ASSESSMENT AND MITIGATION OF UNIVERSITY STUDENT'S MENTAL HEALTH DURING COVID-19

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RESEARCH REPORT SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SAFETY, HEALTH AND ENVIRONMENTAL ENGINEERING

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ASSESSMENT AND MITIGATION OF UNIVERSITY STUDENT'S MENTAL HEALTH DURING COVID-19

ABSTRACT

In higher education, student mental health has become a growing problem. The COVID-19 pandemic has refocused attention on this vulnerable group. This study seeks to provide a comprehensive assessment of the impact of the COVID-19 pandemic on university student's mental health. To assess the mental health status of public university students in Malaysia, an online survey using GAD-7 and PHQ-9 screening tests was conducted with 200 students and the data was analyzed through quantitative methods. The mental health statistical analysis using IBM Statistical Product and Service Solutions (SPSS) version 27.0 revealed that the 88 students (44.00%) were highly experiencing mild anxiety symptoms. Whereas, 74 students (37.00%) were highly experiencing mild depressive symptoms during this COVID-19 outbreak. However, significant findings reported that 25 students (12.50%) and 24 students (12.00%) have severe anxiety and depressive symptoms respectively. The level of anxiety, depression of the students and the duration of the students staying alone or away from the family has a significant correlation with each other of at least r=0.147. These findings have encouraged the researcher to propose a mitigation model for universities to address mental health issues among university students.

Keywords: Mental health, University students, GAD-7, PHQ-9, IBM SPSS version 27.0

PENILAIAN DAN MITIGASI KESIHATAN MENTAL PELAJAR UNIVERSITI SEMASA COVID-19

ABSTRAK

Kesihatan mental dalam kalangan pelajar di insititut pengajian tinggi kini di kadar yang membimbangkan. Dikala pandamik COVID-19, isu kesihatan mental di kalangan pelajar telah diberi perhatian. Kajian ini telah menilai secara komprehensif berkenaan kesan kesihatan mental di kalangan pelajar universiti di kala pandemik COVID-19. Bagi penilaian kesihatan mental terhadap pelajar universiti di Malaysia, suatu kaji selidik atas talian telah dijalankan menggunakan ujian saringan GAD-7 dan PHQ-9 terhadap 200 pelajar universiti di mana kaedah analisa kuantitatif telah digunakan bagi menganalisa data yang diperoleh. Analisis statistik kesihatan mental menggunakan IBM Statistical Product and Service Solutions (SPSS) versi 27.0 menunjukkan bahawa 88 pelajar (44.00%) mengalami gejala kegelisahan ringan. Manakala, 74 pelajar (37.00%) mengalami gejala kemurungan ringan di kala wabak COVID-19 ini. Walau bagaimanapun, data yang signifikan melaporkan bahawa 25 pelajar (12.50%) dan 24 pelajar (12.00%) masing-masing mempunyai gejala kegelisahan dan kemurungan yang parah. Kadar kegelisahan dan kemurungan di kalangan pelajar mempunyai kaitan signifikan dengan tempoh masa pelajar tersebut meluangkan masa secara bersendirian atau berjauhan daripada keluarga, di mana nilai korelasi adalah sekurang-kurangnya r=0.147. Keputusan kajian ini telah mendorong penyelidik untuk mencadangkan model mitigasi bagi universiti untuk menangani masalah kesihatan mental di kalangan pelajar universiti.

Kata kunci: Kesihatan mental, Pelajar universiti, GAD-7, PHQ-9, IBM SPSS versi 27.0

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LIST OF SYMBOLS AND ABBREVIATION

COVID-19	:	Coronavirus disease
DASS21	:	Depression Anxiety and Stress Scale
GAD-7	:	General Anxiety Disorder-7
IMST	:	Incident Management Support Team
MCO	:	Movement Control Order
MOE	:	Ministry of Education
MOH	:	Ministry of Health
PHQ	:	Patient Health Questionnaire-9
SPSS	:	Statistical Product and Service Solutions
WHO	:	World Health Organization

LIST OF APPENDICES

CHAPTER 1: INTRODUCTION

1.1 Background

According to the World Health Organization (WHO), coronavirus disease (COVID-19) is a newly found coronavirus that causes an infectious disease. The majority of patients infected with the COVID-19 virus will have mild to moderate respiratory symptoms and will recover without needing any specific therapy. People over the age of 65, as well as those with underlying medical conditions such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer, are at a higher risk of developing a serious illness.

Being thoroughly informed on the COVID-19 virus, the disease it produces, and how it transmits is the greatest strategy to avoid and slow down transmission. Washing the hands frequently or use an alcohol-based rub to protect ourselves and others from infection, and avoid touching the face. When an infected individual coughs or sneezes, the COVID-19 virus transmits largely through droplets of saliva or discharge from the nose, therefore respiratory etiquette is particularly vital.

On 31st December 2019, in Wuhan, Hubei Province, China, the Wuhan Municipal Health Commission reported a cluster of pneumonia cases. Eventually, a new coronavirus was discovered. On 1st January 2020, the IMST (Incident Management Support Team) had been established at all three levels of the WHO: headquarters, regional headquarters, and country-level placing the agency on an emergency footing to respond to the outbreak. On 5th January 2020, the first Disease Outbreak News on the new virus was published by WHO. For the scientific and public health communities, as well as the global media, this is a flagship technical publication. It included a risk assessment and recommendations, as well as information from China about the status of patients and the public health response

to the Wuhan pneumonia cluster. On 11th March 2020, WHO declared COVID-19 to be a pandemic after being deeply worried by the frightening levels of spread and severity, as well as the frightening levels of delaying the issues.

In Malaysia, the COVID-19 outbreak was hit on January 25th, 2020 and it increased rapidly till March 2020. However, the sudden spike of the increase of the infection of COVID-19 in March 2020 has made the whole nation of government impose a strict Movement Control Order (MCO) on 18th March 2020. This initiative by the government was taken to ensure that the spread of the COVID-19 virus is minimized. During this period all types of private and public gatherings were restricted. In precise, this includes class conduction in universities. Hence, the universities in Malaysia decided to perform teaching on a different platform, from physical classroom teaching to virtual online teaching.

In Malaysia, the virtual classroom has been implemented throughout the school educational phases such as from primary school to universities. The class will be conducted by the teacher or the lecturer virtually and can be accessed by the students remotely from home. This new way of learning for the students has shown that the curriculum can be continued even though the COVID-19 outbreak has hit Malaysia.

1.2 Problem statement

Despite the good practices given by virtual classroom platforms, there are reported implications to the student's mental wellbeing which has been noticed rises throughout the implementation of the virtual classroom. An alarming rate of fatalities has been reported involving students of higher learning institution. The fatality is due to stress having to undergo online lectures, in addition to the burden of completing assignments and preparation for final exams (Berita Harian, 2021).

Mental health refers to cognitive, behavioral, and emotional well-being. It is all about how people think, feel, and behave. These conditions would lead to concerning scenarios such as suicidal attempts and being self-injured are caused by the abnormal stress and depression experienced by the students which coherently affects their study performances. Hence, it is important to determine student's mental health and identify the risks as well as prevention factors for anxiety and related mental health issues. Thus, this research is about the assessment and mitigation of university student's mental health during COVID-19.

1.3 Objectives

COVID-19 pandemic has affected all levels of the education system. Negative mental health consequences of social isolation can be more severe in older adults and families of youth since these populations are often prone to depression or suicidal ideation. Mental illness would affect student's confidence, attention, and social experiences, all of which are important factors in their success in higher education.

This study aims to classify significant stressors associated with the COVID-19 pandemic and to identify their impact on the mental health of university students.

