

Depression, Anxiety and Stress Level among University Students of Class Reentry Post Covid-19 Pandemic

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Since the breakdown of the COVID-19, tertiary education in Malaysia is still using online classes. Returning to normal study routines might have some positive effects or opposite and causes anxiety for other students as with class reentry. Therefore, this study is evaluating the depression, anxiety, and stress in reentry classes of university students post covid-19 from all over Malaysia. Observational study was conducted using online questionnaire that was developed by adapting the Patient Health questionnaire (PHQ-9), Generalized Anxiety Disorder (GAD-7), and Perceived stress scale (PSS). The results show higher levels of anxiety and perceived stress among Malaysian university students towards class reentry which causes moderate depression. The findings revealed a significant correlation between depression, anxiety, and perceived stress. Thus, policies should be implemented by educational institutions and instructors to help understand the students' mental strain and deal with future pandemic to overcome students' anxiety and emotional distress.

Keywords: Depression, Anxiety, Stress Level, Covid-19, Education

1. Background of the Study

In December 2019, a pneumonia outbreak of Covid was reported in Wuhan, Hubei Province, China. These cases of pneumonia were linked to the Huanan Seafood Wholesale Market. The World Health Organization declared a pandemic on March 12, 2020, due to the global spread of SARS-CoV-2 and thousands of deaths caused by coronavirus disease (COVID-19). To date, the pandemic has taken a heavy toll on the world in terms of human lives, economic consequences, and increasing poverty (Marco et al., 2020). According to the World Health Organization report, globally there have been more than 350 million confirmed cases of COVID-19, including 5.5 million deaths (WHO Coronavirus 2021). However, the spread of the COVID-19 virus has posed a significant threat to educational systems as well (Daniel 2020). The long-term pandemic condition of COVID-19 and its onerous consequences such as lockdown and stay-at-home orders had a severe impact on higher education (Son et al., 2020). This impact is seen in the

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physical and psychological impression that many including students have experienced due to the COVID-19 outbreak and "home-quarantine" orders (Hamaideh et al., 2021).

The psychological and emotional effects of the COVID-19 pandemic have been clearly affecting all, including students since the outbreak began. Research showed that people are concerned about its emergence and spread, which has resulted in an increase in anxiety levels (Erick, 2020). Recent research concluded that mental health issues are the most common cause of academic failure, as it can affect a student's motivation, focus, and social relationships, which are all important for success in higher education (Son et al., 2020). In comparison to the general population, university students are increasingly recognized as vulnerable individuals suffering from higher levels of anxiety, depression, substance misuse, and disordered eating. As a result, the burden on their mental health is compounded when the nature of their educational experience drastically changes where students had minimum social interaction, while having to stay indoors and maintain social distance for a long period of time (months) particularly during the COVID-19 outbreak (Browning et al., 2021). However, going to school had been tough for some sad youngsters before the outbreak, but at least they had school routines to follow, but when schools are closed, students lose their anchors in life, and their symptoms may reoccur (Singh et al., 2020). Hence, it is becoming harder for university students to deal with the stress and emotional burden due to the spread of the Covid-19 virus. In Malaysia, a study of the factors associated with depression and anxiety among university students pointed out that frustration because of loss of daily routine and study disruption and having preexisting medical, depressive, and anxiety disorders were associated with elevated depressive symptoms (Woon et al., 2021). In a recent study to measure the severity of depression, one-fourth of the Malaysian participants reported severe depression symptoms, and one-third (34.1 percent) experienced mild to moderate anxiety symptoms (Marzo et al., 2021). However, with so many countries implementing vaccination protocols, it is more likely to see an influx of students returning to schools and colleges to continue their education upon improvement in the current condition. Therefore, as the lockdowns are lifted and travel bans are removed, plenty of students will probably be returning to classes, including university students. Consequently, some depressed students will face substantial difficulties readjusting to normal life once school resumes (Lee, 2020). Many studies showed an increased level of depression, anxiety, and stress among university students during the Covid-19 pandemic, such as anxiety towards their career and future, disruption of daily routines, financial constraints (Husky et al., 2020; Sundarasan et al., 2020; Islam et al., 2020; Rodríguez-Hidalgo et al., 2020; Erick 2020; Goodman et al., 2020). However, with little publication about the reentry anxiety of university students, it has become of great importance to understand and evaluate the real challenges and measure how university students are mentally prepared when facing reentry. Thus, this study aims to evaluate the depression, anxiety, and stress levels in reentry classes of university students in Malaysia post covid-19 as we progress into this stage.

