

Willingness to vaccinate against coronavirus disease-19 of high school students

Arpatravee Luenarm

Chonkanyanukoon School, Tambon Bang Pla Soi, Amphoe Mueang Chonburi, Chon Buri, Thailand.

Correspondence to: Arpatravee Luenarm, E-mail: arpatravee@gmail.com

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ABSTRACT

Background: Over a year of the spreading of coronavirus disease (COVID-19), there is now the development of COVID-19 vaccines with various developers. In Thailand, there are two developers; Sinovac and AstraZeneca. Due to the limited supply, the government of Thailand announced the first very first group to be vaccinated is health workers and persons younger than 18 were not recommended to take the vaccine. According to the Thailand situation, knowing the willingness of Grade 12 students is important because they are the next group of people to take the vaccine. The government should consider the factors that make them or make them not take the vaccine for the country to pass through the COVID-19.

Objectives: The purpose of this study was to assess knowledge and understanding regarding COVID19, risk perception of getting COVID-19, level of news perception about COVID-19, and the concern with the willingness to vaccinate against COVID-19 among grade 12 students of Chonkanyanukoon school.

Materials and Methods: The study was conducted using a questionnaire in April 2021. A total of 246 students participated. Questions related to knowledge and understanding regarding COVID19, risk perception of getting COVID-19, level of news perception about COVID-19, and the concern with a willingness to vaccinate against COVID-19 were assessed. Differences between outcomes and socio-demographics were analyzed through independent *t*-test and the ANOVA. For the willingness to vaccinate was analyzed by a generalized linear model. This study is quantitative research, which involves developing a survey. The survey is in the format of Google Forms which was developed from March 01 to April 27, 2021, and was sent out to Grade 12 students of Chonkanyanukoon school, Chonburi, Thailand students on April 08. The survey was voluntary and 246 responses were received.

Results: Students revealed good knowledge and understanding regarding COVID-19, correctly answering 8.5 scores (standard deviation [S.D.] = 1.64) from 10 questions, moderate level of risk perception at an average score of 17.17 (S.D. = 5.99) out of 25 questions, and a high Level of COVID-19 news perception which the average score of 7.97 (S.D. = 1.48) from ten questions and willingness to vaccinate against COVID-19 with the average score of 3.10 (S.D. = 1.73) out of five questions. The news perceptions of COVID-19 (Beta = 0.314, $P = 0.01$) and the chance of contracting COVID-19 (Beta= 0.130, $P = 0.01$).

Conclusion: This study provides useful data to identify the probability of the students taking the COVID-19 vaccine. Consistency is essential to promote good knowledge and attitude in taking the COVID19 vaccine.

KEY WORDS: Coronavirus Disease-19; Coronavirus Infection; Health Knowledge; Coronavirus Disease-19 Vaccine; High School Student

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INTRODUCTION

Coronavirus disease (COVID-19) is a newly found virus that causes an infectious disease. It was discovered for the 1st time on December 31, 2019. Cases of pneumonia with an unknown etiology have been reported in Wuhan, China, according to World Health Organization (WHO). On January

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7, 2020, Chinese authorities identified a novel coronavirus as the cause, which was given the temporary designation “2019-nCoV.” When aerosols or droplets come into contact with COVID -19, it can get contaminated.^[2]

The COVID-19 vaccinations were available in early 2021. Vaccines work by simulating an infection to help develop immunity. Vaccine-induced infections, on the other hand, nearly never result in sickness. It really activates the immune system, causing antibodies and T-lymphocytes to be produced. Once the vaccine-induced imitation infection has passed, the body is left with a supply of memory T- and B-lymphocytes that will remember how to fight the disease in the future. COVID-19 vaccinations significantly lower the risk of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection by collaborating with the body’s natural defenses to generate disease immunity safely. After immunization, it usually takes a few weeks for the body to produce protection against COVID-19. As a result, it is critical to follow all preventive measures following immunization, such as wearing a mask, washing hands often, and maintaining social distance. More critically, these vaccines do not fully protect everyone against COVID-19 infection. Vaccines, in fact, can assist to lessen the severity of sickness and significant problems that can occur if a person becomes sick. According to the most recent information, it is unknown how long the vaccine’s efficacy will stay following inoculation. Furthermore, there is currently inadequate evidence to evaluate if COVID-19 vaccinations are effective in immunocompromised patients or people on immunosuppressive medicines.