1. To assess and analyze the mental health of university students during COVID-19.

2. To identify and categorize the potential mental health stressors of COVID-19 on university students.

3. To propose a mitigation model on the mental health issues faced by university students.

1.4 Scope of project

The project scope in this project has included assessing the mental health status of 200 university students throughout the COVID-19 outbreak during Movement Control Order (MCO). The study period was from May 2021 till August 2021. The sample for this study was taken from four different public universities in Malaysia with a number of 50 respondents from each university respectively.

1.5 Report outline

The preparation of the project report was divided into five chapters where all the concepts, activities and outcomes of the project that were relevant to the project progress were documented. Chapter 1 was the section where the introduction of this project was explained and also consists of the objectives and scope of the project. Other than that, the background of the project and the problem statement were also included. Assessment and mitigation of university student's mental health during COVID-19 were discussed and proved through this project.

Other than that, chapter 2 was mainly about the literature review survey which concentrated on the theory of the project included the hypothesis and techniques related to the research project. The theory and mitigation plans for this research project were explained. Plus, the review of other findings and people's works were included as references. The suggested solution procedures were justified in detail.

Chapter 3 included the methodology of the project that explained all methods required to assess the mental health of university students. Each step was discussed and explained in detail in this chapter.

Next, Chapter 4 was mainly discussed the result obtained through the assessment conducted and the analysis of the results was thoroughly discussed in this chapter. Then, the data measured were summarized and the conclusion was concluded from it.

The last chapter which was Chapter 5 was a part in explaining the conclusion. It shows the summary of the report and also the recommendations for future works. Any boundaries to complete the project were listed and future works to conquer the limitations were suggested.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Mental health is an important aspect of overall well-being. "Health is a condition of complete physical, mental, and social well-being, not only the absence of disease or disability," according to the World Health Organization (WHO) constitution. This definition implies that mental health involves more than the absence of mental diseases or disabilities.

Mental health is a condition of well-being in which a person recognizes his or her potential, is able to cope with everyday stressors, works productively, and contributes to his or her community.

Mental health is essential to our ability to think, react, interact with others, make a living, and enjoy life on a collective and individual level. On this basis, mental health promotion, protection, and restoration might be considered a critical concern for individuals, communities, and societies all over the world.

According to Keyes, mental health is divided into three components. Emotional, psychological, and social well-being are all important factors. Happiness, interest in life, and satisfaction are examples of emotional well-being; psychological well-being is defined as liking most aspects of one's personality, being good at handling daily duties, having good connections with others, and being content with one's own life. Having something to contribute to society (social contribution), feeling a part of a community (social integration), believing that society is becoming a better place for all people (social actualization) and that the way society works makes sense to them (social coherence) are all examples of social well-being (C.L.M. Keyes, 2014).

With a large number of students experiencing psychological pain and suffering, university student's mental health has become a growing concern. Student's academic progress and social contacts can be greatly harmed by mental health difficulties, limiting their future social and professional opportunities. COVID-19's accelerated growth and social distancing measures implemented across the country are believed to have a negative impact on the population's mental health, including university students.

According to a 21-country survey conducted by Chegg 2020, COVID-19 has harmed the mental health of more than half, 56% of undergraduate students who responded to a survey conducted in 21 countries. In Western countries, the percentage of students reporting that their mental health has deteriorated has increased, with at least 70% of students in the United States, Canada, and the United Kingdom reported that their mental health has deteriorated. More than three-quarters, 76% of Brazilian students indicated they were experiencing mental health problems as a result of COVID-19. Mental health concerns were reported in lower numbers in Italy 25 %, Russia 29 %, China 38 %, and South Korea 38 %.

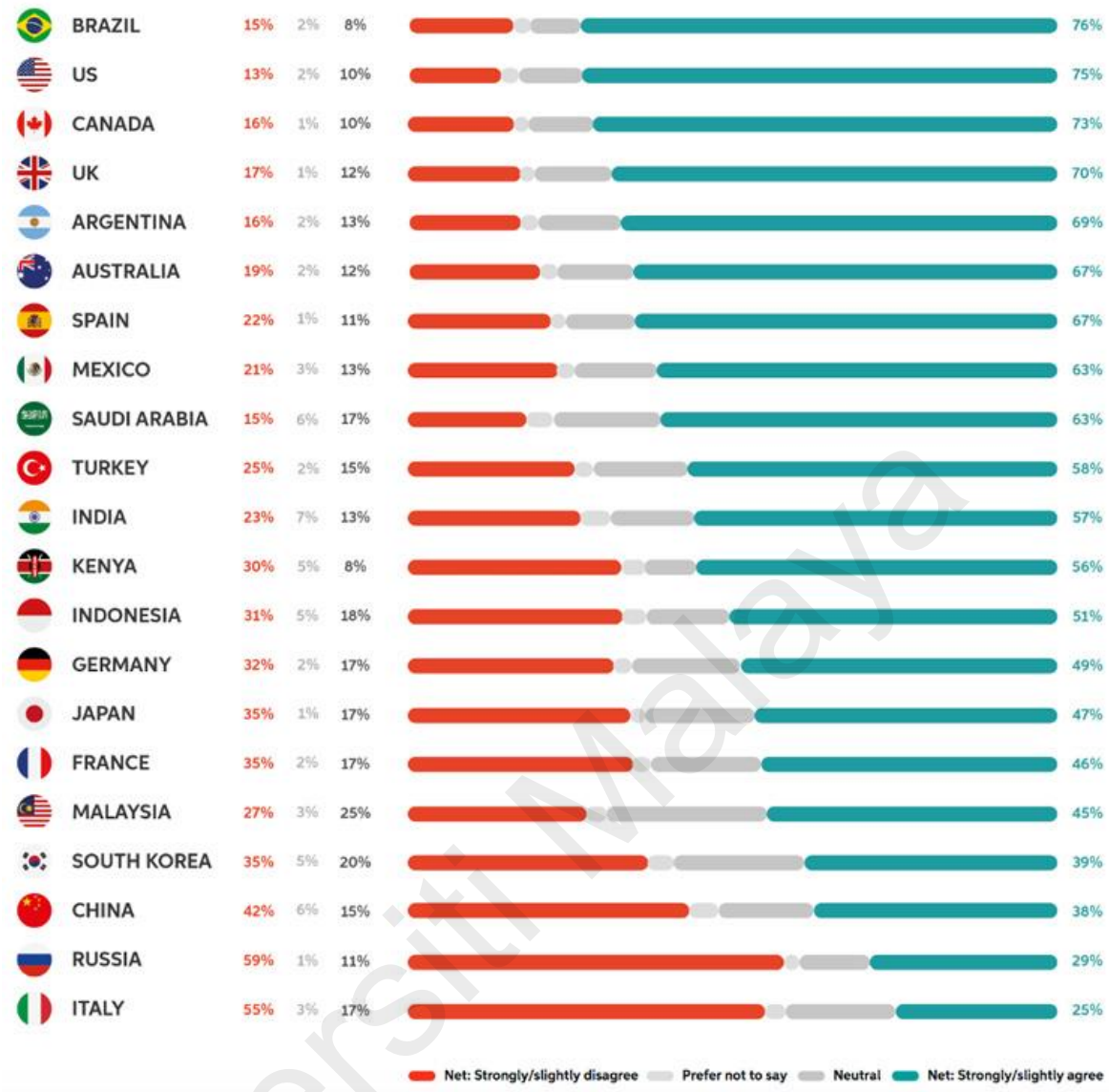

Figure 2.1: Result of mental health survey

The rapidly shifting, sometimes confusing, and frequently unsettling signals that all students were exposed to during the first months of COVID-19 would have been especially stressful for students who were away from home and their families.

