IMPLEMENTATION OF THE HEALTH BELIEF MODEL (HBM) CONCEPT ON THE USE OF THE COVID_19 VACCINE. POPULATION CROSS SECTIONAL STUDY IN WEST JAVA PROVINCE

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ABSTRACT

The implementation of the concept of the health belief model (HBM) during this pandemic is an effective step in analyzing the reasons for individuals/society to want or not to carry out healthy behavior, especially in the use of covid_19 vaccination. This study aims to analyze the community's compliance in participating in the Covid_19 vaccination program based on a health belief model (HBM) concept approach which consists of perceived susceptibility, perceived seriousness, perceived benefits, and perceived seriousness. perceived barrier, perceived self-efficacy, self-efficacy during the Covid_19 pandemic. This type of quantitative research with a cross-sectional study design was carried out in West Java Province, sampling using accidental sampling technique. The research data was processed quantitatively by using multiple linear regression analysis method to measure the effect of the 6 components of HBM, namely (1) perceived susceptibility. (2). perceived seriousness, (3). perceived benefits, (4). perceived barrier, (5). perceived self-efficacy (6). self efficacy towards community compliance in participating in the Covid_19 vaccination program Perceived vulnerability, perceived seriousness, perceived barriers, perceived benefits, self-efficacy, cues to action, gender, and education had a significant relationship with community compliance in participating in the Covid-19 vaccine program with a p-value of 0.000. The most dominant factor in influencing people's adherence to the Covid-19 vaccine is self-efficacy with Exp (B) of 4,616. In this study, it was concluded that the dominant variable affecting community compliance in participating in the covid-19 vaccination program was the self-efficacy variable. Self-confidence that having the ability to obey and want to be vaccinated against covid-19, has the most effect on compliance in participating in the covid-19 vaccination program. People with good self-efficacy have a 4.2 times chance of being obedient to the covid-19 vaccine.

Keywords: Health Belief Model, Vaccine, Covid 19, Compliance

INTRODUCTION

A year of the covid_19 pandemic has not been able to be handled effectively. The number of deaths due to COVID-19 continues to increase in Indonesia as of May 8, 2021, reaching 1,709,762 with a death toll of 46,842 cases. WHO data, 2021 recorded as many as 153,187,889 cases with 3,209,109 deaths due to covid_19. The government is currently focusing on the covid_19 vaccination program as an effective step in breaking the chain of disease transmission due to covid_19. The number of targets for COVID-19 vaccination as of May 8, 2021 is 221,903,514 consisting of Health Human Resources, Public Officers, the Elderly and other Community. Of the total targets that have been set, only 10% have been successfully vaccinated, this is certainly a challenge for the Indonesian government in realizing the success of the Covid-

19 vaccination program. Based on the results of the Charta Politica Indonesia survey, in 2021 it showed that 24.3 percent of the Indonesian people stated that they were not willing to be vaccinated. The reason for not being vaccinated is certainly a problem and is also one of the focus of the government's attention in order to be able to answer things that are public questions, including answering public doubts, increasing knowledge, improving attitudes, providing a sense of security for the community so as to create awareness to want to use the Covid-19 vaccine. 19. One effective way to find out why people are not willing to be vaccinated is to implement the concept of a health belief model (HBM). HBM during this pandemic is one of the effective steps in analyzing the reasons of individuals/society to want or not to carry out healthy behavior, especially in the use of the covid_19 vaccination. In disaster mitigation it is necessary to carry out rehabilitation in the form of social, economic, cultural and health recovery caused by the COVID-19 pandemic disease outbreak. The study discusses the culture of disaster awareness through community readiness in using the Covid-19 vaccine as an effective way of the government in dealing with non-natural disasters in the form of the Covid-19 disease outbreak which continues to experience an increase in death cases until now.

RESEARCH METHOD

This research is an analytic observational study using a cross sectional research design. The purpose of this study was to analyze the community's compliance in participating in the Covid_19 vaccination program based on the concept of the health belief model (HBM) consisting of perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers, perceived self-efficacy, self-efficacy during the Covid_19 pandemic. The research was conducted in July 2021-December 2021.

SAMPLE

The sample in this study was the people of West Java Province aged 19-54 years who expressed their willingness to fill out research questionnaires through the google form. Sampling with accidental sampling technique. This study uses primary data obtained through filling out a questionnaire via google form. The questionnaire contains questions regarding demographic data, informed consent statements and statements related to the independent variables and dependent variables studied. The independent variables in this study were the components of the Health Belief Model, namely perceptions of vulnerability, perceived seriousness, perceived benefits, perceived barriers, cues to action, and self-efficacy.