According to the WHO, COVID-19 can cause side effects, the majority of which are mild to moderate and go away on their own after a few days. It is possible that more serious or long-lasting adverse effects will occur. After receiving the COVID-19 vaccines, a person should be asked to stay at the immunization location for 15–30 min in case of an adverse reaction.

COVID-19 vaccinations significantly lower the risk of SARS-CoV-2 infection by collaborating with the body’s natural defenses to generate disease immunity safely. After immunization, however, it usually takes a few weeks for the body to produce protection against COVID-19. As a result, it is critical to take all preventive measures following immunization, such as wearing a mask and washing hands often. More critically, these vaccines do not fully protect everyone against COVID-19 infection. Vaccines, in fact, can assist to lessen the severity of sickness and significant problems that can occur if a person becomes infected.

To decrease the infection of COVID-19 is to vaccinate. Knowing the willingness of people and factors that make them want to take the vaccine is important. The government should give positive information about the vaccine for people to be vaccinated. Thus, when a safe and effective COVID-19

vaccination becomes available, governments must be prepared to ensure widespread distribution and equal access to the people who are willing to take a COVID-19 vaccine.

MATERIALS AND METHODS

Instruments

The survey was developed based on four aspects in the following: Knowledge and understanding regarding COVID19, risk perception of getting COVID-19, level of news perception about COVID-19, and the concern with willingness to vaccinate against COVID-19. A preliminary draft of the survey was reviewed by three infection control specialists of public hospitals in Thailand. Further revisions were made as seen as appropriate.

The final draft of the survey contained 33 questions; six about demographic data, ten about knowledge and understanding regarding COVID-19, five about risk perception of getting COVID-19, ten about level of news perception about COVID-19, and two questions about the concern with willingness to vaccinate against COVID-19.

Demographic Data

The responses to the questions consisted of age, level, gender, study program, parent’s occupation, and chronic disease. A number was assigned to each response for each question (e.g., for gender, 1 was assigned to male and 2 was assigned to female).

Knowledge and Understanding Regarding COVID-19

The questions consisted of ten multiple-choice questions in regard to the knowledge of transmission and prevention of COVID-19. A point was assigned to each correct answer; for multiselect questions, 1 point was assigned to each correct selected choice. The sum of all the responses indicated the knowledge of COVID-19 of each individual, in which higher scores indicate more knowledge.

Risk Perception of Getting COVID-19

There are five multiple-choice questions for each individual to answer. The responses to the questions consisted of the individual’s risk perception of getting COVID-19. The five responses are limited to the following in general: Very much, much, moderate, least, and not at all. The answer was assigned a number (5 – very much, 4 – much, 3 - moderate, 2 - least, and 1 – not at all). Other specific answers not listed in the former are assigned numbers as seen as appropriate (e.g., 0 – careless). The sum of all the responses indicates the risk perception of getting COVID-19, with higher scores indicating more risk perception of getting COVID-19.

Level of News Perception about COVID-19

The questions consisted of ten multiple-choice questions in level of news perception about COVID-19. A point was assigned to each correct answer; for multiselect questions, 1 point was assigned to each correct selected choice. The sum of all the responses indicated the news perception about COVID-19 of each individual, in which higher scores indicate more knowledge.

Ethical Consideration

This research collected the data from grade 12 students of Chonkanyanukoon school, Chonburi, Thailand. The data were collected by Google form. The survey on Google form was sent anonymously. On the institution social media group (closed group), the participants were informed of the objective, survey method, and the expected outcomes of this research before doing the survey. The participants agreed to do the survey. If the participant wishes to withdraw the research information, it can be done at any time. All information is kept confidential by the researcher.

Statistically Analysis

The analysis was performed using SPSS for Windows, version 26.0. To analyze the psychometric characteristic of the scales, an exploratory factor analysis, using principal component analysis with varimax rotation, was carried out. The descriptive analyses were presented in absolute (n) and relative (%) frequencies, mean (M), and standard deviation (SD). To assess the differences between the outcome variables (knowledge, risk perception, news perception, and willingness to vaccinate against COVID-19) and the socio-demographic used, as appropriate. The correlations between the outcomes of the study were calculated by Pearson's correlation. Finally, a generalized linear model was calculated to determine the predictive variables of the preventive behaviors.

