Willingness to be vaccinated against COVID-19 of High School Students in Bangkok

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Abstract: **The object of this research is to study willingness to be vaccinated against COVID-19. This is a cross sectional study that studied a group of students of Samsenwittayalai School in Bangkok. All grade 10-12 students of Samsenwittayalai School were invited to participate in completing an online questionnaire. A total of 303 students participated during June - July 2021. COVID-19 willingness to be vaccinated against COVID-19 was assessed. Descriptive statistics, Pearson's correlation and the generalized linear model were used to analyse the study. For findings, the students revealed a moderate level of willingness to vaccinate against COVID-19 (M=3.57, SD=1.21). There was an existence of a positive correlation between willingness to be vaccinated against COVID-19 and attitude toward new about COVID-19. From the generalized linear analysis, attitude toward news about COVID-19 was had a significant effect on willingness to be vaccinated against COVID-19 (Beta=0.193, p<0.01)**

Keywords: **COVID-19 Vaccine, willingness to be vaccinated, adolescent.**

1. INTRODUCTION

Covid-19 is a contagious disease that is spreading today and is prevalent all over the world. by spreading the disease easily COVID-19 pandemic. As of 2021 May 28, there were more than 200 million people infected with COVID-19 around the world and deceased 4 million people. [1] We have found that there is currently no definite cure for this disease and that the original and present infections are very different by observing the symptoms found in the early days. It's very different from the present and some of the symptoms are just like the common cold. But when the symptoms are detected, it is like a silent threat that can kill us in a short time by the current treatment in Thailand that uses drugs that are effective against various viruses. Currently, favipiravir is a new antiviral drug developed to treat people with HIV. Coronavirus but the choice of each drug depends on the symptoms and underlying disease of the patients. Because each drug has side effects. [2]

The first cases of covid-19 were reported in Wuhan, China in December 2019. It is thought that the source of the virus is likely to come from markets where animals were traded, which may increase the spread of the virus in the early stages. This type of virus is the spread of the virus from an animal medium to humans. Coronaviruses is a virus that causes respiratory tract infections. Although, the current medical science is advanced and modern. But this emerging disease It is a disease that no one has ever studied and knows how to treat, making it very new to medical science, resulting in health problems besides health problems. [3]

Covid-19 pandemic also affects socio-economic problems as well causing entrepreneurs to lose income and the business had to be shut down or some businesses may have to reduce the number of employees to solve the problem of expenses more than income. In 2020, the economy in many countries around the world must slow down and the unemployment rate is increasing in Thailand

Coronavirus transmitted in 4 ways [4] : 1) droplets or aerosols 2) Airborne transmission 3) Surface transmission 4) Fecal-oral.Protecting yourself from COVID-19 can be done by wearing a mask, keeping a distance of at least 1-2 meters between each other, and keeping your body healthy. If you have a close history with a Covid-19 patient should self-quarantine for 14 days and go for testing or testing for infection when symptoms such as coughing, fever, fatigue, etc.

Therefore, if we can comply with the protection that the Ministry of Public Health has set It can help reduce the spread of germs. It allows us to return to normal life much faster if everyone helps each other.

This research aims to study behaviors to prevent and cope with the spread of Coronaviruses to find guidelines for the need for covid19 vaccination individuals.

2. METHODS

Participants and procedure

This was a cross-sectional observational study. An online questionnaire was purposely developed and available through Google from 6 June 2021 to 27 June 2021. All students who were eligible and were invited to participate in the study. The invitation was sent to classrooms' social media groups so they all eligible for this study receive equal change to participate in the study) The students have access to their classroom' social media 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 [no.1650 of population] students, a total of 303 students participated in the study (response rate: 18 %).

Instrument

The questionnaire was developed based on a literature review including (1) COVID-19 symptoms, how it transmits, treatment, protection, COVID-19 situation (2) studies performed on the same topics were several common items were used to assess each of the dimensions analyzed in this study. The proposed items were then grouped and redundant items were removed.

