

Stress Management Through Teaching and Learning Methods: Which Is a Better Method?

A Comparative Analysis Between the Periods Before-During COVID-19

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Abstract

This study aims to identify which teaching and learning (TnL) method is more helpful to university students in stress management. The TnL methods compared are; the physical Face-to-Face (F2F) method which was practiced on campus during the period before COVID-19 hit the country; and the Online method, which was practiced at home during the COVID-19 period. This study uses a questionnaire set as the research instrument and the input is documented in the Likert scale 5-point form. The respondents are the Universiti Pendidikan Sultan Idris (UPSI) students, who experienced both TnL methods considered in this study. The data were analyzed by using descriptive statistical method; and the paired sample t-test inferential analysis. The findings provide an indication, that the majority of the respondents admitted that they had experienced stress during both periods, but a higher mean ($M=3.08$) was observed during the COVID-19 period compared to before the COVID-19 period ($M=2.70$). The results for the stress level analysis by TnL methods recorded a moderate stress level ($M=2.77$) for the Face-to-Face method and a high stress level ($M=3.08$) for the Online method. The paired sample t-test recorded a significant result. This provides an indication there is a significant change in stress levels experienced by the students when the teaching and learning method changed from Face-to-Face, to Online. In conclusion, the change in teaching and learning methods significantly influenced the students' stress levels and with regards to that, from the mental health perspective, the F2F method is the better method compared to the Online method because the level of stress experienced by the students is lower.

Keywords: *Stress, COVID-19, university students, Face-to-Face, Online, Comparative study*

INTRODUCTION

Stress comes from the Latin word meaning tense or uncertain. Literally, stress can be defined as a stimulus or situation that triggers negative emotions that create physical and psychological demands on individuals in the face of threats (Khayat, (2007), in Jannah & Santoso, 2021). The

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beginning of stress theory came from Walter Cannon's research in 1929. In specific he examines the relationship between stress and fight or flight theories and explores the body's stress response. Cannon came up with homeostasis theory, which describes the existence of a self-regulating process by which biological systems maintain stability while adjusting to changing conditions.

According to Hawkins (1991) stress is a state of pressure and tension. Stress can cause a person to experience physical or mental instability and it is related to one's way of life. Stress is a response of the body to the demands made on it. It is part of the process of how one sees and faces the challenges day to day. Stress by levels can have different effects. Moderate stress can have a positive effect on a person because it can help their body and mind to work well. However, too much stress will have a negative impact on a person's health and achievement, especially for a student. Students who have a high level of stress will find it difficult to control themselves and the situation will interfere with their academic achievement (Nor Hazanah Miskan & Ily Izyan Mohd Fisol, 2020).

With regard to the discussion above, we may summarize stress as a spontaneous physical, mental, and emotional reaction to a challenging event. It's an ordinary part of everyone's life. Stress is not all bad, and bad stress requires stress management techniques to help the person experiencing stress get out of the condition. Stress management is defined as the tools, strategies, or techniques that reduce stress and the negative impacts stress has on one's mental or physical well-being. A variety of techniques can be used to manage stress depending on one's situation. These include mental, emotional, behavioral, and even technical strategies. Stress management has no specific limit as it is simply any acquired skill one learns or knows that can be used to make one's life stress-free or more enjoyable. The two main pillars of stress management are control and prevention. When stress management is being practiced regularly in response to stressful life events, one can optimize his or her well-being.