2. Materials and Methods

2.1 Study Design and Variables

The study design's purpose is to lay out the plan, structure, and strategies for acquiring data using certain methodologies to generate results or address challenges (Olsen, 2011). The main objective of this study was to investigate the reentry anxiety and perceived stress in higher education students, and how it plays and affects depression among university students. This study was conducted using a survey questionnaire

as a data collection tool. This is a quantitative study in which the relationship between the independent variables (IV) and the dependent variable (DV) is investigated. The key outcome variables were depression, anxiety, and stress in university students' class reentry post covid-19. Three independent variables, the measure of depression, level of anxiety, and perceived stress scales, were used in this study, which were the most related to university students' reentry class post covid. A total of 26 questions were adapted from the mentioned scales. The factors to be investigated for the study including depression test, anxiety test, and perceived stress were all included in the questionnaire in sections B, C, and D. Section B included 9 PHQ questions, section C included 7 GAD question and section D included 10 PSS questions. The related questions to the independent variables were on a three or five-point Likert scale (0 for never and 3 or 5 for every often).

2.2 Participants

This study concentrates on university students, who are currently pursuing their tertiary education in Malaysia as undergraduate students, master, or doctorate program at any university in Malaysia. Non-Malaysian students were excluded from this study, and only participants who were reported as Malaysian from Univerisit Sains Malaysia who enrolled in bachelor's, master's, and Ph.D. programs were included. A quantitative study was conducted using an online survey to perform a self-administered survey of university students in Malaysia over the course of two months, from October 2021 until the end of December 2021. Respondents were asked questions regarding their mental health and psyche including questions about depression, anxiety, and perceived stress.

2.3 Sampling Technique and Sample Size

The most appropriate method for obtaining a sample in this study is to choose an individual from a university, who is currently studying under Malaysian higher education to complete the survey questionnaire. As a result, a nonprobability sampling technique was chosen as a suitable simulation tool because it is a useful and convenient method of sample selection (Olsen, 2011). Aside from that, this is a less expensive, less complicated, and easier to implement a method for obtaining survey responses.

Regarding the sample size, according to Roscoe's simple rule of thumb, only a few variables to consider when establishing the sample size for data collecting (Roscoe, 1975). Thus, a sample size of more than 30 individuals are often considered sufficient to show that the distribution of the sample variance is fair and normally distributed (Ross, 2017). Thus, this study drew 35 participants only. The population selected for this study was university students who are currently pursuing their tertiary education in Malaysia, since they are the main subject of this study.

2.4 Instrument and Questionnaire Design

The questionnaire was used as the survey instrument in this study to collect data about mental health measures. The questionnaire items were derived from previous studies that focused on evaluating humans' emotional and psyche levels regarding the studied subjects. The questionnaire was adopted from (Marzo et al., 2021), (Spitzer 2006), and (Cohen, 1988). The questionnaire was divided into 4 sections:

2.4.1 Demographic Section

This section included demographic information such as race, age, gender, education level, and current housing arrangement.

2.4.2 PHQ-9 Depression Test Section

One of the most conventional methods used for measuring depression is to use the patient health questionnaire (PHQ-9) (Kroenke et al., 2001). The PHQ-9 is a validated and reliable test which is commonly used to measure the mental health of depressing people. Therefore, in this study, the reliability of the PHQ-9 test was carried out using Cronbach's alpha and was found 0.853 which represents an excellent internal reliability.

In this study, the PHQ-9 section was adapted from (Marzo et al., 2021) which consisted of nine items to assess depressive symptoms. The participant answered each question item of PHQ- 9 that scored from 0 (not at all) to 3 (nearly every day). The PHQ-9 scores can range between 0 and 27, the measure rates are accordingly as follows; minimal depression (0–4), mild depression (5–9), moderate depression (10–14), moderately severe depression (15–19), and severe depression (20–27). It is designed to evaluate depression levels based on the criteria of Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (American Psychiatric Association, 2000).

2.4.3 GAD-7 Anxiety Test

The Generalized Anxiety Disorder (GAD) scale is designed to assess anxiety symptoms (Spitzer 2006), thus it will be used in this section. GAD scale comprises seven items, that is, all adopted from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) symptom criteria for GAD. For each item the response option is not all = 0, several days = 1, more than half days = 2, and nearly every day = 3. The general GAD-7 scale score ranges from 0 to 21 based on the severity. Thus, the level of Anxiety Severity GAD-7 scale score is accordingly as follows; minimal (0–4), mild (5–9), moderate (10–14), and severe (15–21). In this study, the Cronbach's alpha exhibited excellent internal reliability for the GAD-7 test with a Cronbach's alpha 0.931.

