(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume 6, Issue 3 , Page No: 643-652
May-June 2023

IJMSCR

Prevalence Of Depression, Anxiety And Stress Among Grade 10 Students In Bangkok

Nitcha Waropas
Triam Udom Suksa School

***Corresponding Author:**
Nitcha Waropas
Triam Udom Suksa School

Type of Publication: Original Research Paper
Conflicts of Interest: Nil

Abstract

Background: During the COVID-19 pandemic, education was switch from physical class to online class. Studying how online class affected student's mental health.

Objective: To examine the psychological impact of students during long-term online learning management.

Method: A self-administrated assessment of DASS21 were distributed to participants via online form. Data was collected during September 18, 2021 to June 6, 2022 from grade 10 students from public schools in Phayathai District, Bangkok, Thailand.

Result: Total of 329 students participated in this study (21.09% response rate), 72% of participants were female, 51.4% wished to study in Health Science and Science faculty. Most participants reported that they had an extreme severe level of depression (29.5%) and anxiety (38.0%), 24% of participants reported their level of stress at a normal level. Factors associated with depression were gender, online learning satisfaction, online learning environment at home, family relationships, friend relationships and number of hours spent on social media. Factors associated with anxiety were gender, online learning satisfaction, online learning environment at home, family relationships and friend relationships. Factors associated with stress were gender, school workload online learning satisfaction, online learning environment at home, family relationships, friend relationships and number of hours spent on social media.

Conclusion: Online learning during COVID-19 negatively affected participants' level of depression, anxiety.

Keywords: depression, anxiety, stress, COVID-19, high school students

Introduction

The new coronavirus, or COVID-19, is an emerging disease caused by a virus unknown to scientists before the outbreak in Wuhan, China, in December 2019 until now. It has become pandemic in every region of the world.1 As of 10 July 2022, there were up to 560,396,076 infected people and the number of deaths worldwide were 6,372,635 people. In Thailand, there were 4,545,043 cumulative infections and 30,835 cumulative deaths. COVID-19 has mutated since the beginning of the outbreak from the original strain to the strains that were currently spreading all over the world, Omicron BA.4 and BA.

While many countries around the world have come out to campaign for their population to receive booster vaccination at continuous intervals to reduce the death rate and serious illness, the method of treatment is to treat the patient's symptoms. The impact of the global pandemic has caused an economic crisis due to a lockdown measurement that had been imposed for the whole country or most areas for a long period of time according to the severity of the outbreak. Businesses and shops were temporary closed down, health care providers were overwhelmed and there was inequality accessing healthcare. Educational services were inconsistent,

students were ordered to stay home to study from home to control the COVID-19 infection.2

In Thailand, COVID-19 was first detected on 13th January 2020. Announcement of the emergency situation was made on the 26th March 2020. Schools, universities and other education institutions were allowed to open in August 2020.3 However most education institutions turned to provide education via online in order to control the spreading of COVID-194 There were problems consequently from the COVID-19 pandemic such as financial impacts, quality and effectiveness of online education, psychological impacts to students and etc, therefore there were more than 120,000 students quitted their schools.5

This research examined the psychological impact of students during long-term online learning management. Studying online caused students to lack interaction with peers, teachers, lack of activities that help develop themselves in other areas.2 From previous studies, high school students have a higher level of stress preparing for college admissions, being forced to study online could affect their psychology. Levels of depression, anxiety and stress among high school students were assessed by DASS21 questions.

Objective

1. To assess level of depression, anxiety and stress
2. To study factors associated with depression, anxiety and stress

Study Methods

Population and Sampling size

This research is quantitative research that collects data via Google Form from September 18, 2021 to June 6, 2022 from grade 10 students from public schools in Phayathai District, Bangkok, Thailand. The survey was distributed to the population via classroom social media which means everyone eligible could access the survey. The objectives of the research are discussed as well as the ethical confidentiality and anonymity of the data collected. Filling in the form is voluntary and no personal information is collected from participants. The data was collected from 329 students out of 1,560 students (response rate: 21.09%).

Instrument and tools

The tool used to collect data in this research is Google Form, which the researcher has developed according to the research tool development process by studying the relevant theoretical concepts about depression, anxiety, stress and adolescent behavior, situation of COVID-19 and constructed as a questionnaire consisting of 2 parts as follows

Sociodemographic data of participants: included gender, faculty goals in higher education, workload, satisfaction with online learning, the suitability of home environments versus online learning, the financial impact of COVID-19 on families, time spent online in one day, relationships with family members and relationships with close friends.

