Knowledge, Attitude and COVID-19 Preventive Behaviour among grade 10-12 students in Bangkok

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Abstract: **Background: Presently, people are all living in a more and more fast-paced and ever-changing world. We are all concerned with citizen's live and health due to the increasing of disease. Covid-19 is now as seen as a dramatic viral outbreak, more than millions of world's populations are killed. Student, one of the society's members, are in at crucial risk under the situation of virus transmission. The attitude, knowledge, and risk perception of student will definitely presume an outcome towards precaution of Covid-19 pandemic.**

Objectives: To study knowledge, attitude, risk perception, and preventive behaviors against Coronavirus 2019 amongst a representative sample of high schoolers of Saint's Gabriel's College (grade 10-12) who living in Bangkok. Furthermore, to get any ideas on how to promote preventive behavior oppose to the expansion of Covid-19.

Design: Cross-sectional online survey via Google Form during May, 2021. The descriptive statistics and correlation coefficient were applied for data analysis.

Participants: 1,575 volunteered students of grade 10-12 who registered at Saint Gabriel's College in year 2021.

Results: 319 responses were received. The greatest number of responders were the age group of 17, live in a family with no dependent and no medical conditions while already get vaccinated against flu. Also, most participants considered their health condition to be at moderate level. Correlation coefficient showed that knowledge of COVID-19 and attitude on prevention of COVID-19 had a positive link on preventive behavior against COVID-19. From the analysis of GLM, it was revealed that attitude on prevention of COVID-19 and knowledge of COVID-19 could predict preventive behavior against COVID-19, which was also statistically significant. The statistical result of this research presented that the majority of high school students who are studying in grade 10-12 had a high understanding and knowledge of COVID-19 with a positive attitude towards preventive manners against COVID-19. Furthermore, most of them was at good level of preventive behavior and high level of risk perception to COVID-19 pandemic.

Conclusion: Even though, the study showed the high knowledge score and the positive attitude, the risk perception is only in moderate level. Thus, to narrow down Covid-19 expansion to the student in their daily life, the attitude and risk perception on prevention of this vial outbreak should be promoted and well communicated in diverse channels to update the student on current situations.

Keywords: **COVID-19, COVID-19 Preventive Behavior, Students.**

1. INTRODUCTION

<u>Origin and the significance of the issue</u>

COVID-19 Virus (Coronavirus 2019) originated from Wuhan, a province in People's Republic of China. Experts believed that this disease was transmitted from consumption of wild or exotic animals, such as snake or muskrat. Most of them agreed that bats are highly probable to be the main cause.

Since bat's habitat is in caves where there are many potential undiscovered and unstudied diseases, the spread of COVID-19 began toward the end of 2019, being transmitted to foreign tourists at that time.

When the Chinese government sent out announcement and imposed restriction against the spread of COVID-19, the virus had already travelled to Europe and many other countries through movement of tourists.

COVID-19 has mutated into local variants based on its geography leading to an emergence of "New normal" or "Work from home" in 2020 where the public were forced to work and study from home to restrain the risk of virus expansion. Nevertheless, the rate of infection still continuously multiplies and exponentially grows from thousands to ten thousand cases per day in Thailand in 2021.

As COVID-19 can efficiently spread, adapt, and transform quickly, protective measure and risk prevention against the virus are the most imperative because there is no cure but only vaccines to prevent the spread as of date.

In terms of mortality rate, COVID-19 is fatal making the current spread into a pandemic or with the same danger as the Black Plague which was responsible for over 20 million deaths in Europe between 1889-1895. This is a critical case study underlining that taking significant actions cannot be ignored with infection of this rate.

Currently, this pandemic is expanding on a large scale that severely impact on many global communities in various perspectives. With Bangkok and the surrounding suburbs being the highest risk regions, this includes high-school students at Saint Gabriel's College who are considered young people making transition into adulthood. This group of students have different knowledge level, attitude, risk perception, and preventive behavior against COVID-19 from those of adults and international high-school students as presented in the research by Tawan Petpaiboon (5) in Bangna district, Bangkok.

