



Knowledge, Attitude and Preventive Behavior Toward COVID-19 of High School Students In Bangkok

Nichapha Chaisuriyanuthit
St. Francis Xavier Convent School

***Corresponding Author:**
Nichapha Chaisuriyanuthit
St. Francis Xavier Convent School

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Background: COVID-19 is a pandemic disease that has spread rapidly, leading to widespread infections, deaths, and disruptions to daily life. Coronaviruses (CoVs) are a large family of viruses, several of which cause respiratory diseases in humans, from the common cold to more rare and serious diseases. To prevent coronavirus disease from further spreading is to have good preventive behavior.

Purpose: To assess COVID-19 related knowledge, risk perception of contracting COVID-19 and to study predictive factors toward COVID-19 preventive behavior

Methodology: This was a cross-sectional observational study. An online questionnaire was purposely developed and made available through Google Form between 23-07-21 and 13-08-21. All students were eligible and were invited to participate in the study.

Findings: There were 171 participants, mostly fourth graders (35.70%, $n = 61$). Most participants had no underlying condition ($n = 137$, 80.10%). The majority of participants reported living in a single house ($n = 109$, 63.70%) and living with a sensitive group (a senior or below 12-year-old child) ($n = 94$, 55.00%). Regarding COVID-19-related knowledge, most participants had a moderate average score ($M = 11.12$, $SD = 1.99$). Grade 12 students showed the highest average COVID-19-related score ($M = 11.51$, $SD = 2.02$) among other classes. Concerning the risk perception of contracting COVID-19, participants reported a low level of risk perception of contracting COVID-19 ($M = 2.05$, $SD = 0.93$). However, most participants engaged in high levels of COVID-19 preventive behavior ($M = 45.34$, $SD = 5.49$). The generalized linear model also showed that there was no predictive factor predicting COVID-19 preventive behavior among participants.

Conclusion: This study revealed that participants had a moderate knowledge about COVID-19, a low level of risk of perception of contracting COVID-19, nevertheless the preventive is high, so the school or the parent should give them the information about COVID-19 to help them to understand and to protect themselves correctly and always.

Keywords: COVID-19, Knowledge, Attitude, Preventive Behavior

Introduction

COVID-19 has been a global health crisis that has impacted the lives of millions of people worldwide. Since its emergence in 2019, it likely originated in a “wet market” in Wuhan, China. A wet market refers to a marketplace with vendors selling live animals such as cats, dogs, rabbits, fish, and bats. The name “wet market” is a reference to the need to constantly

wash the floors in these venues due to animal slaughter and to the melting ice used to preserve the food⁽¹⁾ by the coronavirus named SARS-CoV-2 has spread rapidly, leading to widespread infections, deaths, and disruptions to daily life. Coronaviruses (CoVs) are a large family of viruses, several of which cause respiratory diseases in humans, from the

common cold to more rare and serious diseases such as the Severe Acute Respiratory Syndrome (SARS) and the Middle East respiratory syndrome (MERS), both of which have high mortality rates and were detected for the first time in 2003 and 2012, respectively. CoVs are divided into four genera: alpha-, beta-, gamma- and delta-CoV. All CoVs currently known to cause disease in humans belong to the alpha- or the beta-CoV. Many of these CoVs can infect several animal species as well ⁽²⁾ Symptoms of the patient that got COVID-19 include: fever, fatigue, a loss or change to sense of smell or taste and dry cough is likely in the early stage of illness, however some patients may not progress to more severe illness. Dyspnoea is said to be common in hospitalized patients, while vital signs are reported to be generally stable at the time of admission. Older patients with an underlying health condition are more likely to progress to severe infection. A variety of abnormalities may be expected on chest X Rays, but bilateral lung infiltrates appear to be common, similar to what is seen with other types of viral pneumonia. The first case of COVID-19 outside China, a woman from Wuhan, was identified in Thailand on 12 January 2020. ⁽³⁾ On January 31, 2020, the first Thai case was diagnosed in a taxi driver who had no history of travel outside the country but who had recently had a number of passengers who were Chinese. From that time, the number of cases of Covid-19 in Thailand increased slowly but steadily, both from imported cases as well as local transmission. ⁽⁴⁾ and since then, the government has taken several measures to control the spread of the virus and also the COVID-19 pandemic has brought about unprecedented challenges to public health, education, and social norms worldwide.

