

A Case Study of Stress and Depression during COVID-19 among high school students in Chiang Mai province

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Abstract: Stress is a condition that can be found in the general public and in normal adolescents, who often facing stress from school since the beginning of the COVID-19 outbreak in 2019, changing lifestyles and pattern of studying to be online, which may affect the mental state of the learners such as stress and depression.

The objective of this study is to study the effects of incidence and factors affecting stress and depression among high school students during the COVID-19 outbreak. This research is a descriptive research of MU from students in grades 10-12 at the private school during the month October-December 2021, a total of 522 people volunteered to participate in the study via Google Form by using the Stress Test (ST-5) and the Center for Epidemiologic Studies.-Depression Scale: CES-D) in Thai version and the test results were analyzed for factors related to stress and depression among respondents. The results showed that the majority of respondents had the highest stress level at 196 (37.55%), 144 had a moderate stress (27.59%), and 100 had a high stress (19.16%). It was found that the majority of respondents had no depression at 326 (64.25%), 196 (37.55%) were depressed. Gender, class, family financial impact from COVID-19, understanding of lessons family relationship and relationship with friends are the factors associated with depression of the respondents. The statistical significance ($p < 0.05$) was the understanding of the lesson and the family relationship. Therefore, greater monitoring of stress and depression levels among high school children should be encouraged to recognize potential mental health problems among students through lifestyle changes and from online learning.

Keywords: Stress, Depression, COVID-19, Online study, High School Students.

1. INTRODUCTION

Background: Stress is a condition that can be found in the general public and in normal adolescents who often facing stress from school. COVID-19 pandemic has changed students' lifestyles significantly on the shift to study online for a considerable period of time. This may affect the mental state of the learners such as stress and depression.

Objective: To assess stress and depression and to study factors affecting stress and depression during COVID-19 pandemic among high school students.

Study Method: This is a descriptive research which collected data from grade 10-12 students using ST-5 and CES-D test. Pearson's Chi-square was used to find factors affecting stress and depression of the participants.

Result: A total of 522 students participated in this study. Majority of the participants reported that they had the highest level of stress ($n=196$, 37.55%), followed by moderate level of stress ($n=144$, 27.59%) and high level of stress ($n=100$, 19.16%). The study showed that most participants reported having depression ($n=326$, 64.25%) while the rest have no depression condition. Factors associated with participants' stress level were gender, class level, family's financial effect from COVID-19, understanding from studying online, family relationship, risk perception of getting COVID-19 and

relationship among friends. While understanding via online, family relationship, COVID-19 news perception and risk perception of getting COVID-19 were associated with levels of depression of participants. From this study, it was recommended to investigate the level of stress and depression among students due to students' mental condition could be developing from lifestyle changes and from studying online.

Background and importance of the problem

Epidemic situation of viral infectious disease COVID-19 occurring around the world since 2019, it has affected the lives of people globally. In Thailand covid-19 was found the first time on January 31, 2020. After that, there was an outbreak across the country. From the data until January 1, 2022, found that 288,592,180 cases worldwide with 5,454,975 deaths. In Thailand, a total of 2,226,446 cases were found, with 21,708 deaths. COVID-19 affects the body by causing lung infections and can be severe to death, it also affects social life and causes anxiety to people all over the world both young and old.

Stress is the summation of natural human reactions that occur when faced with a problems, changes or various situations. Appropriate stress stimulates adaptation, development and creativity but excessive stress is detrimental to the body and mind, causing both discomfort of and mind unable to adapt or solve problems less than actual ability or suffer from physical diseases caused by stress, such as insomnia, headache, palpitations, irritability, anger, boredom, anxiety, including bad thoughts, lack of concentration at work, aggression, self-harm or attempted suicide [1]. Currently, stress among adolescents is likely to increase. According to data on mental health service hotline 1322 in fiscal year 2019 from the Rajanagarindra Institute of Child and Adolescent Mental Health, it was found that adolescents requested stress education services utmost (51.36%), especially among the 11-19 year olds. It's about love (21.39%) and depression (9.82%), anxiety (51.36%)[2]. In addition, the mental health assessment of 183,974 Thai children and adolescents under 20 years through the Mental Health Check application from January 1, 2020 to September 30, 2021, adolescents were found to have a high stress (28%), depression (32%), and suicide (22%).[3]

Major Depressive Disorder is a common and severe mental illness that causes feelings of depression. No interest in any environment, have sleep problems, feel worthless found in women more than men. It can affect schooling, socialization until leading to suicide [4]. The Department of Mental Health surveyed the prevalence of adolescent depression in schools in 13 office of health districts for a country-wide overview of children and students aged 11-19 years by using the assessment form (PHQ-A A). Prevalence of suicidal thoughts was found at 17.5%, 5.1% of adolescents is at risk of suicide at 9.8 times more likely to experience depression [5].