On the other hand, even before the outbreak hit Malaysia, there are noticeable cases of mental health among children are those who are ten years old or younger, while young adults are those who are ten to nineteen years old. The number of new outpatient appointments for children and young adults, as well as follow-up cases, increased modestly as shown in Table 1.0.

Table 1.0: Out-patient specialized children and adolescent psychiatric clinic attendances, 2014 to 2015

States	2014			2015		
	New(n)	Follow-up(n)	Total(n)	New(n)	Follow-up(n)	Total(n)
Perlis	73	333	406	71	324	395
Kedah	412	2124	2,536	391	2,924	3,315
P.Pinang	668	4,928	5,596	561	2,444	3,005
†Perak	166	1,146	1,312	264	1,272	1,536
Selangor	743	3,444	4,187	998	3750	4,748
WP Kuala Lumpur	438	2,250	2,688	343	2,234	2,277
WP Putrajaya	20	104	124	48	179	227
N.Sembilan	315	971	1,286	305	917	1,222
Melaka	164	1,205	1,369	133	1,495	1,628
†Johor	1,145	8,535	9,680	1,112	7,422	8,534
Pahang	202	1,526	1,728	280	1,407	1,687
Terengganu	541	602	1,143	330	537	867
Kelantan	134	668	802	136	1,794	1,930
†Sabah	561	3,126	3,687	695	3,559	4,254
†Sarawak	480	1,906	2,386	458	2,573	3,031
WP Labuan	0	0	0	0	0	0
Malaysia	**6,051**	**32,764**	**38,815**	**6,125**	**32,831**	**38,956**

During the adolescence or young adult phase, mental health issues, notably depression, occur. It's linked to social deviances like drinking, smoking, illegal drug usage, adolescent pregnancy, school dropout, and criminality. Early detection is critical for providing early identification and, as a result, avoiding negative effects. In recent years, the Ministry of Education (MOE), in partnership with the Ministry of Health (MOH), has implemented a mental health screening program for form four students, sixteen years old utilizing the Depression Anxiety and Stress Scale (DASS21). WP Kuala Lumpur, Putrajaya, and Terengganu had the highest rate of mental health screening among sixteen years old pupils, followed by Perlis, WP Kuala Lumpur, Putrajaya, and Terengganu. Six states recorded less than the national average. Sabah, Sarawak, Selangor, Kedah, Pahang, and WP Labuan were the states involved. However, data from the state of Johor was unavailable as portrayed in Figure 2.0.

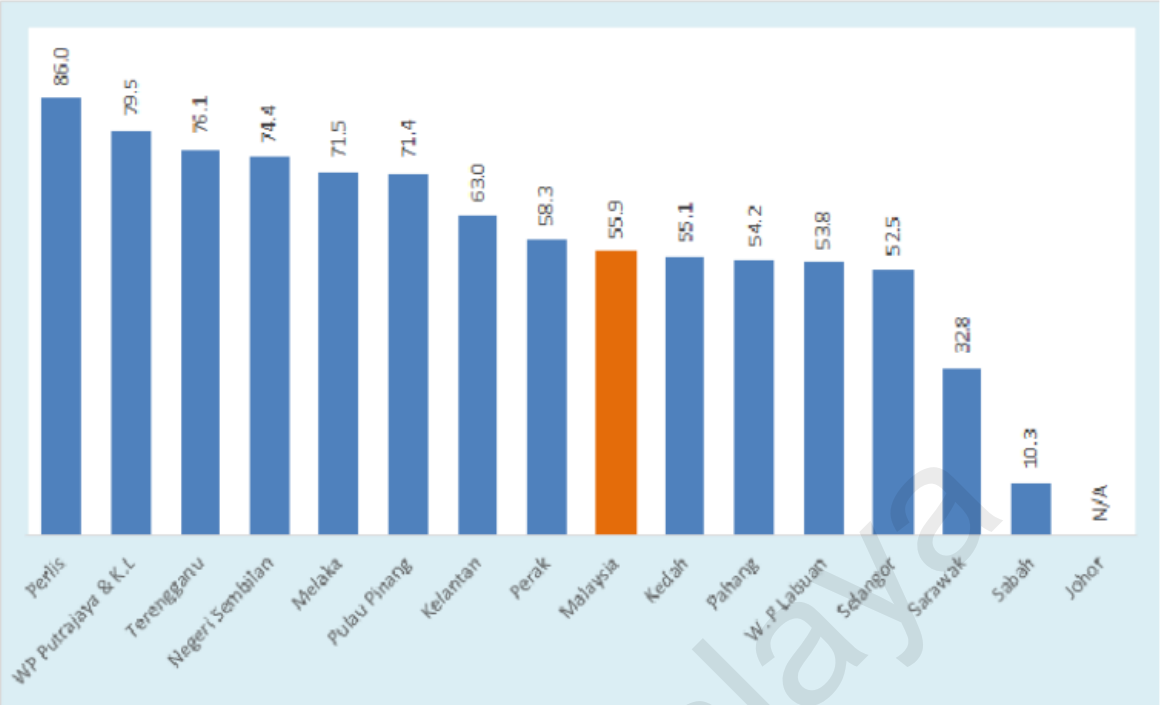

Figure 2.2: Percentage of mental health screening among sixteen years old students in 2015

Not to forget, one of the United Nations' 17 sustainable development goals is 'Good health and well-being' was focused on mental health and well-being. Several factors have been identified as contributing to university student's poor mental health worldwide (e.g., greater mental distress in youth (Ross et al. 2017), social media (Jacobsen and Forste 2011), etc. Furthermore, increased university expenses have put a financial strain on students (Gani 2016), severe workload, financial challenges, and family problems were among the major causes of mental health problems among Malaysian students (Ministry of Health 2016).

A small number of studies looked into the connection between COVID-19 and mental health. For example, Tian et al. (2020) used an online questionnaire to examine the psychological symptoms of 1,060 Chinese people during COVID-19, using a 90-item symptoms checklist.

During the COVID-19 epidemic, Odriozola-González et al. investigated the psychological well-being of Spanish university students. The research took place from March 28 to April 4, 2020, a fortnight after Spain was placed under lockdown due to the extreme COVID-19 outbreak. 34.19 % of respondents had moderate to extremely severe depression symptoms, 21.34 % had extremely severe anxiety symptoms, and 28.14 % had moderate to extremely severe stress symptoms in the survey. When compared to the general population, students had a greater rate of anxiousness. A parent or a close contact getting infected with COVID-19, monetary concerns and their impact on everyday life, educational obstacles, and the disease's consequences on education and possible careers have all been highlighted as important stressors impacting the student's anxiety and psychological well-being. Not only that, student's residency, family socioeconomic stability, parents' psychological status, limited social connections, an increase in the number of new cases and impacted areas, and the application of travel bans impacting everyday life are all stresses. However, lockdowns or quarantines are required as preventative measures for physical health, but they can be harmful if imposed for an extended period. Quarantine was correlated with high rates of depression 31.2% and anxiety even during the SARS pandemic, as per 28.9 %. Similarly, during the 2009 H1N1 pandemic, there was a sense of worry.

2.2 Legislation

In Malaysia, since the 1950's the mental health legislation, policies, act, and ordinance were available. However, the legislation was continuously revised and amended, and hence new legislations were introduced. Chronologically, the evolution of legislation and policy are Mental Disorders Ordinance 1952, Mental Health Ordinance (Sarawak) 1961, Mental Health Act 2001 which was gazetted on 27th September 2001, act 615 under the

law of Malaysia, Mental Health regulation 2010, Psychiatric and mental Health Services Operational Policy 2011 and National Mental Health Policy 2012.