Self-administered assessment DASS21: assessing level of depression, anxiety and stress

Statistical analysis

The analysis was performed using SPSS for Windows version 26. To analyze the psychometric of depression, anxiety and stress: personal factors, level of depression, anxiety and stress characteristics of the scales, an exploratory factor analysis, using principal component analysis with varimax rotation, was carried out. The descriptive studies were presented in absolute (n) and relative (%) frequencies, mean (M), and standard deviations (SD). To assess the differences

between the outcome variables (personal factors, depression, anxiety and stress) and the sociodemographic characteristics, considering the sample size, independent t-tests and the ANOVA were used, as appropriate. Pearson's correlation calculated the correlations between the outcomes of the study. Lastly, a generalized linear model was calculated to determine the predictive variables of the preventive behaviors. Exp (β) and the respective 95% confidence intervals (95% CI) were presented. Statistical significance was defined as $p < 0.05$.

Ethical Considerations

This research collected anonymous survey data by Google Form from grade 10 students from a public school in Phayathai district, Bangkok, Thailand by distributing the form through the classroom social

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medias in which the said Google Form mentioned the objectives of the research as well as the confidentiality and anonymity of the collected data according to ethical principles. Filling in the form is voluntary and no personal information is collected from participants.

Results

There were 329 respondents in this study. Most of the respondents were female (72%) and male (28%). Respondents had a high level of homework load to a very high level (M=4.04, SD=0.83), with female having a higher number of homework (M=4.11, SD=0.78) than male (M=3.87, SD=0.94). Respondents who were interested in Faculty of Engineering and Architecture had the highest volume of homework (M=4.10, SD=0.89), followed by the Faculty of Humanities and Social Science, Arts and Education (M=4.09, SD=0.82), followed by the Faculty of Business and Economics (M=4.03, SD=0.80) and the Faculty of Health Science and Science (M=4.01, SD=0.85).

In terms of satisfaction with online learning, the respondents had a low to moderate level of satisfaction with online learning (M=2.54, SD=1.00), with male satisfaction levels (M=2.76, SD=1.02) higher than female (M=2.45, SD=0.98). The group of students who wanted to study in Faculty of Engineering and Architecture had the highest satisfaction level (M=2.81, SD=0.93), followed by the Faculty of Humanities and Social Science, Arts and Education, (M=2.58, SD=0.98), followed by the Faculty of Business and Economics (M=2.49, SD=0.85) and the Faculty of Health Science and Science (M=2.48, SD=1.04). In terms of having an environment suitable for online learning the respondents had a moderate to high level of suitability (M=3.07, SD=1.13), with male having a higher degree of suitability for online learning environments (M=3.33, SD=0.96) than female (M=2.97, SD=1.18). The group of students wishing to study in the Faculty of Engineering and Architecture had the highest environmental suitability (M=3.81, SD=1.08), followed by the Faculty of Business and Economics (M=3.42, SD=0.89), followed by Faculty of Humanities and Social Science, Arts and Education (M=3.05, SD=1.08) and the Faculty of Health Science and Science (M=2.93, SD=1.17).

Concerning on family's financial impact from COVID-19, respondents had a low to moderate impact level (M=2.90, SD=1.12), with male having a financial impact level (M=3.10, SD=0.93) more than female (M=2.82, SD=1.17). And the group of students who wanted to study at the Faculty of Engineering and Architecture had the highest level of financial impact (M=3.24, SD=0.89), followed by the Faculty of Humanities and Social Science, Arts and Education (M=3.00, SD=1.14), followed by the Faculty of Business and Economics (M=2.97, SD=1.11) and the Faculty of Health Science and Science (M=2.78, SD=1.13) subsequently.

In terms of the level of family relations respondents had a moderate to high level of family relationship (M=3.72, SD=1.07), with female having higher levels of family relationships (M=3.73, SD=1.03) than male (M=3.70, SD=1.17). The groups of students who want to study at the Faculty of Humanities and Social Science, Arts and Education had the highest level of family relationship (M=3.78, SD=1.07), followed by the Faculty of Business and Economics (M=3.74, SD=0.63), followed by the Faculty of Health Science and Science (M=3.71, SD=1.12) and Faculty of Engineering and Architecture (M=3.48, SD=1.21).

