

Factors Affecting COVID-19 Vaccine Acceptance among Adolescents: Theory of Planned Behavior

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Abstract- Vaccine is produced to scale down the adverse effects of viral infections among people. Most adolescents experience Covid-19 without symptoms, so it becomes a source of transmission. Therefore, it is significant to give them vaccines. The current study employed an analytic observation method with a cross-sectional approach. It was conducted in Malang. 415 adolescents were involved through a simple random sampling technique. The dependent variable is Covid-19 vaccine acceptance among adolescents. The independent variables include subjective norm, perceived behavioral control, attitude, and intention. The data were obtained through a questionnaire, and they were analyzed by using multiple linear regression. Subjective norm ($b=0.15$, CI 95% = -0.01 to 0.30, $p=0.051$), perceived behavioral control ($b=0.13$, CI 95% = 0.03 to 0.23, $p=0.013$), attitude ($b=0.36$, CI 95% = 0.28 to 0.43, $p<0.001$), and intention ($b=0.14$, CI 95% = 0.03 to 0.25, $p=0.012$) pose a relationship with Covid-19 vaccine acceptance among adolescents, and the finding is statistically significant. Subjective norm, perceived behavioral control, attitude, and intention are factors affecting Covid-19 vaccine acceptance among adolescents.

Index Terms- subjective norm, perceived behavioral control, attitude, intention, adolescent

I. INTRODUCTION

Vaccination is intended to strengthen one's immune system, fighting against infectious viruses (Nicholson, 2016). Covid-19 vaccine is perceived to be capable of diminishing morbidity and mortality rate caused by the virus. Currently, government highly encourage the administration of the Covid-19 vaccine to snuff out the growing number of cases. A massive promotion of vaccine is extremely significant to secure society from Covid-19 and recover the socioeconomic conditions of the country (Ribal et al., 2020; Liu et al., 2021). Even though vaccine cannot guarantee the total protection of somebody against coronavirus, it can decrease the likelihood of getting serious symptoms. Besides, the vaccination of Covid-19 promotes herd immunity. Low vaccination

acceptance rates will hinder the herd immunity achievement. It's important because some people can't get the vaccine for reasons. The pandemic has happened for quite some time, and everyone expects to play a part in overcoming it. Children and adolescents have an important position as a breaker in the chain of infection and breaking the chain of inappropriate information (Alqayoudhi et al., 2020).

The Indonesian Pediatrician Association (IDAI) recently issued some recommendations regarding the Covid-19 vaccine for children and adolescents. The reason IDAI recommends this is the high number of positive cases of Covid-19 in children. According to data, 12.6% of Indonesian children aged 0-18 years are infected with Covid-19, meaning that 1 in 8 children has been infected with this virus. Therefore, in addition to strict health protocols, the Covid-19 vaccine is given to children to break the chain of transmission between adults and children (Babicki, Pokorna-Kałowak, Doniec, & Mastalerz-Migas, 2021) (Kostoff et al., 2021). The Ministry of Health published a circular letter to encourage Covid-19 vaccination in all provinces and cities. It was written in Circular number HK.02.02/I/1727/2021 concerning vaccination stage 3 for the vulnerable people and 12-17 year old teens. The letter was issued under some considerations, such as escalation of confirmed cases among teens. There confirmed over 2 million cases, and 10.6% of them were active cases. It was too unfortunately to find that 260,000 of the happened to 0-18 year old children, and over 108,000 cases happened to the age of 12-17. To the worse case, more than 600 of them were died.

Several factors influence one's refusal or unwillingness to perform a behavior, including the behavior of the Covid-19 vaccination. According to the Theory of Planned Behavior developed by Ajzen and Fishbein, 3 factors can influence a person's desire to perform a behavior, namely attitude, subjective norms, and perceived behavioral control (Tommasetti, Singer, Troisi, & Maione, 2018). This theory says that a person's interest in performing a behavior can be predicted through attitude, how a person thinks about the judgment of others if the behavior is carried out, and control perceptions about the ease or difficulty of the behavior. The greater the intention/desire of a person to behave in a certain way, the more likely the behavior is to be realized.

Intentions/desires later become a very important factor as a determinant of behavior. This study aims to analyze the factors that influence adolescent behavior related to receiving the Covid-19 vaccination using the Theory of Planned Behavior

II. IDENTIFY, RESEARCH AND COLLECT IDEA

1. Study Design

This research employed an analytic observational method with a cross-sectional research design. It was conducted in Malang City, East Java, from January to March 2022.

2. Population and Sample

It adopted a simple random sampling technique with the population of adolescents in Malang. The inclusion criteria were adolescents aged 14-24 who participated in the online

questionnaires. During the study, the researchers obtained a sample of 415 adolescents aged 14-24 years.