2.3 Adolescent Mental Health

Late adolescence or young adults are the ones between the age of eighteen to twenty-four years old. Young adults might be prone to mental health difficulties due to a variety of physical, emotional, and social changes, such as poverty, abuse, or violence. Promoting psychological well-being and safeguarding them against negative experiences and risk factors that may limit their ability to thrive is essential for their adolescent well-being as well as their physical and mental health in adulthood. According to Roult et al. 2016, adolescence is a crucial period for the exploration of new interests as well as the assertion of personal and social beliefs and aspirations. Peer relationships change during adolescence to give adolescents greater support and connections when they spend less time with adults and engage in supervised activities. Young adults experience transformation in peer relationships as in reorientation of childhood friendships from activity-focused to more stable, effectively oriented connections based on concept and value sharing. Besides that, although it is still a time of identity discovery, there is a stronger feeling of identity especially in areas of personal relationships, education, work, family. Young adults have the capacity for abstract cognition development, can think abstractly and theoretically, may detect underlying principles and apply them to new circumstances and can contemplate the future, evaluating numerous options and logical implications of possible events.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This study focused on the quantitative assessment and mitigation of university student's mental health during COVID-19. The students in this study represented the ones being affected by the sudden change of mode of learning from physical classroom platforms to virtual learning and students living alone or away from their families. The sample for this study was taken from four different universities in Malaysia.

To assess the mental health status of 200 university students throughout the COVID-19 outbreak during MCO, a brief study by using an online survey was conducted. The study period was from May 2021 till August 2021. The students from four different universities, 50 students respectively were chosen from different states in Malaysia to achieve a diversified pool of samples. The online survey via Google Form was sent out to the students through emails, text messages, or any online communication platform.

The respondent's participation was obtained voluntarily and their consent over this survey was taken before taking part in the survey. Respondents were assured that the responses received were strictly confidential and only to be used for this study purpose only. The survey was used to measure the student's mental health based on two elements which were anxiety and depression. In this study, the self-administered questionnaires consisted of three sections, demographic data, GAD-7, and PHQ-9 screening tests.

3.2 General Anxiety Disorder-7

The questions asked were from the General Anxiety Disorder-7 (GAD-7) scope. Whereby questions regarding the anxiety level of the respondents were questioned such as regarding nervousness, restlessness, being annoyed, etc. The impact of various socio-economic and demographic variables have been examined after the assessment.

Generalized anxiety disorder 7 item scale better known as the GAD 7 which measures the presence and severity of anxiety symptoms The GAD 7 was referred to as a screener or screening test and a screening test was any testing procedure designed to separate people or items with a given characteristic or property. Screening tests were typically used to distinguish people who have a disease disorder or premorbid condition from those who do not. It was used for example in primary health care, to identify people who were depressed and need further clinical attention. Screening tests were designed to be broadly sensitive and subsequent highly specific or focused testing was often required to confirm the results. It was also often designed to be brief to facilitate broad classifications.

Furthermore, it was important to understand the screening test will never be enough to assume a diagnosis. Mental health professionals will use screening tests either at intake to get a general idea of what the students may be struggling with so that they were pointed in the right direction as far as making a diagnosis goes or they will use it to reinforce a diagnosis that they already believe the students will meet criteria.

These screening tests were never solely used as a means of providing a diagnosis. Hence, a screening test could not be taken and assumed on what mental health disorder the students may be struggling with. Thus, the student should also never self-diagnose and therefore one should never take a screening test in an attempt to come up with the own diagnosis. A screening test needs to be administered and interpreted by a mental health professional.

However, the screening test can be used to give a general idea of whether or not for a student to seek a mental health professional for further help based on the scoring rate obtained from the screening test. A higher scoring rate indicates that the students need some assistance from the professionals.

Thus, the GAD-7 was a tool consist of 7 questions, refer to Table 3.1, to identify the probable causes of GAD along with measuring anxiety symptoms severity. At the end of the questions, scores for each question were summed up and the cumulative score has identified the rate of anxiety of the students. The score 0-4 denoted minimal anxiety, score 5-9 denoted mild anxiety, score 10-14 denoted moderate anxiety, and a score greater than 15 denoted severe anxiety as shown in Table 3.2 (Robert L.Spitzer et al., 2006).

Table 3.1: List of GAD-7 Questions

No.	Questions
1.	Feeling nervous, anxious, or on edge
2.	Not being able to stop or control worrying
3.	Worrying too much about different things
4.	Trouble relaxing
5.	Being so restless that it's hard to sit still
6.	Becoming easily annoyed or irritable
7.	Feeling afraid as if something awful might happen

Table 3.2: Score of GAD-7

Score	GAD-7 Level of Symptoms
0 – 4	Minimal
5 – 9	Mild
10 – 14	Moderate
≥ 15	Severe

3.3 Patient Health Questionnaire-9

In addition, the questionnaire also consisted of Patient Health Questionnaire-9 (PHQ) questions as shown in Table 3.3. PHQ was another set of screening tests, which was meant to figure out the prevalence and severity of depressive symptoms. Similar to the GAD-7 screening test, the PHQ-9 set of questions only give a general idea of whether or not for a student to seek a mental health professional for further help based on the scoring rate obtained from the screening test. A higher scoring rate indicated that the students need some assistance from the professionals. At the end of the questions, scores for each question were summed up and the cumulative score identified the rate of depression of the students. The PHQ-9 score 0-4 indicated the depression severity was none or minimal, score 5-9 mild depression severity, score 10-14 denoted moderate severity, whereas, score 15-19 indicated moderately severe depression and score 20-27 the student was having a severe level of depression (Kurt Kroenke et al., 2001). These scores were shown in Table 3.4.

3.4 Statistical Analysis

The analysis of questionnaires was proposed to be done quantitatively by extracting the scoring values of respondents. All the data collected to be keyed in Microsoft Excel and IBM Statistical Product and Service Solutions (SPSS) version 27.0. Descriptive statistics of demographic data, GAD-7, and PHQ-9 screening tests were analyzed by taking account of the mean, frequency, standard deviation and Pearson Correlation.

Table 3.3: List of PHQ-9 Questions

No.	Questions
1.	Little interest or pleasure in doing things?
2.	Feeling down, depressed, or hopeless?
3.	Trouble falling or staying asleep, or sleeping too much?
4.	Feeling tired or having little energy?
5.	Poor appetite or overeating?
6.	Feeling bad about yourself or that you are a failure or have let yourself or your family down?
7.	Trouble concentrating on things, such as reading the newspaper or watching television?
8.	Moving or speaking so slowly that other people could have noticed? Or restless that you have been moving a lot more than usual?
9.	Thoughts of hurting yourself in some way?

Table 3.4: Score of PHQ-9

Score	PHQ-9 Level of Symptoms
0 – 4	None or minimal
5 – 9	Mild
10 – 14	Moderate
15 – 19	Moderately severe
20 – 27	Severe

CHAPTER 4: RESULT AND DISCUSSION

4.1 Introduction

This chapter focuses on displaying the outcomes of the survey's data analysis using graphical and tabular data by using SPSS Software Version 27.0. In this chapter, the demographic data of 200 respondents collected was recorded, tabulated and analyzed descriptively. The gender-based and age-based analysis was conducted to determine the mental health symptoms severity of the respondents.

4.2 Descriptive Analysis of Respondents Demographic Data

The demographic data obtained from the students from cumulative four different public universities who participated in the survey are tabulated in Table 4.1.