The spread of the COVID-19 epidemic in Malaysia, especially with the implementation of the Movement Control Order (MCO), has great implications for all sectors, economic units, and people's daily lives. As stated by Wang et.al (2020), the spread of the epidemic has caused stress, depression, and anxiety to the community which has to face the fear of the negative effects that will appear as a result of the pandemic. Among those who have a direct impact from this event are the group of students where traditional physical Face-to-Face teaching and learning sessions at school or campus have changed to online teaching and learning sessions at home. This situation has given various challenges and experiences to the students including the university students. Changes in teaching and learning methods raise several questions and among them are; does change in teaching and learning methods cause students to experience stress? If it does, what is the stress level? In comparing both teaching and learning methods, which is a better method for university students' stress management. With regard to these questions, the existing study is to investigate this issue further and to provide answers to the questions. The general objective set for this study is to determine university students' stress levels while undergoing teaching and learning sessions throughout the periods of Before-During COVID-19. The specific objectives are; to identify the stress status of university students for the periods before and during COVID-19, to determine the level of stress experienced by the students during the implementations of the Face-to-Face and Online teaching methods, and to detect the means difference of stress by each teaching and learning method.

LITERATURE REVIEW

During the COVID-19 outbreak, the teaching and learning methods had shifted from Face-to-Face mode to Online mode. The government's order to transform the traditional teaching mode into an Online teaching mode demanded a sudden change not only for the students but also for the instructors. This impulsive swift caused the faculty and the students to encounter challenges in terms of their ability in technology usage and internet accessibility (Adedoyin & Soykan, 2020).

From instructors' perspective; a study by Mosleh et al. (2022) discovered that, the sudden transition to Online teaching had increased staff stress and their perceived burnout levels, and that this transition has a negative impact on family life, physical health, mental health, and coping with stress. Focusing on the same issue, a study conducted by Hero (2020) discovered that 74% of teaching staff reported significant stress from their struggle with adapting to teaching online, and 40% considered leaving their job. For two-thirds of the participants, the stress was due to challenges encountered in meeting the student's emotional and mental health needs.

The transformation in teaching and learning methods is associated with students' academic stress. Under normal circumstances, in the context of academic stress, the difficulty of academic subjects becomes a factor that affects the level of student stress (Reddy et al., 2018; Kadapatti & Vijayalaxmi, 2012). This factor has a direct impact on students' stress levels because the high level of difficulty of the subject effectively requires a high level of students' comprehension ability to understand the content of the lesson (Bruhn et al., 2002). The tendency is said to be higher when it is added to other factors such as academic load, the complexity of academic assessment, and other external stressors such as peers and family. The online teaching mode implemented during the pandemic COVID-19 is an addition. Hodgson & Simoni (1995) in Mohd Nor et al. (2019) also analyzed the contributing factors for stress and like the findings of the majority of studies, academic challenges are the main factors that cause students to feel anxious and stressed and subsequently affect students' lives. Beiter et al. (2015) in their findings summarize the stress faced by students is contributed by the factors of meeting grade requirements, assessment structure, learning load and time management.

The event of COVID-19, which led to the transformation in TnL from the Face-to-Face mode to the Online mode had spill negative impact on the students. Students not only face the dilemma of lacking the skills in operating the tools and software for online TnL, but Online learning requires expenditures on a notebook or at least a mobile phone, and most importantly it also requires good internet. Coming from different demographics, and social and economic backgrounds, those who lack these items be it due to geographic and economic reasons, were negatively affected and this would put them in a stressful situation.

A study conducted by Hariayati Ariffin (2021) involving 100 university students around Shah Alam showed that as many as 40 percent of the respondents admitted that they experienced stress and depression as a result of online learning. In addition, the study conducted by Woon et al. (2021) also proved that stress experienced by students is commonly caused by the disruption of the learning process during the COVID-19 epidemic.

In relating to online teaching and learning during COVID-19, studies conducted by Mathew & Chung (2020); Avsheniuk et al. (2021) stated that students' attitudes are positive, while in different studies (Bozavli, 2021; Yurdal et al., 2021) it is clearly stated that students' attitudes are negative. There are various reasons why students point out the negativity of online learning,

whether learning environment conditions, access to a quality internet connection, or adaptation to online learning during the MCO operation (Abrosimova, 2020; Balta-Salvador et al., 2021).

