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## RESEARCH ARTICLE

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# Factors that Influence People Acceptance of Covid-19 Vaccination based on Health Belief Model in Kota Datar Village, Medan

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## ABSTRACT

A low percentage of people acceptance about Covid-19 vaccination in Kota Datar Village is affected by some factors, one of them is the perception of their society. Individual perception about something what to do is related to their health that review in Health Belief Model theory (HBM). The purpose of this research is to find out what factors that are related to people acceptance of Covid-19 vaccination. This study used descriptive correlation with sectional cross approach. The sample were all population in Kota Datar village, determined by purposive sampling technique with total amount were 67 respondents. The result showed that there was relationship between each factors, perceived susceptibility, perceived severity, perceived benefit, perceived barriers, and cues to action factor with respondents' acceptance toward Covid-19 vaccination ( $p = 0.000$ ). There was a relationship between self-efficacy with respondents' acceptance toward Covid-19 vaccination ( $p = 0.000$ ). It is expected to the respondents that they can change their perception about Covid-19 vaccination, so they will accept the vaccin injection. So that, the Covid-19 pandemic can be resolved soon.

**Keywords:** Covid-19; vaccination; acceptance

## INTRODUCTION

Covid-19 is an infectious disease caused by severe acute syndrome coronavirus-2 (SARS-Cov-2), new type of coronavirus and never be found in human before. If this virus infect human, it will show some clinical symptoms such as fever, fatigue, dry cough, pain, diarrhoea, lost smell, lost taste, and got skin rash. First step handling this condition, WHO announced officially to the world that Corona Virus is a pandemic plague, and it is called Covid-19 Pandemic, because it started in 2019.<sup>(1-6)</sup>

Covid-19 cases in the world reached until 96 million by January, 19<sup>th</sup> 2021, and in Indonesia there were 927.380 cases and 26.590 people died (2,9%). This number was known as higher death rate compared with death number in the world (2,1%). North Sumatera had 25.720 cases and 569 death rate (CFR=2,2%). Highest case of Covid-19 was in Medan, Sibolga, and Tapanuli with 13.154 positive cases and 267 death rate (CFR = 2,03%).<sup>(6)</sup> Covid-19 pandemic affect some problems to the community directly. If this virus can not be controlled, it will influence many aspect of the society like economy, social, health and security.<sup>(7-12)</sup>

WHO says that Covid-19 spread can be ceased if early protection, detection, isolation, and early care are implemented to create a tough system.<sup>(13)</sup> The most possibly way to conquer the virus is to develop vaccine for Covid-19. Vaccine is a biological product contained antigen which plays role weakened or dead microorganism, fully or partly body, or microorganism's virus that processed become toxoid or recombinant protein, if it is given to someone, he will be immune to a specific virus. An injection process of a vaccine to someone body is called vaccination. Purpose of Covid-19 vaccination is to decrease Covid-19 transmission or disconnect the chain.<sup>(14-16)</sup> Dealing with that facts, Indonesia gets involved to make a plan vaccination to all people.

Nowadays, there are many confusing news about Covid-19 in the middle of society. These cause some people are not willing to get vaccination. In the other side, lack of people understanding about what vaccine for,

purpose of vaccination, and side effect, make them doubt to have vaccine. A study to 40 respondents said that there were no socialization about Covid-19 vaccination, 72,5% worried about the cleanliness of the vaccine, and about 75% anxious to have vaccine because there were too many fake news in the middle of society.

Low people acceptance toward Covid-19 Vaccination is caused by people perception themselves. Individual's perception in choosing some deal with their health is assessed in Health Believe Model Theory (HBM Theory). HBM Theory is a theory that designed in order to understand how he perceive threaten disease.<sup>(17-19)</sup>

Based on that theory, individuals behavior in accepting Covid-19 vaccination is determined by: (1) Vulnerability perception, someone believe that he is vulnerable to get Covid-19 virus, so he has a vaccination to avoid the transmission, (2) Severity perception, someone believe that Covid-19 will worse his life, so that he is willing to do vaccination, (3) Benefit perception, he believe that vaccination is suggested to him because it is good for his health, (4) Obstacle perception, obstacle for someone to conduct vaccination, (5) Action cue, it is got from family, health workers, and information.<sup>(17-19)</sup>

A survey was done in Kota Datar, there were 202 respondents aged 18-80 years old, 68 persons from them indentified got vaccine 1 and 2, 24 got vaccine 1 only, and others had not got vaccine at all. Interviews from the respondents, some of them refused vaccination, because they were worry about get sick, fever, and fatigue.