Table 4.1: Descriptive Analysis of Respondents' Demographic Data

Demographics		Frequencies	Percentage (%)
Gender	Female	107	53.50
	Male	93	46.50
Age Group	18 - 20 years old	42	21.00
	21 - 23 years old	85	42.50
	24 - 26 years old	46	23.00
	Above 26 years old	27	13.50
Current year of study	First Year	51	25.50
	Second Year	52	26.00
	Third Year	44	22.00
	Fourth Year	53	26.50
Duration	1 - 2 months	81	40.50
	3 - 4 months	51	25.50
	5 - 6 months	31	15.50
	More than 6 months	37	18.50

From the survey conducted, a total of 107 females and 93 male students have participated. Besides that, the age group of the majority of respondents who participated was from 21 till 23 years old which was 85 (42.50%) of them and the least was from the age above 26 years old which was 27 (13.50%) of them. However, the respondents from the age 18 till 20 years old and 24 till 26 years old do not vary much, as it is 42 (21.00%) and 46 (23.00%) respondents respectively. The data obtained also show that the majority of the respondents 40.50% has been staying alone or away from their family for about 1 to 2 months during Movement Control Order (MCO) whereas, for about 37 respondents or 18.50% have been staying even longer duration than all the other respondents which is for more than 6 months.

4.3 Level of anxiety symptoms of respondents by using GAD-7

Table 4.2 shows the answers obtained from the questionnaires answered by university students. From the data extracted in Table 4.3, it has been determined from the total number of respondents, 88 (44.00%) of the students have experienced mild anxiety symptoms in the past two weeks of the survey conducted. Besides that, the number of 54 (27.00%) students have been determined to have minimal anxiety symptoms followed by 33 (16.50%) who have experienced to have moderate anxiety symptoms. However, the data in Table 4.3 revealed that 25 (12.50%) of the students have experienced severe anxiety symptoms. Although the data shows that the 54 students have minimal anxiety symptoms, the cumulative number of students experiencing mild, moderate and severe anxiety symptoms are more alarming.

Table 4.2: Section B questionnaire answers

No.	Questions	Not at all		Several days		More than half the days		Nearly every day	
		N	Percentage (%)	N	Percentage (%)	N	Percentage (%)	N	Percentage (%)
1.	Feeling nervous, anxious, or on edge	37	18.50	115	57.50	22	11.00	26	13.00
2.	Not being able to stop or control worrying	73	36.50	80	40.00	29	14.50	18	9.00
3.	Worrying too much about different things	34	17.00	111	55.50	37	18.50	18	9.00
4.	Trouble relaxing	64	32.00	93	46.50	25	12.50	18	9.00
5.	Being so restless that it's hard to sit still	91	45.50	78	39.00	15	7.50	16	8.00
6.	Becoming easily annoyed or irritable	26	13.00	81	40.50	45	22.50	48	24.00
7.	Feeling afraid as if something awful might happen	74	37.00	81	40.50	16	8.00	29	14.50

Table 4.3: Level of anxiety symptoms

GAD Level of Symptoms	Total	Percentage (%)
Minimal	54	27.00
Mild	88	44.00
Moderate	33	16.50
Severe	25	12.50

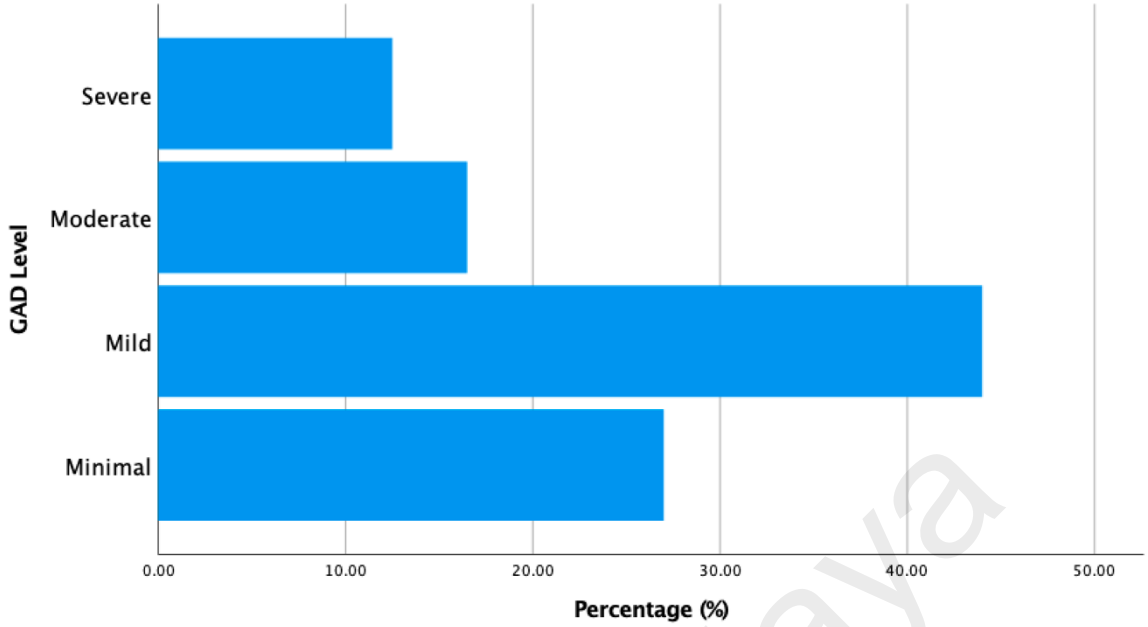

Figure 4.1: Bar chart of student's level of anxiety symptoms

Table 4.4: Gender based comparison of anxiety symptoms

GAD Level of Symptoms		Minimal	Mild	Moderate	Severe	Total
Gender	Female	24	48	21	14	107
	Male	30	40	12	11	93
Total		54	88	33	25	200

Table 4.4 illustrates the gender-based comparison of the general anxiety disorder symptoms level. From the survey conducted, female and male students have shown a higher number of mild anxiety symptoms which are 48 and 40 students respectively. Whereas, the least in severe general anxiety disorder symptoms which are 14 female students and 11 male students from the cumulative of 200 students. However, students who have been affected minimal symptoms of anxiety are the male students compared to the female students which are 30 and 24 students respectively. Besides that, the alarming issue is that the cumulative number of students who encountered mild, moderate and severe

general anxiety disorders are higher than the students having none or minimal anxiety symptoms.

Table 4.5: Gender based comparison of GAD-7

Gender		Anxiety
Female	N	107
	Mean	8.14950
	Std. Deviation	4.79938
	Std. Error of mean	0.46397
Male	N	93
	Mean	7.13980
	Std. Deviation	4.88919
	Std. Error of mean	0.50699
Total	N	200
	Mean	7.68000
	Std. Deviation	4.85546
	Std. Error of mean	0.34333

Gender-based comparison was also conducted in this research. The data comparison was run by comparing the level of anxiety symptoms with the gender of students. From the survey, it can be concluded that the female students who have participated in the research were found to be comparatively more anxious than male students with statistical confirmation shown in Table 4.5. Meanwhile, in Table 4.6, students belonging to the age group of 18 till 20 years old have the highest general anxiety symptoms compared to other age groups. It also revealed that students who are above 26 years old are least anxious during their stay alone or away from their family during Movement Control Order (MCO).

Table 4.6: Age-based comparison of GAD-7

Age		Anxiety
18 - 20 years old	N	42
	Mean	8.21430
	Std. Deviation	3.55127
	Std. Error of mean	0.54797
21 - 23 years old	N	85
	Mean	7.58820
	Std. Deviation	4.66316
	Std. Error of mean	0.50579
24 - 26 years old	N	46
	Mean	8.10870
	Std. Deviation	5.75124
	Std. Error of mean	0.84797
Above 26 years old	N	27
	Mean	6.40740
	Std. Deviation	5.52797
	Std. Error of mean	1.06386

4.4 Level of depressive symptoms of respondents by using PHQ-9

From the survey conducted, it can be concluded that the highest number of students have experienced mild depressive symptoms which are 74 students (37.00%), which is dominated by the male students comparatively than female students as portrayed in Table 4.9. Whereas, it is concerned that 12.00% of the students have severe depressive symptoms throughout this study period where it involves 15 female and 9 male students. Besides that, the number of students who experienced none or minimal depressive symptoms is not much different from the ones having severe symptoms which are 25 students (12.50%).