A preliminary version of the instrument was reviewed by three researchers to validate its content. A pretest was then performed with a small sample of 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 27 questions; 5 about sociodemographic date (gender, age,year level,Habitation, Living Arrangement) and 22 items divided into 4 sections

Knowledge about COVID-19: this scale consisted of 15 questions related to symptom, mode of transmission, prevent, vaccine. 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. Cronbach's alpha for the scale calculated with the sample of this study was acceptable

Attitude toward news about COVID-19: this scale was composed of 2 items, and response categories consisted of a five-point likert scale (from 1-strongly disagree, to 5 agree) with the highest score corresponding to more positive attitudes toward preventive behaviors. Some items on the scale were inverted for the analysis. A sum of all the items was made to obtain a score. The "Attitude toward news about COVID-19" factor consisted of 2 items and varied from 2 to 10 and the higher values corresponded to a more positive attitude toward news about COVID-19.

Perception of risk getting infected with COVID-19: this scale was composed of 4 items, and response categories consisted of a five-point likert scale (from 1-strongly disagree, to 5 agree) with the highest score corresponding to more positive attitudes toward preventive behaviors. Some items on the scale were inverted for the analysis. A sum of all the items was made to obtain a score. The "Perception of risk getting infected with COVID-19" factor consisted of 4 items and varied from 4 to 20 and the higher values corresponded to a more positive perception of Risk getting infected with COVID-19

Willingness to be vaccinated against COVID-19.: these scales referred to the number of Willingness to get vaccinated against COVID-19 and included 1 item. The data analysis reports to 1 item. Each item was answered using a five-point scale (From 1-Never to 5-Always), A high score on this scale indicated high willingness ranging from 1 to 5.

Statistical analysis

The analysis was performed using SPSS for windows, version 26. To analyse 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 was presented in absolute (n) and relative (%) frequencies, mean (M) and standard deviations (SD). To assess the differences between the outcome variables Knowledge, Attitudes, Perception, Willingness 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 Samsen Wittayalai School, Bangkok, Thailand, by using Google form. The invitation was sent to classrooms' 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.

3.   RESULTS

This study comprised a total of 303 students. The sociodemographic characteristics of the sample are presented in Table. 1 Most students were female (n=221, 72.9%). Most students' ages were 17 (n=148, 48.8%) followed by 16 and below years of age (n=103, 34%) and 18 and above years of age (n=52, 17.2%) respectively. Most Students studied in M.6(n=172, 56.8%). Most habitation were Condo/Dormitory/Apartment (n=206, 68%) and lived with family with children and/or senior (n=162, 53.5%)

Regarding knowledge about COVID-19, participants revealed good knowledge about COVID-19, correctly answering mean of 13.77 (SD=1.00) questions in a total of 15. Female participants showed higher knowledge scores (M=13.81, SD=0.93) than male participants (M=13.63, SD=1.18). Age 17 years showed the highest COVID-19 related knowledge score of 13.82 (SD=1.01). Students who studied M.5 showed the highest COVID-19 related knowledge score of 13.80 (SD=1.00). Students who had lived at Condo/Dormitory/Apartment and lived alone had the highest COVID-19 knowledge score of 13.82 (SD=1.06) and 13.90 (SD=0.88) respectively.

Students showed an average level of perception of news about COVID-19 preventive behavior with the average score of 6.95 (SD=1.66) from 10 full scores. Male participants showed higher perception of News score (M=7.29, SD=1.72) than female participants (M=6.82, SD=1.62). Age of 18 and above showed the highest COVID-19 related perception of News score of 7.46 (SD=1.53). Students who studied M.6 showed the highest COVID-19 related perception of News score of 7.02 (SD=1.61). Students who had lived at home and lived with family without children and/or seniors had the highest COVID-19 related perception of News score of 7.15 (SD=1.82) and 6.99 (SD=1.66) respectively.

Concerning the perception of risk getting infected with COVID-19 preventive behavior with the average score of 14.03 (SD=4.20) from 25 full scores. Male participants showed higher perception of risk of getting infected score (M=14.50, SD=4.06) than female participants (M=13.85, SD=4.25). Age of 18 and above showed highest COVID-19 related perception of risk of getting infected with a score of 15.12 (SD=4.25). Students who studied M.6 showed the highest COVID-19 related perception of risk of getting infected with a score of 14.48 (SD=4.05). Students who had lived at townhouses and lived alone had the highest COVID-19 related perception of risk of getting infected with a score of 15.00 (SD=3.78) and 16.20 (SD=4.10) respectively.