Most of the studies on adolescent stress and depression have been studied in normal situations and study using different types of tests. Stress study among high school students in 3 government schools in Thailand using a test. (T-PSS-10) scores were mostly on a scale of 17, indicating low levels of stress, and higher levels of stress were found to have more depression [6]. Using Education stress of high school students (ESSA) found high levels of stress (26.18%) and depression (18.55%). Suchitra Uratmanee study [7] among adolescent students preparing for university entrance exams by Suanprung Stress Test (SPST-20), High Stress (56.6%) and Severe Stress (22%) were used.

When there is an outbreak of the COVID-19 virus, there must find a way to prevent by keeping social distancing and lockdown. There has been transformed the education system from going to school to online learning system instead since March 18, 2020. This made a new normal learning system that bring both students and teachers out of the classroom to computer and tablet screens and acceleration to compensate for missing school hours. A more stringent and competitive exams and lack of interaction with society will extremely increase students' stress level and leading to depression, which many teenagers may not even be aware of it. If this is not helped properly, it can lead to suicide at last. UNICEF survey data via an online questionnaire between March 28, 2021 and April 6, 2020 from 6,771 youth aged from 15 to 19 years in Thailand, 7 out of 10 children and young people said the COVID-19 crisis has affected their mental health with stress, anxiety and boredom. In addition, more than half of children and youth feel stressed about studying, taking exams and continuing education. This was due to prolonged school closures. [8] Other studies have also shown the psychological impact of the outbreak. From a study of adolescents in the United States comparing before and after the COVID-19 situation, it was found that anxiety and stress increased [9] in Thailand and Saowalak [10] among students at the university level. It was found that most students had low stress (61.52%) and highest stress (4.72%) and stress studies by using the Perceived Stress Scale-10 and depression studies by using the Patient Health Questionnaire - 9 among high school students in many Asian countries, including Thailand and Europe, stress incidence is at 58.7% and high stress at 9.7% [11]. There is a high chance of stress due to the time of preparing for university entrance exams. During the epidemic situation, there are also few studies reported.

Objectives

To study the effects, incidence and factors affecting stress and depression from the epidemic COVID-19 virus in high school students and to be able to use the information obtained to find solutions and set guidelines or measures in accordance with the situation, establishing the concrete control and support measures. This is to prevent severe stress that leads to depression and other intense problems.

2. METHODOLOGY

This research used the Stress Assessment Scale (ST-5) and the Center for Epidemiologic Studies-Depression Scale (CES-D). The data were analyzed by using descriptive statistics standard deviation and using inferential statistics (Chi-Square) to analyze the relationship between factors.

Population and Samples

The number of students in grades 10-12, Montfort College, Secondary Level, Chiang Mai Province were 1,500 people. The sample number was calculated (Taro Yamane) for 315 people (Simple Random Sampling) by sending questionnaires to students in all classes during October-December 2021.

Tools

The tools used in this study were the Stress Assessment Scale (ST-5) and the Center for Epidemiologic Studies-Depression Scale (CES-D) developed by Orawan Silpakit were 5 item stress measurement to assess the feeling of the adolescents occurring over a period of 2-4 weeks, the assessment was divided into 4 levels: rarely (0 points), occasionally (1 point), often (2 points), and frequent (3 points) by assessment form on Google Form with the following components:

Part 1 General information, the question type was multiple choice (gender, grade level, learning plan, parent's occupation, and congenital disease).

Part 2 Questionnaire on the degree of impact on various topics during the COVID-19 epidemic with a scale from 1-5 by:

- Score 1 means Lowest
- Score 2 means Low
- Score 3 means Moderate.
- Score 4 means High
- Score 5 means Highest

Part 3 Stress Assessment Test (ST-5) [12], self-assessment question with a score from 0-3.

Score of 0 means Lowest or almost none.

Score 1 means Sometimes

Score 2 means Often.

Score 3 means Regularly.

Collecting scores and interpreting result by:

Score of 0– 4 is Low stress level.

Score of 5-7 is Moderate stress.

Score of 8–9 is High stressful.

Score of 10–15 is The most stressful

Part 4 Center for Epidemiologic Studies-Depression Scale (CES-D) in Thai version [13]. It is a standard self-assessment model for assessing adolescent depression developed by Umaporn Trangkasombut. The questionnaire is 20 items question, characterized by a single answer chosen from 4 level estimation scale for 1 week ago about depression with the choice of violence or the frequency of depressive symptoms, the resulting scores are added together, as follows:

- Not at all 0 points
- Sometimes 1 point
- Often 2 points
- All the time 3 points

Total scores can range from 0-60 points.