As of March 2023, there have been over 760 million confirmed cases and 6.8 million deaths globally, with Thailand reporting over 4 million cases and 33,935 deaths ⁽⁵⁾ and at least 139,750,962 doses of COVID vaccines so far. Assuming every person needs 2 doses, that's enough to have vaccinated about 100.4% of the country's population. ⁽⁶⁾ In response, governments, healthcare professionals, and individuals have implemented various measures to contain the spread of the virus, including vaccination, physical distancing, mask-wearing, and hygiene practices. The measures to combat Covid-19 in Thailand by The Ministry of Public Health (MOPH) ;

public health measures: These measures include preparedness in terms of resources and personnel capacity to implement appropriate public health interventions in response to Covid-19. These actions include active and passive surveillance, active case finding, contact tracing, preparing resources and lab capacity to diagnose Covid-19 infection, preparing village health volunteers (VHV) to conduct community-based action in the cases of an outbreak, and preparing quarantine facilities and services, etc. The emphasis is on efficient response with appropriate target populations, but especially the non-Thai migrant worker group and those entering Thailand through unofficial border crossings. There should be special prevention measures for vulnerable groups such as the elderly, those with pre-existing conditions, and marginalized populations. The general population should be instructed and urged to practice DMHT: Distancing, Mask wearing, Hand hygiene, and Testing for Covid-19. Clinical measures and preparedness for a clinical response: This includes ability to properly care for symptomatic Covid-19 patients and reduce impact on non-Covid-19 patients. This measure includes staff education, preparation of materials and supplies, including medications and clinical devices, especially personal protective equipment (PPE), beds, and other requirements for a crisis situation. There should be an efficient communication and information system to keep everyone informed, and guidelines for converting facilities into "hospitals" or field hospitals, with adoption of the "New Normal of Medical Services," among other measures. Social measures to reduce risk of exposure to Covid-19: This includes social distancing, refraining from non-essential travel, control of risk locations, and limiting the movement of migrant laborers. Measures to care for mental health: These measures include maintenance and rehabilitation of mental health problems attributed to the Covid-19 epidemic and response. Some people may be frightened and stressed out from fear of infection or having a relative or friend who is infected with Covid-19. These people need mental health care to prevent their condition from worsening, as well as attending to their physical health needs. There need to be stress reduction activities for the general population as well as front-line service providers. Everyone needs to know when and how to seek clinical care. ⁽⁴⁾

However, the success of these measures depends largely on people's knowledge, attitudes, and behaviors toward COVID-19. High school students, in particular, are a critical demographic to study, given their unique developmental stage, socio-cultural context, and potential impact on their families and communities. Research has shown that society conditions or the strict circumstance can control the behavior that contributed to high preventive behavior that would prevent this disease even though knowledge about COVID-19 is moderate. In addition breaking the chain of infection is the process that is controlled by the infection control and contact tracing to inhibit infections of pathogens in more people which can be done by stopping the cycle of chain of infection. To prevent COVID-19 from further spreading, breaking the chain of infection is required. One of the most important actions that needing to break the chain of infection is to set a healthy behavior in each individual. ⁽⁷⁾ The results of this research can have significant implications for public health policy, education, and communication regarding COVID-19 prevention among high school students in Bangkok. By identifying the factors that influence their knowledge, attitudes, and behaviors.

