Prevalence and Associated Factors of Stress upon Online Study among Mae Fah Luang University Preclinical Year Medical and Dental Students during COVID-19 Pandemic

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Abstract:

Background: Stress is common among medical and dental students in usual circumstance. As COVID-19 pandemic had great impact on higher education. Classes attending at the universities has also been altered, including introduction of online classes and examinations. Medical and dental students who regularly were stressed due to their exhausting curriculums might have been affected by this pandemic as well.

Objective: This study aimed to study stress in medical and dental students in preclinical year as a consequence of the lockdown from Covid-19 and its associated factors.

Methods: The study was conducted from 31st July to 15th August 2020 as a cross-sectional descriptive study which collected data via online questionnaires. The online questionnaires consist of 3 parts; demographic data, factors associated with stress from literature review and ST-5 (a stress assessment questionnaire). The measurement of association was analyzed by multivariable logistic regression.

Results: This study got data from 129 respondents in preclinical year of medical and dental students of Mae Fah Lung University with average age of 20.5 years. 53 (41.1%) of the respondents old are stressed. Prevalence of stress was found to be 41.5% in medical students and 58.5% in dental students. Factors associated with stress from multivariable logistic regression analysis were inappropriate or unfacilitated location for studying (p-value = 0.001), feeling isolated or lonely (p-value = 0.001) and daily life changes (p-value = 0.001).

Conclusion: Prevalence of Preclinical year stress is 41.5% in medical students and 58.5% in dental students after COVID-19 lockdown. Factors associated with stress from the study

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can be categorized into 3 categories: educational-related factors, learner-related factors and other physical-related factors.

Keywords: Stress, COVID-19, Medical and Dental students

Introduction

In the end of 2019, an outbreak of Coronavirus disease (SARS-CoV-2 or COVID-19) was reported in Wuhan, China. Not long later, COVID-19 was reported in Thailand and was specified as the 14th dangerous infective disease followed by the communicable diseases act, B.E.2558 (2015) by the Ministry of Public Health.[1] The Emergency Decree on Public Administration in Emergency situation had been declared to control the COVID-19 outbreak situation in Thailand.

Mae Fah Luang University (MFU) is a large educational institute located in Chiang Rai, Thailand. Students of this university comes from various provinces of Thailand as well as from other countries. Around 45.83% of the students from school of medicine and 37.5% of the students from school of dentistry are also from provinces other than Chiang Rai.[2] The COVID-19 lock down has greatly impact studying at the MFU.[3] Class attending at the university in the final semester of 2019 has been altered, including introduction of online classes and examinations. The online classes were conducted both synchronously via online applications such as Google hangouts meet, MFU Webex or Zoom application and asynchronously via Google classroom. The assessment and evaluation have also been altered to Google form via Google classroom. Mae Fah Luang University also declared remedial policy to help affected students from COVID-19 outbreak such as deduction of 10 % of the tuition fee and 50% of the dormitory fee, returning of public utility fee, inclusion of MFU free internet at 4 Mbps speed in all over 3 months without any payment, among others. Scholarships for the affected students have been altered as a consequence of the policy as well.

The declaration of the Ministry of Education followed by Thai qualifications framework for higher education; TQF: HED, B.E.2552 (2009) has specified the qualification framework for higher education in medical and dental study. The field of knowledge specified in medical and dental study must be the combination between interactive lectures and laboratory studies. The evaluation of the curriculum can be conducted as a subjective test, multiple choices or even synthesized-answer as designed by the curriculum.[4] This mean that all of the processes along the curriculum must be conducted by the university.