A study by Al-Balas et al. (2020) who focused on students' satisfaction with the usage of online learning platforms in teaching and learning found that the rate of students' satisfaction is relatively low by the percent of 26%. Among the issues associated with the low score are; the technical issues, lack of interaction, and matters relating to exercises and training were not delivered at the optimum (Gautam, 2020).

Studies by Muthuprasad et al. (2021) focused on student's online learning experience and health issues. The findings reported that, there are incidences of headaches as a result of their prolonged use of mobile phones for online classes. Furthermore, the back-to-back online classes have exacerbated students' pre-existing health issues like migraines and backaches. The harmful radiation emitted by the device during online learning reduces students' concentration (Bakhov et al., 2021). This evidence shows that online learning leads to a variety of physical and mental health problems.

Based on the issues discussed above we may infer, that schools and universities were unprepared to deal with this unprecedented situation. On the student side; they faced challenges among others, low connectivity, a lack of online content, teachers or instructors who did not have the appropriate training for this type of distance learning led by ICT, and a lack of technological resources and connectivity (Gomez-Garcia et al. (2020). Educational inequalities were particularly affected, as the exclusion of the most disadvantaged students increased, making it impossible for them to continue their education. According to a study by Roman (2020) university students were greatly harmed by the change from Face-to-Face to virtual classes, as communication with faculty was insufficient; they encountered connectivity problems and were overloaded with homework and demotivated, which increased the level of anxiety and stress. This finding is supported by Cobo-Rendón et al. (2020), González-García (2020), Khalil et al. (2020) and Shahrivini et al. (2020). The findings of these study provide a justification for why university student is chosen as the focus group of this study.

Although many studies focused on the issue of student stress with teaching and learning, we could hardly find any research that compares the stress level experienced by the students in both periods or both teaching methods; for instance, the Face-to-Face method in the campus which was implemented before COVID-19 period, and online teaching and learning method at home during the period when COVID-19 hit the country. The question of students' stress levels in compromising and following different teaching and learning modes requires enlightenment so that matters related to student stress management and its association with teaching and learning methods can be mastered. Therefore, the current study was conducted to fulfill those aspirations where the study's main objective is to identify which teaching and learning method is more helpful to university students in stress management.

The rapid expansion of COVID-19 and all of the tremendously negative effects it has had on the health of the world's population and on the economy at both the macro and micro levels has generated great levels of insecurity and stress in a large part of the population including those in the education sector. During COVID-19, Schools and universities were unprepared to deal with this unprecedented situation. On the student side; they faced challenges among others, low connectivity, a lack of online content, teachers or instructors who did not have the appropriate training for this type of distance learning led by ICT, and a lack of technological resources and connectivity. Educational inequalities were particularly affected, as the exclusion

of the most disadvantaged students increased, making it impossible for them to continue their education. According to a study by Roman (2020) university students were greatly harmed by the change from Face-to-Face to virtual classes, as communication with faculty was insufficient; they encountered connectivity problems and were overloaded with homework and demotivated, which increased their level of anxiety and stress. This finding is supported by Cobo-Rendón et al. (2020), González-García (2020), Khalil et al. (2020) and Shahrivini et al. (2020). The findings of these study provide a justification on why university student is chosen as the focus group of this study.

This study lays down the following significance; adds up the body of literature on stress study and contribution to the field of mental health in education, approves or disapproves the findings of previous studies, either locally or internationally; provides information to the stakeholders especially the government and specifically the ministry of education on the impact or the implication of this policy implementation on the university students' mental health, and to take further necessary action to mitigate the problem. In the current study, the university respondents are limited to UPSI's university students, who are in semesters 5 to 8, and who experienced both types of TnL methods during the periods before and during the pandemic COVID-19 hit the country.