Consequently, the focus of the research is on knowledge, attitude, risk perception and preventive behavior against COVID-19, specifically among high schooler in a high-risk region of Bangkok. As a result, Saint Gabriel's College was chosen for its size and strategic location that meet the objectives.

Objectives

• To assess the level of knowledge, attitude, risk perception towards prevention and preventive behavior against the spread of COVID-19.

• To come up with ways to promote preventive behavior against the spread of COVID-19.

2. METHOD

This study was descriptive research on high-school students in grade 10-12 at Saint Gabriel's College conducted between May 1-31, 2021. Descriptive statistics including frequency, percentage, mean, standard deviation, and inferential statistics were employed to analyze general information and knowledge of COVID-19, attitude toward prevention against COVID-19, and preventive behavior against COVID-19. Inferential statistics, includes Pearson's correlation and Multiple Regression Analysis, were applied.

Participants and Sampling group

The participants in this research were high-school students of grade 10-12 at Saint Gabriel's College in the 2021 academic year. 319 out of 1,575 students (according to the registry at Saint Gabriel's College in 2021) volunteered to participate. The sampling method was based on Taro Yamane's formula (6).

Research tool

Google Form was devised as a research tool based on the theories and studies of reliability of research instrument approved by three infection control experts which had the Cronbach's alphas of 0.8, 0.83, and 1.0 respectively and included five main components as follow:

• Section on personal details divided into five multiple choice questions.

• Section to assess the level of knowledge and understanding of COVID-19 with fifteen multiple choice questions. Scores over 80% mean high level, scores between 60-79% constitute medium, while scores of less than 60% translates to low level of knowledge and understanding of COVID-19.

Section on risk perception of COVID-19 with one selection allowed among standardized choices. The 5 measures include high-risk, medium-risk, low-risk, and no risk divided into three questions.

• Section to assess attitude on prevention against COVID-19 with one answer permitted among five standard measures. "Strongly agree" earns 5 scores, "Moderately agree" receives 4 scores, "No opinion" entitles to 3 scores, and "Somewhat disagree" receives 2 scores, while "Disagree" qualifies for 1 score.

• Section on preventive behaviour against COVID-19 with one selection permitted on 8 questions. The 5 measures consist of "Oblige at all times"; "Often oblige"; "Oblige only when necessary"; "Oblige sometimes"; and "Never oblige." Preventive behavior against COVID-19 is considered high with 80% or more; medium between 60-79% and low with 60% or lower.

Ethical consideration

Participant's data was respected and kept confidential. Their participation is on a voluntary basis only with the research objective and data processing. Furthermore, the protection from third party carefully explained at the beginning. The participants are welcomed to ignore any questions or opt out from the research at any time.

3. RESULTS

The research has received responses from 319 participants, mostly belonged to the age group of 17 (n=168, 52.7%), followed by the over 18 (n=94, 29.5%), and the under 17 (n=94, 29.5%). The majority lives in a family with no dependent (n=202, 63.3%), some live in a family with dependent (n=101, 31.7%), and the minority lives alone (n=16, 5%). Most of them have no medical conditions (n=290, 90.9%), while a small percentage have them (n=29, 9.1%). The greater numbers of participant have been vaccinated against flu (n=282, 88.4%), whereas the rest have not (n=37, 11.6%).

Most participants deemed their health to be at a moderate level (n=237, 74.3%) with a handful of them considered themselves to be healthy (n=57, 17.9%) and a small percentage viewed their health as poor (n=25, 7.8%).

Mostly participants scored highly on the knowledge section of COVID-19 with the mean value of 13.85 out of 15 (SD=1.42). The age group with the highest score belonged to 17 years old (Mean=14.07, SD=1.45), those lives in a family with dependent (Mean=13.93, SD=1.39) and have no medical condition (Mean=13.39, SD=1.34) as well as having received a flu vaccine (Mean=13.87, SD=1.4) and assessed their health as moderate (Mean=13.94, SD=1.28).

