

Attitude toward COVID-19 Preventive Behavior after being Vaccinated among High School Students in Bangkok

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DOI: <https://doi.org/10.5281/zenodo.7066480>

Published Date: 10-September-2022

Abstract: Background: Mutations in the Spike Protein area define the new Covid-19 strain "Omicron." An amino acid is mutated in delta strains. Keeping a safe distance from other people is the best strategy to stop the spread of COVID-19. Secondary school students' attendance at class determines their risk of infection. Students can still proceed in groups although since they are distributed throughout the room, for analysis of high school students' Covid-19 prevention practices. The prevention of COVID-19 is something that high school students should concentrate on since it helps to lower the number of infected residents. Safe for you to understand the proper method to reduce the epidemic.

Purpose: To study Attitude toward COVID-19 preventive behavior after receipt COVID-19 vaccination

Methodology: This was a cross-sectional observational study. An online questionnaire was purposely developed and made available through Google Form between 10 Feb 2022 and 30 Mar 2022. All students who were eligible and were invited to participate in the study. The invitation was sent through a school social media group which all eligible students belong to. The students have access to this group, 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 344 students, a total of 2,444 students participated in the study (response rate: 14 %).

Findings: A total of 344 high school students participated in the study. Most of the participants were female (n=233, 67.7%). Grade 11 participants were the majority (n=216, 62.8%). 98.3% (n= 338) of participants had already received 2 doses of COVID-19 vaccine. Most participants had a good level of knowledge regarding COVID-19 (M=8.32, SD=1.43). Most participants perceived risk of contracting COVID-19 at a moderate level (M=3.35, SD=1.07). And most of them had a good level of attitude toward COVID-19 prevention after receiving COVID-19 (M=21.49 (2.70)). Knowledge about COVID-19 ($r=.177^{**}$, $p<0.01$) had a positive correlation with attitude toward COVID-19 prevention after receiving COVID-19 vaccination. Knowledge (Beta=.173, $p<0.01$) and Gender (Beta=.134, $p<0.01$) about COVID-19 predicted attitude toward COVID-19 adoption.

Conclusion: Students who have received the full course of vaccination are less fearful of catching the coronavirus, which leads them to participate in certain risky behaviors. However, some students still realize how to avoid getting COVID due to their knowledge of the coronavirus. Even after receiving two doses of the vaccine, coronavirus infection is still possible. Nevertheless, a person's immunity affects how serious it is. Some people have long-lasting covid after contracting the disease. may lead to difficulties, and teenagers are more likely than adults to have long-term illnesses. As a result, we must maintain our awareness to stop the coronavirus from spreading.

Keywords: COVID-19 knowledge, attitude toward COVID-19 prevention after vaccine receipt, COVID-19 prevention, high school students.

1. INTRODUCTION

The new Covid-19 strain "Omicron" is characterized by mutations in the Spike Protein region, or the protein location in the spikes on the surface of the virus. Similar to the beta mutation, the Omicron strain makes it easier for the Omicron strain to evade immunity and bind to human cells [1]. For mutations outside of Spike Protein, mutations in the receptor region were found. Mutations at this location are similar to Delta strains, making it easier for the virus to enter cells. It also found that the concentration of virus in the respiratory system increased. It was found that patients infected with Omicron strains can also smell the tongue and taste good, rarely have fever, but are found to have symptoms such as fatigue, fatigue, pneumonia. At present, there is not enough information to determine whether the symptoms are more severe or not. And Delta strains have a mutation in an amino acid known as k417n, a case of mutation similar to the beta strain [2]. Or South African species This allows the mutant virus to evade immunity better. And is most easily transmitted by all strains of covid-19 virus.

Symptoms found in covid-19 Delta strains are headache, sore throat, runny nose. Rarely, loss of taste is found, and have general symptoms similar to the common cold. In addition, the obvious symptoms of those infected with the Delta strain in young people are often asymptomatic. But in fact, it may be in the infecting stage. And even if vaccinated, they can still be infected and may have severe symptoms. The way to prevent the spread of COVID-19 is to maintain a safe distance from others, wear a mask in public, and avoid closed spaces. Stay in an open, well-ventilated area, wash your hands frequently with soap and water or hand sanitizer, get vaccinations, cover your nose and mouth when coughing or sneezing, stay home when you feel unwell.[3]The risk of infection among secondary school students is the student's attendance at school. Even though they are spaced apart in the room, students can still go together as a group anyway. and may be negligent not being careful or may not prevent the epidemic properly and because Covid-19 can spread quickly and there are several mutations that make it easier to infect. Some breeds have severe symptoms. Some strains can be infected within 5-10 seconds, are easily infected through the air, or the Covid-19 virus may be attached to objects. that we do not know or cannot see and may bring the infection into the body by rubbing his eyes and putting hand in mouth. Unknowingly, in various places in the school, students are at risk of contracting Covid-19 easily.