Adjustment of scores item 4 8 12 16 to 3 2 1 0

Interpretation a person with a total score above 22 is considered as depression which deserves a diagnosis for further assistance.

Protecting the rights of the sample group

This research was a research that collected data from students in grades 10-12 at Montfort College Secondary School, Chiang Mai Department. Anonymous data was collected via Google Form, questionnaire was sent to high school students, grade 10-12 of Montfort College School, Chiang Mai. Before participating in the research, everyone was informed of the research objectives, data collection process and the benefits to be gained from research through the text specified in the questionnaire before starting the inquiry and the participants gave their consent voluntarily to provide research data. If the participant wishes to withdraw the research information, it can be done at any time. All information is kept confidential by researchers.

3. RESULT

The study involved 522 questionnaires, most of them 320 (61.3%) and 202 (38.7%) grades of Grade 10 and 202 (38.7%) males. 278 people (53.3%) and 244 females (46.7%) want to study at the university level. Medical Science (Doctor, Dentist, Pharmacy) Number 215 people (41.2%), followed by engineering, technology and science, 98 people (18.8%), interested in business, 67 (12.8%) interested in other fields besides the options in the questionnaire, 92 (17.6%) and Interested in art, design and social sciences, 50 people (9.6%) respectively. The respondents had a grade of 3.50-4.00 of 388 students (74.3%), followed by a grade of 3.00-3.49 of 103 (19.7%) and at the 2.50-2.99 level of 31 students (5.9%).

Various impacts from the situation of the COVID-19 outbreak are as follows:

Family Finance Status: Respondents had a moderate financial impact ($M=3.14$, $SD=2.11$), students in grades 11-12 had higher financial impact ($M=3.2$, $SD=1.11$) than grade 10 ($M=3.04$, $SD=1.10$), female ($M=3.17$, $SD=1.17$) higher than male ($M=3.11$, $SD=1.06$). Respondents who are interested in studying engineering/technology/science had the highest financial impact ($M=3.30$, $SD=1.02$), followed by the ones who are interested in other fields of study ($M=3.23$, $SD=1.21$), then the ones who are interested in Business ($M=3.19$, $SD=1.02$) Arts/Design/Social Sciences ($M=3.18$, $SD=1.19$) and Medical Sciences (Doctor, Dentist, Pharmacist) ($M=3.00$, $SD=1.40$), respectively. Most affect to respondents is the group with GPA range 3.00-3.49 ($M=3.19$, $SD=1.02$), followed by a GPA of 3.50-4.00 ($M=3.15$, $SD=3.15$) and GPA of 2.50-2.99. ($M=2.77$, $SD=0.85$) respectively.

The impact on the respondents' lesson comprehension was at a low level ($M=2.89$, $SD=0.98$), grade 10 students moderately affected ($M=3.04$, $SD=0.89$) more than grade 11 and 12 ($M=2.79$, $SD=1.01$), males ($M=2.90$, $SD=1.01$) were slightly higher than females ($M=2.88$, $SD=0.93$). Impact on respondents who are interested in studying in the Faculty of Science. Physician (Medicine, Dentist, Pharmacy) ($M=3.08$, $SD=0.89$) more than Faculty of Engineering/Technology/Science ($M=2.86$, $SD=1.04$), Faculty of Business ($M=2.70$, $SD=0.94$) and other Faculties ($M=2.73$, $SD=1.10$), Arts/Design/Social Sciences ($M=2.70$, $SD=0.93$). Impact on groups with GPA range 3.00-3.49 is the most ($M=2.95$, $SD=1.04$), followed by GPA range 3.50-4.00 ($M=2.90$, $SD=0.96$) and GPA range 2.50-2.99 ($M=2.52$, $SD=0.93$).

The effect on family relationship of the respondents was moderate. Respondents who were students in grade 10 were more affected ($M=4.02$, $SD=0.90$) than those in grade 11 and grade 12 ($M=3.86$, $SD=1.01$), females were more affected ($M=4.00$, $SD=0.94$) than males ($M=3.85$, $SD=1.0$). Most of them studied in the Faculty of Business ($M=3.97$, $SD=1.03$), followed by the Faculty of Medical Sciences. (Medicine, Dentistry, Pharmacy) ($M=3.95$, $SD=0.92$), Faculty of Engineering/Technology/Science ($M=3.90$, $SD=1.07$), Faculty of Other Courses ($M=3.89$, $SD=1.02$) and Faculty of Arts. /Design/Social Sciences ($M=3.80$, $SD=0.97$). There had the greatest impact on the 3.50-4.00 GPA group. ($M=3.96$, $SD=0.97$), followed by GPA 3.00-3.49 ($M=3.92$, $SD=0.91$) and GPA 2.50-2.99 ($M=3.48$, $SD=1.09$) respectively.

