



The relationship between the perception of social media related to the side effects of COVID-19 vaccines and vaccination hesitancy among upper secondary education from three districts in Bangkok

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Abstract

The COVID-19 pandemic created a catastrophic impact on many people's lives globally. Vaccination is one of the effective ways that many countries use to control the situation. Vaccines are made to strengthen the immune system and are the key to achieve herd immunity against the coronavirus. However, news regarding the adverse side effects of COVID-19 vaccines is spread via social media platforms which are popular among high school students. This news could prompt vaccine hesitancy, which in turn could be disastrous for controlling the spread of COVID-19. The purpose of this study is to examine the relationship between the perception of news in social media that refers to those side effects and vaccine hesitancy. We conducted a cross-sectional survey consisting of 19 questions, and the questions were cross-checked and approved by 3 experts. The data were obtained from 224 high school participants from 3 districts (Pathumwan, Wang Thonglang, and Phra Nakhon) in Bangkok, Thailand. We used Statistical Product and Service Solutions version 27.0 (SPSS) for data analysis. We discovered that there is no correlation between the two variables as shown by Pearson's correlation test ($r = -0.044$). We think that there might be other possible factors affecting vaccine hesitancy such as the individual's acceptable safety measures, the ethical principle of autonomy (the right for patients to choose their own treatment), and the lack of knowledge about COVID-19 vaccines. Hopefully, this study will be beneficial to the public, as it could raise awareness about the world's ongoing problem.

Keywords: COVID-19, Side effects of COVID-19 vaccines, Vaccine hesitancy, Social media, Perception, High school

INTRODUCTION

Nowadays, social media plays a vital role in people's everyday lives, especially in high school students during the current global COVID-19 pandemic. Previous research states that teenagers have increased social media usage since the onset of the global pandemic due to health measures such as social distancing (Drouin *et al.*, 2020). Social media platforms are used as tools for engaging the public,

including information and news about the COVID-19 pandemic (Merchant *et al.*, 2021).

Over a year has passed, but the COVID-19 pandemic still covers the world with despair. People have been panicking since the first outbreak. Fortunately, in November 2020, Pfizer and BioNTech announced the success of vaccines against COVID-19 in phase 3 clinical study (Pfizer Inc., 2020). Vaccines are

advantageous in teaching and strengthening our naive immune system to fight the disease, and they are also vital for herd immunity. Herd or population immunity occurs when most of the population is immune to the disease (World Health Organization [WHO], 2020). Nevertheless, COVID-19 vaccines may lead to adverse side effects which are typically mild or moderate such as fever and pain in the injected area (WHO, 2021). Although it is uncommon, a few people experienced severe side effects. According to a Bangkok Post journal published on April 21st, 2021, there are seven people who suffer from stroke-like symptoms which happen 5-10 minutes after receiving the Sinovac vaccine in Rayong and Chon Buri, Thailand. At that time, approximately 712,610 recipients were vaccinated (Center for COVID-19 Situation Administration [CCSA], 2021). However, there is currently no clear conclusion that the Sinovac vaccine is the cause of the symptom, as reported by Thai Enquirer.

Many news agencies selectively report the adverse side effects from a few cases of vaccine recipients as the main topic. In addition, anti-vaccination messages are posted on social media platforms which could have a huge effect on groups of people who believe in the news without thinking carefully. Moreover, vaccine hesitancy, the refusal of vaccines, is a problem that is on the list of top 10 threats to global health (WHO, 2019). Therefore, this study is conducted to determine a correlation between people's perception of social media that presents news about adverse side effects of COVID-19 vaccines and their hesitancy to take a vaccine. The hypothesis of this study is that "the higher frequency of receiving news, the higher reluctance to get vaccinated". We hope that this study will be able to raise public awareness about vaccine hesitancy, which could delay the world's goal to achieve herd immunity against the COVID-19 (The New York Times, 2021).