2.4.4 Perceived Stress Test

The Perceived Stress Scale also is known as PSS-10 and is designed to be used with community samples (Cohen, 1988). It measures the degree where an individual perceives his life as uncontrollable, unpredictable, and burdened. Participants responded to each question using a 5-point Likert scale that ranged as follows; 0 is never, 1 is almost never, 2 is sometimes, 3 is often, to 4 is always. Subsequently, the PSS-10 scores are obtained by reversing responses scores, e.g., 0=4, 1=3, 2=2, etc to the four positively stated items (4, 5, 7, and 8), then the sum across all 10 items will be taken. The PSS-10 scores range from 0 to 40, where low stress (0–13), moderate stress (14–26), and high perceived stress (27–40). The internal reliability of the PSS-10 test was calculated and was found to be excellent reliability with a Cronbach's alpha of 0.936.

2.4 Data Collection Method

During this research, the online survey questionnaire form was distributed among university students in Malaysia to fill out the survey. Thus, the data were collected via online dissemination techniques mainly distributed through electronic mail, social media, Facebook messenger, WeChat, and WhatsApp. Students were provided with a web link to the 'Google-form', information sheet and a consent form was sent to the potential participants who were all students from Univerisit Sains Malaysia. The purpose of the survey questionnaire is clearly stated to be for academic research purposes only. As a result, only those respondents who meet these criteria are invited to complete the remaining sections of the survey.

2.5 Data Analysis

After the data had been collected, the descriptive analysis, reliability, and hypothesis testing were carried out in this study's analysis. The survey questionnaire was the primary tool used to collect primary data and examine the relationship between the variables (Depression scores among university students since the covid-19 pandemic, class reentry anxiety, and perceived stress towards class reentry). Thus, the Cronbach alpha of each variable was calculated and discussed in the results chapter of this report. The Microsoft Excel Analysis ToolPak also is used to analyze the data after it has been collected. The descriptive statistical analysis was conducted to test for reliability, skewness, and kurtosis. Then, the structural model analysis was then performed using multiple regression for the depression, anxiety, and stress levels of student reentry.

3. Result

3.1 Characteristics of the Sample Participants

Questionnaires were delivered to the target respondents' students from Universiti Sains Malaysia. The data was screened thoroughly to ensure only the surveys that had 100% completion were selected. There were 37 respondents to the survey questions during two months of data collection. Nonetheless, 2 of the 37 respondents had to be eliminated before the analysis process could begin since they did not answer all the questions in the survey. Furthermore, according to Ross (2017), a sample size of more than 30 is sufficient to ensure that the data is adequate for the study. Thus, based on the collected data, the total number of final samples that met the requirements for USM students was 35, which was an acceptable level of statistical power. The respondents were requested to provide information on their gender, age, current program, and location. According to the descriptive analysis, males make up 71 percent of the respondents, while females make up 29 percent. According to the findings, 40 percent of the respondents were pursuing a bachelor's degree, 43 percent were pursuing masters, and 17 percent were doctoral students. Respondents were also questioned about their age, in addition to their program and gender. More than 50 percent were between the ages of 24 and 29, 23% were between 18 and 24, while 25% were over 30 years old (Figure 1). The statistics of the respondents' characteristics are described in Table 1.

Table 1: Respondents' demographic profile (n=35)

Variable	Characteristics	Frequency	Percent %
Gender	Males	25	71
	Females	10	29
Program	Bachelor	14	40
	Master	15	43
	Doctoral	6	17
Age	18-24	8	23
	24-30	18	51
	30-36	5	14
	>36	4	11
Living Situation	Alone	6	17
	On campus	11	32
	Sharing with Housemates	6	17
	With Family/Spouse	12	34

3.2 The Re-Entry Anxiety, Stress, and Depression of University Students

The findings of the study's analysis were derived from the data of the collected survey questionnaire. There was a total of four analyses to be carried out in this study to understand the factors that impact the reentry of university students and their mental health post COVID-19 pandemic. The descriptive statistical analysis was conducted to test for reliability, skewness, and kurtosis and is presented in Table 2. The Alpha reliability coefficient shows that all scales and subscales are highly reliable. Furthermore, the values of skewness and kurtosis show that the data is normally distributed.