The attitudes on prevention against COVID-19 among the students were positive with the mean of 33.50 (SD=2.66). The group with the most positive attitude were 17 years old (Mean= 33.75, SD=2.36), living in a family with no dependent (Mean=33.63, SD=2.61) and no medical condition (Mean=33.65, SD=2.49) as well as having been vaccinated against flu (Mean=33.58, SD=2.56) and deeming their health as poor (Mean=32.84, SD=2.78).

The student's risk perception of COVID-19 was at a moderate level with the mean of 11.10 (SD=3.54) where the highest risk perception group belonged to 17 years old students (Mean=11.43, SD=3.54); those that lives in a family with no dependent (Mean=11.49, SD=3.54) with no medical condition (Mean=11.16, SD=3.54), having received vaccination against flu (Mean=11.22, SD=3.55) and those that viewed their health as poor (Mean=12.08, SD=3.07).

The participants showed a good level of preventive behavior with the mean of 33.62 out of 40 with the highest level of preventive behavior was in a group of under 18 (Mean=34.46, SD=4.72). The students who live in a family with dependent scored the highest on preventive behavior against COVID-19 (Mean=33.83, SD=4.3), those with no medical conditions (Mean=33.72, SD=4.21), those that have been received a flu vaccination (Mean=33.7 SD=4.3) and those that assessed themselves as healthy (Mean=33.96, SD=4.16).

Table 1: Population studies data, knowledge, attitude and preventive behavior against COVID-19 of the participants (N=319)

Demographic factors		Knowledge of COVID-19 (Range 0-15)		Attitude toward preventive behavior against COVID-19 (Range 7-35)		Risk perception of COVID-19 (Range 3-15)		Preventive behavior against COVID-19 (Range 8-40)	
	N (%)	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Age									
Under 17	57 (17.9)	13.65	1.58	33.56	2.41	10.54	3.30	33.26	4.33
17	168 (52.7)	14.07	1.45	33.75	2.36	11.43	3.54	33.27	4.08
Over 18	94 (29.5)	13.56	1.18	33.02	3.22	10.85	3.65	34.46	4.72

Living Arrangement								
Live Alone	16 (5.0)	12.63	2.22	31.31	3.18	10.94	3.64	31.19	4.68
Live with family, no dependence	202 (63.3)	13.90	1.31	33.63	2.61	11.19	3.54	33.70	4.30
Live with family, with dependence	101 (31.7)	13.93	1.39	33.59	2.55	10.96	3.56	33.83	4.31
Medical condition								
No	290 (90.9)	13.93	1.34	33.65	2.49	11.16	3.54	33.72	4.21
Yes	29 (9.1)	13.00	1.81	32.00	3.74	10.59	3.58	32.62	5.50
Flu vaccine								
Vaccinated	282 (88.4)	13.87	1.40	33.58	2.56	11.22	3.55	33.70	4.30
Not vaccinated	37 (11.6)	13.68	1.55	32.92	3.33	10.22	3.42	33.00	4.68
Self-rated health								
Poor Health	25 (7.8)	12.84	2.12	32.84	2.78	12.08	3.07	32.44	5.69
Moderate Health	237 (74.3)	13.94	1.28	33.49	2.72	11.38	3.35	33.66	4.23
Good Health	57 (17.9)	13.89	1.45	33.84	2.34	9.54	4.07	33.96	4.16
Total	317 (1000)	13.85	1.42	33.50	2.66	11.10	3.54	33.62	4.34

From the analysis of Pearson's correlation, it was found that knowledge of COVID-19 has a positive link on preventive behavior against COVID-19, with statistics significance (r=.184**, p=0.01). Similarly, the attitudes toward prevention against COVID-19 is positively correlated to preventive behavior against COVID-19, which is also statistically significant.

