	3.0 (3.0, 4.0)
It makes me uncomfortable to think about coronavirus-19	2.6 (1.1)	3.0 (2.0, 3.0)
My hands become clammy when I think about coronavirus-19	1.9 (0.9)	2.0 (1.0, 2.0)
I am afraid of losing my life because of coronavirus-19	2.8 (1.2)	3.0 (2.0, 4.0)
When watching news and stories about coronavirus-19 on social media, I become nervous or anxious	2.6 (1.0)	3.0 (2.0, 3.0)
I cannot sleep because I'm worrying about getting coronavirus-19	1.6 (0.8)	1.0 (1.0, 2.0)
My heart races or palpitates when I think about getting coronavirus-19	1.9 (1.0)	3.0 (2.0, 3.0)

The mean and standard deviation (SD) and median and Q1, Q3 of student scores are depicted in table 3, where the range is 1 ("Strongly Disagree") to 5 ("Strongly agree").

Table 3 answered our objective to assess fear during COVID-19 pandemic among undergraduate students of MMMC. Participants agreed to be most afraid of COVID-19 and the thought of COVID-19 made them uncomfortable with each scoring mean of 3.2 and 2.6 respectively. Moreover, the respondents also agreed to be afraid of losing their life to COVID-19, which is shown by the mean score of 2.8 to question regarding the particular situation. They also agreed to became nervous or anxious when watching news and stories about COVID-19 on social media, with a mean score of 2.6.

While on the other hand, respondents disagreed that their hands become clammy or have palpitations to the thought of COVID-19 or lose their sleep due to worry of getting COVID-19, and this is illustrated by their mean scores of 1.9 for both situations.

Table 4. Descriptive Statistics of Anxiety during COVID-19 pandemic among undergraduates in Malaysia (n=332).

Question	Participants who answered Never, Occasionally, Sometimes Frequency (%)	Participants who answered Often, Always Frequency (%)
From the last week, how often do you think about Novel Coronavirus Pandemic?	210 (63.25)	122 (36.75)
From the last week, how often you feel paranoid about contracting the novel Corona virus infection?	288 (86.75)	44 (13.25)
From the last week, how often do you avoid partying?	38 (11.45)	294 (88.55)
From the last week, how often you avoid social contact?	49 (14.76)	283 (85.24)
From the last week, how often you avoid large meeting and gathering?	31 (9.34)	301 (90.66)
From the last week, how often you avoid ordering food online?	162 (48.80)	170 (51.2)
From the last week, how often you have talked to your friends about the corona Pandemic?	189 (56.93)	143 (43.07)
From the last one week, how often you have had difficulty sleeping by being worried about the Coronavirus pandemic?	319 (96.08)	13 (3.92)
From the last week, how often you feel affected by the posts on social media about corona Virus infection?	256 (77.11)	76 (22.89)
From the last week, how often do you feel affected by the talks of Novel Corona Virus Pandemic on the newspaper and news channels?	262 (78.92)	70 (21.08)
From the last week, how often do you feel the need to buy and stock all essentials at home?	214 (64.46)	118 (35.54)
From the last week, how often do you get afraid if anyone in your social circle reports of being sick?	190 (57.23)	142 (42.77)
From the last week, how often do you feel the need to use the sanitizer/gloves	113 (34.04)	219 (65.96)
From the last week, how often do feel the need to constantly wash your hands?	72 (21.69)	260 (78.31)
From the last one week, how often do you feel worried about yourself, and close ones regarding the spread of Novel COVID19 Viral Infection?	116 (34.94)	216 (65.06)

Question	Participants who answered Never, Occasionally, Sometimes Frequency (%)	Participants who answered Often, Always Frequency (%)
From the last week, how often do you use a mask without any apparent signs and symptoms of the infection?	123 (37.05)	209 (62.95)
From the last week, how often does the Idea of Novel Corona Viral Infection freak you out leading to inappropriate behaviours with anyone?	281 (84.64)	51 (15.36)
From the last week, how often does the Idea of Novel Corona Viral Infection freak you out post on social media?	293 (88.25)	39 (11.75)

Table 4 illustrates the anxiety during COVID-19 pandemic among undergraduates of MMMC.

Among 332 participants, 36.8% of them often thought about COVID-19 pandemic from the past week, while the remaining 63.3% occasionally or never thought of it. However, a remarkable percentage of more than 85% of them avoided partying, social contact and large meetings and gatherings since the previous one week. Half of the respondents (51.2%) even avoided ordering food online.