For research on Covid-19 prevention behaviours of high school students.[4] This research examines the perceptions and behaviours of the coronavirus disease 2019 (COVID-19) prevention behaviour of high school students. Bangkok the sample group was upper secondary school students in schools under the Office of the Basic Education Commission. Bangkok Secondary Education Service Area Office, 400 people. People who have received two full doses of the vaccine are at less risk. But there is still a chance of contracting the coronavirus. compared to those who have not been vaccinated but a person who has been vaccinated with two doses can infect others as much as someone who has not been vaccinated.[5] High school students need to focus on the prevention of covid-19 because it helps reduce the number of infected people in the country. And safe for yourself to know the correct way to prevent the epidemic.[6]

2. METHODS

Participants and procedure

This was a cross-sectional observational study. An online questionnaire was purposely developed and made available through Google From between 10 Feb 2022 and 30 Mar 2022. All students who were eligible and were invited to participate in the study. The invitation was sent through a school social media group which all eligible students belong to. The students have access to this group, 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 344 students, a total of 2,444 students participated in the study (response rate: 14 %).

Instrument

The questionnaire was developed based on a literature review including (1) Information about COVID-19 2) COVID-19 vaccine 3) COVID-19 prevention from WHO, Ministry of Public Health (2) related studies where several common items were used to assess each of the dimensions analyzed in this study. The similar items were then grouped and redundant items were removed.

A preliminary version of the instrument was reviewed by the 3 experts to validate its content. A pretest was then performed with a small sample of high school students 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 19 questions; 3 about sociodemographic data (gender, age, COVID-19 vaccine receipt) and 16 items divided into 2 sections

COVID-19 related knowledge : this scale consisted of 10 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 contracting COVID-19 : this scale was composed of 1 item, and response categories consisted of a five-point likert scale (from 1-strongly disagree, to 5 agree) with the highest score corresponding to more risk perception of contracting COVID-19. The "Risk perception of contracting COVID-19" factor consisted of 1 item and varied from 1 to 5 and the higher values corresponded to a more risk perception of contracting COVID-19.

Attitude toward COVID-19 prevention after COVID-19 Vaccine receipt : this scale referred to the number of preventive behaviors adopted and included 5 items (receiving a booster dose, hygienic hand washing, wearing mask and avoiding crowd area) The data analysis reports to 5 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 sum of all items were added up. A high score on this scale indicated good attitude toward COVID-19 prevention after COVID-19 vaccine receipt, ranging from 5 to 25.

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 and attitude) 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 Approval.

Ethical approval was obtained from the study sites prior to data collection, and consent was assumed as completing the survey questions. Participants were informed that their participation was voluntary and that they could withdraw from the study at any point or choose not to answer any question. Participants' confidentiality was maintained as no identifying information was collected and findings will be disseminated only in aggregate.

Ethical Considerations

This research uses an anonymous data collection method to collect data from grade 10-12 Students of Satit Prasarnmit School, Bangkok, Thailand, by using Google form. The invitation was sent to the school social media group. 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.

3. RESULT

This study comprised a total of 344 participants. The sociodemographic characteristics of the sample are presented in Table 1. Most participants were female (n=233, 67.7%). Most participants' class levels were M.5 (n=216, 62.8%) followed by M.6 (n=72, 20.9%) and M.4 (n=56, 16.3%) respectively. 338 (98.3%) of the participants received Covid-19's vaccine 2 doses while the others did not receive (n=6, 1.7%).

Regarding knowledge about Covid-19, participants revealed good knowledge about Covid-19, correctly answering the mean of 8.32 (SD=1.43) questions in a total of 10. Female participants showed higher knowledge scores (M=8.42, SD=1.40) than

male participants (M=8.12, SD=1.49). Class level of M.5 showed the highest Covid-19 related knowledge scores of 8.39 (SD=1.40). Participants who received the vaccine showed the highest Covid-19 related knowledge score of 8.33 (SD=1.43).