A study in prevalence of stress and its associated factors among Ramathibodi medical students during normal situation using Thai stress test,[5] found that 61.4% of medical students have moderate stress level and 2.4% have high stress level. The high stress level mainly comes from the exhausting of the curriculum, especially in the 4th – 6th year medical students of Ramathibodi hospital, Mahidol University.[6] The study also found that 218 medical students have no time to take a rest and also have a cumulative stress which can lead to mental health problems in the future. Several studies have also found that medical and dental students were regularly prone to stress even before the pandemic of COVID-19 due to their exhausting curriculum.[7] In light of the COVID-19 pandemic, this study of prevalence rate and associated factor in stress on online study among Mae Fah

Luang University preclinical year medical and dental students were conducted to further understand stress which affect in efficiency of study during COVID-19 lockdown especially in subject that need practical skills and also need to be on-site like Anatomy and Physiology class.

Objectives

This study aimed to study about prevalence rate and associated factor in stress on online study among Mae Fah Luang University Preclinical year Medical and Dental students during COVID-19 pandemic

Method

This study is a cross-sectional descriptive study which collects data using Google form online questionnaires. The data were collected from 31st July 2020 to 15th August 2020 from a preclinical year medical and dental students of Mae Fah Luang University. There are 3 inclusion criteria for preclinical year medical and dental students: (1) be at current student status in semester 1/2020; (2) Study online during COVID-19 situation followed by the announcement of Mae Fah Luang University; (2) Enroll in the online study session due to the COVID-19 situation announcement of Mae Fah Luang University in semester 1/2020; (3) 18 years and above age. We excluded (1) foreign students; (2) did not enroll in the online session in semester 1/2020. The target population of this research was 135 people which included 10% over the actual population.

Review of previous literatures was done as the first step of this study. The results of reviewing were used to design this study and the questionnaires. Google form was used to collect the data. The form consisted of 3 parts: (1) General demographic data; age, sex, native habitat, school, year; (2) Factors associated with stress from literature review; (3) ST-5 stress assessment questionnaires. ST-5 stress assessment questionnaires were stress evaluation of Department of Mental Health, Ministry of Public Health.[8] In ST-5 stress assessment questionnaires, we used the cut off score at 7 out of 15. The evaluation of 0-7 score was interpreted as no stress and 8-15 as having stress 8.

Descriptive statistics were used for demographic and other characteristics data. Binary logistic regression analyzer was used to analyze the COVID-19 stress factors. Factors with p-value < 0.05 were included into COVID-19 stress factors. Multivariable logistic regression was used to analyze factors associated factors related to stress in medical and dental students during COVID-19 lockdown. Factors with p-value < 0.01 were included into factors associated to stress during COVID-19 lock down. All statistics were done using STATA program to analyze the data.

This study was approved by Human Research Ethics Committee of Mae Fah Luang University on 11th August 2020. Funding for this study was granted by Research Administration Division, Mae Fah Luang University research and innovation institute.

Result

129 respondents responded to the questionnaires from 135 of target population. The overall data was shown in Table1.

Table 1 Demographic characteristics of the respondents

Variable	frequency	Percentage
Medical students	58	44.96 %
Dental students	71	55.04 %
2nd Year	62	48.06 %
3rd Year	58	44.96 %
4th Year	9	6.98 %
Mean age ± SD (Year)	20.55 ± 1.13	
Male	31	24.03 %
Female	98	75.97 %
Northern region	78	60.47 %
Other part of Thailand	51	39.53 %

Table 2 Comparison of baseline characteristics

Demographic data	Stressed	not stressed	p-value
School of			
Medicine	22 (41.51%)	36 (47.37%)	0.590
Dentistry	31 (58.49%)	40 (52.63%)	
Year			
Year 2	28 (52.83%)	34 (44.74%)	0.593
Year 3	21 (39.62%)	37 (48.68%)	
Year 4	4 (7.55%)	5 (6.58%)	
Sex			
Male	11 (20.75%)	20 (26.32%)	0.534
Female	42 (79.25%)	56 (73.68%)	
Age*	20 (18-24%)	20 (18-24%)	0.993T
Native Habitat			
North region	33 (62.26%)	45 (59.21%)	0.855
Others	20 (37.74%)	31 (40.79%)	