METHODOLOGY

This study focused on identifying the stress level experienced by students in two situations, before the hit of COVID-19 and during COVID-19 hit. The time periods of the study directly indicate the teaching and learning atmosphere experienced by the students which, the before COVID-19 period implies the Face-to-Face teaching and learning process at campus, while the period during COVID-19 hit implies the Online teaching and learning process at home. This study is an exploratory type of study that collects information through a Google form questionnaire set and is distributed to the target respondents. The questionnaire set is divided into three main parts, A: Demographic Profile, B: Stress Status, C: Stress during F2F TnL before COVID-19, and Stress during Online TnL during COVID-19. The questions are in the Likert Scale five-point format extended from the lowest 1: Very Low to the highest 5: Very High. Data obtained were processed by using the Statistical Package for the Social Sciences (SPSS) software version 25 and were analyzed by using the Descriptive Statistics and inference methods. In this study, the researcher used descriptive analysis in the form of frequency distribution tables, mean values, and standard deviation values to answer Objective 1 and Objective 2 of the study, and paired sample t-test for the mean difference test to answer Objective 3. The methodology adopted in this study replicates the work of Jalil et al. (2020 & 2018). For the mean value obtained from the descriptive statistical analysis, the interpretation of the values is displayed in Table 1.

Table 1 Mean Score Interpretation

Mean Score	Stress Level
< 1.50	Very Low
$1.50 \leq \text{Mean} < 2.50$	Low
$2.51 \leq \text{Mean} < 3.00$	Moderate
$3.01 \leq \text{Mean} < 4.00$	High
$4.01 \leq \text{Mean} \leq 5.00$	Very High

RESEARCH FINDINGS

The discussion in this section is divided into the following parts; demographic profile, stress level analysis of the UPSI students by periods (before and during COVID-19); and secondly, stress level analysis by teaching and learning methods (Face-to-Face and online).

Demographic Profile of the Respondents

The results summary for the demographic analysis is displayed in Table 2. In total, 90 students participated in this study. The display in Table 2 shows the demographic profile of these respondents. Of 90 people, 76 (84.4%) of them were female students, and the rest (15.6%) were male students.

The distribution according to race showed that, of 90 people who participated, the majority of 74 people (82.2%) were Malay students, followed by Bumiputeras (12.2%), Chinese (3.3%), while Indians and other races, each race recorded a result of 1.1%.

As stated in the previous section, the selection of respondents was among students who experienced both teaching and learning sessions in the period before and during COVID-19. The semester distribution of the students involved in this study showed that the participants involved were those from semester five to semester eight. The highest percentage (61.11%) or a total of 55 people are students in semester 7, while the others (stated in the percentage descending order) are students in semester 5 totaling 20 people, Semester 8 totaling 10 people, and lastly, semester 6 totaling 6 people.

Table 2 Profile of the respondents

	Items	Frequency	Percent
Gender	Male	14	15.6
	Female	76	84.4
	Total	90	100.0
Race	Malay	74	82.2
	Chinese	3	3.3
	Indian	1	1.1
	Bumiputra	11	12.2
	Others	1	1.1
	Total	90	100.0
Semester	5	20	22.22
	6	5	5.56
	7	55	61.11
	8	10	11.11
	Total	90	100
Family's Income Category	B40 [Y < RM4630]	71	78.9
	M40 [RM4,360 < Y < RM9,619]	17	18.9
	T20 [Y > RM9619]	2	2.2
	Total	90	100.0

The last profile item is the family income category. This item reflects the student's economic background. Overall, the majority of 71 students (78.9%) are students from poor family backgrounds or B40. The rest, 17 people (18.9%) are from M40 families, and the last two people (2.2%) are students from T20 families.

The different characteristics of the respondent is not an issue in this research, because all students had fulfilled the following two compulsory criteria; firstly, they are UPSI students; and secondly, they underwent both Face-to-Face and online studying methods between the periods before and during COVID-19.

Stress Levels Analysis by Periods of Before-During COVID-19

This part analyzes the stress experienced by university students during the periods before and during COVID-19. The results summary is displayed in Table 2.