Regarding on the level of relationship with friends respondents had a moderate to high level of relationship with friends (M=3.65, SD=1.10), with female having a higher relationship with friends (M=3.66, SD=1.08) than male (M=3.62, SD=1.15). The group of students who wanted to study in the Faculty of Business and Economics had the highest relationship with peers (M=3.74, SD=0.82), followed by the Faculty of Engineering and Architecture (M=3.71, SD=0.85), followed by the Faculty of Health Science and Science (M=3.64, SD=1.21) and Faculty of Humanities and Social Science, Arts and Education (M=3.62, SD=1.03).

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Table 1. Participants' characteristic, perception of workload amount, level of satisfaction on online learning, online learning environment at home, family financial effects from COVID-19, family relationships and friend relationships (n=329)

Variable		School workload M (SD)	Online learning satisfaction M (SD)	Online learning environment at home M (SD)	Family financial effects M (SD)	Family relationships M (SD)	Friend relationships M (SD)
Gender	N (%)						
Male	92 (28)	3.87 (0.94)	2.76 (1.02)	3.33 (0.96)	3.10 (0.93)	3.70 (1.17)	3.62 (1.15)
Female	237 (72)	4.11 (0.78)	2.45 (0.98)	2.97 (1.18)	2.82 (1.17)	3.73 (1.03)	3.66 (1.08)
Target faculty							
Health Science and Science	169 (51.4)	4.01 (0.85)	2.48 (1.04)	2.93 (1.17)	2.78 (1.13)	3.71 (1.12)	3.64 (1.21)
Humanities and Social Science, Arts and Education	108 (32.8)	4.09 (0.82)	2.58 (0.98)	3.05 (1.08)	3.00 (1.14)	3.78 (1.07)	3.62 (1.03)
Engineering and Architecture	21 (6.4)	4.10 (0.89)	2.81 (0.93)	3.81 (1.08)	3.24 (0.89)	3.48 (1.21)	3.71 (0.85)
Business and Economics	31 (9.4)	4.03 (0.80)	2.49 (0.85)	3.42 (0.89)	2.97 (1.11)	3.74 (0.63)	3.74 (0.82)
Total	329 (100)	4.04 (0.83)	2.54 (1.00)	3.07 (1.13)	2.90 (1.12)	3.72 (1.07)	3.65 (1.10)

From the results of the study, it was found that majority of students had more than 6 hours of online media playing per day, representing 50.76%, followed by students with 4 to 6 hours of online media playing per day, representing 38.60% and the students who spent less than 4 hours per day playing online media per day accounted for 10.64%. Most female students spent more than 6 hours per day playing online media per day, representing 56.96%. This was followed by students with online media hours of 4 to 6 per day, representing 35.87% and students with online media hours less than 4 hours per day, representing 7.17%. The majority of

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male students had 4 to 6 hours of online media per day, representing 45.65%, followed by students with more than 6 hours of online media per day, 34.78% and the number of hours spent on online media less than 4 hours per day was 19.57% (Table 2).

Table 2. Number of hours that participants were on social media per day (n=329)

Gender / No. of Hrs	<4 Hrs	4-6 Hrs	>6 Hrs	Total
Male	18 (19.57%)	42 (45.65%)	32 (34.78%)	92 (100%)
Female	17 (7.17%)	85 (35.87%)	135 (56.96%)	237 (100%)
Total	35 (10.64%)	127 (38.60%)	167 (50.76%)	329 (100%)

The study found that the most severe condition of the sample students was anxiety (38%), followed by depression (29.5%), and stress which accounted for 20.7%. The students in the sample with severe stress accounted for 16.4%, followed by anxiety (13.7%) and depression 12.5%. Of the students in the sample group had a moderate level of depression (19.1%) and stress (19.1%), followed by anxiety (18.8%). Students with the most severe depression accounted for 29.5%, followed by normal at 24.6%, followed by moderate at 19.1%. Students with the most severe anxiety were 38%, followed by normal at 21.9%, followed by moderate at 18.8%. Students with normal stress accounted for 24%, followed by the most severe at 20.7%, and mild 19.8% (Table 3).