RESULTS

This study consisted of a total of 246 students in Chonkanyanukoon school, Chonburi, Thailand. The demographic data of the sample are presented in Table 1. All of the students were in grade 12. Most of the students were 18 years old ($n = 194$, 78.9%). 45 students (18.3%) and 7 students (26.0%) are 17 years old and 16 years old, respectively. Most participants were women ($n = 216$, 87.8%). The highest number of students were studying Sciences and Mathematics ($n = 109$, 44.3%), Arts-Math ($n = 61$, 24.8%), and Language-Arts ($n = 76$, 30.9%). Most of the participants' parent's occupation were business owner ($n = 88$, 35.8%) follow by company's employee ($n = 43$, 17.5%) and officialdom ($n = 40$, 16.3%). Most of the students had no chronic disease ($n = 220$, 89.4%).

In regard to the knowledge about COVID-19 most students revealed good level of knowledge about COVID-19 ($n = 165$, 67.1%) moderate level of knowledge about COVID-19 ($n = 66$, 26.8%) and low level of knowledge about COVID-19 ($n = 15$, 6.2%). Age group of 18 years old showed the highest level of knowledge about COVID-19 with the average score of 8.8 ($S.D. = 1.46$) from ten questions, 17 years old age group had the average score of 7.44 ($S.D. = 1.84$) and 16 years old age group had the average score of 7.0 ($S.D. = 1.29$). Female students showed higher level of knowledge about COVID-19 more than male students at the average score of 8.56 ($S.D. = 1.60$). Sciences and Mathematics program showed the highest average score of 8.78 ($S.D. = 1.38$) followed by Language-Arts program with the average score of 8.51 ($S.D. = 1.48$) and Arts-Math program with the average score of 8 ($S.D. = 2.08$). Students who have a parent working as a medical personnel showed the highest average score of 9.38 ($S.D. = 0.96$), followed by Officialdom with the average score of 8.95 ($S.D. = 1.15$) and company's employee with the average score of 8.40 ($S.D. = 1.61$). Students with no chronic disease showed the higher average score than students with chronic disease at the average score of 8.57 ($S.D. = 1.65$).

In concern with risk perception of getting COVID-19, most of the students felt a high level of risk getting COVID-19 ($n = 107$, 43.6%), following by low level of risk getting COVID-19 ($n = 99$, 40.3%) and moderate level of risk getting COVID-19 ($n = 40$, 16.4%). Age group of 16 showed the highest level of risk in getting COVID-19 with the average score of 19 ($S.D. = 4.12$) from 25 questions followed by 18 years old group with the average score of 17.22 ($S.D. = 6.30$) and 17 years old group with the average score of 16.69 ($S.D. = 4.77$). Male students showed the higher concern of risk getting COVID-19 than the female students with the average score of 19.17 ($S.D. = 5.88$). Language-Arts program showed the highest concern of risk of getting COVID-19 with the average score of 17.80 ($S.D. = 5.98$), followed by Sciences and Mathematics with the average score of 17.03 ($S.D. = 5.93$) and Arts-Math with the average score of 16.64 ($S.D. = 6.15$). Students who have a parent working as a company's employee showed the highest concern of getting COVID-19 with the average score of 19.04 ($S.D. = 5.42$) followed by freelancers with the average score of 17.36 ($S.D. = 5.49$) and business owners with the average score of 16.78 ($S.D. = 6.04$). Students with no chronic disease showed the higher concern of risk of getting COVID-19 than the students who have a chronic disease with the average score of 17.33 ($S.D. = 6.05$).

Most of the students revealed a good level of news perception about COVID-19 ($n = 165$, 67%), moderate level of news perception about COVID-19 ($n = 66$, 26.8%), and low level of news perception about COVID-19 ($n = 15$, 6.2%). Age group of 18 showed the highest level of news perception about COVID-19 with the average score of 8.25 ($S.D. = 1.39$) from ten questions followed by 17 years old group with the

Table 1: Differences in outcomes according to the sociodemographic characteristics of participants ($n=246$)