INSTRUMENT

The dependent variable in this study is the community's compliance in carrying out the adaptation of new habits. The questionnaire was declared valid and reliable because the calculated r value was greater than the r table (0.374), and the cronbach alpha value was greater than the minimum cronbach alpha value 0.70. The questionnaire was assessed on a Likert scale by giving a score of 1-5 on the statements, namely "Strongly Disagree" to "Strongly Agree". The value is then categorized into high perception and compliance if the value is 50%. and low perception and compliance if the value is <50%. The data obtained will be processed and analyzed using the SPSS 24.0 for windows program.

DATA ANALYSIS

Statistical analysis used in this study consisted of univariate, bivariate, and multivariate. Univariate analysis aims to describe the sociodemographic characteristics of research respondents. This bivariate analysis was used to determine the effect between the independent variable and the dependent variable by using Chi-square statistical test analysis. Multivariate analysis was

conducted to determine the dependent variable which is thought to have the most influence on the dependent variable using Logistics Regression analysis with the Enter method.

RESULTS AND DISCUSSION

Tabel 1. Socio-Demographic Characteristics of Respondents N=410

Characteristics	Frequency (n)	Percentage (%)
Age (years)		
<19 tahun	30	7.3
19-34 tahun	247	60.2
35-54 tahun	81	19.8
>54 tahun	52	12.7
Sex		
Male	191	46.6
Female	219	53.4
Last education		
Elementary School/Equivalent	15	3.7
Junior High School/Equivalent	28	6.8
High school/equivalent	112	27.3
College/Equivalent	255	62.2
Profession		
Student/Student	22	5.4
Housewife	52	12.7
Government Employees (ASN)	42	10.2
BUMN/BUMD employees	27	6.6
Private sector employee	141	34.4
Self-employed	47	11.5
Farmer/Labourer	31	7.6
Retired	48	11.7

Table 1 shows that of the 410 respondents aged 19-34 years, the most respondents were 247 people (60.2%). Most respondents based on gender were women, namely 219 people (53.4%) compared to male sex, namely 191 people (46.6%). The highest education level of college/equivalent in this study was 255 people (62.2%), and elementary education level/equivalent was the least, namely 15 people (3.7%). Most of the jobs in this study were not working, namely 864 people (38.6%), then private employees were 141 people (34.4%).

Table 2. Components of Health Belief Model N=410

Characteristics	Frequency (n)	Percentage (%)
Perceived Sucseptibility		
Tall	288	70.2
Low	122	29.8
Perceived Seriousness		

Tall	220	53.7
Low	190	46.3
Perceived Benefits		
Tall	322	78.5
Low	88	21.5
Perceived Barriers		
Tall	133	32.4
Low	277	67.6
Cues To Action		
Tall	279	68.0
Low	131	32.0
Self Eficacy		
Tall	300	73.2
Low	110	26.8

Table 2 shows that the respondents in this study have the most perceptions of themselves being vulnerable to COVID-19 if they are active outside the home even though they have used PPE, which is 70.2% of people. Many of the research respondents believed that COVID-19 was a serious matter that could lead to serious consequences for 53.7% of people. Research respondents felt that the Covid-19 vaccine provided benefits in preventing the transmission of COVID-19, which was 78.5% of people. Most of the respondents in this study felt that they had obstacles in participating in the Covid_19 vaccination program, which was 67.7% of people. 68% of the respondents in this study had received a hint or encouragement to get the Covid_19 vaccine. A total of 73.2%. The self-efficacy of the respondents in this study 73.2% was good.

Table 3. Socio-demographic relationship with community compliance in participating in the Covid_19 vaccination program. N = 410

Characteristics	**Covid 19 Vaccination Compliance**						***P-value***	**aOR (95% CI)[a]**
	Yes		**No**		**Total**			
	n	**%**	**n**	**%**	**N**	**%**		
Age								
≤ 25 year	134	74.0	47	26.0	181	100	0.957	1.012 (0.649-1.578)
≥ 25 year	169	73.8	60	26.2	229	100		
Gender								
Male	143	74.9	48	25.1	191	100	0.677	1.099 (0.706-1.710)
Female	160	73.1	59	26.9	219	100		
Education								
Tall	207	81.2	48	18.8	255	100	**0.000**	2.650 (1.688-4.162)

Low	96	61.9	59	38.1	155	100		
Profession								
Work	221	76.7	67	23.3	288	100	**0.045**	1.609 (1.009-2.565)
Doesn't work	82	67.2	40	32.8	122	100		

Based on table 3, it is shown that respondents aged 25 years have been vaccinated against Covid-19, which is 74%. Statistically, age did not have a significant relationship with adherence to the Covid-19 vaccination program because p>0.05, i.e. p=0.957. The majority of female respondents had good compliance in participating in the Covid-19 vaccination program, which was 73.1%. Statistically, gender did not have a significant relationship with adherence to the Covid-19 vaccination program because p>0.05, i.e. p=0.677.

