Thai High School Students Preventive Behaviors on Public Transport during COVID-19 Pandemic

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Abstract

Background: Coronavirus disease (COVID-19) caused millions of deaths and became a worldwide pandemic. However, most people had to continue to live, and many of them needed to take public transportation to work or study despite a higher risk of getting infections.

Objectives: To study COVID-19 preventive behaviors of 10-12 grade students who used public transport in Bangkok, Thailand.

Methodology: This research is based on descriptive cross-sectional study in order to obtain data about the COVID-19 preventive behaviors of 365 students participated during 27 December 2021 to 10 January 2022 via google forms consisting of 15 questionnaires.

Findings: A total numbers of 365 participants took part in this research has a medium to high overall preventive behaviors which is revealed by this following information: using mask on public transport (M=3.99, SD=0.117), using the alcohol gel (M=3.07, SD=0.88), having social distance (M=2.89, SD=0.845), touching high risk areas (M=2.30, SD=0.773), touching eyes, nose, mouth with an unwashed hand (M=1.64, SD=0.634), and having a conversation with their friends while using public transport (M=2.07, SD=0.760). Those respondents are also keen to follow the news (M=3.79, SD=0.919) and also have a high value of readiness (M=4.06, SD=0.798). On the other hand, the subjects have a high level of concern and anxiety (M=3.50, SD=1.133). Analyzing gender and grade level categories, revealed the correlation between anxiety and preventive behaviors along with the following news. The more the anxiety they have, the more their preventive behaviors are shown as well as an increase in following the news

Keywords: COVID-19, preventive behaviors, teenagers

Introduction

Coronavirus disease 2019 (COVID-19) is caused by a virus named SARS-CoV-2 and was discovered in December 2019 in Wuhan, China [1]. COVID-19 can spread quickly through the droplets of an infected person such as sneezing or coughing. People with COVID-19 can have differ severity symptoms ranging from mild to severe. Most common symptoms are fever, shortness of breath, chest pain, fatigue etc [2]. Number of confirmed cases increases quickly worldwide including Thailand. On 30 January 2020, The World Health Organization declared a Public Health Emergency of International Concern (PHEIC) and recommended all countries to expedite surveillance, prevention and control of the disease [3]. As a result, the Thai government has to use strict measures to control the epidemic and ask for all Thai people to have discipline in self-defense. The Department of Land Transport (Thailand); therefore, has set a measures to control the epidemic

of coronavirus disease 2019 (COVID-19) by requiring transport operators to follow the guidelines including (1) check passengers temperature before serving (not exceeding 37.5 degrees Celsius), (2) supervise service providers and passengers to wear masks throughout the journey, (3) clean the contact surfaces with alcohol before and after service, (4) provide a service point for washing hands with soap or alcohol gel, (5) No food served in the car,

(6) selling tickets through a ticketing service point must queue to buy tickets in accordance with social distancing measures, (7) store passenger's information by allowing passengers to register to use the application "Thai Chana" , (8) stop or park for passengers to get off the vehicle only in the designated stopping place, (9) provide ventilation inside air-conditioned, and (10) motorcycle handlebars, seats and passenger helmets should be cleaned with alcohol [4].

In the COVID-19 era, traveling by public transportation increases the risk of disease transmission [5] due to many factors such as population density, coexisting in closed spaces for long periods of time, difficulty in keeping distance, and difficulty avoiding touching the surface; therefore, passengers approximately 40% try to avoid traveling by public transportation [6]. But, many people still need to travel out for life such as work or study. People who live in Bangkok, especially those who do not have a private car, are needed to travel by public transportation in their daily lives. Due to the convenience, speed and variety of transportation options such as buses, BTS, MRT, passenger boats, taxis or trains, etc. which make it difficult for these people to avoid the risk of infections from traveling on public transportation. Chulalongkorn Hospital, the Thai Red Cross Society, has provided knowledge about the prevention of coronavirus infections while using public transportation, such as wearing a mask or clothes mask, refraining from talking, washing hands with alcohol gel, keeping your distance from other people [7], avoid touching your face, especially your eyes, nose and mouth, and minimize contact with common touch points.

Passengers of public buses are required to have proper self-preventive behaviors in order to reduce the risk of contracting COVID-19. Lacking of self-preventive behavior will affect the safety and anxiety of other passengers including a wider expansion of the virus. A study of the behavior of using public transportations during the COVID-19 epidemic of high school students in Bangkok will help to know about travel behavior. And it can be a study information for government measures and public transport in Bangkok, Thailand in the future.

Methods

Participants And Procedure

This was a cross-sectional observational study. A total of 365 students had participated in this survey. An online questionnaire was purposely developed and made available through Google From between 27 Dec 21 and 10 Dec 22. All grade 10-12 students who were eligible and willing to participate in the study. The Forms were distributed via a link through the school's social media group to ensure that students had access to the invitation to participate in the study. 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.