Table 2: Descriptive statistics and alpha reliability coefficients, univariate normality of study variables (N = 35)

Variables	No of questions	<i>M</i>	<i>SD</i>	<i>A</i> Reliability	Skewness	Kurtosis
PHQ-9	9	1	0.51	0.85	0.608	-0.400
GAD-7	7	0.784	0.214	0.931	0.860	0.404
PSS	10	1.409	0.544	0.936	0.194	-0.920

3.3 Diagnostic and Statistical Manual Measure of Mental Disorders

The PHQ-9 model, the GAD scale, and the PSS scale have their own ranges to indicate a diagnostic and statistical manual measure of mental disorders. For each respondent, the sum of their survey responses was calculated, tabulated, and sorted in ascending order to measure the percentage of students who have higher levels of depression, anxiety, and stress. The finding of this study shows that 6 out of 35 (17%) students have moderately severe depression, 3 out of 35 (8.5%) of students have moderate anxiety while 8.5% have severe anxiety. Finally, 17 out of the 35 respondents (49%) of the population are showing moderate stress, and 2 out of the 35 (5.7%) respondents show high or severe stress. Results of Pearson Correlation among the main study variables show that all depression, anxiety, and perceived stress are highly positively correlated with each other as shown in Table 3. The effect of the perceived stress and anxiety on students' depression was significant as shown from the Multiple Regression Analysis in Table 4. The result indicated that all these variables explained 47.7 % variance in depression. It is indicated that the study variables positively predicated depression. This prediction is considered as significant ($p < .01$) and $F(14.58)$.

Table 3: Pearson Product Moment Correlation shows the correlation among depression, anxiety, and perceived stress. (N = 35)

	Variables	PHQ-9	GAD-7	PSS
1	PHQ-9	-	0.026**	0.040**
2	GAD-7		-	0.016**
3	PSS			-

**p < 0.01, *p < 0.05

Table 4: Multiple Regression Analysis showing the effect of anxiety and perceived stress on students depression (N= 35)

Depression						
					CI (95%)	
Variables	Coefficients B	Standard Error	t Stat	P-value	LL	UL
Intercept	3.31	1.307	2.532	0.016	0.647	5.973
Anxiety	0.459	0.196	2.336	0.026	0.059	0.858
Perceived Stress	0.223	0.104	2.144	0.040	0.011	0.436

$R^2 = 0.477$, $F(1, 210) = 14.58^{**}$, $**p \leq 0.01$

5. Discussion and Conclusion

COVID-19 was a worldwide disaster; in the blink of an eye, this pandemic wrecked everyone's lives forever. According to the literature, the negative implications are not only felt in the health sector but also pandemics are likely to have detrimental consequences on economic, political, and educational institutions (McKibbin & Fernando, 2020). According to previous literature, university students are showing an increasing level of anxiety and stress and depression due to the impact of the spread of the Covid-19 pandemic (Lee 2020; Samsudin et al., 2021; Waters 2021). And while returning to normal study routine might have some positive effect and good experience for many students, it is the exact opposite and causes anxiety for others (Capurso et al 2020). When it comes to class reentry, students are showing signs of stress and anxiety.

The main purpose of this research was to ascertain the variables influencing the mental health of students reentering classes post covid in Malaysia universities. Thus, this study was conducted to evaluate depression, anxiety, and stress among university students in Malaysia as we progress into an endemic state. The findings of this study indicated that university students have high anxiety and high perceived stress towards class reentry. Previous literature suggested that it could be due to factors such as adjusting back to old routines (Lee, 2020), and fear over the spread of covid-19 virus. Moreover, many students might feel pressured as they graduate into a saturated job market leading to anxiety over career and future. All of these pieces influencing students' anxiety and stress are due to the spread of the covid-19 pandemic and the substantial impact it had on students. In a recent study by Fanari & Segrin, the stressor of forced reentry was investigated during the COVID-19 pandemic (reentry shock, re-aculturative stress) and predicted stress-related mental health problems (perceived stress and loneliness) in the following academic year. According to the findings, 30–40% of the participants had increased re-aculturative, reentry stress and poor mental health as time went on. Students reported significant reductions in reintegration shock, and loneliness throughout the course of the six-month study. While the decrease in reentry shock is consistent with previous research showing that the effects of reentry shock fades over time as returners adjust to life back home (Fanari & Segrin, 2021). On the other hand, our results showed that students with high levels of anxiety as well as students with high levels of perceived stress show a high measure of depression. The result shows that there is a significant correlation between anxiety and perceived stress. The findings were in line with previous research regarding anxiety and stress. Previous literature also supports the theory that students with high levels of stress and anxiety show symptoms of depression. Although this is a classic case of correlation, high levels of stress and anxiety correlate with depressive symptoms and only a small percentage of the students had a high level of depression. However, anxiety and stress might lead to depression over an extended period of time, yet there are other factors that play a role in inducing depression amongst pupils such as anxiety towards career and future, disruption of daily routine, and financial constraints. Rodríguez-Hidalgo et al., (2020) found that anxiety and stress lead university students to depression and to experience major psychological health problems.

