Perceived Stress among University Students During the COVID-19 Outbreak in Malaysia

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Abstract

A nationwide total lockdown in Malaysia due to coronavirus disease 2019 (COVID-19) has marked the closure of educational institutions and the beginning of open and distance learning (ODL) which most relied on online learning. Online learning is not something new in Malaysia's education system as most universities have incorporated traditional face-to-face learning with online learning materials in their education system. However, at the age of emerging developmental life stage, university students are vulnerable to mental health problems such as stress and depression because of the pandemic. Thus, this study aimed to assess the perceived stress level among university students and its relationship to socio-demographic characteristics during the COVID-19 outbreak. The results showed that the majority of the students engaging in online learning during the COVID- 19 outbreak experienced moderate to high levels of perceived stress with an average PSS score of 23.72 ± 6.06, where female students had a significantly higher mean score of perceived stress level compared to males. This study also shows that there is a significant strong relationship between perceived distress with the level of stress received by students.
Keywords: COVID-19, ODL, PSS, Stress, University Students

Introduction

18 March 2020 has marked the beginning of a nationwide total lockdown in Malaysia due to coronavirus disease 2019 (COVID-19). The government of Malaysia has taken various measures to hedge and reduce the spreading of COVID-19 to ensure that the virus will not cause an overwhelming impact on the nation's health care system. One of the measures taken was the closure of educational institutions which has altered the education system from traditional face-to-face learning to open and distance learning (ODL) which most relied on online learning.

Online learning is not something new in Malaysia's education system as most universities have incorporated traditional face-to-face learning with online learning materials in their education system which is well known as blended learning for years before the emergence of COVID-19. Even though online learning has many notable advantages that transcends time and place such as increasing students' enthusiasm (Wang et al., 2021), improving exam marks and reducing dropout rates (López-Pérez, 2011), changing students' attitude in a positive manner (Fenech et al., 2021), and increasing efficiency and individualized pace of learning (Nijakowski et al., 2021), the sudden shift to online learning might trigger academic stress among university students.

To this date, university students have been away from campuses for over a year. Most of us might have thought that the students have adapted to this new normal of academic activities in their daily lives. However, Rajkumar (2020) stated that students might be the most vulnerable to mental health problems because of this COVID-19 pandemic. Since university students are currently at the age of emerging developmental life stage, they are always exposed to stress, depression, and academic burnout even without the pandemic (Oh et al., 2021). According to American Psychological Association (APA) (2018), 91% of Generation Z adults have experienced at least one physical or emotional symptom because of stress. Whereas 73% of the college students who responded to the survey conducted by the National Alliance on Mental Health (NAMI) reported that they experienced mental health crises in college. Center for Collegiate Mental Health (2017) also reported that anxiety, depression, and stress are among the top four reasons to seek counselling assistance and the top three concerns among college students.

On top of that, having to face the life-threatening virus with repeated lockdown and quarantine can always lead to stress. Some students have to adapt to online learning with the scarcity of resources such as problems with internet connection and access to a laptop. Besides, social isolation, less physical interaction with friends or lecturers to share academic problems, being exposed to COVID-19 infected family members, and facing financial strain during this pandemic can further increase their level of stress (Alavudeen et al., 2021; Yu et al., 2021, Wang & Zhao, 2021; Kumar et al., 2021).

Recent studies showed that students still suffering moderate to severe levels of stress during this COVID-19 outbreak (Malik & Javed, 2021; Chinna et al., 2021; Alyoubi et al., 2021). Wang et al (2020) also reported a 71.26% of the college students in the United States (US) suffering an increase in the level of stress/anxiety during the pandemic with almost half of the participants showed a moderate-to-severe level of depression. Other studies also reported that female students were associated with higher perceived stress (Klaassen et at., 2021) and higher perceived social support (Popa-Velea et al., 2021). Thus, this study aimed to assess the perceived stress level among university students and its relationship to socio-demographic characteristics during the COVID-19 outbreak.

Materials and Methods
Participants and Procedure
A total sample of 603 undergraduate students from UiTM Perak Branch, Tapah Campus were taking part in the study via convenience sampling method. An exploratory study by using a cross-sectional online survey was conducted to evaluate the level of stress perceived during

online and distance learning. The study was conducted between the 1st and 25th of June 2021. A survey invitation via Google Forms was sent to students using WhatsApp messages. Participants in this survey were self-selected and were asked to complete the online survey that took about 5 to 10 minutes on average for participants to answer all questions. Before the actual survey was conducted, a pilot study was run to ensure the quality of the questionnaire.

Instruments
The validated questionnaire consisted of two main parts as follows:

Part 1: It included the socio-demographic characteristics of the students such as gender, semester, location of ODL engagement, the quality of internet connection, and the mode of learning preference.