Concerning risk perception of getting Covid-19, participants revealed too much concern about Covid-19, risk perception of contracting Covid-19 the mean of 3.35 (SD=1.07) range in a total of 5. Female participants showed a higher range of scores (M=3.37, SD=1.06) than male participants (M=3.32, SD=1.10). Class level of M.6 showed the highest Covid-19 related risk perception of Covid-19 range of 3.43 (SD=1.10). Participants who did not receive the vaccine showed the highest concern of getting Covid-19 range of 3.50 (SD=1.22).

Participants showed a good level of attitude toward Covid-19 preventive behaviors with the average score of 21.49 (SD=2.70) from 25 full scores. Female participants showed higher attitude scores (M=21.76, SD=2.46) than male participants (M=20.91, SD=3.09). Class level of M.6 showed the highest attitude toward preventive behaviors of Covid-19 score of 21.51 (SD=2.96). Participants who did not receive the vaccine showed higher scores of attitude toward Covid-19 (M=22.33, SD=2.42) while the others who received the vaccine got 21.47 (SD=2.71).

Table 1: Differences in outcomes according to the sociodemographic characteristics of participants (N = 344)

Sociodemographic characteristics	N (%)	Knowledge about Covid-19 (Range 0-10) M (SD)	Risk perception of contracting COVID-19 (Range 1-5) M (SD)	Attitude toward preventive behaviors (Range 5-25) M (SD)
Gender				
Male	111 (32.3)	8.12 (1.49)	3.32 (1.10)	20.91 (3.09)
Female	233 (67.7)	8.42 (1.40)	3.37 (1.06)	21.76 (2.46)
Class Level				
M.4	56 (16.3)	8.25 (1.47)	3.32 (0.90)	21.45 (2.52)
M.5	216 (62.8)	8.39 (1.40)	3.34 (1.11)	21.49 (2.67)
M.6	72 (20.9)	8.18 (1.52)	3.43 (1.10)	21.51 (2.96)
2 Doses of COVID-19 Vaccine receipt				
Yes	338 (98.3)	8.33 (1.43)	3.35 (1.07)	21.47 (2.71)
No	6 (1.7)	8.00 (1.79)	3.50 (1.22)	22.33 (2.42)
Total	344 (100)	8.32 (1.43)	3.35 (1.07)	21.49 (2.70)

The analysis of the correlations between the outcomes of study - knowledge, risk perception and attitudes -revealed the existence of positive and statistically significant correlations between the attitude toward preventive behaviors and knowledge related to COVID-19 ($r=.177^{**}$, $p<0.01$). However, there was negative and statistically significant correlation between knowledge about COVID-19 and risk perception of contracting COVID-19 ($r=-0.111^{**}$, $p<0.05$).

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

Variables	Knowledge about COVID-19	Risk perception of contracting COVID-19	Attitude toward preventive behaviours
Knowledge about Covid-19	1		
Risk perception of contracting COVID-19	-.111*	1	
Attitude toward preventive behaviors	.177**	0.06	1
**Correlation is Significant at the 0.01			
*Correlation is Significant at the 0.05			

Results from the generalized linear model indicated that the knowledge about COVID-19 (Beta=.173, $p<0.01$), gender (Beta=.134, $p<0.01$) had a statistically significant effect on the knowledge about COVID-19.

Table 3: Generalized linear model predicting attitude toward COVID-19 after being vaccinated

	B	SE	EXP (β)	Sig (p)	95% CI	
					Lower	Upper
Gender	0.776	0.309	0.134	0.012	0.168	1.383
Class Level	0.016	0.236	0.004	0.946	-0.448	0.48
Covid-19 2 Dose	1.217	1.098	0.059	0.268	-0.943	3.378
Knowledge about COVID-19	0.327	0.101	0.173	0.001	0.129	0.525
Risk perception of contracting COVID-19	0.187	0.134	0.074	0.163	-0.077	0.451

4. DISCUSSION

A total of 344 high school students participated in the study. Most of the participants were female (n=233, 67.7%). Grade 11 participants were the majority (n=216, 62.8%). 98.3% (n= 338) of participants had already received 2 doses of COVID-19 vaccine. Most participants had a good level of knowledge regarding COVID-19 (M=8.32, SD=1.43). Most participants perceived risk of contracting COVID-19 at a moderate level (M=3.35, SD=1.07). And most of them had a good level of attitude toward COVID-19 prevention after receiving COVID-19 (M=21.49 (2.70). Knowledge about COVID-19 (r=.177** ,p<0.01) had a positive correlation with attitude toward COVID-19 prevention after receiving COVID-19 vaccination. Knowledge (Beta=.173, p<0.01) and Gender (Beta=.134, p<0.01) about COVID-19 predicted attitude toward COVID-19 adoption.