Based on the findings displayed in Table 2, we may infer a higher percent proclaimed YES to the question on stress experience in both periods. The percentage however experienced an increment from 73.31% before the COVID-19 period to 77.79% during the COVID-19 period. The mean score for stress levels documented an increase from 2.70 (Moderate) to 3.08 (High).

Table 2 Stress Before-During COVID-19

Question item	Before COVID-19 [F2F TnL in campus]		During COVID-19 [Online TnL at home]	
	YES	NO	YES	NO
Did you experience stress?	66 [73.31%]	24 [26.69%]	70 [77.79%]	20 [22.21%]
What is your stress level?	2.70 [1.096]		3.08 [1.041]	

Note: n = 90

Analysis of Stress Level by Teaching and Learning Methods

To further investigate the association of stress with the teaching and learning methods implemented in the periods before and during COVID-19, an analysis of stress levels by teaching and learning methods is conducted. Table 3 shows the results summary.

Table 3 Stress Levels by Teaching and Learning Methods

Stress Level	Teaching And Learning Methods					
	Face-to-Face (F2F)			Online		
	[In Campus Before COVID-19]			[At Home During COVID-19]		
	Frequency	Percent	Mean	Frequency	Percent	Mean
Very Low	13	14.4	2.77 [0.949]	7	7.8	3.08 [1.041]
Low	13	14.4		19	21.1	
Moderate	47	52.2		29	32.2	

High	16	17.8		30	33.3
Very High	1	1.1		5	5.6
Total	90	100.0		90	100.0

The results displayed in Table 3 showed that; during the implementation of Face-to-Face teaching and learning, the majority 52.2 percent (47 people) proclaimed to experience moderate levels of stress, followed by high levels of stress (17.8%), low and very low level of stress documented the same score of 13%, and finally only one percent (1 person) recorded very high stress level.

The results for Online teaching and learning showed that; the highest percent is observed at High (33.3%) and Moderate (32.2%) levels, and then followed by low (21.1%), very low (7.8%), and finally very high stress (5.6%) levels. The means score value for Face-to-Face teaching and learning is 2.77 while for Online teaching and learning is 3.08.

Means Difference Test of Stress Level by Different Teaching and Learning Methods

The change in teaching and learning methods from Face-to-Face to Online caused the mean values of stress levels to increase from 2.77 (moderate stress level) to 3.08 (high stress level). To determine whether the change in the mean values is significant or not, we run Paired sample t-test and the results are displayed in Table 4.

Table 4 The Paired Sample t-test

Items	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Stress level: F2F vs Online	-.311	1.186	.125	-.560	-.063	-2.488	89	.015

Based on the results displayed in Table 4, by referring to the $t = -2.488$ ($p < .015$), we may infer that the result is significant. In other words, it implies, that there is a significant means difference in stress level experienced by the students by different methods of teaching.

CONCLUSION AND DISCUSSION

The objective of this study is to identify the level of stress of UPSI students in the periods Before and During COVID-19 and to determine the level of stress experienced by the students during the implementation of the Face-to-Face and Online teaching methods. The findings of the study showed that the majority of respondents admitted that they experienced stress in both periods, but the percentage was relatively higher during the COVID-19 period. Findings from the stress level analysis by teaching and learning methods provide evidence that the mean score values for the stress level experienced by the students while undergoing Face-to-Face teaching and learning method is 2.77 (moderate stress level), and through the Online method is 3.08 (high-stress level). These means values are statistically significantly different as evidenced by the paired sample t-test results. Here we may conclude, that the changes in teaching and

learning methods significantly influenced the students' stress levels, and with regards to which method is a better method for students' stress management, the Face-to-Face method is the better method. With regards to the observed findings, it provides useful information as a future guide. The incident health crisis has a tendency to repeat and in order to face this situation, the parties concerned especially the government that implements the policy are expected to be able to make a holistic decision, which is to implement a policy that has taken into account all aspects before implementation takes place, so as not to trigger shocks and stress to the other party.

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