Methods

Participants and procedure

This was a cross-sectional observational study. An online questionnaire was purposely developed and made available through Google Form between 23-07-21 and 13-08-21. All students were eligible and were invited to participate in the study. The invitation was sent by Google Form to the social media closed-groups. The students have access to the groups, so they all receive an invitation. In this invitation, information about the objectives of the study as well as the ethical guarantee of confidentiality and anonymity in the data collected as stated in the informed consent were explained. Participation was completely free and voluntary, and no personal data were collected from any participant. Of the 297 students, a total of 170 students/who participated in the study (response rate: 5%).

Instrument

The questionnaire was developed based on a literature review including (1)the study about how

COVID-19 disease spread to the others, how to prevent our self from COVID-19, the current situation of COVID-19 disease and common knowledge about COVID-19 from WHO, Department of disease control ;Ministry of public health Thailand a study personal information, Knowledge in COVID-19, Perception of risk contracting COVID-19 and Preventive behavior toward COVID-19 , [which did you review, information from i.e. WHO, CDC] (2)study related research, several common items were used to assess each of the dimensions analyzed in this study.

A preliminary version of the instrument was reviewed by three experts to validate its content. A pretest was then performed with a small sample of students in another school to test for comprehension and difficulty. All the questions remained without modifications. The psychometric characteristics of the questionnaire were tested, as described in the statistical analysis subsection.

The final version of the questionnaire contained 30 questions; 4 about sociodemographic data (grade, medical condition, habit and number of residents) and 26 items divided into 3 sections.

COVID-19 Related knowledge: this scale consisted of 15 questions related to COVID-19 The participants were asked to choose the correct answer from multiple choices of 4. One point was assigned to each correct answer, while providing an incorrect answer received zero points. The sum of all items was made hence higher scores corresponded to a higher level of knowledge.

Risk perception of getting COVID-19 : this scale was composed of 1 item, and response categories consisted of a five-point likert scale (from 1-not risk, to 5 strongly risk) with the highest score corresponding to more risk in contracting COVID-19. The higher values corresponded to a more risk in contracting COVID-19.

Preventive behavior toward COVID-19 : this scales referred to the number of preventive behaviors adoption and included 10 items about how frequently you prevent yourself from getting COVID-19 for example social distancing, wearing mask, washing your hands and when you feel uncomfortable you will see the doctor instantly. The data analysis reports to 10 items. Each item was answered using a five-

point scale (From 1-Never to 5-Always), with one point assigned to each behavior that was always practiced. The number of behaviors practiced was added up. A high score on this scale indicated good preventive behaviors, ranging from 1 to 5.

Statistical analysis

The analysis was performed using SPSS for windows, version 26. To analyze psychometric characteristics of the scales, an exploratory factor analysis, using principal component analysis with varimax rotation, was carried out. Reliability was analyzed through the calculation of item-total correlation coefficients and Cronbach's alpha (α) for the scales of the questionnaire. The descriptive analysis were presented in absolute (n) and relative (%) frequencies, mean (M) and standard deviations (SD). To assess the differences between the outcome variables (Knowledge, Risk perception of getting COVID-19 and Preventive behavior toward COVID-19) and the sociodemographic characteristics, considering the sample size, independent t-test and the ANOVA were used as appropriate. The correlations between the outcomes of the study were calculated by Pearson's correlation. 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% IC) were presented. Statistical significance was defined as $p < 0.05$.

Ethical Considerations

This research uses an anonymous data collection method to collect data from grade 10-12 Students of St. Francis Xavier Convent School, Bangkok, Thailand, by using Google form. The invitation was sent to the social media groups. In these invitations, information about the study's objectives and the ethical guarantee of confidentiality and anonymity in the data collected as stated in the informed consent was explained. Participation was completely free and voluntary, and no personal data were collected from any participant.

Result

This study comprised a total of 171 students. The sociodemographic characteristics of the sample are presented in Table.1 Most students were grade 10 (n=61, 35.7%) and the same number in grade 11

and 12 (n=55, 32.2%). Most students had no congenital disease (n=137, 80.1%), lived in a single house (109, 63.7%) and lived alone (n=1, 0.6%).