Instrument And Analysis

Research data was collected through Google Forms consisted of 15 questionnaires divided into 3 parts ;

1. Sociodemographic characteristics consisted of 6 questions including questions on gender, class level, vaccination, number of travel companions, frequency used, and type of public transportation.
2. Preventive behavior in public transport consisted of 6 questions.
3. Perceptions and attitudes towards COVID-19 consisted of 3 questions including a question on staying up-to-date with news about the spread of COVID-19, concerns about COVID-19 infections, and readiness to deal with COVID-19.

For the present study, descriptive statistics, including frequency, percentage, mean, and standard deviation, were conducted to achieve the research objectives.

Results

Table 1. **Differences in outcomes according to the sociodemographic characteristics of participants (N = 365)**

Sociodemographic characteristics	N (%)
Gender	
Male	99 (27.1)
Female	266 (72.9)
Grade level	
Grade 10	146 (40.0)
Grade 11	166 (45.5)
Grade 12	53 (14.5)
Number of COVID-19 vaccine received	
not received any doses of the COVID-19 vaccine	2 (0.5)
received 1 doses of the COVID-19 vaccine	6 (1.6)
received 2 doses of the COVID-19 vaccine	345 (94.5)
received more than 2 doses of the COVID-19 vaccine	12 (3.3)
Number of traveling fellow	
Traveling alone	220 (60.3)
Traveling for 2 people	74 (20.3)
Traveling for 3 people	41 (11.2)
Traveling for more than 3 people	30 (8.2)
Frequency in using public transportation	
1-7 times a month	107 (29.3)
8-14 times a month	107 (29.3)
15-22 times a month	100 (27.4)

23-30 times a month	51 (14.0)
Types of transportation used	
by bus	70 (19.2)
by skytrain (MRT/BTS)	247 (67.7)
by taxi	42 (11.5)
by others [train + passenger ship]	6 (1.6)

From the survey response, senior high school students participated in this questionnaires are 72.9% (n=266) of females and 27.1% (n=99) of male. Most of the respondents are in Grade 11 approximately 45.5% (n=166) followed by Grade 10 (n=146, 40%), and Grade 12 (n=53, 14.5%). The highest number of respondents received 2 full doses of the COVID-19 vaccine (n=345, 94.5%) followed by the number of respondents received more than 2 doses of the COVID-19 vaccine (n=12, 3.3%), the number of respondents received 1 doses of the COVID-19 vaccine (n=6, 1.6%), and the number of respondents not received any doses of the COVID-19 vaccine (n=2, 0.5%). For the question of types of public transport, the most percentages of response is traveling by Sky train (n=247, 67.7%), which is following by traveling by bus (n=70, 19.2%), traveling by taxi (n=42, 11.5%), and traveling by others (n=6,1.6%). The highest number of respondents travels by public transport 1-7 times a month (n=107, 29.3%) and 8-14 times a month (n=107, 29.3%) followed by 15-22 times a month (n=100, 27.4%) and 23-30 times a month (n=51, 14%). Most of the respondents traveling by public transport travel alone (n=220, 60.3%) followed by traveling for two people (n=74, 20.3%), traveling for three people (n=41, 11.2%) and traveling for more than three people (n=30, 8.2%).

Table 2. The preventive behavior while using public transport during COVID-19 pandemic

Behavior	Never	Sometimes	Usually	Always	Mean	SD
Using mask in public transport	0 (0.0)	1 (0.3)	1 (0.3)	363 (99.5)	3.99	0.117
Using the alcohol gel in public transport	11 (3.0)	96 (26.3)	114(31.2)	144(39.5)	3.07	0.88
Distancing themselves from others in public transport	15 (4.1)	107 (29.3)	146 (40)	97 (26.6)	2.89	0.845
Touching the high risks area	36 (9.9)	216(59.2)	79(21.6)	34(9.3)	2.30	0.773

Touching eyes, nose, or mouth with an unwashed hand	164(44.1)	179(49.0)	22(6.0)	3 (0.8)	1.64	0.634
Talking with their friends while using public transport	79 (21.6)	195 (53.4)	77 (21.1)	14 (3.8)	2.07	0.760

Most of respondents always wear the mask in public transport (n=363, 99.5%), followed by those usually wearing masks (n=1, 0.3%), sometimes wearing masks (n=1, 0.3%), and no one never wears a mask (n=0, 0%), and the average is 3.99, SD is 0.117. Most of which always use the alcohol gel (n=144, 39.5%), followed by those usually using the alcohol gel (n=114, 31.2%), sometimes using the alcohol gel (n=96, 26.3%), and the one never using the alcohol gel (n=11, 3.0%), and the average is 3.07, SD is 0.88. Only about a quarter of respondents always distance themselves from others (n=97, 26.6%). On the other hand, the majority of people usually have social distancing (n=146, 40.0%), followed by those sometimes having (n=107, 29.3%), and never having social distancing (n=15, 4.1%). The average is 2.89 and 0.845 is the SD value.