Table 3. Level of Depression, Anxiety and Stress among participants (n=329)

	Normal	Mild	Moderate	Severe	Extremely Severe	Total
Depression	81 (24.6)	47 (14.3)	63 (19.1)	41 (12.5)	97 (29.5)	329 (100)
Anxiety	72 (21.9)	25 (7.6)	62 (18.8)	45 (13.7)	125 (38)	329 (100)
Stress	79 (24)	65 (19.8)	63 (19.1)	54 (16.4)	68 (20.7)	329 (100)

From Chi-Square Analysis to find factors associated with depression, anxiety and stress among participants, the statistics showed that factors associated with depression were gender, online learning satisfaction, online learning environment at home, family relationships, friend relationships and number of hours spent on social media. Factors associated with anxiety were gender, online learning satisfaction, online learning environment at home, family relationships and friend relationships. Factors associated with stress were gender, school workload, online learning satisfaction, online learning environment at home, family relationships, friend relationships and number of hours spent on social media.

Table 4. Factors associated with Depression, Anxiety and Depression among participants

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Variable	Depression P-Value	Anxiety P-Value	Stress P-Value
Gender	0.002	0.000	0.000
School Workload	0.791	0.739	0.050
Online Learning Satisfaction	0.006	0.004	0.007
Online learning environment at home	0.000	0.000	0.000
Family Financial effects from COVID-19	0.796	0.388	0.314
Family Relationships	0.000	0.000	0.002
Friend Relationships	0.013	0.001	0.039
Number of Hours spent on social media	0.001	0.129	0.000

Discussion

Most respondents had a high level of depression. This may be because these respondents are students from one of the most competitive schools in this country. According to the information in the academic year 2021, there were 12,765 perspective students who took the entrance examination to study in this school while accepted only 1,520 students.6 The acceptance rate of 1 to 8.4 which is one of the toughest compared to other schools.7

Being in a competitive environment, this may be affecting students' mental state, this results were inline with the study that reflected the problems in society of families that focus on cultivating youth to study and self-improvement will result in more than 90% of youth experiencing stress, with 78% stressing about learning.8 This results also corresponded to the results of the 2022 Student Voice survey into the Current State of Mental Health, it was found that the factors causing stress to students the most were keeping up with classmates and the pressure of getting good grades too. Both of these factors are influenced by class competition while classroom competition encourages students to study harder and achieve good grades but this competition can cause stress, anxiety and depression. These mental states will further affect the

competitiveness of students in the classroom.9 Online Learning had been imposed for the students during the 2021 academic year10 which affected the learning efficiency of students and inevitably affected students' mental health. This findings were align with studies conducted to assess level of stress among students from online learning during COVID-19.11-14

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Deteriorating economic conditions may affect the financial situation of respondents' families which could affect students' feeling therefore could eventually affect mental health. The study found that low-income individuals were more likely to suffer from anxiety and depression than wealthier individuals.15 This study's result was consistent with the study that found personal issues causing stress mostly was economic problems.16

The majority of respondents reported high to very high levels of daily homework and workloads (M=4.04, SD=0.83). This may be because of online learning is naturally less effective than learning at school. According to a survey of 72,626 students from 77 provinces across the country at the level of junior high school to undergraduate level, it was found that learning in the classroom was 2.6 times better than learning online.17 As a result, the student's learning is assessed by scoring from exams which is part of the educational process may not be appropriate in this unusual situation. The school therefore asks students to complete additional assignments to help them assess their understanding of learning and bring that score to compensate for the exam.

According to a survey by the Rajabhat University Network, it was found that 64.44% of high school students study online via mobile phones, followed by 24.13% of students study online via laptops. The mobile phone has a small display screen size. making it difficult to see the text or details in teaching and problems with the stability of the Internet signal. According to a survey by the Rajabhat University Network, it was found that 94.75% of students had difficulty learning online and 5.25% had no difficulty learning online. The biggest problem in online learning is the speed of the internet connection. The second problem is eye strain from using a mobile phone, computer or equipment used for learning.17

The majority of respondents were moderately satisfied with their online learning from home environment (M=3.07, SD=1.13). Because the conditions at home may not be suitable for online learning, such as noise, insufficient internet signal speed. A survey by Assumption University found that 25.3% of students reported that their internet speed was insufficient for online learning13 because internet speed is one of a very important factor. The use of Internet together is a large number of students at the same time simultaneously across the country inevitably affects the internet speed. It was reported that the biggest problem of online learning, up to 41.15%, was the speed of the connected internet signal17 and problems from the speed of the connected internet signal could create another obstacles continuously. This is consistent with the opinions of nursing students. Students reported the biggest barriers to online learning overall.12 Students therefore gave moderate satisfaction to the online learning from home environment.