Table 4.7: Section C questionnaire answers

No.	Questions	Not at all		Several days		More than half the days		Nearly every day	
		N	Percentage (%)	N	Percentage (%)	N	Percentage (%)	N	Percentage (%)
1.	Little interest or pleasure in doing things?	30	15.00	107	53.50	35	17.50	28	14.00
2.	Feeling down, depressed, or hopeless?	26	13.00	90	45.00	52	26.00	32	16.00
3.	Trouble falling or staying asleep, or sleeping too much?	32	16.00	75	37.50	41	20.50	52	26.00
4.	Feeling tired or having little energy?	19	9.50	78	39.00	48	24.00	55	27.50
5.	Poor appetite or overeating?	72	36.00	83	41.50	19	9.50	26	13.00
6.	Feeling bad about yourself or that you are a failure or have let yourself or your family down?	50	25.00	85	42.50	31	15.50	34	17.00
7.	Trouble concentrating on things, such as reading the newspaper or watching television?	40	20.00	90	45.00	34	17.00	36	18.00
8.	Moving or speaking so slowly that other people could have noticed? Or restless that you have been moving a lot more than usual?	107	53.50	66	33.00	12	6.00	15	7.50
9.	Thoughts of hurting yourself in some way?	122	61.00	57	28.50	11	5.50	10	5.00

Table 4.8: Level of depressive symptoms

PHQ Level of Symptoms	Total	Percentage (%)
Minimal	25	12.50
Mild	74	37.00
Moderate	48	24.00
Moderately Severe	29	14.50
Severe	24	12.00

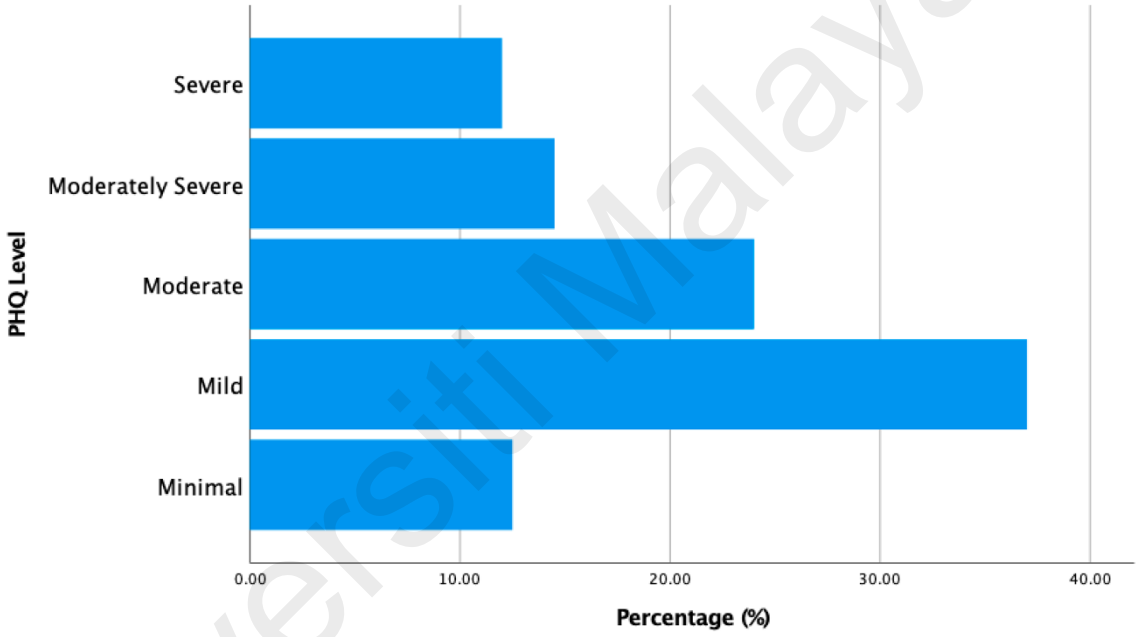

Figure 4.2: Bar chart of percentage of depressive symptoms

Table 4.9: Gender based comparison of depression level

Depression Level		Minimal	Mild	Moderate	Moderately Severe	Severe	Total
Gender	Female	13	34	28	17	15	107
	Male	12	40	20	12	9	93
Total		25	74	48	29	24	200

Table 4.10: Gender based comparison of PHQ-9

Gender		Depression
Female	N	107
	Mean	11.4860
	Std. Deviation	6.36969
	Std. Error of mean	0.61578
Male	N	93
	Mean	10.0215
	Std. Deviation	5.83464
	Std. Error of mean	0.60502
Total	N	200
	Mean	10.8050
	Std. Deviation	6.15519
	Std. Error of mean	0.43524

As for the gender-based comparison for depressive symptoms during the pandemic of COVID-19 faced by the students, based on the descriptive statistical analysis in Table 4.10, it is confirmed that the female students who have participated in the research are comparatively more depressive than male students.

Meanwhile, in Table 4.11, students belonging to the age group of 24 till 26 years old have the highest depressive symptoms compared to other age groups. It also revealed that students who are above 26 years old are least facing depressive symptoms during their stay alone or away from their family during Movement Control Order (MCO).

Table 4.11: Age-based comparison of PHQ-9

Age		Depression
18 - 20 years old	N	42
	Mean	9.6667
	Std. Deviation	4.79159
	Std. Error of mean	0.73936
21 - 23 years old	N	85
	Mean	11.2118
	Std. Deviation	6.32661
	Std. Error of mean	0.68622
24 - 26 years old	N	46
	Mean	12.4783
	Std. Deviation	6.12005
	Std. Error of mean	0.90235
Above 26 years old	N	27
	Mean	8.33330
	Std. Deviation	6.50444
	Std. Error of mean	1.25178

4.5 Relationship between level of depression, anxiety and duration of staying among students

The experimental results in Table 4.12 show that the level of anxiety, depression and duration of the students staying alone or away from family during the COVID-19 pandemic have significant correlations with each other of at least r=0.147. For the correlations between depression, duration of staying with anxiety, the strongest correlation was found between anxiety and depression factor at r=0.739. Another significant correlation is between the duration of staying alone or away from family and anxiety factor at r=0.147.

Table 4.12: Pearson Correlation between the level of depression, anxiety and duration of staying

		Anxiety	Depression	Duration of Staying
Anxiety	Pearson Correlation	1	.739**	.147*
	Sig. (2-tailed)		.000	.038
	N	200	200	200
Depression	Pearson Correlation	.739**	1	.138
	Sig. (2-tailed)	.000		.052
	N	200	200	200
Duration of Staying	Pearson Correlation	.147*	.138	1
	Sig. (2-tailed)	.038	.052	
	N	200	200	200
**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).				

4.6 Discussion

The main purpose of this subchapter is to analyze the results from this study. This sub-chapter begins by summarizing the research study's objectives, evaluating the likely explanations for the results presented, and recommending a considerable mitigation strategy to universities to enhance the mental health of their students. Despite the limited time available to complete this research, the aim and objectives of the research report were fulfilled.

4.6.1 Level of anxiety

Because of its diagnostic reliability and effectiveness, the GAD-7 is now the most commonly used anxiety measure in clinical practice and research (Johnson et al., 2019). It can be used for screening, diagnosis, and severity analysis of anxiety disorders, as well

as social phobia, post-traumatic stress disorder, and panic disorders. (Moreno et al., 2019).