Almost all of the respondents (96.1%) did not or occasionally have difficulty sleeping by being worried about the pandemic. Other than that, a percentage of 22.9% and 21.1% of them had often feel affected by posts on social media about COVID-19 and the talks of COVID-19 pandemic on the news respectively.

Out of 332 participants, 35.5% of respondents often felt the need to buy and stock up all essentials from the past week, and 42.8% of them are often afraid when anyone their social circle reports of being sick.

More than half of the respondents (65.1%) often feel the need to use sanitizer or gloves and 78.3% also feel the need to constantly wash their hands from the last one week.

Moreover, majority of respondents (65.1%) often felt worried about themselves and their close ones regarding the spread of COVID-19. 62.3% of respondents also often use mask without any apparent signs or symptoms of infection.

On the contrary, only 15.4% of respondents often freak out leading to inappropriate behaviors due to the idea of COVID-19, and 11.8% often freak out on COVID-19 posts on social media.

Table 5. Descriptive statistics of Perceived healthcare needs during COVID-19 pandemic among undergraduates in Malaysia (n=332).

Question	Participants who answer Yes Frequency (%)	Participants who answer No Frequency (%)
Do you think it would be nice to talk to someone about your worries for the COVID 19 viral epidemic?	243 (73.19)	89 (26.81)
Do you think it is necessary to get mental health help if one panics in lieu of the Pandemic situation?	298 (89.76)	34 (10.24)
Do you think it would be beneficial if mental health professionals help people in dealing with the current COVID19 pandemic situation?	3.17 (95.48)	15 (4.52)
Will you suggest people for obtaining mental health help to people who are highly affected by the COVID19 pandemic?	319 (96.08)	13 (3.92)

Table 5 illustrates the perceived healthcare needs during COVID-19 pandemic among undergraduates of MMMC.

A substantial amount of respondents agreed to the importance of healthcare needs during COVID-19 pandemic. Results show that more than 70% of respondents thought that it would be nice to talk to someone about their worries for COVID-19 pandemic (73.2%) and that it is necessary to get mental health help if one panics due to pandemic situation (89.8%).

A massive amount of respondents thought it would be beneficial if mental health professionals help people in dealing with the current COVID-19 pandemic situation (95.5%) and would suggest people who are highly affected by COVID-19 pandemic to obtain mental health help (96.1%).

Table 6. Descriptive Statistics of Coping Mechanism during COVID-19 pandemic among undergraduates in Malaysia (n=332).

Question	Strongly agree Frequency (%)	Agree Frequency (%)	Neutral Frequency (%)	Disagree Frequency (%)	Strongly disagree Frequency (%)
My social media usage has gone up.	123 (37.05)	99 (29.82)	78 (23.49)	17 (5.12)	15 (4.52)
I am using technology to connect with my loved ones.	127 (38.25)	146 (43.98)	44 (13.25)	11 (3.31)	4 (1.20)
I am practising meditation to help me to cope up.	20 (6.02)	30 (9.04)	95 (28.61)	95 (28.61)	92 (27.71)
I have started exercise/ yoga at home.	63 (18.98)	107 (32.23)	79 (23.80)	46 (13.86)	37 (11.14)
I am taking good rest.	134 (40.36)	123 (37.05)	54 (16.27)	12 (3.61)	9 (2.71)
I read and enjoy humorous messages (meme) and share it with others.	132 (39.76)	123 (37.05)	58 (17.47)	8 (2.41)	11 (3.31)
I feel happy for having more time to be with my family.	171 (51.51)	113 (34.04)	33 (9.94)	9 (2.71)	6 (1.81)
I am thinking of learning something new.	126 (37.95)	135 (40.66)	59 (17.77)	4 (1.20)	8 (2.41)

Question	Strongly agree Frequency (%)	Agree Frequency (%)	Neutral Frequency (%)	Disagree Frequency (%)	Strongly disagree Frequency (%)
I am having an ability to resist thoughts of illness.	73 (21.99)	127 (38.25)	114 (34.34)	12 (3.61)	6 (1.81)

Table 6 illustrates coping mechanisms during COVID-19 pandemic among undergraduate students of MMMC.

Generally, more than half of the respondents agreed to have their own coping mechanism during quarantine in COVID-19 pandemic.