More than half said they sometimes touch the high risk area (n=216, 59.2%), followed by those usually touching (n=79, 21.6%) and never touching that risk area (36, 9.9%). Surprisingly, many people always touch the high risk area.

Its average is 2.30 and the SD is 0.773. The majority of them said they sometimes touch eyes, nose, or mouth (n=179, 49.0%), followed by those never touching (n=164, 44.1%), usually touching (n=22, 6.0%), always touching the risk area (n=3, 0.8%). Its mean is 1.64 while the SD is 0.634. Many of the respondents sometimes talk with their friends while using public transport (n=195, 53.4%), followed by those never having (n=79, 21.6%), usually having (n=77, 21.1%), and always having a conversation with such a situation (n=14, 3.8%). The mean is about 2.07 and 0.760 is the value of SD.

Table 3. Recognition and attitude to COVID-19

recognition and attitude to COVID-19	Lowest level	Low level	Medium level	High level	Highest level
following the news about the pandemic of COVID-19	6(1.6)	23(6.3)	94(25.8)	159(43.6)	83(22.7)
Anxiety about COVID-19 infections	22(6)	47(12.9)	96(26.3)	125(34.2)	75(20.5)
Readiness to deal with and prevent COVID-19 infections	4(1.1)	5(1.4)	67(18.4)	179(49)	110(30.1)

For the questions of recognition and attitude to COVID-19, the majority of following the news about the pandemic of COVID-19 are in the high level

(n=159, 43.6%), followed by following the news about the pandemic of COVID-19 in the medium level (n=94, 25.8%), in the highest level (n=83,

22.7%), in the low level (n=23, 6.3%) and in the lowest level (n=6, 1.6%). The most percentages of the anxiety's respondents about COVID-19 infection are in the high level (n=125, 34.2%), followed by the anxiety about COVID-19 infection in the medium level (n=96, 26.3%), in the highest level (n=75, 20.5%), in the low level (n=47, 12.9%) and in the lowest level (n=22, 6%).The majority of readiness to prevent COVID-19 are in the high level (n=179, 49%), followed by readiness to prevent COVID-19 in the highest level (n=110, 30.1%), in the medium level (n=67, 18.4%), in the low level (n=5, 1.4%) and in the lowest level (n=4, 1.1%).

Table 4. Preventive behavior as well as recognition and attitude separated by gender and grade level

Sociodemographic characteristics		Preventive behavior		Following the up-to-date news about the pandemic of COVID-19		Concern and anxiety about COVID-19 infections		Readiness to deal with and prevent COVID-19 infections	
General information	N	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Male	99	19.42	1.691	3.62	1.057	3.00	1.254	4.03	0.788
Female	266	20.01	1.768	3.86	0.855	3.69	1.026	4.07	0.803
Grade 10	146	19.84	1.788	3.66	0.957	3.35	1.172	4.10	0.889
Grade 11	166	19.84	1.752	3.79	0.866	3.52	1.094	4.07	0.735
Grade 12	53	19.91	1.768	4.19	0.878	3.89	1.068	3.91	0.714
Total	365	19.85	1.764	3.79	0.919	3.50	1.133	4.06	0.798

This table describes how the data correlates with others by dividing into three categories: Gender, Grades, and type of public transport used. The data or some behavior that would collelates with above are preventive behavior, staying up-to-date with news about the spread of COVID-19, concern and anxiety about COVID-19 infection, and readiness to deal with COVID-19; which the preventive behavior is collected by using the sum of COVID-19 preventive behaviors such as using mask in public transport; using the alcohol gel in public transport; distancing themselves from others in public transport; touching the high risks area; touching eyes, nose, or mouth with an unwashed hand; and talking with their friends while using public transport. The first three questions are scores 4 to 1 for always to never. The others scored 4 for never to 1 for always.

The first category is gender, divided into male (n=99) and female (n=266). Females (M=20.01, SD=1.768) have more preventive behaviors than males (M=19.42, SD=1.691). On the same hand, females (M=3.86, SD=0.855) also stay up-to-date with the news more than the males (M=3.62, SD=1.057) do. The concern and anxiety have a surprising result. Females (M=3.69, SD=1.026) have a lot more concern and anxiety than the male (M=3.00, SD=1.254). The readiness of COVID-19, in the same way, females (M=4.07, SD=0.803) have a little more of the readiness than the males (M=4.03, SD=0.788) do.