The impact of various news acknowledgement about COVID-19 virus had a moderate impact on the respondents ($M=3.80$, $SD=0.92$), had a greater effect on grade 4 students ($M=3.86$, $SD=0.89$) than grade 11 and grade 12 ($M=3.77$, $SD=0.94$), females ($M=3.87$, $SD=0.88$) more than males ($M=3.75$, $SD=0.96$). There had an impact on people who would like to continue their studies in the Faculty of Medical Sciences (Medicine, Dentistry, Pharmacy) the most ($M=3.87$, $SD=0.86$), followed by the Faculty of Engineering/Technology/Science ($M=3.84$, $SD=1.00$), Faculty of Arts/Technology/Design/Social Sciences ($M=3.74$, $SD=0.90$), Other Faculties ($M=3.77$, $SD=0.95$) and Faculty of Business Administration ($M=3.63$, $SD=0.97$). There affected respondents with GPA range 3.50-4.00 ($M=3.84$, $SD=0.92$) the most, followed by GPA range 3.00-3.49 ($M=3.79$, $SD=0.88$) and GPA range 2.50-2.99 ($M=3.42$, $SD=0.99$) respectively.

For the risk perception of COVID-19 virus, there was a low mean impact (M=2.23, SD=1.08) of grade 10 students (M=2.25, SD=1.11), similar to grade 11 and grade 12 (M=2.22, SD=1.06). Females (M=2.30, SD=1.09) more than males (M=2.17, SD=1.08), had the greatest effect among people who would study in the Faculty of Business Administration (M=2.43, SD=1.22), followed by other Faculties (M=2.33, SD=1.11), Faculty of Medical Sciences (Medicine, Dentistry, Pharmacy) (M=2.28, SD=1.02), Faculty of Arts/Design/Social Sciences (M=2.02, SD=0.89) and Faculty of Engineering/Technology/Science, (M=2.00, SD=1.14), had the greatest effect on the respondents with GPA range 2.50-2.99 (M=2.42, SD=1.34), followed by GPA range 3.00-3.49 (M=2.23, SD=1.11) and GPA range 3.50-4.00 (M=2.21, SD=1.05) respectively.

The effect on peer relationship was moderate (M=3.06, SD=1.15) for grade 11 and grade 12 students (M=3.06, SD1.12), close to grade 10 (M=3.05, SD=1.19), males (M=3.07, SD1.178) were slightly higher than females. (M=3.04, SD1.11), affected the people who will continue to study in the Faculty of Medical Sciences (Medicine, Dentistry, Pharmacy) (M=3.07, SD=1.10) the most, followed by other Faculties (M=3.00, SD=1.14), Faculty of Business (M=2.96, SD=1.15), Faculty of Arts/Design/Social Sciences (M=2.67, SD=1.04), Faculty of Engineering/Technology/Science (M=1.24, SD=2.96) and affected the group with GPA 2.50-2.99 the most (M=3.16, SD=1.21), followed by the GPA 3.00-3.49(M=3.09,SD1.18) and GPA 3.50-4.00 (M=3.04, SD=1.13) respectively (Table 1).

Table 1: Demographic factors and their impact on respondents (N=522)