Table 2: Pearson's correlation coefficient between the study outcomes

Variables	Knowledge of COVID-19	Attitude toward preventive behavior against COVID-19	Risk perception of COVID-19	Preventive behavior against COVID-19
Knowledge of COVID-19	1			
Attitudes toward prevention against COVID-19	.231**	1		
Risk perception of COVID-19	-.087	.157**	1	
Preventive behavior against COVID-19	.184**	.334**	.046	1
**Correlation is significant at 0.01				

The analysis of generalized linear model revealed that the most fundamental variables in predicting the participant's preventive behaviors against COVID-19 were attitude toward prevention against COVID-19 (Beta= .309, p<0.01) and age (Beta= .160, p<0.01).

Table 3: Generalized linear model predicting preventive behaviors of COVID-19

Analysis of preventive behaviors against COVID-19 using GLM	B	SE	Beta	Sig
Age	1.025	.346	.160	.003
Living arrangement	.474	.425	.059	.266
Medical condition	.312	.894	.021	.727
Flu vaccination	-.572	.721	-.042	.429
Self-rated health	.591	.523	.068	.260
Knowledge of COVID-19	.334	.169	.109	.050
Attitude toward prevention against COVID-19	.504	.091	.309	.000
Risk prevention of COVID-19	.021	.068	.017	.757

4. DISCUSSION

In the current study, the majority of grade 10-12 students at Saint Gabriel's College were found to have a high level of knowledge, positive attitude, whereas moderate risk perception on preventive behavior towards COVID-19 viral outbreak. Since the start of the academic year in June 2020, in term of knowledge, the majority of students were informed with clear about COVID-19 with over 90% correctly answered questions on the spread of COVID-19, symptoms when infected, prevention of the COVID-19 spread; quarantine, the correct way to wear mask, and social distancing. This could be due to the student's close follow up on news and the school's strict measures in prevention of COVID-19.

This finding was supported by the study on knowledge and behavior of the general population against COVID-19 in 2019 by Thanee Glomjai et al. (7). The study learned that the public has a good level of knowledge and comprehension owing to the information and news received through the Department of Disease Control on COVID-19. In line with the study of Alsoghair and team (8) about the relationship between medical students and Covid-19 in Saudi Arabian society, the result revealed that those students have great level of knowledge in accordance with the preventive behavior under this disease outbreaks. Supportively, the study of Tadesse et al. (9) reported that the research completed among college in Amhara region showed that single students have good knowledge about COVID-19. The result of this research was close to the result of Enayat et al. (10), their study presented that most of the students have high levels of knowledge. Over than 90% of the students have good knowledge about the transmission of the disease through aqueous droplet and from infected persons to others. Comply with the study of Handebo et al. (11), part of students in secondary schools have good knowledge about Covid-19. They found that being lady and applying health professionals as a source of information increased the engagement in preventive behaviors. On the contrary, Handebo also found that the students who live alone have low knowledge about the preventive behavior, in line with the result from health science student in Arbaminch which reported that married and student who are living with family members have good knowledge than their companions.