3. Variables

The independent variables of this study included subjective norms, perceived behavioral control, attitudes, and intentions while the dependent one was Covid-19 vaccine acceptance among adolescents.

4. Instruments

To collect the data, it used a questionnaire from several points, subjective norms, perceived behavioral control, attitudes, and intentions which were compiled based on a literature review as a source and carried out a reliability test using Cronbach's Alpha with SPSS.

5. Data Analysis

The collected data were tested for normality by using Kolmogorov Smirnov test with SPSS. To analyze the tested data, it employed a multiple linear regression method.

III. RESULTS

1. Sample characteristics

Table 1 shows that the most dominant age in this study was the age range of 18-24 years (69%). Most of the research subjects involved in this study were female (84%) with a high school education (91%).

Table 1. Sample characteristics

Characteristics	Criteria	n	%
Age	14-17	129	31
	18-24	286	69
Sex	Men	67	16
	Women	348	84
Subject's education	last Junior High School	22	5
	Senior High School	379	91
	Diploma 3	14	4
	Elementary School	50	12
Mother's education	last Junior High School	38	9
	Senior High School	128	31
	D3	60	15
	D4	3	0.8
	S1	106	25
	S2	29	7
	S3	1	0.2
	Housewife	29	7
	Farmer	38	9
	Mother's job	Private	154
Entrepreneur		125	30
Civil servant		69	17

2. Bivariate Analysis

Bivariate analysis using Pearson correlation aims to determine whether there is a relationship between the independent variable (subjective norms, perceived behavioral control, attitudes, and intentions) and the dependent variable (acceptance of Covid-19 vaccination in adolescents).

Table 2. Bivariate Analysis

Independent variable	Behavior		p
	n	r	
Subjective norm	415	0.10	0.056
Perceived behavioral control	415	0.38	<0.001
Attitude Intense	415	0.58	<0.001
	415	0.40	<0.001

Table 2 indicates a relationship between subjective norms and behavior ($p=0.056$), perceived behavioral control and behavior ($p<0.001$), attitudes and behavior ($p<0.001$), and intentions and behavior ($p<0.001$).

3. Multivariate Analysis

Table 3. Multivariate Analysis

Variable independent	b	CI 95 %		p
		Lower	Upper	
Subjective Norm	0.15	-0.01	0.30	0.051
Perceived behavioral control	0.13	0.03	0.23	0.013
Attitude	0.36	0.28	0.43	<0.001
Intense	0.14	0.03	0.25	0.012

Number of samples = 415

Adj R-Squared = 0.37

$p = <0.001$

Table 3 provides detail information regarding the fact that subjective norm ($b = 0.15$, CI 95% = -0.01 to 0.30, $p = 0.051$), perceived behavioral control ($b = 0.13$, CI 95% = 0.03 to 0.23, $p = 0.013$), attitude ($b = 0.36$, CI 95% = 0.28 to 0.43, $p < 0.001$), and intense ($b = 0.14$, CI 95% = 0.03 to 0.25, $p = 0.012$) increase acceptance of the Covid-19 vaccination in adolescents.

In Table 2, we witness that the regression coefficient for the subjective norm variable is positive, meaning that once the subjective norm variable increases by one unit, the Covid-19 vaccine acceptance among adolescents increases by 0.15 units. Therefore, the current study concludes a close relationship between subjective norms and adolescents' acceptance of the Covid-19 vaccine.

Meanwhile, the data also indicate a positive result on the regression coefficient for the perceived behavioral control variable, which means that the higher the perceived behavioral control, the higher the acceptance of the Covid-19 vaccination among adolescents. The b value of 0.13 shows an increase in Covid-19 vaccine acceptance among adolescents by 0.13 unit once the perceived behavioral control value increases by one unit. It proves a positive relationship between perceived behavioral control and their acceptance on Covid-19 vaccination.

A part from the perceived behavior, the regression coefficient of the attitude variable also shows positive, which means that the better the attitude, the higher the Covid-19 vaccination acceptance among adolescents. The b value of 0.36 represents an increase in Covid-19 vaccine acceptance among adolescents by 0.36 provided that the attitude value increases by one unit. Therefore, attitude is positively related to their acceptance, and statistically, it is significant.

Lastly, the regression coefficient for the intention variable is also positive. It shows that the better the intention, the higher their acceptance on Covid-19 vaccination. The b value of 0.14 means that Covid-19 vaccination acceptance among adolescents increases by 0.14 whenever the intention value increases by one unit. Therefore, intention is closely related to the Covid-19 vaccination acceptance among adolescents, and it is also statistically significant.