Socio-demographic Characteristics	<i>n</i>	%	Knowledge (Range 0–10)		Risk Perception (Range 5–25)		News Perception (Range 3–10)		Willingness to vaccine (Range 1–5)	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age			8.50	1.64	17.17	5.99	7.97	1.48	3.10	1.73
16	7	2.8	7	1.29	19	4.12	6.71	1.70	3.14	1.77
17	45	18.3	7.44	1.84	16.69	4.77	6.98	1.32	2.8	1.7
18 and above	194	78.9	8.8	1.46	17.22	6.30	8.25	1.39	3.16	1.73
Gender										
Male	30	12.2	8.10	1.83	19.17	5.88	8	1.53	3	1.82
Female	216	87.8	8.56	1.60	16.90	16.90	7.97	1.48	3.11	1.72
Study program										
Sciences and Mathematics	109	44.3	8.78	1.38	17.03	5.93	8.11	1.44	3.01	1.69
Arts-Math	61	24.8	8	2.08	16.64	6.15	7.79	1.55	3.02	1.65
Language-Arts	76	30.9	8.51	1.48	17.80	5.98	7.93	1.48	3.29	1.85
Parent's Occupation										
Medical personnel	39	15.9	9.38	0.96	16.31	5.90	8.87	0.83	3.36	1.65
Company's Employee	43	17.5	8.40	1.61	19.04	5.42	7.41	1.48	2.98	1.78
Business owner	88	35.8	8.26	1.82	16.78	6.04	7.88	1.56	2.92	1.70
Civil Servant	40	16.3	8.95	1.15	16.70	6.79	8.52	1.21	3.30	1.67
Freelance	36	14.6	7.78	1.77	17.36	5.49	7.28	1.45	3.17	1.89
Chronic disease										
Yes	26	10.6	7.96	1.46	15.88	5.35	7.69	1.29	2.46	1.63
No	220	89.4	8.57	1.65	17.33	6.05	8.01	1.50	3.17	1.72
Total	246									

average score of 6.98 (S.D. = 1.32) and 16 years old group with the average score of 6.71 (S.D. = 1.70). Male students showed the higher level of news perception about COVID-19 than female students with the average score of 8 (S.D. = 1.53). Students who studied in Sciences and Mathematics program showed the higher average score of 8.11 (S.D. = 1.44), followed by Language-Arts program with the average score of 7.93 (S.D. = 1.48) and Arts-Math program with the average score of 7.79 (S.D. = 1.55). Students who had a parent working as a medical personnel showed the highest level of news perception with the average score of 8.87 (S.D. = 0.83) followed by officialdom with the average score of 8.52 (S.D. = 1.21) and business owner with the average score of 7.88 (S.D. = 1.56). Students with no chronic disease showed the higher level of news perception about COVID-19 than the students who had a chronic disease with the average score of 8.01 (S.D. = 1.50)

Concerning with willingness to vaccinate against COVID-19, most of the students showed low level of willingness to vaccinate against COVID-19 ($n = 138$, 56.1%), and high willingness to vaccinate against COVID-19 ($n = 108$, 43.9%). Students of 18 years old group showed the highest willingness to vaccinate against COVID-19 with the average score of 3.16 (S.D. = 1.73) out of five questions followed by 16 years old with the average score of 3.14

(S.D. = 1.77) and 17 years old with the average score of 2.8 (S.D. = 1.7). The female students showed the higher average score of 3.11 (S.D. = 1.72). Students who studied in the Language - Arts showed the highest average score of 3.29 (S.D. = 1.85) followed by Arts - Math with the average score of 3.02 (S.D. = 1.65) and Sciences and Mathematics with the average score of 3.01 (S.D. = 1.69). Students who had a parent working as a medical personnel showed the highest willingness to vaccinate against COVID-19 with the average score of 3.36 (S.D. = 1.65), followed by Officialdom with the average score of 3.30 (S.D. = 1.67) and Freelance with the average score of 3.17 (S.D. = 1.89). Students with no chronic disease showed the higher willingness to vaccinate against COVID-19 than the students who had a chronic disease with the average score of 3.17 (S.D. = 1.72) [Table 1].