With respect to the attitude of respondents, the study result showed that high schoolers have an optimistic attitude towards prevention against Covid-19. Likewise, the study of Alrubaiee et al. (12) revealed that more than 85% of respondents have positively attitude on preventive behavior. Furthermore, the findings of the current study were consistent with the results of a cross-sectional study conducted among Saudi health college students (13), which showed that more than half of the students have a positive attitude towards MERS-CoV. Therefore, it is important to provide up-to-date knowledge and news of the spread and current situation of COVID-19. This significantly affects the knowledge and understanding of individual on COVID-19, which in turn dictates their attitudes toward prevention against COVID-19. The result of this study reflected this as students have a positive attitude toward prevention against COVID-19 due to their high level of knowledge and understanding of COVID-19 and strict measures imposed by the school. By informing the students regularly and instantly on the benefits of obliging to guidelines and the danger and risks of breaking them through online platforms, this leads to positive attitude on preventive behavior; their cooperation and motivation in keeping with the measures according to Pender Health Promoting Model (14). This states that an individual's thoughts, attitudes, and positive emotions affect their behaviors and actions. In other words, if certain goal is reflected on positively, it is highly likely for the individual to be fully motivated to complete it (15). In a study of knowledge, attitudes and preventive behaviors against COVID-19 on Portuguese undergraduates using questionnaire, it was discerned that the participants have a high level of knowledge and positive attitude toward prevention against COVID-19 but only a moderate level of preventive behaviors. The disparity could be due to the dissimilarity of independence among undergraduates compared to high-school students.

In this research, the students only presented a moderate risk perception of COVID-19. This result was in consistent with the average level of perceived risk that was reported by Taghir et al. (16), this study reported that the students concerned with risk perception in moderate level but the group of 17 years-old student who lives with family, no medical condition while vaccinated has high risk perception with this Covid-19 viral outbreaks. In line with the study of Enayat et al. (10), more than 50% of the students stated that they perceived that coronavirus infection is a life-threatening illness, and more than half of them determined it the deadliest of its entire species. This was in conformity with that mentioned in the literature where COVID-19 is recognized as one of the most tragic diseases with many fatalities globally that are still occurring continuously on a daily basis (17). This result implied that high schoolers could easily access and stay regularly informed of COVID-19 news including the number of infected cases and increasing deaths as well as latest risk areas through online platforms such as social media app on their smartphones which should lead to heightened awareness of the risk. However, at the time of research, all the students at Saint Gabriel's College were studying online from home. Most

outdoor activities were prohibited leading to minimal travel and social contact, which mean that the majority of the student's day were spent indoor. This essentially led to a moderate risk perception of COVID-19 as a result. However, the participants who rated their health as poor demonstrated a higher risk perception of COVID-19. This could be because they are potentially more at risk of being infected than those who deemed their health to be moderate or healthy. This in turn leads them to have a higher risk perception and awareness to minimize their risk of being infected. Students at Saint Gabriel's College who participated in the research depicted a good level of preventive behavior which contrasts with the study by Tawan Petpaiboon (5) on knowledge, attitude and preventive behavior against COVID-19 on high-school students at international school. The study stated that the students there only showed preventive behavior at a moderate level. Due to the difference in teaching style and level of discipline imposed on students at international school and Thai public school, the latter are more likely to abide by the rules and guidelines set by the school more closely than the former.

Limitations

By this study, there are some limitations; (1) this study was conducted via Google Form as online survey due to study from home in response to the COVID-19 pandemic, it might impact to the response rate and generalizability among the high school students. Also, the main respondents were middle high school ages (17 years old) and vaccinated. Therefore, the results of the questionnaire all depended on the participants self-reported behaviors. Moreover, this study is gained the questionnaire only male student, the responses might refer only from masculinity's perspective (2) this study adopted unclear sampling method, bias may occur, sampling error could not be calculated. The selected sampling methods must be identified.

5. CONCLUSION

In conclusion, the majority of participants in this research has shown a good level of understanding and knowledge of COVID-19, positive attitude towards prevention against COVID-19, as well as a good level of preventive behavior against COVID-19.

Four fundamental factors contributed to this: firstly, Saint Gabriel's College imposed strict preventive measures; secondly, the students were made aware of current news; thirdly, the student's family have also taken careful actions; and lastly, the students themselves were technology-competent so they can keep up to date with live news.

From this research, it is strongly recommended to promote and raise preventive attitudes toward COVID-19 and to ensure that the students are informed through platforms that readily reach out to them in order to always make certain of the student's strict preventive behavior. Moreover, it should be away encouraged to ensure that the student strictly act as preventive behavior against Covid-19 all the time.

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