IV. DISCUSSION

Efforts to increase acceptance of the Covid-19 vaccine through increasing knowledge are carried out continuously by the government as the regulator and even become a national task force for handling vaccinations in Indonesia through the socialization of health workers spread throughout the region. The effectiveness of a vaccine to protect against disease transmission has been proven through clinical trials. The available vaccines are proven to be safe and are able to increase immunity against Covid-19. Herd immunity brings a very positive impact if all people have been vaccinated (Hodgson et al., 2021; Wong, 2021). Therefore, the implementation of the Covid-19 vaccination is part of the pandemic prevention strategy. After getting vaccinated, it takes time for the formation of immunity. Immunity will be optimal if a person gets the complete dose according to the recommended

schedule. As long as vaccination coverage is not broad, group immunity has not been formed so that it will have an impact on the potential for transmission which is still high.

Subjective norms are social enforcements to influence an individual to engage or not engage in certain behaviors that are considered important regarding support or rejection of a behavior (Bai and Bai, 2020; Willis et al., 2020). Subjective norms focus on assessing the views of people who are important to adolescents regarding the acceptance of the Covid-19 vaccine, assessing the views of families, social circles, and teachers who view teenagers as daring to vaccinate Covid-19. A study proved that subjective norms have a positive effect on intentions to get a covid-19 vaccine (Guidry et al., 2020). A teenager will perform a certain behavior if the behavior is acceptable to the people around him. Therefore, perception or one's view of another person's beliefs will influence the intention to perform or not to perform the behavior under consideration. People can choose to act on a particular behavior even though they dislike the behavior, and it bases the direct effect of subjective norms on intention (Passafaro, Livi, & Kotic, 2019).

Perceived Behavior Control (PBC) is an individual's perception of a problem regarding how easy or difficult it is to manifest behavior (Trifiletti, Shamloo, Faccini, & Zaka, 2021). Perceived behavioral control in this study is the adolescent's perception of the control that the teenager has concerning receiving the Covid-19 vaccine. Perceived Behavior Control of a teenager is a belief about the presence or absence of factors that facilitate and hinder the teenager's behavior. This leads to the perception of using the covid-19 vaccine. Perceived Behavior Control is determined by the individual's experience as well as the individual's estimate of how difficult or easy it is to perform a behavior (Shamblen et al., 2018). An individual's experience of a behavior can be influenced by information obtained from others, for example from the experiences of known people such as family, partners, and friends. Ajzen argues that a part from self-control, one's behavior also requires other controls, for example possibility to gain resources and chances, and even the needs for particular competence. Perceived Behavioral Control refers to one's confidence about the possibility to easily demonstrate certain behavior. When he or she foresees the lacks of resources or opportunities to accept the Covid-19 vaccination (low behavioral control), he or she will not have a strong intention to fight against the Covid-19.

An attitude is a positive or negative evaluation of an object carrying out certain behaviors towards an action (Fishman, Yang, & Mandell, 2021) (Carey et al., 2018). Attitude is an important thing in generating intention to use the covid-19 vaccine. In this study, attitude toward behavior leads to attitudes toward receiving the covid-19 vaccine. A study by Guidry et al. (2021) shows that intention was influenced by a positive attitude towards the availability of a covid-19 vaccine. The results of this study provide information that attitudes have a major role in influencing one's intentions in a social environment. A person with high intentions has a positive attitude towards receiving the covid-19 vaccine (Cordina, Lauri, & Lauri, 2021). Vaccine hesitancy is still low and there are no perceived barriers for each individual, thus affecting a person's intention to receive the Covid-19 vaccine.

Intention comes from the theory of planned behavior can accurately predict behavioral tendencies in individuals (Bohon,

Cotter, Kravitz, Cello, & Fernandez y Garcia, 2016). Each individual will consider the impact of each behavior before they decide to act. When it comes to receiving the Covid-19 vaccine, the most important determining factor in receiving the vaccine is the intention. The intention is a motivational factor that can influence action (Bailey, 2019). Intentions determine how hard the individual tries to plan and seek the emergence of behavior for himself (Gao, Chen, Sun, Feng, & Fisher, 2021). The intention has three aspects, namely attitude toward behavior, subjective norm, and perceived behavior control (Tran et al., 2021). Individuals will intend to perform a behavior if he considers the behavior positive and if he believes that the people around them think that the behavior should be done (Barber, 2015). In other words, the intention is the closest variable to the behavior that someone will do. Presthold states that a person's behavior to carry out or not carry out behaviors is the initial determinant of actual behavior.

V. CONCLUSION

Subjective norms, perceived behavioral control, attitudes, and stress on receiving Covid-19 vaccination in adolescents. Providing education and socialization regarding vaccine information from the government is an important method to increase acceptance of the Covid-19 vaccine in adolescents.

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