Regarding knowledge about COVID-19, students revealed moderate knowledge about COVID-19, correctly answering mean of 11.12 (SD=1.99) questions in a total of 12. Student grade 12 showed the highest knowledge score (M=11.51, SD=2.02) and the rest are grade 10 mean of 11.08 (SD=2.21) and grade 11 mean of 10.78 (SD=1.66), respectively. Students who had congenital disease (M=11.15, SD=1.05) had higher knowledge about COVID-19 than who had no congenital disease (M=11.12, SD=2.14). Student who live in townhouse/terraced house and Live with family have children under 12 and elderly had the highest COVID-19 knowledge score of 11.28 (SD=1.82) and 11.23 (SD=2.06)

Concerning risk perception of getting COVID-19, students revealed a poor level of risk perception of getting COVID-19, correctly answering the mean of M=2.05 (SD=0.93) questions in a total of 5. Student grade 12 showed the highest risk perception of getting COVID-19 score (M=2.16, SD=0.94), grade 10 (M=2.00, SD=0.95) and grade 11 (M=2.00, SD=0.92) have the same score. Student who had congenital disease (M=2.26, SD=1.05) had more concerning with risk perception of getting COVID-19 than student who had no congenital disease (M=2.00, SD=0.90). Most students who had the risk perception of getting COVID-19 lived in single house (M=2.08, SD=0.96) and live with family that have children under 12 and elderly (M=2.21 SD=1.01).

COVID-19 preventive behavior, student revealed good preventive behavior, correctly answering mean of M=45.34 (SD=5.49) question in a total of 50. Student grade 12 (M=46.02 SD=3.75) showed the highest COVID-19 preventive behavior, grade 11 (M=45.35, SD=4.35) and grade 10 (M=44.72, SD=7.31). Students who had congenital disease (M=46.24, SD=3.14) had more COVID-19 preventive behavior than student who had no congenital disease (M=45.12, SD=5.95). Student who live in townhouse/terraced house and live with family that don't have children under 12 and elderly had the highest COVID-19 knowledge score of 45.77 (SD=5.12) and 45.79 (SD=5.95)

Table 1. Differences in outcomes according to the sociodemographic characteristics of participants (N = 171)

Sociodemographic characteristics	N (%)	Knowledge about COVID-19 (Range 0-15) M (SD)	Risk perception of getting COVID-19 (Range 1-5) M (SD)	COVID-19 preventive behavior (Range 10-50) M (SD)
Grade level				
Grade 10	61 (35.7)	11.08 (2.21)	2.00 (0.95)	44.72 (7.31)
Grade 11	55 (32.2)	10.78 (1.66)	2.00 (0.92)	45.35 (4.53)
Grade 12	55 (32.2)	11.51 (2.02)	2.16 (0.94)	46.02 (3.75)
Have underlying condition				
No	137 (80.1)	11.12 (2.14)	2.00 (0.90)	45.12 (5.92)
Yes	34 (19.9)	11.15 (1.28)	2.26 (1.05)	46.24 (3.14)
Habitation				
Single house	109 (63.7)	11.13 (2.07)	2.08 (0.96)	45.16 (5.82)
Townhouse/Terraced house	43 (25.1)	11.28 (1.82)	2.05 (0.90)	45.77 (5.12)
Condominium/Apartment/Flat	19 (11.1)	10.74 (2.00)	1.89 (0.88)	45.42 (4.43)
Residential				
Live with family (don't have children under 12 and elderly)	76 (44.4)	10.99 (1.92)	1.86 (0.79)	45.79 (5.95)
Live with family (have children under 12 and elderly)	94 (55)	11.23 (2.06)	2.21 (1.01)	44.97 (5.08)
Total	171 (100)	11.12 (1.99)	2.05 (0.93)	45.34 (5.49)

Results from the generalized linear model indicated that there was no predictive factor for COVID-19 preventive behavior. (Table 2)

Table 2. Generalized linear model predicting preventive behaviors of COVID-19.