The majority of respondents reported moderate financial impact on families from the COVID-19 pandemic (M=2.90, SD=1.12).because students from this school study extra classes in order to prepare themselves for competitive examinations continuously and consistently. When students study online from home, this frees up more time as there is no need to travel from home to school back and forth. Having some more time, parents will inevitably encourage their students to take additional online tutoring during that time for students to make good use of their time and to prepare students for more competitive exams so the students could think that parents still have the money to spend for the special education of the students. Therefore, the students commented that the financial impact was low and another reason may come from the culture of raising children in Thai families who often do not talk about financial status with children. By fearing that it will affect child's feeling and can be a part of deteriorating child's academic performance. This result is inline with Manager Online that there are many parents who never talk about money with their children. The reason is because the child is still young. Parents do not want their children to feel worry which could affect their learning performance.18 So this could explain why students reported level of financial affect from COVID-19 at a moderate level.

The majority of respondents reported using social media more than 6 hours a day (N=167, 50.8%). Because social media is a channel that students use to receive information. Every student has a smartphone

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connected to the internet which make communication become so much convenient. Moreover the survey data found that behaviors of Thais aged 16 to 64 who use the Internet spend an average of 2 hours and 48 minutes per day on social media, compared to the global average of 2 hours and 25 minutes, and 47% of Thais use social media for work.19 Therefore, students count the time spent studying online at school, which is 5-6 hours a day combined with playing other Social Media such as Instagram, Line, Twitter, Facebook, so most students reported that playing Social Media more than 6 hours a day.

Respondents rated their relationship with their family at a moderate to a high level (M=3.72, SD=1.07). Most students have parents who are quite attentive, especially about students' learning. From the study of Physical home learning environments for digitally-supported learning in academic continuing education during COVID-19 pandemic, it was found that good relationships in the family have a significant correlation with the students' good academic performance.20 Parents will start planning their studies after the entrance examination for further education from elementary school all the way to high school till university. Thus, the students have the experience of being cared for by their parents since they were young. There are many parents to pick up and take the students to school, prepare food to eat during class. Sometimes parents still have to study what their children study in order to tutor their children further.21 Parents and students therefore always have conversations with each other. Most students should have a good relationship with their families.

During online classes at home, students have to stay home to study online all day long. Students do not feel as free as they go to school where students have the freedom to be able to set aside their own time. However, during COVID-19, students cannot do these things during online classes at home. This may result in students becoming moody, irritated, and angry.

The respondents had a moderate to high relationship with their peers (M=3.65, SD=1.10). The students who responded to the questionnaire were students studying in grade 10, middle adolescents aged 14-16 years, or high school students which middle adolescents will give importance to friends the most.22 When they started studying in grade 10 at the school, all students transferred from their old schools to begin their studies at the new school. In normal situations when students go to school, they have opportunities to spend time getting acquainted with their classmates when studying together and doing activities together which make students bond faster. Not studying together or doing activities together causes students and friends to not be as familiar as they should do.

Limitation

This study was conducted during the pandemic of COVID-19 therefore collected data via online form. This study could not cover those who could not access the internet.

Conclusions

Gender, satisfaction with online learning, home environment for online learning, relationships with family members, and relationships with friends are factors that affect the student's mind causing stress, anxiety and depression during the study period. Learning online for most of the academic year and the amount of time spent viewing online media in a day was another factor associated with stress and depression, while the workload of the sample group of students also contributed to stress.

Recommendation

1. Educational institutions should be aware of students' mental conditions being affected from the pandemic therefore countermeasures should be prepared.
2. Plans should be made with the agency responsible for promoting mental health among school children and to seriously take care of this problem to prevent stress anxiety and depression in adolescents who are preparing for the entrance examination to study at the university level.
3. Use the information in future research, such as qualitative research, such as studying the appropriate environment and conducive to online learning. In addition, the study results can be used to develop quantitative research, for

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example, the relationship between stress and faculty wishing to study at the university level.

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