Part 2: It consisted of 10 items scale of perceived stress scale-10 (PSS-10) and was developed by (Cohen et al., 1983). This questionnaire was the modified version of the PSS-10 related to open and distance learning. Cohen and Williamson (1988) suggested that PSS-10 was the best form among the other versions of PSS. In addition, this instrument was one of the most widely used and established validity and reliability tools for measuring stress feelings (Andreou et al., 2011; Smith et al., 2014). Besides, it is an easily used tool with acceptable psychometric properties (Cohen and Williamson, 1988; Lee, 2012; Taylor, 2015) and it was a rationale to adopt PSS-10 as the main instrument in this study. This version of the PSS-10 was used to analyze the thoughts and feelings of the students over the last month using a five-point Likert scale of responses (0=Never, 1=Occasionally, 2=Sometimes, 3=Often, 4=Always). Sample items 1, 2, 3, 6, 9, and 10 were scored directly from 0 to 4 whereas for sample items 4, 5, 7, and 8 were scored from 4 to 0. The overall scale score of 0 – 13 was indicated to be low stress, 14 – 26 described moderate stress, and 27 – 40 showed high stress.

Data Analysis
The Statistical Package for the Social Sciences (SPSS) version 16.0 software (SPSS Inc., Chicago, IL, USA) was used to analyse all data analysis. A descriptive statistic of the variables was performed using mean ± standard deviation to calculate for continuous attributes. Pearson's Product Moment correlation coefficient was assessed to investigate the relationship between perceived stress scores and level of stress. Other than that, the Chi-square test was performed to compare levels of stress and socio-demographic characteristics. All analyses were employed a significance level of 0.05. Cronbach's alpha correlation coefficient was tested to measure the reliability. The consistency of reliability coefficient should be more than 0.7 (Kline, 2000). Table 1 shows the Cronbach's alpha of the scale in this study was 0.854.

Table 1
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	*N* of Items
.854	.846	10

Results
Stress Level among Students
Table 2 shows students' scores on the perceived stress scale. It can be seen that the total score of perceived stress ranged between 4 and 40, with a mean score of 23.72 ± 6.06. This show that majority of the students reported moderate to high level of stress. Whereas 28.2% of the students had a high stress level and 67.5% of the students had a moderate level of stress.

Table 2
Distribution of Students According to Level of Stress Score

PSS	Frequency Percentage (%)	Percentage	Min	Max	Mean	SD
Low (0-13 points)	26	4.3				
Moderate (14-26 points)	407	67.5				
High (27-40 points)	170	28.2				
Total	603	100	4	40	23.72	6.06

Perceived Stress Scores among the Level of Stress
The comparison between students' scores on the perceived stressor mean and its subscales are demonstrated in Table 3. The most common source of students' stress was perceived distress as shown by the highest stress mean reported by the students (15.16 ± 4.99), followed by perceived coping (8.56 ± 2.79). The results also revealed that there is a significantly strong positive relationship between perceived distress (r=0.737, p-value=0.000) and a significantly moderate positive relationship between perceived coping with PSS among students.

Table 3
Students' Scores on the PSS-10 Subscale and Its Stress Level

PSS-10 subscales	Scores	Overall total (n=603)	r	p-value
Perceived distress [a]	0-24	15.16 ± 4.99	0.737	0.000[**]
Perceived coping [b]	0-16	8.56 ± 2.79	0.518	0.000[**]

[a] Total score of PSS1, PSS2, PSS3, PSS6, PSS9, PSS10
[b] Total score of PSS4, PSS5, PSS7, PSS8
[**] Significant at p-value < 0.05

Relationship between Levels of Stress with respect to Socio-demographic Characteristics
Table 4 shows the relationship between students' socio-demographic characteristics and their perceived stress. Among the tested variables, gender, internet connection quality, and mode of learning preference were significant at a 0.05 level. Meanwhile, there is no statistically significant difference found between students' perceived stressors and their level of semester, and location of engagement. Males had a significantly higher mean score of perceived stress level compared to females (31.44 versus 30.99; p-value = 0.015). However, more females (52.57%) had moderate levels of stress, whereas males (14.93%) had moderate stress levels (21.65 versus 20.97). Students with poor to average network quality had a significantly higher mean score of perceived stress compared to good internet connection quality of students (31.23 versus 30.88; p-value =0.000). However, those who prefer blended

learning and face to face had high levels of stress compared to those who prefer ODL (30.22 ± 2.73, 31.80 ± 3.74, 27.50 ±1.22 respectively; p-value=0.000).

Table 4
Level of Stress According to Socio-demographic Characteristics (n=603)