* = median (min-max)
T = Mann-Whitney U test

Table 3 Comparison between factors affecting stress on online study during COVID-19

Factors	Stressed	not stressed	p-value
Changing in daily life	48 (90.57%)	5 (9.43%)	0.000
Inappropriate of place during online study or different of parent economic status	41 (77.36%)	12 (22.64%)	0.001
Feeling lonely or isolated from family	18 (33.96%)	35 (66.04%)	0.001
Cancelling study abroad	25 (47.17%)	28 (52.83%)	0.008
Exaggerated and missed news report	41 (77.36%)	12 (22.64%)	0.016
Having problem to open camera to communicate with teachers and classmates	12 (22.64%)	41 (77.36%)	0.016
Happening of accidental situation during online study or examination; black out, run out of battery	46 (86.79%)	7 (13.21%)	0.021
Unstable and unclear study schedule	51 (96.23%)	2 (3.77%)	0.025
Decreasing of studying or working efficiency	49 (92.45%)	4 (7.55%)	0.076
Expectation in grade	43 (81.13%)	10 (18.87%)	0.107
Insufficient to efficiency internet	39 (73.58%)	14 (26.42%)	0.133
Cancelling of BYE NIOR in preclinical years	19 (35.85%)	34 (64.15%)	0.167
Income or economic status of parents	37 (69.81%)	16 (30.19%)	0.351
Shortage of surgical mask, disinfectants or other product	31 (58.49%)	22 (41.51%)	0.581

The comparison from the demographic data between stress and no stress was shown in table 2. There was no significant difference of characteristics from any demographic data which associated to stress level. As shown in Table 3, binary logistic regression analysis of association between factors studied and stress with p-value < 0.05 were; exaggerated and missed news report; inappropriate of place during online study; cancelling of study abroad; unstable or unclear of studying schedule; feeling isolated or lonely from

family; changing in daily life; happening of accidental situation during online study or examination; and having problem to open the camera to communicate with teachers and classmates.

Table 4 Association between factors and stress

Variable	Univariable Odd ratio	95% CI	p-value	odd ratio	95% CI	p-value
Sex Female Male (Reference)	1.36	0.59-3.15	0.468	1.39	0.59-3.27	0.446
School of Dentistry Medicine (Reference)	1.27	0.62-2.57	0.511	1.34	0.65-2.78	0.429
Age	0.97	0.71-1.33	0.853	1.05	0.70-1.58	0.799
Native habitat Others North region (Reference)	0.88	0.42-1.81	0.727	0.94	0.45-1.97	0.876
Year Year 3 Year 4 Year 2 (Reference)	0.69 0.97	0.33-1.43 0.24-3.97	0.319 0.968	0.65 0.97	0.28-1.50 0.122-4.57	0.317 0.753
Changes in daily life	5.92	2.11-16.60	0.001	6.05	2.13-17.16	0.001
Inappropriate of place during online study or different of parent economic status	3.80	1.72-8.32	0.001	4.34	1.88-10.03	0.001
Feeling lonely or isolated from family	5.07	1.93-13.28	0.001	5.60	2.04-15.36	0.001
Cancelling study abroad	2.88	1.35-6.12	0.006	3.33	1.50-7.37	0.003
Exaggerated and missed news report	2.62	1.20-5.77	0.016	2.58	1.14-5.81	0.023
Having problem to open camera to communicate with teachers and classmates	0.38	0.17-0.84	0.016	0.31	0.13-0.72	0.006

Table 4 Association between factors and stress (continued)