The analysis of correlations between the outcomes of the study - knowledge about COVID-19, risk perception of getting COVID-19, news perception about COVID-19, and Willingness to vaccinate against COVID-19 revealed the existence of positive and statistically significant correlations between knowledge about COVID-19 and risk perception of getting COVID-19 and the willingness to vaccinate against COVID-19 ($r = 0.221$, $P < 0.01$), risk perception of getting COVID-19 and the willingness to vaccinate against COVID-19 ($r = 0.438^{**}$, $P < 0.01$) and news perception

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

Variables	Knowledge about COVID-19	Risk Perception of Getting COVID-19	News Perception about COVID-19	Willingness to Vaccinate against COVID-19
Knowledge about COVID-19	1			
Risk Perception of Getting COVID-19	0.288**	1		
News Perception about COVID-19	0.615**	0.045	1	
Willingness to Vaccinate against COVID-19	0.221**	0.438**	0.236**	1

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

Variables	B	SE	Beta	Sig
Age	-0.058	0.218	-0.017	0.789
Gender	0.433	0.306	0.082	0.159
Study Program	0.072	0.075	0.055	0.343
Parent Occupation	0.038	0.060	0.037	0.528
Congenital Disease	0.483	0.318	0.086	0.130
Knowledge about COVID-19	-0.077	0.083	-0.073	0.359
Risk Perception of getting COVID-19	0.130	0.018	0.450	0.000
News Perception about COVID-19	0.314	0.086	0.270	0.000

about COVID-19 and the willingness to vaccinate against COVID-19 ($r = 0.236^{**}$, $P < 0.01$) [Table 2].

Results from the generalized linear model indicated that news perception about COVID-19 and the risk perception of getting COVID-19 had a statistically significant effect on the willingness to vaccinate against COVID-19 adopted. (Beta = 0.314, $P < 00.01$) and (Beta = 0.130, $P < 00.01$) [Table 3].

DISCUSSION

The level of knowledge about COVID-19 of the participants showed a high understanding about COVID-19. This may be because of the information from social media, school, and parents. Thai teenagers can easily access the internet everywhere and anytime. According to Wayuparp^[3] revealing the results of a survey of Thai internet users in 2018 found that Thai teenagers used the internet for about 6 h a day. Also, Wisdomstudio^[4] revealed that the Gen Z behaviors under 19 years old found that this group had an understanding of almost all forms of media used. They were born in a period of social media. And able to recognize and adapt to the speed of change The most popular programs were YouTube 99.8%, Line 96.7%, and Facebook 91%. This is the program most used by Gen Z behaviors under 19 years old. They tend to use media for communicating with friends, watching movies, and following each other's stories. Regina^[5] conducted a study about knowledge, attitude, and COVID-19 preventive behavior among university students in Portugal revealed a good level of knowledge about COVID-19, female students showed a higher level of knowledge about COVID-19 than male students. Samran^[6] conducted a study about association

between Knowledge, Attitudes and Preventive Behaviors of Pandemic Influenza A (H1N1). Among Students at Ubon Ratchathani University and found out that the students who have high knowledge about the new influenza virus H1N1 are a group of students who can access the internet easier than the other groups. Poonaklom^[7] studied Factors Associated with Preventive Behaviors towards COVID-19 among Adults in Kalasin Province, Thailand found out that the knowledge of the participants is moderate. Most of them graduated with a bachelor's degree and their income level is no more than 25000 baht per month, which may be one factor that prevented them from accessing the internet. Glomjai^[8] studied Knowledge and Behavior of People regarding Self-care Prevention from Novel Coronavirus 2019 (COVID-19) and found out that most of the participants who graduated from elementary school, most of their age were 51–60 and had a piece of good knowledge about COVID-19. For the general public information, it is necessary to promote knowledge and public relations. For people to have a higher level of understanding, media access is a vital part of getting information. The amount of education is one factor, but it is not the most important.

Students showed a moderate level of risk perception of getting COVID-19, maybe it is because the period of collecting this survey is under COVID-19 measures. They did not feel at risk because of the school break (On 4–31 January, the government announced to close the schools in 28 provinces including Chonburi and starting an online class. Ministry of Education of Thailand,^[9] Furthermore, there was a postponement of the open semester. (The schools regularly open on April 16 but they postponed to June 14, Office of the Basic Education Commission^[10]) (MOE announcement) and COVID-19 measures - stay home, most of the fun shops were closed (Prachachat^[11]) (reference for these measures).