Based on the data obtained from this research in Table 4.3, at this moment no further action is required for 54 students (27.00%) who have experienced none or minimal anxiety symptoms for the past two weeks. However, 88 students (44.00%) who have experienced mild anxiety symptoms are advised that symptoms be monitored and followed up on as needed. This student is most likely to be diagnosed with anxiety or a related disorder. A GAD-7 screening test should be repeated every 4 weeks to monitor symptoms. Follow up to see whether present symptoms necessarily require a referral to a mental health specialist. Besides that, 33 students (16.50%) who have experienced moderate anxiety symptoms are more likely to be diagnosed with anxiety or a similar condition. Their symptoms are clinically serious and necessitate additional evaluation such as a diagnostic interview and a mental status examination, as well as referral to a mental health expert. The most alarming situation is where 25 students (12.50%) are experiencing severe anxiety symptoms. Anxiety problems in this student most likely require active therapy. These students are more likely to be diagnosed with anxiety. Additional evaluation including a diagnostic interview and a mental status examination and referral to a mental health professional is a mandatory requirement.

Past research studies claim that there are several warning signs of mental distress experienced by the students that lecturers or professor able to recognize it while conducting online classes. These warning signs are divided into three categories, atypical behavior which is the change from the usual behavior, unusual behavior and problems with academic performances. The atypical behavior is such as, students are more short-tempered, obsessive and easily irritable. Besides that, there would be a sudden deterioration of the quality of their works prior to the implementation of online learning. Moreover, students abruptly begin turning in late assignments and being disrespectful in

class discussions. Whereas, unusual behavior is such as, students seem to be out of reach with reality and discussion contents are fantastical, disruptive, confused, or show disorientation. Furthermore, the academic performance problems are such as, deteriorating or failing quality of work from the beginning of the course, or not turning in work at all. (B. Barr, 2014)

In this study, young adult students, especially those between the ages of 18 and 20, were more anxious than older students. As is generally known, youngsters are continuously on social media, and the information posted on social media may have played a vital role in raising the student's anxiety levels (Xiang, Y.T., 2020). Although social media provides fast access to information, which may be useful during MCO, it can also be tiring and would harm student's mental health. The flood of risk-raising messages on social media that are depicted in a negative context may cause anxiety. COVID-19 may appear to be ubiquitous due to 24/7 media attention.

This is consistent with the findings of Qin et al. and Wang et al., who found a link between younger age groups and psychological symptoms. The observation of increasing symptoms with age might be attributed to age-related hormonal changes, restrictions on outdoor activities, and more access to social media-related misinformation (Qin J and Wang H et al., 2020).

Students who stayed alone had higher levels of anxiousness than those who stayed with family or friends. As it stands, people who live alone are generally separated from their loved ones, and the unexpected threat to their safety and security during this outbreak might have made these students feel even more isolated and presented difficulties from numerous aspects. Measuring long loneliness and intervening quickly is critical in decreasing anxiety as they promote a sense of belonging. Building and sustaining connections is critical for mental and social well-being and is one of the defining characteristics of student life.

Consequently, the COVID-19 outbreak has produced a social recession, a continuous pattern of social distance that is causing a lack of emotional support and larger societal impacts, such as higher anxiety levels, beyond the present pandemic.

Based on the results in Table 4.4 from this research, the majority of females have experienced anxiety symptoms. This is supported by past research that females are far more likely than males to acquire an anxiety disorder supported by well-documented studies in psychiatric epidemiology (Carmen P. McLean, 2011).

4.6.2 Level of depression

The interpretation of the PHQ-9 scoring in this research study is explained. A total of 25 students (12.50%) have experienced none or minimal depressive symptoms which the students may not require any depression treatment. However, the majority of 74 students (37.00%) have experienced mild depressive symptoms where student's period of symptoms and functional impairment is then taken into account and the healthcare professional makes a clinical decision concerning therapy. Similar treatment is suggested for students who experienced moderate depressive symptoms. Besides that, moderately severe and severe depressive symptoms experienced by the students, 29 students (14.50%) and 24 students (12.00%) respectively are recommended to seek medical healthcare professionals for further treatment for depression if necessary, including antidepressants, psychotherapy and a combination of treatments (Dr. Kurt Kroenke, 2001).

In terms of gender-based comparison in this research study, female students are facing higher depressive symptoms compared to male students. Similarly, an experimental study by Carlos Izaias Sartorão, reported that anxiety and depression in students are higher during the COVID-19 pandemic than related before this period and is higher among female students (Carlos Izaias Sartorão, 2020).

In terms of age group, the results revealed that students belonging to the age group of 24 till 26 years old is facing high depressive symptoms with M=12.4783 score. The reason that could be a risk factor to this finding is the students from this respective age group are mainly in their fourth or final year of studies and their final year research projects and internships had to be put on hold due to the current pandemic. Furthermore, during the extended closure of universities, students had become depressed, fearing that they might lag academically behind their peers in other regions of the world. Not only that, students emphasized that online classes would not be able to satisfy their criteria upon graduation. The COVID-19 issue posed a significant difficulty of worldwide reversion for graduates to achieve their future academic and employment goals.

4.6.3 Pearson Correlation

For the interpretation of the Pearson Correlation analysis in this research study, it can be concluded that there is a significant correlation between the level of anxiety, depression and duration of the students staying alone or away from family during the COVID-19 pandemic. Similarly, research that looked at the negative psychological impacts of the COVID-19 pandemic process on individuals discovered that living with family safeguarded them from negative psychological effects (Yasemin et al., 2020). The experimental results in Table 4.12 show that the level of anxiety, depression and duration of the students staying alone or away from family during the COVID-19 pandemic have significant correlations with each other of at least r=0.147. For the correlations between depression, duration of staying with anxiety, the strongest correlation was found between anxiety and depression factor at r=0.739. Another significant correlation is between the duration of staying alone or away from family and anxiety factor at r=0.147. The researcher believes that the causes of all risk factors are interrelated, the risk factors that lead to this significant finding may also have a great impact on the correlation.

Similarly, past research focused on the anxieties driven on by COVID-19, the most serious level of reactions was fear of losing family, friends and closed due to this deadly pandemic (Gulsum Akdeniz et al., 2020).

4.7 Mitigation model to improve the mental health of students

In this section, the proposed mitigation model as shown in Figure 4.3 shall successfully support the National Mental Health Policy to achieve the vision of producing a psychologically balanced and healthy society, emphasizing the promotion of mental health and prevention of psychosocial problems and also successfully achieving the third Sustainable Development Goal (SDG). The United Nations (UN) to ensure healthy living and promote well-being to all ages by 2030 (World Health Organization, 2019).