Variable	Univariable Odd ratio	95% CI	p-value	odd ratio	95% CI	p-value
Happening of accidental situation during online study or examination; black out, run out of battery	3.03	1.20-7.69	0.019	3.31	1.23-8.89	0.017
Unstable and unclear study schedule	5.26	1.14-24.39	0.034	5.88	1.23-28.11	0.027
Decreasing of studying or working efficiency	3.01	0.94-9.66	0.064	3.62	1.03-12.72	0.045
Expectation in grade	2.11	0.91-4.87	0.081	2.10	0.88-4.99	0.092
Insufficient to efficiency internet	1.92	0.89-4.12	0.094	2.37	1.02-5.51	0.044
Cancelling of BYE NIOR in preclinical years	1.80	0.83-3.89	0.135	2.03	0.90-4.54	0.086
Lacking of communication between people ex: Doing PBL, group project	2.24	0.97-5.16	0.059	2.16	0.90-5.19	0.084
Income or economic status of parents	1.51	0.72-3.18	0.28	1.48	0.69-3.19	0.316
Shortage of surgical mask, disinfectants or other product	1.41	0.69-2.86	0.95	1.39	0.67-2.87	0.379
Being close to COVID-19 patients or people at risk	1.29	0.63-2.65	0.491	1.29	0.61-2.70	0.506

Result in table 4 found that association between factors and stress in an online study of Mae Fah Luang University preclinical year medical and dental students during COVID-19 lockdown were analyzed by multivariable logistic regression analysis and specify p-value < 0.01: inappropriate of place during online study; cancelling of study; feeling isolated or lonely from family; changing in daily life; having problem to open the camera to communicate with teachers and classmates.

Figure 1 Prevalence of stress

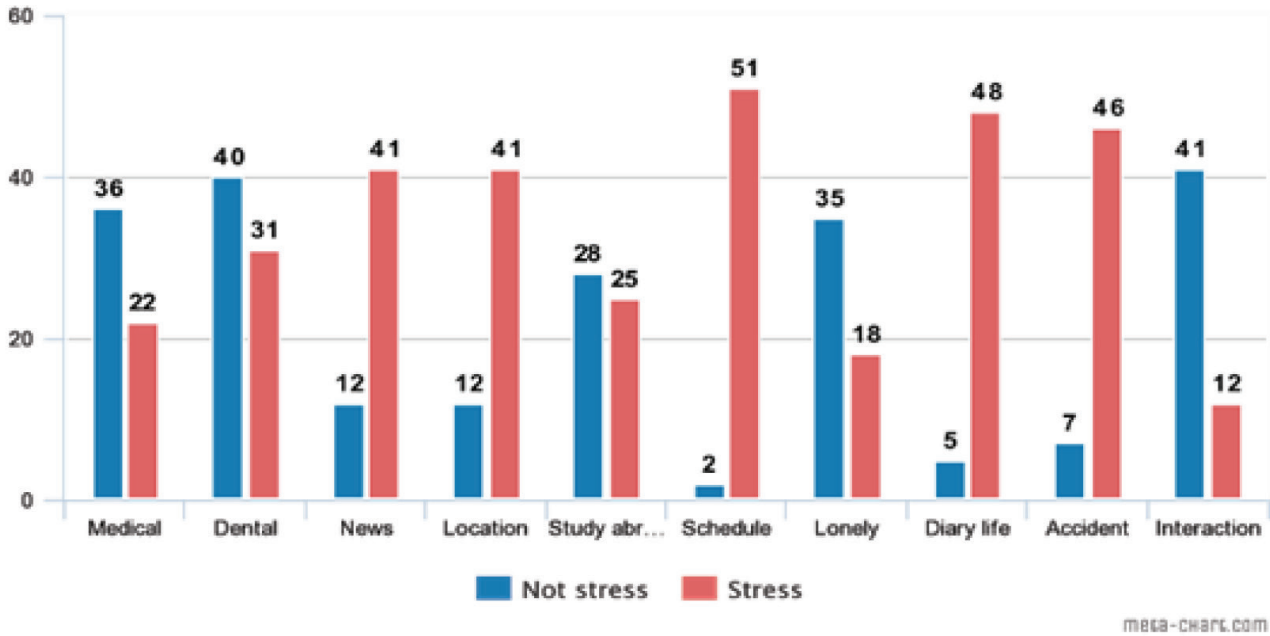

Figure 2 Factors affecting stress on online study during COVID-19

Figure 1 showed prevalence of stress from ST-5 questionnaires. 53 of preclinical year medical and dental students were stressed. 22 of them were medical students (41.51%) and 31 were dental students (58.49%). 76 people in preclinical year medical and dental students were not stressed. Figure 2 showed factors that affect to stress on an online study of Mae Fah Luang University preclinical year medical and dental students during COVID-19.