Demographic Factor	N (%)	Financial Effect during COVID-19 M (SD)	Lesson Understanding M (SD)	Family Relationship M (SD)	COVID-19 Information Acknowledgment M (SD)	Acknowledgment of the risk perception of COVID-19 M (SD)	Peer Relationship M (SD)
Grade							
10	202 (38.7)	3.04 (1.10)	3.04 (0.89)	4.02 (0.90)	3.86 (0.89)	2.25 (1.11)	3.05 (1.19)
11/12	320 (61.3)	3.20 (1.11)	2.79 (1.01)	3.86 (1.01)	3.77 (0.94)	2.22 (1.06)	3.06 (1.12)
Gender							
Male	278 (53.3)	3.11 (1.06)	2.90 (1.01)	3.85 (1.0)	3.75 (0.96)	2.17 (1.08)	3.07 (1.178)
Females	244 (46.7)	3.17 (1.167)	2.88 (0.93)	4.00 (0.94)	3.87 (0.88)	2.30 (1.09)	3.04 (1.11)
Faculty desire at the university level							
Medical Sciences (Medicine, Dentistry, Pharmacy)	215 (41.2)	3.00 (1.40)	3.08 (0.89)	3.95 (0.92)	3.87 (0.86)	2.28 (1.02)	3.07 (1.10)
Engineering/Technology/Science	98 (18.8)	3.30 (1.02)	2.86 (1.04)	3.90 (1.07)	3.84 (1.00)	2.00 (1.14)	1.24 (2.96)
Business Administration	67 (12.8)	3.19 (1.02)	2.70 (0.94)	3.97 (1.03)	3.63 (0.97)	2.43 (1.22)	2.96 (1.15)
Art/Design/Social Science	50 (9.6)	3.18 (1.19)	2.70 (0.93)	3.80 (0.97)	3.74 (0.90)	2.02 (0.89)	2.67 (1.04)
Others	92 (17.6)	3.23 (1.21)	2.73 (1.10)	3.89 (1.02)	3.77 (0.95)	2.33 (1.11)	3.00 (1.14)
GPA							
2.50-2.99	31 (5.9)	2.77 (0.85)	2.52 (0.93)	3.48(1.09)	3.42(0.99)	2.42(1.34)	3.16(1.21)
3.00-3.49	103 (19.7)	3.19 (1.02)	2.95 (1.04)	3.92 (0.91)	3.79 (0.88)	2.23 (1.11)	3.09 (1.18)
3.50-4.00	388 (74.3)	3.15 (3.15)	2.90 (0.96)	3.96 (0.97)	3.84 (0.92)	2.21 (1.05)	3.04 (1.13)
Total	522 (100)	3.14 (2.11)	2.89 (0.98)	3.92 (0.97)	3.80 (0.92)	2.23 (1.08)	3.06 (1.15)

For proportion of stress severity level among 522 respondents, the most common level was highest stress (37.55%, n=196), moderate stress (27.59%,n=144), high stressful (19.16%(n= 100) and low stress (15.70% (n=82). Most of the respondents at the Secondary School Level had the highest level of stress (30.20%, N=61), followed by moderate stress (29.70%, n= 61). Most students in grades 11-12 had the highest level of stress (42.19%, n= 135), followed by moderate stress (26.25%, n=84) (Table 2).

Table 2: Respondents' perception of stress (ST5) (N=522)

Stress Level	Low 0-4	Moderate 5-7	High 8-9	Highest 10-15	Total
Grade 10	38 (18.81)	60 (29.70)	43 (21.29)	61 (30.20)	202
Grade 11 & 12	44 (13.75)	84 (26.25)	57 (17.81)	135 (42.19)	320
Total	82 (15.70)	144 (27.59)	100 (19.16)	196 (37.55)	522

Most of the respondents (62.45%, n=326) had no depression, found depression was at 37.55% (n=196). The respondents in grades 11-12 found depression at 41.25% (n=132). The respondents in grades 10 found depression at 31.68% (n=64) (Table 3).

Table 3: Respondents' perception of depression (Center for Epidemiologic Studies-Depression Scale: CES-D)

Level	No Depression (21 points or less)	Had Depression (21 points up)	Total
Grade 10	138 (68.32)	64 (31.68)	202
Grade 11 and 12	188 (58.75)	132 (41.25)	320
Total	326 (62.45)	196 (37.55)	522

From the analysis of factors related to stress and depression of the respondents by Chi-Square, the factors affecting stress by statistically significance ($p < 0.05$) were gender, class level, family financial impact from COVID-19, lesson understanding, family relationship and relationship with friends. The factors associated with depression of the respondents significantly ($p < 0.05$) was lesson understanding and family relationship (Table 4).

Table 4: Factors Associated with Stress and depression of the respondents

Variable	Stress P-Value	Depression P-Value
Gender	.001	.273
Grade	.020	.545
Faculty preference in university level	.688	.066
GPA	.830	.778
Financial Impact from COVID-19	.035	.250
Lesson Understanding	.000	.000
Family Relationship	.000	.000
Information Acknowledgement of COVID-19	.076	.001
Risk Perception of COVID-19 infection	.026	.001
Peer Relationship	.001	.173

4. DISCUSSION

In the circumstance of the COVID-19 pandemic affecting people of all ages around the world not only affects the body, but also affects the mental and social state, especially in youth and adolescents who are in school age. This leads everyone to adapt to living a new normal way of life with social distancing. This also causes psychological effects, including increased anxiety, stress and depression. As reported in a study in the United States [9] and in a study of adolescents in Asia and the West during the COVID-19 lockdown, the incidence of anxiety was 4:10, stress 1:10, depression 6:10, high stress (9.7%) and average depression at all levels (58.7%) [11].