Furthermore, students showed a high level of news perception about COVID-19. It may due to their behavior of using smartphones and social media that increased every year. In addition, the number of COVID-19 cases had jumped rapidly every day. Today, COVID-19 is the main focus of everyone. A lot of news agencies reported about it. Shearer^[12] revealed that more than eight in ten U.S. adults (86%) say they get news from a smartphone, computer, or tablet "often" or "sometimes," including 60% who say they do so often. This is higher than the portion who get news from television, though 68% get news from Television at least sometimes and

40% do so often. Furthermore, Suci^[13] revealed that social media is now a part of the news diet of an increasingly large share of the U.S. population. Moreover, Fayossy^[14] revealed that people often use Twitter, Facebook, and Instagram, and most people have a social media cycle over and over.

Students showed a moderate willingness to get the COVID19 vaccine. It may occur because the options of vaccines in Thailand are not varied enough for them to choose. Besides, they do not really feel at risk because of the COVID19 measure. The group of students who showed the highest willingness was students whose parents worked as Medical personnel. This is likely because their parents gave them positive feedback about the vaccine and they had seen that there is no negative feedback from the vaccine toward their parents. According to Woluwe,^[15] he had studied about Willingness to get vaccinated against covid-19: profiles and attitudes toward vaccination and found out that 34% of the participants reported that they will definitely get vaccinated against COVID-19. Intended uptake was strongly associated with age, opinion on the government's dealing with the COVID-19 pandemic. Furthermore, Daly *et al.*,^[16] conducted a study about Public Trust and Willingness to Vaccinate Against COVID-19 in the US From October 14, 2020, to March 29, 2021, and found out that Significant declines in estimates of hesitancy were observed across demographic groups and were largest among Hispanic (15.8% point decrease, from 52.3% to 36.5%) and Black participants (20.9% point decrease, from 63.9% to 43%). In March 2021, hesitancy was high among adults aged 18–39 years (44.1%), those without a degree (42.9%), and households earning \$50 000 or less (43.7%). Estimates of public trust in vaccination were low across all demographic groups in the demographic group. In addition, Harapan *et al.*,^[17] studied about Acceptance of a COVID-19 Vaccine in Southeast Asia: A cross-sectional Study in Indonesia and found out that among 1359 respondents, 93.3% of respondents (1268/1359) would like to be vaccinated for a 95% effective vaccine, but this acceptance decreased to 67.0% (911/1359) for a vaccine with 50% effectiveness. This may be concluded that the willingness of taking the vaccine is depending on the effectiveness of the vaccine, how the government is dealing with the vaccine and the trust people have in the vaccine.

Limitations of this Study

The students were given the questionnaire during a COVID-19 period. As a result, spreading out the questionnaire proved challenging. In addition, the questionnaire was given in Google form. Therefore, the participants who can access this questionnaire were the group of people who had the internet and smartphone. Furthermore, Chonkanyanukoon school is a school that had only girl students in the lower secondary school and coeducation in the upper secondary. For this reason, the number of female participants was greater than the number of male participants.

CONCLUSION

This study revealed a high knowledge and understanding regarding COVID-19, moderate risk perception of getting COVID-19, a high level of news perception about COVID-19, and the moderate concern with a willingness to vaccinate against COVID-19 in grade 12 students of Chonkanyanukoon school, Chonburi, Thailand. In addition, it indicates that even though the students have a high knowledge and understanding about COVID-19, the willingness of taking the COVID-19 vaccine is not as high as it is. Thus, the students do not really feel the risk of performing at school or coming to school. The willingness of taking the vaccine depends on the effectiveness of the vaccine, how the government dealt with the vaccine, and the trust people have in the vaccine. Therefore, to promote the students to take the COVID-19 vaccine, social media had an important part in creating a positive attitude for the students because social media are the easiest way for teenagers to access the news. Not only social media, but the government needs to build trust in vaccines for the people to be able to take the vaccines.

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REFERENCES

1. Suwangool P. Key Things to Know about COVID-19 Vaccines, Bangkok Hospital; 2021. Available from: <https://www.bangkokhospital.com/en/content/know-well-before-getting-the-covid-19-vaccine>. [Last accessed on 2021 Jun 06].
2. World Health Organization. Coronavirus Disease (COVID-19). Geneva: World Health Organization; 2021. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19>. [Last accessed on 2021 Jun 06].
3. Surangkana W. Ministry of Digital Economy and Society, The Standard; 2018. Available from: <https://www.thestandard.co/thai-internet-user-behavior>. [Last accessed on 2021 Jun 07].
4. Wisdomstudio. Gen Z Behavior, What Social Media does this Generation use the Most? Wisdom; 2020. Available from: <https://www.wisdomstudio.co.th/knowledge/1928>. [Last accessed on 2021 Jun 07].
5. Regina A, Catarina S, Jose P. Knowledge, attitudes and preventive behaviors toward COVID-19: A study among higher education students in Portugal. *Emerald Insight* 2020;35:318-28. Available from: https://www.drive.google.com/file/d/1g8c-ljnjhenuvwmhhlxcgpr98_xem1w/view. [Last accessed on 2021 Jun 06].
6. Suebsamran P. Association between Knowledge, Attitudes and Preventive Behaviors of Pandemic Influenza A (H1N1) among Students at Ubon Ratchathani University, Esanpedia; 2021. Available from: <http://www.esanpedia.oar>.