The second category is class levels, divided into 3 levels: grade 10, grade 11, and grade 12. Grade 12 has the best preventive behaviors, while grade 10 (M=19.84, SD=1.788) and grade 11 (M=19.84, SD=1.752) have the same average of this topic.

Staying up-to-date (M=4.19, SD=0.878) as well as concern and anxiety (M=3.89, SD=1.068), in the same way, have grade 12 as a common maximum average. Grade 11 (M=3.79, SD=0.866) stays up-to-date more than grade 10 (M=3.66, SD=0.957). On the same hand, grade 11 (M=3.52, SD=1.094) have more anxiety and concern than grade 10 do (M=3.35, SD=1.172). The readiness topic, in contrast from above, has a result: grade 10 (M=4.10, SD=0.889) have the highest value of readiness, followed by grade 11 (M=4.07, SD=0.735) which have a close average. Grade 12 (M=3.91, SD=0.714) has the least of readiness.

Discussion

According to the study, most participants know what they have to do to prevent the infection of COVID-19 or how to reduce their risks, which is clearly seen in the wearing mask topic; almost all participants (n=363, 99.5%) always wear masks while using public transport. On the same hand, many of the respondents are more likely to use alcohol gel; the majority said they always (n=144, 39.5%) or usually (n=114, 31.2%) use it. Social distancing can lower the risk of getting COVID-19 due to the fact that SARS-CoV-2 is transmitted through the air, people can encounter higher concentrations in places where more viral particles can build up [8]. However, social distancing can hardly be done in public transportation. The reason behind this statement is that it has a lot of users enforcing people to be close to one another. This assumption is proven by collected data; the majority of people are only said they usually (n=146, 40.0%) or sometimes (n=107, 29.3%) have social distancing and surprisingly there is an amount of people (n=15, 4.1%) never having social distancing. Moreover, its average (M=2.89, SD=0.845) is quite low meaning many people only usually or sometimes do or have social distancing. Touching a high risk area is also an issue because it is difficult to avoid in public transport; more than half (n=216, 59.2%) said they sometimes do that. Fortunately, using the alcohol gel to sterilize could reduce this risk [9]. The majority of participants (n=179, 49.0%) said they sometimes touched eyes, nose, or mouth while using public transport, will increase the risk of infected COVID-19 because virus can enter this mucous membrane easily [10]. However, many participants (n=164, 44.1%) never did that. A conversation might be an issue too; many of them

(n=195, 53.4%) sometimes have a conversation with their fellows. In contrast, both problems can be solved easily by themselves to control their body, not do these behaviors.

Following news as well as the readiness is in the good way; the majority of people stay

up-to-date about the COVID-spreading news at the high level (n=159, 43.6%) and the highest level (n=83, 22.7%). In addition, the majority of readiness attitudes are at the high level (n=179, 49%) and the highest level (n=110, 30.1%) too. On the contrary, the anxiety and concern levels are a bit too high; many of them (n=125, 34.2%) said they are really concerned and feel anxiety about covid-19 spreading. Other groups (n=75, 20.5%) are very concerned and feel anxiety. On the other perspective, it could be assumed that concerning or feeling anxiety may force them to follow more about Covid news or trigger them to have a second plan, making them more ready and prepared [11]. In this case, concern and anxiety may draw good things and are not too high at all.

The clear difference between females and male is how anxious they are. Women (M=3.69, SD=1.026) are a lot more anxious than men (M=3.00, SD=1.254) are. On the other hand, women are all having better preventive behavior and following COVID-19 news, significantly. The readiness is also included but has such a little difference. This information proves the correlation between anxiety and preventive behavior along with the following news, as aforementioned.

In the grade level categories, this correlation also occurred. Students in grade 12 have the most anxiety and concern which may be caused by the multi factors such as unable to do an incoming admission test due to COVID-19 infections [12], which the risk may increase from traveling.

This might be the cause of more preventive behaviors and following news behaviors than other grades. However, the readiness is not like the previous assumption. Grade 12 is the least ready grade. The reason that could be drawn is that if COVID-19 situation is worsening, their lifestyles might have a lot of changes including approaching university.

Limitations

The survey was conducted through google form and spread on an online platform during COVID-19 pandemic. Therefore; only the students who can access the internet can participate in this study. Moreover, it included only a few grade 12 students.

Conclusion

This study conducted among Thai high school students in Bangkok, Thailand revealed the behaviors of people during COVID-19. Although there are preventive behaviors in public transport from contracting COVID-19, some things are difficult to prevent, such as social distancing due to the large number of other users, which make people anxious about getting infected with COVID-19. Furthermore, it was found that there is a correlation between anxiety and preventive behaviors along with the following news. The more people get anxiety, the more they have preventive behaviors along with the following news. Thus, there should be measures to reduce the risk of using public transport more in order to reduce people's anxiety.

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