METHODOLOGY

The cross-sectional survey was designed to examine the relationship between the Thai teenagers' perception of news regarding the adverse side effects of COVID-19 vaccines and the hesitancy to get vaccinated. The questionnaire consisted of 19 questions, which were divided into 3 sections: (1) general information, (2) perception of social media related to the side effects of the COVID-19 vaccine,

and (3) COVID-19 vaccination hesitancy. Most of the questions are modified from WHO. A few questions were from Dror *et.al* (4th Question) and Larson *et. al* (5th Question). The answers to each question are arranged in a five-point Likert scale (i.e., from (1) strongly disagree to (5) strongly agree). Furthermore, Item-Objective Congruence (IOC) was assessed by 3 experts, and any comments were used in item revisions.

The anonymous sampling participants were Grade 10th to 12th students whose schools are located in 3 districts (Pathumwan, Phra Nakhon, and Wang Thonglang) in Bangkok, Thailand. The online survey was sent via social media platforms (i.e., Instagram, Facebook, Twitter, and Line). To determine the internal reliability of our questions in the questionnaire, we collected answers from 30 participants as a pilot group. Statistical Product and Service Solutions version 27.0 (SPSS) was used for data analysis. Cronbach Alpha's reliability test from the pilot study group was calculated and the score was 0.805 which indicated acceptable internal reliability. We then sent out the questionnaire to all potential participants. We received a total of 224 responses. A few responses including those with 2 missing values and 2 participants who never follow the news on social media were discarded before data analysis. Eventually, 220 responses were analysed.

INSTRUMENTS

The following questions were sent to participants to collect the survey data.

Part 1: General information

1. Which grade are you studying?
2. Which district is your school located in?
3. Please select your gender.

Part 2: Perception of social media related to the side effects of COVID-19 vaccines

4. You follow the news about COVID-19 on social media (i.e. Facebook, Instagram, Twitter, etc.).
5. You know COVID-19 well.
6. After receiving news on social media, you think that there is a high chance of getting infected by the COVID-19 virus.

7. After receiving news on social media, you are worried about getting infected by the COVID-19 virus.
8. After receiving news on social media, you think that vaccination decreases the chance of getting COVID-19.
9. After receiving news on social media, you are worried about the side effects of COVID-19 vaccines (e.g. stroke, partial paralysis, etc.).
10. After receiving news on social media, you are worried about the efficacy of vaccines that are currently available in Thailand.
11. After receiving news on social media, you are worried about the safety of vaccines that are currently available in Thailand.
12. After receiving news on social media, you are worried about the fake vaccines that might be brought into our country.
13. You would recommend your family and friends taking the COVID-19 vaccine.
14. COVID-19 vaccines should be compulsory by the government.
15. You do not believe that physiological immunity could solely fight against COVID-19 without getting vaccinated.
16. Your health could be at risk if you do not get vaccinated.
17. You do not believe that there are better measures (i.e. social distancing or wearing masks) other than the vaccine to prevent the spread of COVID-19.
18. Would you be willing to accept more than one type of vaccine for yourself if there was little pain involved?
19. You still want to take the vaccine because you think that the chance of having side effects after the COVID-19 vaccination is very low.

Part 3: COVID-19 vaccination hesitancy

RESULTS

Table 1. General Information

		Percentage (%)
Grade	10th	8.03
	11th	25.45
	12th	66.52
District	Wang Thonglang	48.66
	Pathumwan	41.96
	Phra Nakhon	9.38
	Male	31.3
	Female	65.6

Gender	Others	3.1
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Table 1 illustrates the participant’s general information. The majority of the participants are studying in Grade 12th, consisting of 66.52%. Those studying in Grade 11th and Grade 10th are 25.45% and 8.03%, respectively. In addition, the percentage of high school students in Wang Thonglang comprise 48.66% of the total. Consecutively, those studying in Pathumwan and Phra Nakhon districts account for 41.96%, and 9.38%. Lastly, 65.6% of our samples were female while 31.3% were male.