Majority of them agreed that their social media usage has gone up and that they read and enjoy humorous messages (meme) and share it with others. More than 80% of them are using technology to connect with their loved ones during this COVID-19 pandemic. Furthermore, 51.2% of the respondents have started exercise or yoga at home.

Besides, 77.4% agreed that they are taking a good rest and 85.6% agreed that they feel happy for having more time to be with family. Respondents also agreed that they are thinking of learning something new (78.6%).

Most importantly, more than half of respondents (60.2%) agreed that they are able to resist the thought of illness.

Table 7. Descriptive statistics of fear and coping mechanism during COVID-19 among undergraduates in Malaysia (n=332).

Variable	Mean (SD)	Median	Interquartile range	Minimum value	Maximum value
Fear	16.6 (5.1)	17.0	7.0	7.0	35.0
Coping Mechanism	3.8 (0.5)	3.8	0.7	1.0	5.0

In table 7, it shows that most participants scored a total mean of 16.6 for assessment of fear during COVID-19 pandemic. While on the other hand, most of the participants showed positive coping mechanisms, with a total mean score of 3.8 in coping mechanism assessment.

Table 8. Association between sociodemographic characteristics and fear level among the undergraduate students of MMMC in Malaysia.

Independent Variable	Fear Score Mean (SD)	Mean Difference (95% CI)	P Value
Gender			
Female	16.84 (5.23)	0.7 (-0.44, 1.95)	0.217
Male	16.09 (4.78)	Reference	
Age			
<22	16.74 (4.59)	0.19 (-0.99, 1.37)	0.755
≥22	16.55 (5.33)	Reference	
Race			
Malay	16.51 (4.41)		0.451
Chinese	16.77 (5.11)		
Indian	16.89 (5.04)		
Others	15.44 (5.87)		
Religion			
Buddhist	16.80 (5.52)		0.017
Christian	15.87 (4.18)		
Hindu	16.80 (4.89)		
Islam	17.63 (5.03)		
Others	12.71 (5.38)		
History of mental illness (ie. Depression, Anxiety, Schizophrenia, etc)			
No	16.61 (5.06)	Reference	
Yes	16.65 (5.54)	-0.04 (-1.86, 1.78)	0.965

Table 8, shows the association between sociodemographic characteristics, such as gender, age, race, religion, and history of mental illness with fear level among the undergraduate students of MMMC in Malaysia.

According to our data, females have a higher fear level score with a mean score of 16.84 (SD= 5.23), compared to males which had a mean score of 16.09 (SD= 4.78). The mean difference is 0.75 with 95% CI range from -0.44 to 1.95. The p-value is 0.217, thus showing that there is no significant association between gender and fear levels among the undergraduate students of MMMC in Malaysia.

Students below the age of 22 have a mean score of 16.74 (SD= 4.59), while students aged 22 and above have a mean score of 16.55 (SD= 5.33). The mean difference is 0.19 with 95% CI range from -0.99 to 1.37. The p-value is 0.755 which indicates there's no significant association between age and fear levels among the undergraduate students of MMMC in Malaysia.

Next, Indians have a mean score of 16.89 (SD= 5.04), Chinese have a mean score of 16.77 (SD=5.11), Malay have a mean score of 16.51 (SD=4.41), and others such as Sinhalese have a mean score of 15.44 (SD=5.87). The p-value is 0.451, hence showing that there is no significant

association between race and fear levels among the undergraduate students of MMMC in Malaysia.

Based on religion, in our research Islam has highest mean score of 17.63 (SD=5.03). Buddhist and Hindu have a mean score of 16.80 (SD= 5.52 and 4.89 respectively). Christians have a mean score of 15.87 (SD=4.18) and others have a mean score of 12.71 (SD=5.38). The p-value is 0.017, thus showing that there is a significant association between religion and fear levels among the undergraduate students of MMMC in Malaysia.

Lastly, students with history of mental illness have a higher mean score than those without history of mental illness with a mean score of 16.65 (SD=5.54) and 16.61 (SD=5.06) respectively. The mean difference is -0.04 with 95% CI range from -1.86 to 1.78. The p-value is 0.965, thus showing that there no significant association between history of mental illness and fear levels among the undergraduate students of MMMC in Malaysia.

Table 9. Association between Sociodemographic Characteristics and the Coping Mechanism of undergraduate students towards COVID-19.