Recently in Malaysia, a study used the DASS-21 questionnaire to analyze the mental health of the students, which assesses depression, anxiety, and stress symptoms. The result revealed that most respondents were occasionally depressed, anxious, feeling stressed, and experiencing agitation (Hassan et al., 2021). In France, the impact of stress and anxiety among university students found that at least 60% of students

reported increases in anxiety during Covid confinement. The subjects experienced rising anxiety as well as moderate to severe stress during their confinement, and who did not return to live with their parents suffered disproportionately (Husky et al., 2020). In the United States, 62% of students met the clinical cut-off for depression, while 47% met the clinical cut-off for generalized anxiety (Goodman et al., 2020). Some of the factors behind this increase in depression due to anxiety were home quarantine, lack of physical activity, uncertainty about the pandemic's trajectory, a lack of information, and fear of contracting COVID-19 (Islam et al., 2020). In Malaysia, the covid-19 pandemic and the pertinent characteristics affected the anxiety level of university students due to financial constraints, remote online teaching, and uncertainty about their future, while academics and career were among the main stressor (Sundarasan et al., 2020). Similar other studies addressed several other factors such as fear and worry about their own health and the health of their loved ones, difficulty concentrating, insomnia, social contact, concerns about academic performance, food, and financial resources (Erick 2020; Son et al., 2020).

GAD scale (Spitzer, 2006) and the PSS scale (Cohen, 1988) were used to understand and evaluate the level of anxiety and stress that current university students in Malaysia are facing in the reentry classes. Researchers may readily comprehend students psyche and mental health evaluations and monitor behaviors before they become widespread. Additionally, the introduction of the PHQ model (Kroenke et al., 2001), was an intriguing hypothesis that provided additional insight into understanding student anxiety and stress, and how depression can affect these two models. From a practical implication point of view, universities in Malaysia and around the world may use the GAD and PSS scale models to constantly assess the level of stress and anxiety of students and have specific strategies and or programs designed to help students who feel more challenged in their studies. During a disaster, a school reentry program can be extremely beneficial in terms of building resilience and growth. In a recent study, a school reentry program was undertaken which offered instructors and students with activities in their classrooms to help them process emotions and lockdown experiences. The training was well received and was associated with a reduction in children's state anxiety and negative emotions (Capurso et al., 2021). The tertiary education institutes should implement a yearly mental health checkup to ensure students' education isn't affected. The PHQ model, which is used by hospitals is recommended to evaluate students' depression. Once those students are identified, a special program may be put in place to assist students dealing with depression, anxiety, and stress. In addition, more qualitative studies of mental health evaluation may be used for further research regarding students' ability to cope with external environmental factors such as the Covid-19 pandemic that brought the world to its knees. Unfortunately, there is no formula or operating manual for dealing with the worldwide pandemic (Polizzi, 2020). Thus, this study also calls for more research to include beneficial coping mechanisms and programs during and for post pandemic.

5. Conclusion

COVID-19 has impacted nearly every aspect of everyday life, prompting forced isolation and social distancing, economic hardship, fear of contracting a potentially fatal illness, and feelings of powerlessness and hopelessness (Polizzi et al., 2020). This research is critical and beneficial for tertiary education institutes and organizations to evaluate and understand the mental issues that students might be facing, especially after the spread of the COVID-SARS2 Virus. The current study's findings have a number of theoretical and practical consequences. The findings of this study provide important insights into students'

psychological well-being at a critical time, as it tries to address the psychological well-being of university students following COVID-19 pandemic and through university reentry. The research indicates that there is a higher level of anxiety and perceived stress among university students towards class reentry. As a result, international collaboration and government programs are crucial and should be introduced to provide the population with this necessary knowledge in the fight against the pandemic. Moreover, universities and higher education institutions should introduce onboarding programs to help students in tertiary education readjust and reacclimatize quickly as they are about to head into the job market. In addition, educational institutions should have pre-epidemic policies and processes to deal with breakouts (Kekić & Miladinović, 2013). Thus, the community should also have knowledge and basic understanding of how to deal with stress and anxiety. However, this study didn't consider students' income or financial aid, as lower income students are more susceptible to feeling anxious and stressed about their future, therefore, more research could be conducted regarding this issue.