Table 2. Descriptive Statistics (Mean and Standard Deviation)

	Mean	Std. Deviation	N
Perception of vaccine side effects	3.8348	0.5421	220
Demand for COVID-19 vaccines	3.3383	0.72863	220

Table 2 represents the mean and standard deviation of the two variables. The “perception” variable’s mean is 3.8348, while the standard deviation is 0.5421. The mean represents the high perception regarding vaccine side effects. Focusing on the “demand for COVID-19 vaccines”, the mean is 3.3383, referring to the moderate need for vaccination, and the standard deviation is 0.72863.

Table 3. The correlation between the perception of the side effects of the COVID-19 vaccine through social media and vaccination hesitancy

		Perception	Demand for vaccines
Perception of vaccine side effects	Pearson Correlation	1	-0.044
	Sig. (2-tailed)	-	0.52
	N	220	220

Table 3 displays that the results didn’t support our hypothesis that there is a correlation between perception of vaccine side effects and demand for COVID-19 vaccines of high school students. There is

no statistically significant difference ($p < 0.01$) between the two variables. The correlation coefficient, $r = -0.044$, reveals that there is no correlation between perception and demand for vaccines.

DISCUSSION

According to Table 3, there is an unexpected result that determines no correlation between the perception of vaccine side effects and the demand for COVID-19 vaccines. Descriptive statistics in Table 2 showed that the mean of both the perception of vaccine side effects and demand for COVID-19 vaccines is relatively high, as shown by 3.8348 and 3.3383 out of 5, respectively. Nevertheless, the standard deviation in the demand for COVID-19 vaccines is high, as shown by 0.72863. Referring to the raw data, there may be other factors such as personal safety measures that prevent individuals' exposure to the virus, the patient's autonomous rights, and insufficient knowledge about COVID-19 vaccines that influence the results.

In accordance with question 6 in the perception part regarding the individual's concern of the high chance of getting infected by the COVID-19 virus, the majority of the participants (35.6%) chose to answer 2 (disagree). The rationale behind this could be that some individuals have their own satisfactory safety measures to protect themselves from the particular virus. Also, receiving news constantly could result in people's awareness of places with a high risk of infection, and not travelling to those places. Therefore, they may not be afraid of getting infected by the COVID-19 virus.

With regard to mandatory vaccination by the government, answers to question 14 in the COVID-19 vaccination hesitancy part demonstrated that most of the respondents strongly disagree (25.3%) and are undecided (24.9%). These data suggested that the majority prefers to have their own decision-making rights for vaccination based on the autonomy principle. Each treatment should depend on the individual's willingness and consent (Beauchamp and Childress, 2013).

Lastly, from the result of question 19 in the part that included information on people's attitude for chances of experiencing side effects that occur right after vaccination, it displayed that participant's choices were answering 3 (Undecided) at 28.4%. We think that the majority of the participants may not have enough knowledge of the COVID-19 vaccine side effects. The probable explanation might be that they do not really understand how vaccines are created (Ward *et al.*, 2017). COVID-19 vaccine creation and the mechanism of vaccines inside the body are not widely

well known by a large proportion of the world population due to the lack of access to COVID-19 vaccine's original research.

CONCLUSION

This study focused on examining the relationship between perception of social media related to the side effects of the COVID-19 vaccine and vaccination hesitancy among upper secondary education from three districts in Bangkok. We hypothesized that the frequency of receiving news correlates with the refusal of COVID-19 vaccines, but our cross-sectional survey with Pearson's correlation test revealed that there is no correlation between the two variables. Several other factors have been discussed in detail. Another factor could be that the participants were not broad enough; therefore, more research should be conducted in the future. Although we did not find any correlation, we believe that this study could educate people and raise awareness about vaccine hesitancy.

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