Discussion

Factors associated for stress in an online study during the COVID-19 situation among medical and dental students could be categorized into 3 categories; educational, learner and others physical-related factors.

Educational-related factors category were having problem to open the camera to communicate with teachers and classmates, happening of accidental situation during online study or examination (ex: black out,

run out of battery), unstable or unclear of studying schedule and insufficient of internet. Only factor of having problem to open the camera to communicate with teachers and classmates was found to be significantly associated with stress in our study. This finding was similar to the previous study from University of Galgotius in 2020 which describes 69.8% of students were having stress from an online study.[9] The study from Galgotius University was conducted as a cross-sectional observational study via google form questionnaires which collected 500 respondents from different schools and universities in India. Found that students were not comfortable with online studies which led to rising in their stress level.

Learner-related factors category included factor of changing in daily life, feeling isolated or lonely from family and decreasing of studying efficiency. The study was correlated with the previous study from Changzhi University in China.[10] The study was conducted in 2020 with 7143 college students using 7-item Generalized Anxiety Disorder Scale (GAD-7). As the result, found that 75.1% of the respondents had no symptoms of stress. And the proportions of students with mild, moderate, and severe stress were 21.3%, 2.7%, and 0.9%, respectively. Meanwhile, the correlation of Ali Abdullah Alomar research in 202011 also described as 44.1% of medical students in Saudi Arabia feel lonely and isolated from their family along with feeling of decreasing in their studying or working efficiency. They used a questionnaire with a Five-Point Likert Scale to collect the data. The questionnaire was distributed among 625 medical students through their emails. The cause of this factor could be from the cancelation and changing in flight policy declared by the government. This policy made medical students unable to go back homes to visit their friends or families like in normal situation. This category of factors might be alleviated by the use of social media technologies such as facetime-called, Line application or even emailing to each other. Factor of changing in daily life was another factor that was correlated with the study of Lee, Joyce[12] which was done in 2020 among 757 candidates via survey method. They described the online study could lead to stress problem due to the alteration of class attending which could now study anywhere they want. The problem in this category could be improved by the efficiency of planning and management from the education institutes like a government policy or a university support.

Other physical-related factors were inappropriate of place during online study or different of parent economic status. This factor was correlated with the study in stress of students in United states, USA during COVID-19 outbreak. A study of Lancker was correlated in this field.[13] They described that 5% of students living in Europe have a problem of no suitable place during online study along with 2.5% of students in United states who lived in rural were having problem with the inappropriate of climate changes led to their online study problem. The problem in this category might be improved by the efficiency of planning and management from the education institutes like a government policy. The government of the country must provide a good support and must support an online classroom which has the most likely condition to the normal classroom.

Conclusion

Prevalence rate and associated factors in stress on online study among Mae Fah Luang University preclinical year medical and dental students during COVID-19 pandemic is 41.5% in medical students and 58.5% in dental students.

Associated factors of stress in an online study of Mae Fah Luang University among preclinical year medical and dental students

during COVID-19 from this study can be categorized into 3 categories: educational, learner and other physical-related factors.

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Conflict of interest

There is no conflict of interest in this research.

Ethical approval

This study was approved by Human Research Ethics Committee of Mae Fah Luang University on 11th August 2020.

Informed consent

In this study, the informed consent had been done under the principle of research ethical standards in all of the data collected from target population.

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