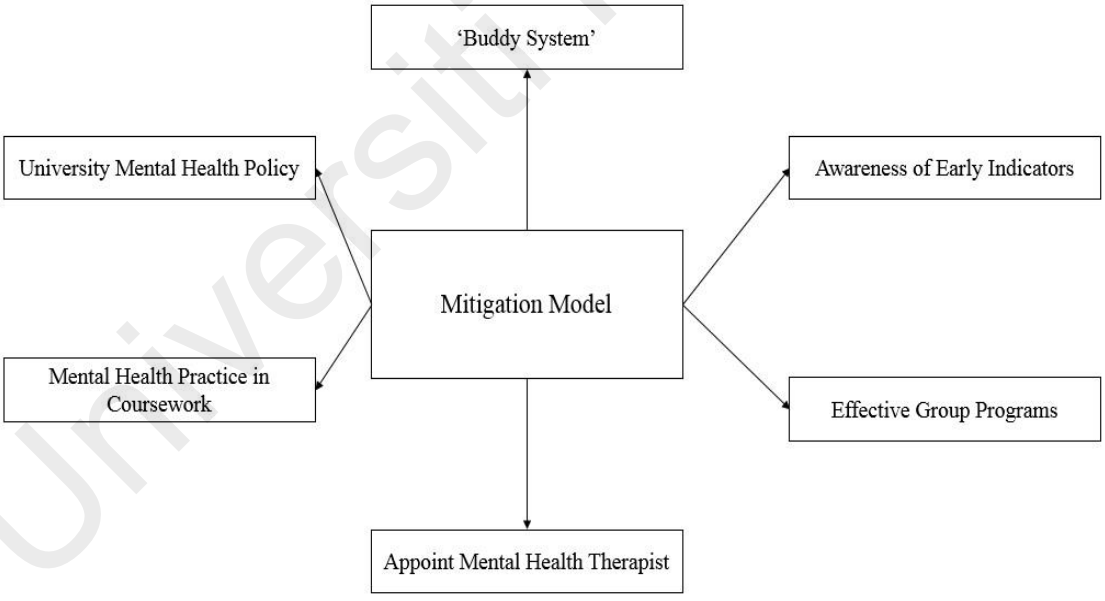

Figure 4.3: Proposed mitigation model

4.7.1 Establishment of University Mental Health Policy

The goal of this policy is to lay out the university's commitment to mental health assistance for students, as well as the steps it will take to address issues. This policy shall include creating a broad university framework for the promotion of all student's mental health, including suicide prevention programs. Besides that, to offer a coordinated approach to the care of student's mental health issues, as well as to provide appropriate management of situations involving an emergency or a significant danger of injury or suicide and to offer students with effective and accessible counseling while making appropriate changes as needed. The policy shall also compromise the element of collaborating with external parties, such as Malaysia's health care providers, to increase and improve student's access to community and expert resources.

According to Sheela Sundarasen 2020, there is a strong need for all education stakeholders to acknowledge the need for an urgent and comprehensive policy to identify and manage the psychological impact of COVID-19 or any future pandemics on students. Higher education institutions, as well as associated authorities on a higher level, play critical roles in this approach (Sheela Sundarasen, 2020).

4.7.2 Awareness of early indicators

Given the magnitude of disruption that students have encountered throughout the pandemic, lecturers and principals of a residential college should be aware that some greater stress, worry, and disinterest among students is to be expected. Students who thrived in an engaged education system prior to the pandemic may resist or struggle to fully participate in a virtual environment. Attending online learning or classes sessions with technical issues causes students to struggle to find their voice. University lecturers or professors should be prepared for obstacles, but they should also be on the alert for abrupt or severe changes in student behavior, emotions and activities. Hence, if a student

unexpectedly stops participating in regular activities, classes or begins acting out in ways that endanger themselves or others, this is a red flag. If this situation occurs, the lecturers, professors, the residential college principal, or even their peers should have a simple knowledge of anxiety and depression to have effective communication with the particular student. An informal chit-chat session with the student to understand what is bothering and troubling him or her would give us a better view and understanding to channel to the right platform such as to the university counsellor.

Effective communication is essential during this outbreak. Hence, the communication process must include aspects of trust, credibility, honesty, transparency, and accountability for information sources (Ochega A. and John E., 2020). It is very important, that an unprofessional mental health consultant shall not provide any suggestions or solutions to the students who are experiencing anxiety and depressive symptoms.

4.7.3 Establishment of mental health practices into coursework

The reach of mental health awareness to the students can be embedded in their syllabus structure. University lecturers or professors shall promote the student's well-being mental health by proactively demonstrating preventative and coping measures in class. The session does not have to be time-consuming, it shall approximately take five minutes of class time.

The ability to maintain physical distance does not have to reflect a lack of social interaction. Students should maintain contact with their peers and maintain their connections. Online study groups and online study partners are some ways to build social connections. Students may be able to continue involved with extracurricular activities and social organizations online, as well as participate in university online social events. Professors or lecturers may also be accessible virtually to assist students.

Even if lecturers are not therapists or an expert in mental health, they should be encouraged to present themselves as friends for university students with mental health problems. Some lecturers would feel less comfortable discussing serious issues, but most students would be very grateful and more comfortable when having mental health supporters also teach in their classes. They will feel aware that they are being heard, supported and understood.

4.7.4 Formation of effective group programs

Extreme competitiveness and stress can lead to increased depression and antisocial behavior. Isolation is a factor in both suicide and violent action. Group activity reduces depression, promotes teamwork, and combats isolation (Cipto et al., 2020). Hence, class cooperative groups are vital to be established.

Lecturers would pose a question for each cooperative group to work on, then observe around the breakout room answering questions, asking further questions, keeping the groups on task and so on. Next, students are requested to share their discussion points with the rest of the class after a completion period for group discussion. Similarly, in a traditional physical learning class or platform, it is a norm for the students to ask questions and the lecturer answers them. Thus, in this current mode of online learning, the lecturer asks questions, and the students work in groups to answer them. The students are then given the opportunity to present their answers to the entire group and debate any discrepancies between the solutions provided.

4.7.5 Appoint Mental Health Therapist

At the university level, students have access to a free and confidential in-house counselling service staffed by highly certified counsellors and psychotherapists. Not only that, to appoint mental health advisors to assist students in confronting and overcoming

distressing situations. The counselling session is recommended to be for about 60 minutes. However, the therapist may recommend further catch-up sessions or direct the students to other services depending on their severity level.

4.7.6 Establishment of 'Buddy System'

'Buddy System' or known as a near-peer mentoring system implemented during this difficult pandemic era has had a good influence on students, including improved emotional and mental readiness as well as social support (D. Eves et al., 2020). A buddy system is a system where the mental health association in the respective universities shall provide mental health support for students on a smaller scale.

Hereby, a group of five to seven students is being monitored by a designated facilitator. Their primary role is to ensure their 'buddies' are all aware of the importance and well-being of their mental health. The continuous awareness provided to the students will ensure them to be clearer on their state of mind and actions. The relationship between the students is the facilitator shall be similar to being a peer. Hence, the students feel more pleased and comfortable sharing their thoughts and issues being faced without any hesitation. Thus, the facilitators shall be made themselves available at all times.

However, by any means, an inexperienced or unprofessional facilitator shall not provide solutions for the issues faced by students. Facilitators are strictly advised to seek their superior in the university's mental health association for further actions. This strategy would assist to recognize early intervention or symptoms of anxiety and depression.

CHAPTER 5: CONCLUSION

This study was able to highlight that there are perceived symptoms of anxiety and depression faced by university students. The statistical analysis through the questionnaire method provided findings of the anxiety and depression levels experienced by students. At the end of the study, the researcher was able to access and analyze the mental health of university students during COVID-19. Besides that, the researcher was able to identify and categorize potential mental health impacts of COVID-19 on university students and was able to propose a mitigation model on the mental health issues faced by university students.

From this study, students belonging to the age group of 18 till 20 years old have the highest anxiety symptoms M=8.21430 whereas students belonging to the age group of 24 till 26 years old have the highest depressive symptoms M=12.4783. As for the gender based comparison for anxiety and depressive symptoms during the COVID-19 outbreak, female students are comparatively more depressive and anxious than male students with M=11.4860 and M=8.14950 respectively.

To address the rising mental health issues, good collaboration between the government and universities will provide university students with timely and accurate economy-oriented psychological support.

Not only that, but the findings also urge a call for the universities to carry out an action plan to protect their students as their healthy mental wellbeing will determine a proactive and intellectual generation. It is very imperative for all universities to bear in mind that the wellbeing of their students is an important element under the health division. In this study, minor examples of mental health status and mitigation model have been represented.

However, further research is needed by expanding the coverage of university students. Therefore, the researcher recommends that more in-depth studies in various higher educational institutes should be conducted comprehensively to aid in policy making of protection of the health and wellbeing of students.

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