	B	SE	EXP (β)	Sig (p)	95% IC	
					Lower	Upper
Grade level	.609	.515	.092	.239	-.409	1.627
Have congenital disease	1.247	1.064	.091	.243	-.853	3.347
Habition	.232	.617	.029	.707	-.986	1.450
Residential	-.637	.848	-.059	.453	-2.311	1.036
Knowledge about COVID-19	.314	.210	.114	.137	-.101	.730
Risk of perception of COVID-19	-.945	.459	-.161	.041	-1.851	-.040

Discussion

The result in regard to COVID-19 knowledge, attitude, and preventive behavior of high school students at a girls' school in Bangkok, Thailand, found that there were 171 participants, mostly fourth graders (35.70%, n = 61). Most participants had no underlying condition (n = 137, 80.10%). The majority of participants reported living in a single house (n = 109, 63.70%) and living with a sensitive group (a senior or below 12-year-old child) (n = 94, 55.00%). Regarding COVID-19-related knowledge, most participants had a moderate average score (M = 11.12, SD = 1.99). Grade 12 students showed the highest average COVID-19-related score (M = 11.51, SD = 2.02) among other classes. Concerning the risk perception of contracting COVID-19, participants reported a low level of risk perception of contracting COVID-19 (M = 2.05, SD = 0.93). However, most participants engaged in high levels of COVID-19 preventive behavior (M = 45.34, SD = 5.49). The generalized linear model also showed that there was no predictive factor predicting COVID-19 preventive behavior among participants.

In Thailand, like in many other countries, parents often place a strong emphasis on providing their children with a good education. This can include sending them to private schools, which are sometimes run by sisters or nuns. Private schools in Thailand are often seen as offering a higher quality of education than public schools, and they can be particularly attractive to parents who want to ensure that their children receive individualized attention and care. In the context of girls' schools in Thailand, parents may be particularly concerned with ensuring that their daughters receive a safe and nurturing environment in which to learn and grow. Girls-only schools may be seen as offering an added layer of protection from potential negative influences or dangers that may be present in co-educational schools. The idea of nuns or sisters being involved in private schools in Thailand can also carry a certain level of trust and respect among parents. Overall, private schools with sisters can offer a sense of discipline, morality, and community that may be especially appealing to some families.⁽⁸⁾ In contrast, students in private schools that are controlled by nuns or sisters usually behave according to what they are instructed, which could explain their high level of

engagement with COVID-19 preventive behavior while their level of knowledge appears to be inconsistent. Most teenagers have many interests, such as entertainment, games, pop stars, etc.,⁽⁹⁾ besides following COVID-19 news. The result of this study is related to the studies of Supakarn Vathanakitanond, Kanyapak Intaporn-Udom⁽⁷⁾, and Rinrada Dejsuwannachai⁽¹⁰⁾ in the topic of knowledge towards COVID-19. The participants run the risk of having a distorted perception of their abilities. This may be because this study was conducted during the lockdown (between July 23 and August 21, 2021)⁽¹¹⁻¹²⁾, when most participants were studying from home. The findings of this study are similar to those of Jenpicha Jenlarpattanukul's⁽¹³⁾ study, which found that the perceived risk of getting COVID-19 was also low.

Limitation

The study had been conducted during lockdown so the researcher had to use social media platforms to collect the data. By using an online platform the students can search for answers in any resource. Moreover, the students who participate in this research will feel less risk perception of getting COVID-19 because the study did during lockdown. The study was conducted among high school students so the question is in general knowledge level.

Conclusions

There were 171 students participating in this study. Regarding COVID-19-related knowledge, most participants had a moderate average score ($M = 11.12$, $SD = 1.99$). Concerning the risk perception of contracting COVID-19, participants reported a low level of risk perception of contracting COVID-19 ($M = 2.05$, $SD = 0.93$). Most participants engaged in high levels of COVID-19 preventive behavior ($M = 45.34$, $SD = 5.49$). The generalized linear model also showed that there was no predictive factor predicting COVID-19 preventive behavior among participants.