Willingness to be vaccinated against COVID-19 preventive behavior with the average score of 3.57 (SD=1.21) from 5 full scores. Male participants showed higher willingness to Vaccinate against score (M=3.59, SD=1.36) than female participants (M=3.57, SD=1.16). Age of 18 and above showed highest COVID-19 related willingness to Vaccinate against a score of 3.69 (SD=1.39). Students who studied M.5 showed the highest COVID-19 willingness to Vaccinate against a score of 3.66 (SD=1.27). Students who had lived at home and lived with family with children and/or seniors had the highest COVID-19 related willingness to Vaccinate against a score of 3.90 (SD=1.26) and 3.67 (SD=1.16) respectively.

Table 1: Differences in outcomes according to the sociodemographic characteristics of participants (N=400)

Sociodemographic Characteristic		Knowledge about COVID-19 (Range 0-15)		Attitude toward of news about COVID-19 (Range 2-10)		Perception of risk getting infected with COVID-19 (Range 4-20)		Willingness to be Vaccinated against COVID-19 (Range 1-5)	
	N (%)	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Gender		13.77	1	6.95	1.66	14.03	4.2	3.57	1.21
Male	82 (27.1)	13.63	1.18	7.29	1.72	14.5	4.06	3.59	1.36
Female	221 (72.9)	13.81	0.93	6.82	1.62	13.85	4.25	3.57	1.16
Year Level									
Grade10	51 (16.8)	13.65	1.09	7	1.85	12.94	4.54	3.39	1.15
Grade11	80 (26.4)	13.8	1	6.76	1.63	13.73	4.19	3.66	1.27
Grade12	172 (56.8)	13.78	0.98	7.02	1.61	14.48	4.05	3.59	1.2
Habitation									
House	38 (15.8)	13.67	0.83	7.15	1.82	14.38	4.22	3.9	1.26
Townhouse	49 (16.2)	13.63	0.93	7.06	1.72	15	3.78	3.53	1.24
Condo/Dormitory/ Apartment	206 (68)	13.82	1.06	6.87	1.6	13.71	4.27	3.51	1.19
Living Arrangement									
Without children and/or senior	131 (43.2)	13.81	0.99	6.99	1.66	14.32	4	3.47	1.27
With children and/or senior	162 (53.5)	13.72	1.02	6.93	1.6	13.65	4.32	3.67	1.16
Live Alone	10 (3.3)	13.9	0.88	6.7	2.54	16.2	4.1	3.4	1.26

The analysis of the correlations between the outcomes of the study - knowledge, Perception of News, Perception of Rick getting infected and Willingness to Vaccinate revealed the existence of positive and statistically significant correlations between willingness to vaccinated against COVID-19 and attitude toward news about COVID-19 (r=.253, p<0.01). (Table2.)

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

Variable	Knowledge about COVID-19	Attitude toward of news about COVID-19	Perception of Risk getting infected with COVID-19	Willingness to be Vaccinated against COVID-19
Knowledge about COVID-19	1			
Attitude toward of news about COVID-19	-0.025	1		
Perception of risk getting infected with COVID-19	0.089	.253**	1	
Willingness to be Vaccinated against COVID-19	0.051	.208**	0.104	1
**Correlation is significant at 0.01				

Results from the generalized linear model indicated that attitude toward news about (Beta=.193, p<0.01) had a statistically significant effect on willingness to be vaccinated against COVID-19. Table3.

Table 3: Generalized linear model prediction of willingness to be vaccinated against COVID-19

	B	SE	Beta	Sig
Intercept	1.383	1.089		.205.
Gender	0.064	0.158	0.023	0.687
Age	0.068	0.143	0.039	0.637
Year Level	-.002.	0.129	-0.001	0.987
Habitation	-0.125	0.094	-0.078	0.182
Living Arrangement	0.129	0.126	0.059	0.304
Knowledge about COVID-19	0.067	0.069	0.056	0.331
Attitude toward of News about COVID-19	0.141	0.044	0.193	0.001
Perception of Rick getting infected with COVID-19	0.012	0.017	0.04	0.503