This study examined the impact of the COVID-19 epidemic situation in 6 areas. The impacts were similar to other studies but the proportions and violence in different areas may be different. Most of the respondents were affected by this research. Most of them were moderate in many aspects, including family relationship, awareness of the COVID-19 outbreak, family financial status, school assignments,

relationship with friends. The aspect that most affected was the relationship with the family. The least affected areas were concerns about the risk of infection and understanding of the lessons compared to the survey of UNICEF surveyed among children and young people under 30 years. Most of them are 15-19 years old, those studying in high school, were found to be affected and worried in 2 major areas; self-impact, family financial concern (53.98%), education (53.98%), infection (52.55%), opportunities for further education (47.82%), staying at home (46.27%), and broader impacts and concern on youth including family financial status (84.66%), mental health (74.58%), efficiency in studies (65.77%) future job opportunities (51.91%), excessive spending time on Internet (35.73%) [8]. It appeared that financial and economic concern are still among the top impacts among school children. However; the moderate impact may be due to the fact that it is a private school where most parents are relatively wealthy.

Concern about the risk of infection and understanding of the lesson were less affected, which may differ from other studies, likely due to this study being that respondents had a better understanding of how to protect and avoid themselves. They may think that it is still a distant matter and most of them are already well educated children. That is, most of the grade point averages in the range 3.50-4.00 (74.3%, n=388)

When comparing the effects received in each population group, it was found that the severity of the effects in each aspect of grade 10 compared to grade 11 and 12, was similar. Grade 10 had a slightly higher mean level than grade 11 except for the family economy and peer relationship. Females were affected on average slightly higher than males with the exception of school workloads and relationship with peers. Females are naturally more diligent in their homework and interacting well with their peers. They may reach out to their peers through other channels, such as social media. When considering the impact among students aiming for higher education in different faculties, students aim to continue further studies in Medical Sciences (Medicine, Dentistry, Pharmacy) had a higher average impact in each area than students aiming for further study in other subject areas except economic and concern about risk of infection because this group may study harder than other study programs, causing high anxiety in many aspects. Students with different GPAs had similar impacts on average at a moderate to low level.

Although the respondents were moderately affected, there were varying degrees of distribution of stress, and the highest level of stress was found to be in the standard stress test (ST-5). The test (10-15) was the most stressful (37.55%, n=196), the highest stressful level (8-9)(19.16%,n=100) higher than the stress study among students at the high school level caused by learning (Educational Stress). There was found that 16.41% severe stress because it was during the epidemic of COVID-19, supplemented by stress from previous studies and education of Suchitra Rattanamanee [7] among adolescent students preparing for university entrance exams using the Suanprung Stress Test (SPST-20), the level of stress was severe (22%).

The analysis revealed that the factors affecting stress ($p < 0.05$) were gender, grade, family financial impact from COVID-19, understanding of lessons by online learning, family relationship, perception for the risk of contracting COVID-19 and relationship with friends. Females naturally tend to be more stressed than males in many studies [11] [9]. For the grade factor, students in grades 10-12 have to prepare for university entrance exam and study harder than grade 10 which affects stress. Consistent with the study of grade 12 high school students in Samut Songkhram provinces, stress levels were severe (22.2%) and high levels (56.6%) [7]. Online learning can result in lower learning efficiency as the supervision of the instructor may not be comprehensive. Teaching materials may not be interesting or students may not study hard. [14] Chiang Mai is a tourist city with many tourists from both abroad and domestic to travel in each year. During the outbreak of COVID-19, tourism businesses in Chiang Mai have been affected [15]. As a result the economy in the province was decreased and

affect the family's finances. A study on depression, anxiety and stress found that the financial impact of the COVID-19 situation was one of the factors contributing to stress [16].

A recent study on the prevalence of depression in normal Thailand among high school students of the Department of Mental Health in Thailand found depression at 17.5% (PHQ-A > 10) [5]. In the grade 12 students, Samut Songkhram Province, which was preparing for the university entrance examination, found that adolescents (21.4%) had a statistically significant level of depression [7] and a study on the incidence of depression [17] among high school children in Bangkok using the same test similar to this study (CES-D), found depression (17.4%) among general high school children [6], the incidence was at 18.55%. The incidence of depression during the viral epidemic was a study of adolescents in Asia and the West during the coronavirus outbreak, depression was found at 56.4% [11] which higher than normal and a study by (Na Jiang) in Thailand that found mild and moderate depression (36.9%), severe (9.3%) [18] in this study where the incidence of clinically significant depression (CES-D was 22 years up) (37.55%) among the respondents. It has shown that the COVID-19 pandemic markedly increased depression among high school respondents.