This research was aimed to find out affecting factors that influence people acceptance toward Covid-19 vaccine based on Health Believe Model in Kota Datar. For the special purposes of this study were identifying perceived susceptibility, perceived severity, perceived benefit, perceived barrier, cues to action, and self efficacy that had correlation each with acceptance toward Covid-19 vaccine.

## METHODS

This study was descriptive correlation with cossectional approach, it was a single group incident or determined condition. Sampling technique was purposive sampling, where as participants were determined with certain purpose. The populations were all respondent aged >18 years old, they were 202 persons. Inclusion criteria of the samples were: 1) age  $\geq 18$  years old; 2) willing to have Covid-19 vaccination; 3) has no history of drug allergy; 4) Pass the screening. The exclusion criteria were: 1) unwilling to have Covid-19 vaccination; 2) have congenital disease; 3) have no recommendation to have Covid-19 vaccination.

Before deciding HBM respondents were high or low, it was determined that each question score had choices from Strongly Agree (score 4), Agree (score 3), Don't Agree (score 2), Strongly Don't Agree (score 1), with all question were 30 for each factor. The respondents' cumulative answers would be divided into 2 categories, they were: 1) High HBM, score = 61-120; 2) Low HBM, score = 30-60.

Before deciding respondents' acceptance about Covid-19 vaccine, they were assessed by using a questionnaires contained "Yes" or "No" 15 questions. The answers were grouped into 2 category, they were: 1) Positive, score = 8-15; 2) Negative, score = 0-7.

There were 2 analysis in this study, they were descriptive analysis and bivariate analysis. Descriptive analysis was a table describe data presentation and combination of some variables in frequency and distribution template. Bivariate analysis was a method to find out the relationship between dependent and independent variables by using chi square. Bivariate analysis used level of significance  $\alpha = 0.05$ . It meant that there was relationship between the two variables.

## RESULTS

Table 1 shows that majority respondents were in 36-45 years old (43.3%), female (65.6%), and graduated from Senior High School (56.7%). Respondents were housewife (62.7%) or enterpriser (20.9%) and most of them had never got Covid-19 disease. There were 91% of respondents had no experience in hospitalization because of Covid-19. Most respondents got information about Covid-19 vaccine (80.6%), and they got the information mostly from social media (38.8%).

Health believe model factors consist of 6 (six) factors, they are perceived susceptibility factor, perceived severity, perceived benefit, perceived barriers, and cues to action and self efficacy factor. The distribution was described in the Table 2. Respondents' acceptance were divided into two categories, they were positive and negative. Distribution of acceptance were described in Table 3. Table 3 showed that majority respondents' acceptance were in positive category, it was 42 respondents (62.7%).

Bivariate analysis in this study was purposed to find out relationship between health believe model theory (perceived susceptibility, perceived severity, perceived benefit, perceived barriers, cues to action, self efficacy) with respondents' acceptance toward Covid-19 vaccine. The relationships were shown in the Table 4. It was known that all HBM factors were significantly correlated with respondents' acceptance toward Covid-19 vaccine.

Table 1. Distribution of characteristics respondents

Characteristics	Frequency	Percentage
Age (years)		
18-35	21	31.3
36-45	29	43.3
>45	17	25.4
Gender		
Male	23	34.3
Female	44	65.7
Education		
Primary	5	7.5
Junior high school	13	19.4
Senior high school	38	56.7
University	11	16.4
Job		
Housewife	42	62.7
Civil servant	4	6.0
Soldier/police	3	4.5
Private employee	4	6.0
Enterpriser	14	20.9
Covid-19 experienced		
Ever	23	34.3
Do Not Ever	44	65.7
Hospitalized experience because of Covid-19		
Yes	6	9.0
No	61	91.0
Covid-19 vaccine information		
Yes	54	80.6
No	13	19.4
Information sources		
Health worker	12	17.9
Family	3	4.5
Government	23	34.3
Friend/colleagues	3	4.5
Social Media	26	38.8

Table 2. Distribution of respondents' HBM factors

Characteristics	Frequency	Percentage
Perceived susceptibility		
High	52	77.6
Low	15	22.4
Perceived severity		
High	51	76.1
Low	16	23.9
Perceived benefit		
High	52	77.6
Low	15	22.4
Perceived barriers		
High	49	73.1
Low	18	26.9
Cues to action		
High	50	74.6
Low	17	25.4
Self efficacy		
High	48	71.6
Low	19	28.4

Table 3. Distribution of respondents' acceptance toward Covid-19 vaccine

Respondents' acceptance	Frequency	Percentage
Positive	42	62.7
Negative	25	37.3

Table 4. Relationship between respondent's HBM factors with respondents' acceptance toward Covid-19 vaccine