4. DISCUSSION

From the study of knowledge, attitudes and behaviors in preventing and dealing with the spread of COVID-19 among students in Grade 10-12 at Samsen Wittayalai School to find guidelines for the need for covid19 vaccination of each individual found that the respondents had a better understanding of COVID-19 in good level Because during the COVID-19 data collection period, there has been an epidemic in Thailand for more than 1 year. [5] The early spread of COVID-19 in Thailand was terrifying. because it can be spread from person to person through mucus droplets Saliva from the nose or mouth that comes out when a patient with COVID-19 by getting infected with COVID-19 It can be obtained from inhaling aerosols from patients infected with COVID-19, causing the majority of respondents to study information to protect themselves from the spread of COVID-19. [6]Grade11 and Grade 12 have knowledge and understanding about COVID-19 It is at the highest level in high school because at grades 11-12 As a class, they spend most of their time preparing for university. [7] Most women have a better level of cognition about COVID-19 than males because women are physically weaker than men, they need to study and understand more about COVID-19 than men. [8] [9] [10] Respondents residing at Condos/dormitories/apartments are also learning and understanding about COVID-19. It is at a better level than people living in other ways because of the residence Condos/dormitories/apartments are shared with others and shared common areas that make them more prone to infection and those who live alone are aware and understanding of COVID-19 is at a higher level many students have moved from other provinces to study at Samsen Wittayalai School causing the need to live alone and receive more parental care than students living with their parents. Parents have been given knowledge and instructions on how to prevent them from leaving the place of stay on a regular basis. Which affects the attitude level in preventing covid 19 because parents are urged every day This allows the single-resident respondents to be aware and understand about Covid 19, including how to prevent and take good care of yourself.

Most Samsen Wittayalai schools are aware of the risk of contracting COVID-19. At the middle level, it was found that during the data collection period There are measures to control the spread of COVID-19 infection, resulting in educational institutions. The tutorial was closed. [11] Due to the rapidly increasing epidemic day by day, as of 1 May 2021 the number of confirmed cases was 1891 compared to 31 May 2021 the number of confirmed cases was 5485. [12] [13]

As a result, students study online at home. When students spend most of their time indoors, they feel less at risk. because there is no departure from the residence but in Grade12 the perceived risk of contracting COVID-19 was at the highest level from the high school level. Because of the highest perceptions of COVID-19 information among respondents, this may result in greater risk perception than other groups. From the results of the study, it was found that Most males have a perceived risk of contracting COVID-19. than women because their attitudes about COVID-19 prevention were higher than female students. from your education destiny It was found that the male respondents perceived the risk more than the female group. [14] And men are more at risk of contracting COVID than women. [15]

High school students at most Samsen Wittayalai schools are willing to receive the COVID-19 vaccine. Due to the lack of confidence in the effectiveness of the vaccines provided by the government at the time of data collection, Thailand has a policy to supply only 2 vaccine types [16] [17] are Sinovac and AstraZeneca.[18] From the news about the effectiveness of the vaccine type provided by the government resulting in people's lack of confidence. There are also youth groups dissatisfied with the administration of the government. There were many protests.

[19] [20] From before the COVID-19 outbreak (2020), after the first wave of lockdown period (2020) and the present (2021) and with the COVID-19 outbreak until the research data collection period. There is a large increase in the number of infected people. [12] [13] This leaves the majority of respondents unconvinced about the efficacy of vaccines and the health system's provision of information about COVID-19 vaccination. Grade 11 Willingness to get vaccinated against COVID-19 It is at the highest level in the high school level. Because Grade11 of high school is the level that has come out of the address a lot. Most of them often come out to study extra at an educational institute for use in university entrance examinations. [7] Make a willingness to get vaccinated to prevent infection with Coronaviruses. And most of them are males who are willing to get vaccinated against COVID-19. More than females because females may be concerned about side effects after vaccination against COVID-19. In addition, respondents who live at home and have children/elderly are more willing to receive the COVID-19 vaccine. It is at the highest level of any other type of living because there are many people living at home together. If an infection occurs, it is easily transmitted and there is no vaccine against COVID-19 for children. It makes me feel that if we're vaccinated, we can protect ourselves from some of the Coronaviruses.

Limitation

This study was conducted via an online form, respondents may use the Internet to find answers. During the period of data collection, it was under the COVID-19 lockdown measures, most participants were studying online from home and they might have a high risk of contracting the disease. Data was collected from secondary school students of only one high school in Bangkok which might not be representative of all secondary students in Bangkok.

5. CONCLUSIONS

Factors affecting the willingness to get vaccinated against COVID-19 was attitude toward news about COVID-19. There was a positive correlation between attitude toward news about COVID-19 and perception of risk getting infection (r=0.253, p<0.01). From the study, it was recommended that more health education programs and news updates about COVID-19 should be provided to students so that students are aware of potential risks of the disease which would increase the level of willingness to be vaccinated against COVID-19.

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