Factors affecting the incidence of depression. In other studies, different factors have been found which probably depends on the context of each place such as a grade less than 2.0, income factor of the family, female and those who were detained in homes and schools [9]. From the study, [11] it found factors associated with depression including female high school senior in particular, females were associated with both stress and depression. In this study, the factors affecting the incidence of depression were workload from school, family relationship, awareness of the news of the COVID-19 and the risk of contracting the COVID-19.. These 2 factors let us focus and aware of the problems and solutions.

The situation of COVID-19 outbreak affecting mental health of high school students by increasing stress and depression from normal study. If these children must face long-term problems and not being solved, it will result in severe detriment to the child, society. For this reason, many measures and all sectors should play an important role in reducing stress during this situation especially the reduction of risk factors that contribute to stress and depression. Schools should reduce the burden of students for doing at home. The family should support, encourage, giving love and warmth and be a good counselor when there is a problem. In addition, people in society must help to take care of each other to reduce the spread of the infection. The perception of the news also plays an important role, so the content of the news from the media should be in a creative way without panic listeners. If these children must face long-term problems without fixing, It will result in severe detriment to the child and society. Various agencies relevant should be carried out especially the preparation, practice, correction, reduction of several risk factors and providing guidelines or measures to help solving problems so that children do not have to face them alone.

Limitation

The study was conducted during the COVID-19 outbreak. Data collection is done through online channels. It is not possible to inquire directly from the respondents (Face to Face Interview), which may affect the answers received. In addition, the cooperation in answering the questionnaire may not be as thorough as it should be. This research collected data from October to December 2021 when Thailand has implemented various measures to control the spread of the COVID-19 virus including allowing students to study online from home. The fact that students study online from home may affect the level of perception of the risk of contracting the COVID-19 because students may leave home less than usual. The students studied in the grade 12 answered the questionnaire in small numbers because must prepare for the exam. This research was collected by using the online Google Form, accessible only to people with a smartphone and those who have devices to connect to Internet. All of the samples had a device to connect to Internet. Thus, the collection of information can reach the population thoroughly.

5. CONCLUSION

Based on the results of this study, 522 respondents were mostly affected by the COVID-19 outbreak situation at a moderate level. The level of stress severity of most respondents was found at the most stressful (37.55%, n=196), followed by moderate stress (27.59%, n=100). Most of the respondents (62.45%, n=326) had no clinically significant depression. Factors affecting stress ($p < 0.05$) were analyzed, i.e. gender, class level, family financial impact from COVID-19, understanding of lessons via online learning, family relationship, perception of the risk of contracting COVID-19 and relationship with friends. The factor affecting the depression of the respondents was the understanding of the lessons via online learning, family relationship, the impact of the awareness of the COVID-19 and the perception of the risk of contracting the COVID-19.