- ubu.ac.th/e-research/sites/default/files. [Last accessed on 2021 Jun 06].
7. Pornpat P, Varnish R, Payaowadee A, Baramet P. Factors associated with preventive behaviors towards Coronavirus disease (COVID-19) among adults in Kalasin Province, Thailand. *OSIR* 2020;13:78-89. Available from: <http://www.osirjournal.net/index.php/osir/article/view/211>. [Last accessed on 2021 Jun 08].
 8. Glomjai T. Knowledge and behavior of people regarding self-care prevention from novel Coronavirus 2019 (COVID-19). *Nurs Public Health Educ J* 2020;2:29-38. Available from: <https://www.drive.google.com/file/d/14wqcwahezyezcs5avigxh5-zif2nnoxr/view>. [Last accessed on 2021 Jun 06].
 9. Ministry of Education of Thailand. The Ministry of Education has Announced that Educational Institutions Under the Supervision and Supervision of 28 Provinces will be Closed for Special Reasons, *moe360*; 2021. Available from: <https://www.moe360.blog/2021/01/02/closed-special-reason>. [Last accessed on 2021 Jun 08].
 10. Office of the Basic Education Commission. The Ministry of Education has Postponed the School Start Date from June 1 to June 14, *OBEC*; 2021. Available from: <https://www.obec.go.th/archives/436838>. [Last accessed on 2021 Jun 06].
 11. Prachachat. Bangkok Order to Close 31 Risky Places-Must Wear Masks 100% Effective April 26. Prachachat; 2021. Available from: <https://www.prachachat.net/general/news-655069>. [Last accessed on 2021 Jun 06].
 12. Elisa S. More than Eight-in-Ten Americans get News from Digital Devices. Washington, DC, United States: Pew Research Center; 2021. Available from: <https://www.pewresearch.org/fact-tank/2021/01/12/More-than-eight-in-ten-americans-get-news-from-digital-devices>. [Last accessed on 2021 Jun 06].
 13. Peter S. More Americans Are Getting Their News From Social Media. *Forbes*; 2019. Available from: <https://www.forbes.com/sites/petersuciu/2019/10/11/more-americans-are-getting-their-news-from-social-media/?sh=15d6a9bb3e17>. [Last accessed on 2021 Jun 06].
 14. Fayossy. 23 Reasons Why Most People Spend their Time on Social Media, *MARKETINGOOPS*; 2014. Available from: <https://www.marketingoops.com/media-ads/social-media/23-reasons-why-people-spend-more-time-social-media>. [Last accessed on 2021 Jun 06].
 15. Bruxelles W. Willingness to Get Vaccinated against COVID-19: Profiles and Attitudes Towards Vaccination, *UCLouvain*; 2020. Available from: <https://www.uclouvain.be/fr/instituts-recherche/irss/helesi/actualites/willingness-to-get-vaccinated-against-covid-19-profiles-and-attitudes-towards-vaccination.html>. [Last accessed on 2021 Jun 06].
 16. Daly M, Jones A, Robinson E. Public trust and willingness to vaccinate against COVID-19 in the US from October 14, 2020, to March 29, 2021. *JAMA* 2021;325:2397-9.
 17. Harapan H, Abram W, Amanda Y, Wira W. Acceptance of a COVID-19 Vaccine in Southeast Asia: A Cross-Sectional Study in Indonesia, *ResearchGate*; 2020. Available from: https://www.researchgate.net/publication/342924024_acceptance_of_a_covid-19_vaccine_in_southeast_asia_a_cross-sectional_study_in_indonesia. [Last accessed on 2021 Jun 06].

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