Independent Variable	Coping Mechanism Score Mean (SD)	Mean Difference (95% CI)	P Value
Gender			
Female	3.80 (0.53)	0.12 (0.01, 0.24)	0.066
Male	3.70 (0.54)	Reference	
Age			
<22	3.80 (0.45)	0.06 (-0.07, 0.18)	0.351
≥ 22	3.80 (0.57)		
Race			
Malay	3.77 (0.54)	-	0.147
Chinese	3.87 (0.53)		
Indian	3.68 (0.37)		
Others	3.73 (0.65)		
Religion			
Buddhist	3.77 (0.53)	-	0.009
Christian	3.72 (0.62)		
Hindu	3.91 (0.48)		
Islam	3.72 (0.44)		
Others	3.62 (0.80)		
History of mental illness (ie Depression, Anxiety, Schizophrenia, etc)			
No	3.79 (0.54)	0.02 (0.18, 0.20)	0.888
Yes	3.77 (0.47)	Reference	

Table 9, shows the association between sociodemographic characteristics, such as gender, age, race, religion, and history of mental illness with the Coping Mechanism of undergraduate students of MMMC in Malaysia towards Covid-19.

Based on the data obtained, females have a mean score of 3.80 (SD = 0.53) which was found to be slightly higher than males as the mean score for males were 3.70 (SD= 0.54). The mean difference is 0.12 with a 95% CI range from 0.01 to 0.24. The p-value obtained is 0.066 showing that there is no significant association between gender and the coping mechanism of undergraduate students of MMMC in Malaysia towards the Covid-19 pandemic.

Undergraduate students below 22 years old shows a mean of 3.80 (SD= 0.45) whereas those equal or above 22 years old shows a mean of 3.80 (0.57). The mean difference obtained was 0.06 while the 95% CI is -0.07 to 0.18. The p-value obtained is 0.351 which signifies that there is no association between age and the coping mechanism of undergraduate students of MMMC in Malaysia towards the Covid-19 pandemic.

From the data obtained, it shows the Chinese have a mean score of 3.87 (SD=0.53), Malays have a mean score of 3.77 (SD= 0.54), other races such as Sinhalese or Maldivians have a mean of 3.73 (SD=0.65) and Indians which have a mean score of 3.68 (SD= 0.37). The p-value obtained is 0.147 thus showing that there is no significant association between race and the coping mechanism of undergraduate students of MMMC in Malaysia towards the Covid-19 pandemic.

Hinduism have a mean score of 3.91 (SD=0.48), Buddhism have a mean score of 3.77 (SD=0.53), both Christianity and Islam has a mean score of 3.72, however Christianity has a SD of 0.62 while Islam has a SD of 0.44 and other religions have a mean score of 3.62 (SD=0.80). There is significant association between religion and the coping mechanism of undergraduate students of MMMC in Malaysia towards the Covid-19 pandemic as the p-value obtained is 0.009.

Based on the data obtained, those without history of mental illness have a mean score of 3.79 (SD=0.54) while those with history of mental illness have a mean score of 3.77 (SD=0.47). The mean difference is 0.02 and the 95% CI is 0.18 to 0.20. The p-value obtained is 0.888 thus signifying that there is an association between history of mental illness and the coping mechanism of undergraduate students of

MMMC in Malaysia towards the Covid-19 pandemic.

4. Discussion

This cross-sectional study is done to determine the fear, anxiety and coping mechanisms during COVID-19 among undergraduate students of MMMC. It also compares the fear and coping mechanism with social demographic data such as age, sex, race, religion, and history of mental illness of the undergraduate students of MMMC. The association between fear and anxiety towards COVID-19 among undergraduate students of MMMC is also determined.

From this study, it is found that the mean score of fear of COVID-19 among undergraduate students is 16.6. Most of the students provided either neutral or disagree responses for inquiries of fear towards COVID-19. The probable explanation for the low fear towards this pandemic among undergraduate students is that they are medical and dental students of MMMC. It is a fact that they have to practice good hygiene and protective measures in their daily learning activities in hospitals to prevent themselves from contracting a disease and breaking the chain of transmission. Due to this knowledge of protective measures, it gives them confidence that such practices may reduce their chances of getting infected and have less fear of contracting COVID-19. However, if we look into the general population, they might have higher fears towards a pandemic. For example, a cross-sectional study was conducted to assess fear of the influenza A (H1N1) pandemic between July 11 and September 12, 2009 where a total of 1,050 Malaysians were interviewed by computer-assisted telephone. The study found that fear about the pandemic was high, with 73.2% of respondents reporting themselves as Slightly fearful/Fearful [27].