The result of this study indicated that participants had a good level of knowledge about COVID-19, people may be aware of COVID-19 properly as an outcome of the study being carried out in early 2022, after the COVID-19 pandemic had been controlled for more than years [7-9]. Female participants showed a higher knowledge about COVID-19, felt more risky of contracting COVID-19 and had a better attitude toward COVID-19 prevention than male participants. It might be explained by the fact that women are more sensitive, cautious, and specific than men [10-11]. Grade 11 participants displayed the highest knowledge score, while grade 12 participants' had the lowest COVID-19 knowledge score. Perhaps it's because grade 12 students are focusing only on preparing for college admissions and aren't concerned with anything besides studying on exam preparation. This could explain why grade 11 students' degree of knowledge on COVID-19 was higher than that of grade 12 students. Grade 11 students may have more time, therefore they pay attention to news, which may include COVID-19-related issues [12]. Grade 12 students presented the highest level of risk perception of contracting COVID-19 and attitude toward COVID-19 prevention behavior. This might be as a result of the fact that the majority of grade 12 students are currently working to gain admissions to colleges, doing a lot of additional classes outside of the house to prepare for exams, and feeling more at risk of receiving the COVID-19 than other students. And this could explain having the highest attitude score of COVID-19 prevention behavior [13]. Participants who had already received 2 doses of COVID-19 vaccine had a better knowledge score than those who had not but a lower risk perception of contracting COVID-19 and a lower attitude toward COVID-19 prevention. This may be due to the fact that those who have already had their full doses of vaccination feel protected from COVID-19; as a result, they perceive COVID-19 as being less risky to contract, and as a result, they are less likely to prevent it than they were before. Concerning, Attitude toward COVID-19 preventive behavior after receipt COVID-19 vaccine, female participants revealed a higher Attitude toward COVID-19 preventive behavior after receipt COVID-19 vaccine (M=21.76, SD=2.46) than male participants (M=20.91, SD=3.09). This can be because females are more cautious than males when it comes to health risks and difficulties [14]. Grade 12 students (M=21.51, SD=2.96) showed the highest Attitude toward COVID-19 preventive behavior after receiving COVID-19 than other grade levels. This may be because students in grade 12 felt that they should take more preventive measures against COVID-19 because their perception of the danger of developing the disease was so high. Those who had not received 2nd dose of COVID-19 vaccine (M=22.33, SD=2.42) showed a higher Attitude toward COVID-19 preventive behavior after receipt COVID-19 vaccine than those who had received a 2nd dose (M=21.47, SD=2.71). This may be caused by participants' limited understanding of the fact that the vaccination cannot completely prevent COVID-19 infection; even after receiving one or two doses, they may still contract the disease if they do not take the required protections.

Limitation

Respondents may access the Internet to search for information when filling out online forms to collect data. During the survey Respondents may not have observed the symptoms of the disease when collecting data during the COVID-19 pandemic, during the lockdown measures, or while working or studying from home. Information was analyzed for the

research of secondary school students. The questionnaire's level of difficulty reflected the public's degree of social knowledge. participation of students, as some might not have answered the questionnaire. making it difficult to process information.

5. CONCLUSIONS

A total of 344 high school students participated in the study. Most of the participants were female (n=233, 67.7%). Grade 11 participants were the majority (n=216, 62.8%). 98.3% (n= 338) of participants had already received 2 doses of COVID-19 vaccine. Most participants had a good level of knowledge regarding COVID-19 (M=8.32, SD=1.43). Most participants perceived risk of contracting COVID-19 at a moderate level (M=3.35, SD=1.07). And most of them had a good level of attitude toward COVID-19 prevention after receiving COVID-19 (M=21.49 (2.70). Knowledge about COVID-19 (r=.177** ,p<0.01) had a positive correlation with attitude toward COVID-19 prevention after receiving COVID-19 vaccination. Knowledge (Beta=.173, p<0.01) and Gender (Beta=.134, p<0.01) about COVID-19 predicted attitude toward COVID-19 adoption.

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