HBM factors	Respondents' acceptance				p-value
	Positive		Negative		
	Frequency	Percentage	Frequency	Percentage	
Perceived susceptibility					0.001
a. High	39	75.0	13	25.0	
b. Low	3	20.0	12	80.0	
Perceived severity					0.001
a. High	39	76.5	12	23.5	
b. Low	3	18.8	13	81.2	
Perceived benefit					0.001
a. High	39	75.0	13	25.0	
b. Low	3	20.0	12	80.0	
Perceived barriers					0.001
a. High	38	77.6	11	22.4	
b. Low	4	22.2	14	77.8	
Cues to action					0.001
a. High	39	78.0	11	22.0	
b. Low	3	17.6	14	82.4	
Self efficacy					0.001
a. High	39	81.3	9	18.7	
b. Low	3	15.8	16	84.2	

### DISCUSSION

Perceived susceptibility has relationship with the respondents' acceptance toward Covid-19 vaccine in Kota Datar, Hamparan Perak District, North Sumatera, Indonesia. People who felt that they were susceptible to Covid-19, had a big chance to get vaccine. It is in accordance with prior research, someone who felt threatened by disease was more likely preventing the disease compared to the one who didn't. Perception about the disease vulnerability can cause someone to prevent by doing Covid-19 vaccination.<sup>(20)</sup>

The study from Nan (2016) about HPV vaccine, said that African-American who felt vulnerable to HPV prefer choose to get vaccine of HPV.<sup>(21)</sup> With the same approach for HBM Theory, Fitriani's study found that the one who had high vulnerability perception, so he had choices to being vaccinated 22.8 times more compared with the one who had low perception.<sup>(22)</sup> Perceive severity was described into 3 categories, they were Covid-19 cause a serious effect, afraid of infected, and would feel great pain if get infected of Covid-19. From the three categories, it can be concluded that there was relationship between perceived severity and vaccine acceptance.

HBM Theory was found by Rosenstock (2006), it said that severity perception cause someone behaviour to make a medical treatment.<sup>(23)</sup> Bakhtari Aqdam, et al. said that someone will protect himself if he thought that he has a serious health problem. It means that someone will prevent and protect himself by taking vaccine.<sup>(24)</sup>

The study result showed that there was significant relationship between perceive benefit with vaccination acceptance. In this research, perception was described into 2 things. First, vaccination would decrease the infection or complication, and the second that vaccination would decrease anxiety. The two things were considered had significant relationship, it meant that high perceived benefit of respondents would have bigger possibility to be vaccinated than who did not. HBM theory proved that the higher level of confidence effectivity to strategic plan decreasing disease threat, the more preventing action by taking Covid-19 vaccination.<sup>(23)</sup>

Other research about perceived benefit and Covid-19 vaccination acceptance in Malaysia, found that the respondents had high acceptance and high perceived benefit.<sup>(25)</sup> Study in China also found the same situation, high vaccine acceptance (83%) was dominated by high perceived benefit.<sup>(26)</sup>

Nurses in Hongkong made a same research, the result said that one of nurse's reason took vaccination was there was possibility decrease of complication if get infected.<sup>(27)</sup> Vaccine hesitancy tends to be complex and

specific context, time, place and vaccine type variation. One of the most influence is believing in benefit and safety of the vaccine.<sup>(28)</sup> These indicate the important of people educating and promoting about vaccine.<sup>(29)</sup>

In this study, there were some perceived barriers, such as worry about ineffective vaccine, worry about payment, worry about side effects, and worry about vaccine cleanliness. Rosenstock stated that barriers are appearing negative consequence when take a spesific action, include physical, pshycological and financial demand.<sup>(23)</sup>

Vaccination is one of the most economical intervention to fight infectious disease in pandemic or epidemic condition, and vaccines are accepted by them.<sup>(30)</sup> Some countries have agreed to use Covid-19 vaccines, and nowadays adopt national vaccine strategy to protect people from the disease. But, this promised vaccine can not be accessed, accepted, and affordable for the community, specially in low and middle income country because ot of barriers like lack of adequate sources, security problem, and appearance of anti-vaccine movement.<sup>(31)</sup>

High perceived barriers in community refusing vaccine was reported by Lin's study.<sup>(29)</sup> The barriers of Covid-19 vaccine immunization was worry about its side effects and effectivity. Even the vaccine research must be accelerated, but the new vaccines could not pass the security and effectivity standard that government decide. China itself had suffered from various negative incident related to vaccine malpractice and scandal, caused loss public trust about vaccine.<sup>(32)</sup>

## CONCLUSION

Data analysis describet that all the factors Health Believe Model Theory had correlation with respondents' acceptance of Covid-19 vaccination, namely: perceived susceptibility, perceived severity, perceived benefit, perceived barriers, cues to action, and self efficacy.

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