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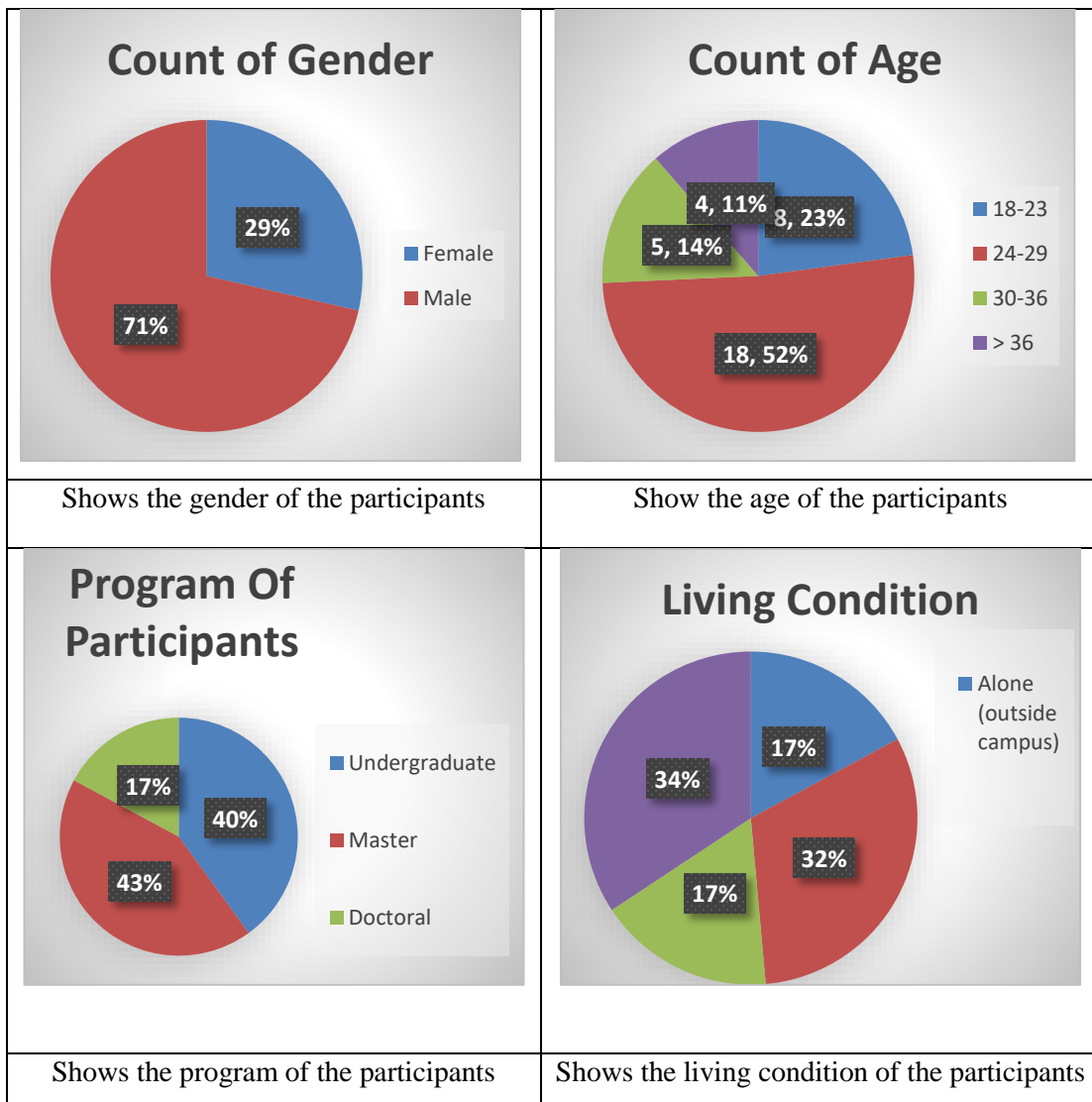


Figure 1: The demographic distribution of the participants