References

1. Amy Carmosino. Psych central [Internet]. USA: Healthline Media Company; c2023 [cited 2023 Mar 30]. Available from: <https://psychcentral.com/coronavirus/background-history-of-the-coronavirus-covid-19#1>
2. World Health Organization. Origin of SARS-CoV-2 [Internet]. Geneva, Switzerland: World Health Organization; c2020 [cited 2023 Mar 30]. Available from: https://apps.who.int/iris/bitstream/handle/10665/332197/WHO-2019-nCoV-FAQ-Virus_origin-2020.1-eng.pdf
3. Baker C, Phongpaichit P. Thailand and the COVID-19 Pandemic in 2020. Southeast Asian Affairs [Internet]. 2021 [cited 2023 Mar 30]: 356-378. Available from: <https://www.jstor.org/stable/27075090>
4. Ministry of Public Health. Strategic Plan: Covid-19 Strategy: Managing the new wave of the Covid-19 Epidemic Ministry of Public Health, January 2021 [Internet]. Bangkok: Ministry of Public Health; 2021 [cited 2023 Mar 30]. Available from: https://www.ddc.moph.go.th/viralpneumonia/eng/file/main/en_Thailand%20Covid-19%20plan_MOPH_2021.pdf
5. World Health Organization [Internet]. Geneva, Switzerland: World Health Organization; 2023 [updated 2023 Mar 29; cited 2023 Mar 30]. Available from: <https://covid19.who.int/>
6. Reuters [Internet]. Toronto, Canada: Reuters; 2022. [cited 2023 Mar 30]. Available from: <https://www.reuters.com/graphics/world-coronavirus-tracker-and-maps/countries-and-territories/thailand/>
7. Vathanakitanond s, Intaporn-Udom K. Knowledge, attitudes, and preventive behaviors toward pathogens transmission: A study among Grade 10–12 students of Mahidol University International Demonstration School at Nakhon Pathom. International Journal of Medical Science and Public Health [Internet]. 2021 [cited 2023 Mar 30]: 10(1); 101-106. Available from: <https://www.ijmsph.com/fulltext/67-1623507856.pdf?1631258807>
8. Maike Hickson. Life site news [Internet]. USA: Life site news; c1997-2023 [cited 2023 Mar 30]. Available from: [Nuns expelled from Mother Angelica's convent for loving tradition: hermit chaplain - LifeSite \(lifesitenews.com\)](https://www.lifesitenews.com/news/nuns-expelled-from-mother-angelica-s-convent-for-loving-tradition-hermit-chaplain)

9. Thai PBS [Internet]. Bangkok: Thai PBS; c2023 [cited 2023 Mar 30]. Available from: <https://www.thaipbs.or.th/news/content/303804>
10. Dejsuwannachai R. Knowledge, Attitude and Preventive Behavior toward COVID-19 among grade 10-12 students in Bangkok. Institute for Urban Disease Control and Prevention Journal [Internet]. Sep-Feb 2022 [cited 2023 Mar 30]: 6(2); 1-15. Available from: <https://he01.tci-thaijo.org/index.php/iudcJ/article/view/250811/172222>
11. Center for COVID-19 Situation Administration. Coronavirus Disease 2019 (COVID-19). [Internet]. Bangkok: Center for COVID-19 Situation Administration; 2021 [updated 2021 Aug 13; cited 2023 Mar 30]. Available from: https://media.thaigov.go.th/uploads/public_img/source/130864.pdf
12. BBC News Thai [Internet]. Bangkok: Thai PBS; c2023 [cited 2023 Mar 30]. Available from: <https://www.bbc.com/thai/thailand-57884005>
13. Jenlarpwattanakul J. Knowledge, Attitude and COVID-19 Preventive Behavior of People in Ratchaburi Province. Institute for Urban Disease Control and Prevention Journal [Internet]. Mar-Aug 2021 [cited 2023 Mar 30]: 6(1); 193-208. Available from: <https://he01.tci-thaijo.org/index.php/iudcJ/article/view/250426/169962>