As for the anxiety towards COVID-19 among undergraduate students, it shows that most of the students often or always avoid partying, social contact, and large meeting and gathering while almost half of the students often or always avoid ordering food online. Most of the students also often and always feel the need to use the sanitizer/gloves and constantly wash their hands. Majority of them often or always feel worried about themselves, and close ones regarding the spread of COVID-19. Many students also responded often or always they use a mask without any apparent signs and symptoms of the infection. On the hand, only a third of the students often or always think about COVID-19 and feel the need to buy and stock up all essentials at home. Less than half of the students often or always talked to their friends about COVID-19 and get afraid if anyone in their social circle reports of being sick. Very few students responded often or always they feel paranoid about contracting COVID-19 or feel affected by the posts on social media and talks on the newspaper and news channels about COVID-19. A small number of them also often or always, the idea of COVID-19, freaks them out leading to inappropriate behaviours with anyone or post on social media. The smallest number of students often or always had difficulty sleeping by being worried about COVID-19. It is expected that undergraduate students have some anxiety towards COVID-19 which is rectified by the finding from this study. However, the anxiety experienced by the students is not that great in extent compared to the anxiety experienced by the general population of other countries during COVID-19. A cross-sectional study, where a sample of 1615 persons of the general population of Germany between 15 and 22 March 2020 was done to determine health anxiety, cyberchondria, and coping in the current COVID-19 pandemic and to determine which factors are related to coronavirus anxiety. The study shows about half of the respondents stated that they suffer from moderate to severe anxiety associated with COVID-19 with adaptive emotional regulation being a protective factor against anxiety [28]. The low anxiety among undergraduate students compared to anxiety among the general population of Germany during COVID-19 may be attributable to their experiences of dealing with stressful situations such as preparing for clinical and theory examinations in medical and dental school.

Based on the study results, 66.8% of respondents agreed that their social media usage has increased and they read and enjoy humorous messages whilst sharing it with others. Around 81% of them are using technology to connect with their loved ones during this COVID-19 pandemic. A percentage of 51.2% of the respondents have started exercise or yoga at home while 77.4% agreed that they are taking a good rest. Besides that, 85.6% agreed that they feel happy for having more time to be with family. 78.6% of the respondents also agreed that they are thinking of learning something new and more than half of respondents (60.2%) agreed that they are able to resist the thought of illness.

Based on a research from India, it is observed that the respondents showed high involvement with social media, watching movies/shows and are having prolonged rest during this Covid-19 pandemic lockdown. [15] These coping mechanisms are unhealthy and are usually maladaptive as it often ends in aggravating stress without helping the individuals deal with the problems that are causing them stress as per stated in studies. [29] Under the nature of stressful context, the act of suppressing anxious thoughts to create relaxation is attributed as a behavioural response, but the feeling of relaxation ends once the viewer is done watching. [30] Based on the research the act of respondents resorting to coping by seeking and connecting with family and friends can be viewed as social seeking behaviours.

Several studies stated that social supports especially family social support can act as a strong protection against anxiety and further instilling them the belief that support resources are available for them. [31, 32, 33] Unverified forwarded information regarding the pandemic was discouraged by respondents as an active coping strategy as well as actively planning to learn something new during this period, all of which can be attributed as the respondent's effort to adapt to stressful events by creating new opportunity for their self-growth. [34] Respondents reported to enjoy humorous messages and sharing it with others as well, this could be viewed as self-depreciating humour during lockdown as it has now become a way to twist reality into a humorous way. 70% of college students from Jakarta agree that by looking at humorous messages or pictures, it helps alleviate their anxiety which can be also viewed to be a way to connect with others who are also facing similar problems as it is relatable to them and helps find humour in their current state for them. [35]

From the study we have found that females have higher fear score than males with a mean score of 16.84. However, there is no significant association between gender and fear during the COVID-19 pandemic. This shows that females have higher fear levels than males. The results were consistent with an analytical study done in Vietnam in 2001 regarding fear and social isolation as consequence of tuberculosis that females have higher fear compared to males.[36] A study in France regarding fear of Alzheimer's disease in the French population also shows that females have higher fear level than males. [37]

We also have found that in our study, students below the age of 22 have higher fear level than students aged 22 and above, with a mean score of 16.74. In addition, there is no significant association between age and fear during the COVID-19 pandemic. This shows that older students have lesser fear than younger students. This result was consistent with a study done among the public of Israel. In that study, older people are less worried about contracting Ebola and did not find any association between age and high worry level. [38]