Characteristics	Low stress (n=26)	Moderate stress (n=407)	High stress (n=170)	Total	p-value[s]
Gender					
Female	10.00 ± 2.69 (14)	21.65 ± 3.22 (317)	30.99 ± 3.33 (134)	465	0.015[**]
Male	10.92 ± 2.27 (12)	20.97 ± 2.86 (90)	31.44 ± 4.09 (36)	138	
Semester					
≤3	11.47 ± 2.36 (15)	21.18 ± 3.17 (211)	31.14 ± 3.43 (76)	302	0.215
>3	9.00 ± 2.00 (11)	21.83 ± 3.11 (196)	31.04 ± 3.56 (94)	301	
Location of ODL engagement					
Home/ City	10.00 ± 2.55 (21)	21.45 ± 3.12 (257)	31.38 ± 3.26 (113)	391	0.286
Home/ Rural areas	12.00 ± 1.73 (3)	21.73 ± 3.22 (111)	30.53 ± 3.93 (45)	159	
University Hostel	12.50 ± 0.71 (2)	21.15 ± 3.12 (39)	130.42 ± 3.85 (12)	53	
Internet connection Quality					
Poor to average	12.67 ± 0.58 (3)	21.69 ± 3.21 (188)	31.23 ± 3.65 (97)	288	0.000[**]
Good	10.13 ± 2.51 (23)	21.33 ± 3.10 (219)	30.88 ± 3.30 (73)	315	
Mode of learning preference					
Blended Learning	11.50 ± 1.38 (6)	21.49 ± 3.34 (127)	30.22 ± 2.73 (60)	193	0.000[**]
Face to face Learning	11.00 ±2.52 (7)	21.68 ± 3.03 (227)	31.80 ± 3.74 (104)	338	
Open and Distance Learning (ODL)	9.62 ± 2.75 (13)	20.74 ± 3.17 (53)	27.50 ±1.22 (6)	72	

[s] Chi-square test
[**] Significant at p-value <0.05

Discussion

The pandemic has accelerated the inevitable implementation of online learning in education. This study assesses the level of perceived stress among university students during the COVID-19 outbreak in Malaysia. The stress level in this study was measured specifically by the scores reported by students on the PSS-10. The most important finding of the current study was that majority of the students engaging in online learning during the COVID- 19 outbreak experienced moderate to high levels of perceived stress with an average PSS score of 23.72 ± 6.06. This appears to be congruent with other studies reported by several authors (Kwok & Ng, 2016; Amr et al., 2011; Singh et al., 2011; Labrague, 2013).

Additionally, perceived coping or self-efficacy consisted of items that resulted in a negative impression or perception while perceived distress consisted of items that resulted in a positive impression or perception. This is in line with Hewitt et al (1992) and Roberti et al. (2006). This study also shows that there is a significant strong relationship between perceived distress with the level of stress received by students. Moreover, this study found that there was a significant moderate positive relationship between perceived coping and PSS received by students. The results of the study are in line with the study conducted by (Ali et al., 2021). Self-efficacy is not merely the possession of coping skills but a belief regarding one's capability to utilize and execute coping resources to manage stress in changing and challenging situations (Bandura, 1977). It involves the individuals' competence to tackle challenging tasks and cope with adversity in demanding situations, and it influences how people feel, think, and act (Luszczynska et al., 2005). Thus, from this study, it was believed that high levels of perceived stress, anxiety, and depression were also reported as the main sources of stress among students. Meanwhile, students also had problems with perceived self-efficacy (coping) which include cognitive and behavioral efforts an individual uses to solve problems and to reduce the stress caused by these problems.

The current study revealed that gender, internet connection quality, and mode of learning preference have a significant relationship with the PSS of the students. Furthermore, it was revealed that female students had a significantly higher mean score of perceived stress level compared to male students which was concurrent with other studies (Azad et al., 2017; Mirza & Jenkins, 2004). This might be because females usually tend to express and sharing their emotions easier than males, and the recent pandemic may have intensified this situation. Previous studies also indicated that uncertain and stressful situations might further cause female students to be subjected to lesser coping strategies. Similar results were reported in previous related surveys (Al-Sowygh, 2013; George & Joseph, 2018; Moayedi et al., 2016; Shah et al., 2010). Factors such as hormonal changes and expression of emotions and thoughts regarding the current social situation have been reported among the causes of the high level of stress among female students (Rosenfield & Mouzon, 2013; Goldstein et al, 2005). Besides, students with poor to average quality of internet connection experienced the highest anxiety levels compared to those staying with good internet connection quality. This situation did not augur well with the students as ODL greatly depends on online learning which required a good internet connection. The incapacity to get a better learning environment thus added tremendous stress and anxiety among them. This suggested that adequate resources such as coping strategies, resilience, and learning environment supports were considered important in supporting the students during ODL. In addition, they must

adjust themselves to remote learning while being isolated from their friends even though it can create undue frustration, anger, resentment, and ultimately, anxiety.

Conclusion

Based on the current study findings, university students in Malaysia indicated moderate to high levels of stress during the COVID-19 outbreak. While studying hard itself occupied with improper time management might lead to stress and depression among them, the mandatory curfew and distance learning during the pandemic most likely had further worsened the condition. This study also revealed that gender, internet connection quality, and mode of learning preference show a high level of stress among university students. In order to help the students dealing with stress during online learning in this era of pandemic, the university can encourage them to enroll in online stress management programs. These programs are recommended to help them in managing stress and coping with good strategies in resolving the transition of learning and stress level, as well as to prevent further psychological consequences. In addition, the university can provide supports to students in addressing their concerns by implementing online remote activities such as virtual buddy programs, virtual group exercises, and virtual team building activities. However, more time and work are needed to identify suitable ways in implementing such programs and assess its effects in reducing the stress level among university students.

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