REFERENCES

- [1] ผศ. นพ.พนม เกตุมาน,พญ..วินัดดา ปิยะศิลป์. (2020). Stress Management in Covid-19 [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 64, จาก Stress Management in Covid-19 – Thai Pediatrics
- [2] กรุงเทพธุรกิจ. (2563). วัยรุ่นไทยปรึกษา “ปัญหาเครียด” มากสุด แนะเทคนิคจัดการความเครียด [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 64, จาก กรมสุขภาพจิต เผยวัยรุ่นไทยปรึกษา “ปัญหาเครียด” มากสุด แนะเทคนิคจัดการความเครียด (bangkok biznews.com)
- [3] Hfocus. (2564). ประเมินสุขภาพจิตเด็กและวัยรุ่นไทยกว่า 1.8 แสนราย พบเครียดสูง เสี่ยงซึมเศร้า ติดจอติดเกมออนไลน์มากขึ้น [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 64, จาก <https://www.hfocus.org/content/2021/10/23307>
- [4] AMERICAN PSYCHIATRIC ASSOCIATION. (2563). What Is Depression? [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 64, จาก <https://www.psychiatry.org/patients-families/depression/what-is-depression>
- [5] Panyawong W, et al. (2020). Prevalence of depression and suicidal risks in Thai adolescents(Doctoral dissertation). Journal of Mental Health of Thailand, 28(2), 136-149. Retrieved from <https://he01.tci-thaijo.org/index.php/jmht/article/download/210760/164768/>
- [6] Supat Assana,Wongsa Laohasirivong,Poonsri Rangseekajee. (2017). Quality of Life, Mental Health and Educational Stress of High School Students in the Northeast of Thailand. Journal of Clinical and Diagnostic Research,Vol-11(8), VC01-VC06
- [7] Sujitra Uratanamnee, Supawadee Lerdsamran. (2017). STRESS ANXEITY AND DEPRESSION OF HIGH SCHOOLTEENAGER IN PREPARATION FOR UNIVERSITY ADMISSION. วารสารการพยาบาลจิตเวชและสุขภาพจิต, 31(2),1-94. Retrieved from <https://he02.tci-thaijo.org/index.php/JPNMH/article/view/105144/83575>
- [8] UNICEF. (2563). การสำรวจผลกระทบและความต้องการของเด็กและเยาวชนในสถานการณ์โควิด-19 [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 64, จาก <https://www.unicef.org/thailand/th/media/4031/file>
- [9] Mariah T. Hawes, Aline K. Szenczy, Daniel N. Klein, Greg Hajcak, Brady D. Nelson. (2021). Increases in depression and anxiety symptoms in adolescents and young adults during the COVID-19 pandemic. Cambridge University Press. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7844180/>
- [10] Kritkantorn Suwanaphant, Saowaluk Seedaket, Lampung Vonok, Supat Assana, Wannasri Wawngam, Kunthida Kingsawad, Phanutchanat On-Kail. (2563).Factors associated with stress due to corona virus disease 2019 (COVID-19) pandemic among students of the Faculty of Public Health and Allied Health Sciences, Praboromarajchanok Institute. ขอนแก่น. สถาบันพระบรมราชชนก. Retrieved from <https://he01.tci-thaijo.org/index.php/JHR/article/download/241549/166216/>
- [11] Gunn Pungpapong, Rasmon Kalayasiri. (2021). Depression and Anxiety Plus Levels of Stress among Secondary School Students during the COVID-19 Lockdown: an Online Cross-Sectional Survey. Journal of Health Science and Medical Research,40(2),157-171. Retrieved from <https://www.jhsmr.org/index.php/jhsmr/article/download/824/874>
- [12] สถาบันสุขภาพจิตเด็กและวัยรุ่นราชนครินทร์. (2554). แบบประเมินความเครียด (ST-5) [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 2564, จาก แบบประเมินความเครียด ST5 : สถาบันสุขภาพจิตเด็กและวัยรุ่นราชนครินทร์ (camri.go.th)
- [13] แพทย์หญิงอุมาพร ตรังคสมบัติ. (2540). แบบประเมินภาวะซึมเศร้าในวัยรุ่น (Center for Epidemiologic Studies-Depression Scale: CES-D) ฉบับภาษาไทย [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 64, จาก แบบคัดกรองโรคซึมเศร้า 2Q9Q8Q ver2.pdf (moph.go.th)
- [14] กรุงเทพธุรกิจ.(2563). 6 ปีจ้ย เรียนออนไลน์ให้ได้ผล ในมุมมองของ ดร.วรากรณ์ สามโกเศศ
- [15] [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 64, จาก <https://www.bangkokbiznews.com/lifestyle/881331>
- [16] ข่าวสดออนไลน์. หอการค้าเชียงใหม่ เผยเศรษฐกิจหดตัวสูง ท่องเที่ยวสูญรายได้ต่อเนื่อง 2 ปี ปิดกิจการเพียบ [ข้อมูลอิเล็กทรอนิกส์], สืบค้นเมื่อ 9 มกราคม 64, จาก https://www.khaosod.co.th/around-thailand/news_6607236

- [17] Apinya Ingard, Natthaporn Karnjanapoomi, Pornphan Sheoychitra. (2020). Undergraduate Students Anxiety during the Coronavirus Disease Epidemic in 2019. MUT Journal of Business Administration. Retrieved from <https://so04.tci-thaijo.org/index.php/journalmbsmut/article/view/248062/168555>
- [18] Nicharpat Rujiradraporn, Umaporn Trangkasombat.(2552). Depression in Senior High School Students in Bangkok Metropolis. J Psychiatr Assoc Thailand, 54(4), 337-346. Retrieved from <http://www.psychiatry.or.th/JOURNAL/54-4/01-Nicharpat.pdf>
- [19] N. Jiang, Siaw Yan-Li, KanitPamane, Joko Sriyanto.(2021). Depression, Anxiety and Stress During the COVID-19Pandemic: Comparison Among Higher Education Students in Four Countries in the Asia-Pacific Region. Journal of Population and Social Studies (JPSS), 29, 370-383. Retrieved from <https://so03.tci-thaijo.org/index.php/jpss/article/view/244216/168568>