According to race, Indians have the highest fear score, among the Malays, Chinese, and other races like Sinhalese, with a mean score of 16.89. However, there is no significant association between race and fear during the COVID-19 pandemic. This shows that students from the Indian race have higher fear levels compared to students of other races. This finding could be compared to a previous study conducted by Columbia University among adults in the United States, regarding fear of people with mental illnesses, race does not have a significant association with fear.[39]

Our study has highlighted that, Buddhist and Hindu students have the highest scores for fear, with an equal mean score of 16.80 for both. In addition to that, there is a significant association that was found between religion and fear during the COVID-19 pandemic.

Other than that, from our study it is found that students with history of mental illness have a higher fear score than people without history of mental illness, with a mean score of 16.65. However, there is no significant association between history of mental illness and fear during the COVID-19 pandemic. This shows that student with history of mental illness have higher fear levels. In a study previously done among adults in the United States, history of mental illness does not have significant association with fear. [39]

Based on the association between Sociodemographic characteristic and the coping mechanism of undergraduate students of MMMC in Malaysia towards the Covid-19 pandemic, there is no significance between, age, gender, race and history of mental illness with the coping mechanism of undergraduate students of MMMC in Malaysia towards the Covid-19 pandemic. However, there is significance between religion and the coping mechanism of undergraduate students of MMMC in Malaysia towards the Covid-19 pandemic. Hinduism have a mean score of 3.91, Buddhism have a mean score of 3.77, both Christianity and Islam have a mean score of 3.72, and other religions have a mean score of 3.62. A study cross sectional study in 2003 from Spain involving residents of Canary Islands has revealed that the coping mechanism between men and women differs with women scoring mean 0.45 higher than men in terms of emotional coping mechanism.[40] Furthermore, another cross-sectional study held in 2005 from USA involving residents of Evansville shows that women has more variety in coping mechanisms compared to men.[41]

There were some limitations in our study. This study was conducted in 6 weeks and being a cross-sectional study, we were only allowed to observe the students at one point in time. Hence, the effect of time on changes in students fear, anxiety and coping mechanisms we not able to be observed. Other than that, we conducted this study in a private medical college, therefore the findings cannot be generalized to other settings. Furthermore, the study was conducted during the national lockdown, hence we had to resort to online forms in order to collect data from the students.

In these tough times, we need to adapt and learn how to cope with the situation. Students should stay informed with latest updates from trustworthy resources such as CDC, WHO and local public health authorities, but not obsessively. Avoid posting or associating from unverified data. Students should control what they can in order to cope with their fear and anxiety with the COVID-19 pandemic. Frequent washing of hands, proper hygiene, social distancing and avoiding

crowded places are some of the precautionary steps that students can take in order to prevent themselves from contracting the disease. Subsequently, by taking these steps, the level of fear and anxiety during this COVID-19 pandemic among the undergraduate students of MMMC can be reduced significantly. [42]

5. Conclusion

The undergraduate students of MMMC provided neutral or disagree responses and scored less than half of the total score for fear. The undergraduate students of MMMC also showed low anxiety and has developed positive coping mechanisms during COVID-19. There is no significant association between gender, age, race and history of mental illness with fear of COVID-19 among the undergraduate students of MMMC. However, there is significant association between religion and fear of COVID-19 among the undergraduate students of MMMC. The study also showed that there is no association between gender, race, age and history of mental illness with coping mechanisms, but there is significant association between religion and the coping mechanism of undergraduate students during the COVID-19 pandemic. Hence, education via campaign, media ads, and counselling would be an ideal method to reach out and educate the undergraduate students of MMMC in Malaysia on how to cope with their fear and anxiety during this COVID-19 pandemic.

Acknowledgements

This research was supported by Melaka Manipal Medical College (MMMC). First of all, we would like to express our heartful gratitude to Dean Professor Dr Adinegara Lufti Abas, Professor Dr Htoo Htoo Kyaw Soe, Associate Professor Dr Sujata Khobragade, Assistant Professor Dr Mila Nu Nu Htay for giving us guidance to conduct the study and to provide extra inputs to the research. We also would like to extend our gratitude to Research Ethics Committee, Faculty of Medicine, Melaka Manipal Medical College, Malaysia for their approval to conduct this study. Last but not least, we would like to thank our participants for being a part of our research project.

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