Respondents with higher education who have been vaccinated against Covid-19 are 81.2% or 207 people. Statistically, education has a significant relationship with adherence to the Covid-19 vaccination program because p<0.05, i.e. p=0.000. It was also found that respondents with higher education were 2.6 times more likely to want to take part in the Covid_19 vaccination program. The majority of respondents who work have been vaccinated against Covid_19, which is 76.7%. Statistically, employment has a significant relationship with adherence to the Covid-19 vaccination program because p<0.05, i.e. p=0.045. It was also found that respondents who work will have a 1.6-fold chance of being obedient in participating in the Covid_19 vaccination program.

Table 4. The relationship between the components of the Health Belief Model on community compliance in participating in the Covid_19 vaccination program. N = 410

HBM variables	Covid 19 Vaccination Compliance						*P-value*	aOR (95% CI)[a]
	Yes		No		Total			
	n	%	n	%	N	%		
Perceived Sucseptibility								
Tall	238	82.6	50	17.4	288	100	**0.000**	4.174 (2.613-6.668)
Low	65	53.3	57	46.7	122	100		
Perceived Seriousness								
Tall	181	82.3	39	17.7	220	100	**0.000**	2.587 (1.640-4.080)
Low	122	64.2	68	45.8	190	100		
Perceived Benefits								
Tall	259	80.4	63	19.6	322	100	**0.000**	4.111 (2.492-6.781)
Low	44	50.0	44	50.0	88	100		
Perceived Barriers								

Tall	81	60.9	52	39.1	133	100	**0.000**	2.591 (1.641-4.091)
Low	222	80.1	55	19.9	277	100		
Cues To Action								
Tall	236	84.6	43	15.4	279	100	**0.000**	5.243 (3.269-8407)
Low	67	51.2	64	48.8	131	100		
Self Eficacy								
Tall	246	82.0	54	18.0	300	100	**0.000**	4.236 (2.631-6.819)
Low	57	51.8	53	48.2	110	100		

The majority of research respondents who have a high perception of vulnerability have been vaccinated against COVID-19, which is 82.6%. Statistically, the perception of vulnerability has a significant relationship with adherence to the covid_19 vaccination program with p<0.05, namely p=0.000. It was also found that research respondents who have a high perception of susceptibility will have a 4.1-fold possibility to comply with the covid_19 vaccination program. The majority of research respondents who have a high perception of seriousness have been vaccinated against COVID-19, which is 82.3%. Statistically, the perception of seriousness has a significant relationship with adherence to the covid_19 vaccination program with p<0.05, namely p=0.000. It was also found that research respondents who have a high perception of seriousness will have 2.5 times the possibility to comply with the covid_19 vaccination program.

The majority of research respondents who have a high perception of benefit have been vaccinated against COVID-19, which is 75.2%. Statistically, the perception of benefits has a significant relationship with adherence to the covid_19 vaccination program with p <0.05, namely p = 0.000. It was also found that research respondents who have a high perception of benefits will have a 4.1-fold possibility to comply with the covid_19 vaccination program. The majority of research respondents who have a perception of low barriers have had the covid-19 vaccine, which is 80.1%. Statistically, perceived barriers have a significant relationship with adherence to the covid_19 vaccination program with p<0.05, i.e. p=0.000. It was also found that research respondents who have a low perception of barriers will have a 2.5 times greater chance of complying with the covid_19 vaccination program.

The majority of research respondents who have good self-efficacy have been vaccinated against COVID-19, which is 84.6%. Statistically, self-efficacy has a significant relationship with adherence to the covid_19 vaccination program with p<0.05, namely p=0.000. Research respondents who have good self-efficacy will be 5.2 times more likely to comply with the covid_19 vaccination program The majority of research respondents who received a signal to act well had been vaccinated against COVID-19, namely 82.0%. Statistically, cues to act had a significant relationship with adherence to the covid_19 vaccination program with p<0.05, i.e. p=0.000. It was also found that research respondents who received good action cues were 4.2 times more likely to comply with the covid_19 vaccination program.

Table 5 Health Belief Components that have the most influence on community compliance in participating in the Covid-19 Vaccination Program.

Variabel	B	*Sig*	*Exp (B)*	*95% C.I. for EXP (B)*	
				Lower	*Upper*
Perceived Sucseptibility	0.995	.017	2.704	1.196	6.113
Perceived Seriousness	0.740	.008	2.095	1.213	3.618
Perceived Benefits	0.640	.080	1.896	.926	3.881
Perceived Barriers	0.809	.004	2.246	1.291	3.907
Cues To Action	0.797	.048	2.218	1.009	4.878
Self Eficacy	1.530	.000	**4.616**	2.296	9.282
Jenis Kelamin	0.778	.006	2.176	1.255	3.774

Table 5 shows that self-efficacy is the most dominant factor in influencing community compliance in participating in the Covid_19 vaccination program, where the variable is significant and has the greatest Exp (B) relationship strength, which is 4,616. People with good self-efficacy have 4,236 times the chance to comply with the Covid_19 vaccination program. It was also found that gender played a confounding factor. An interaction test was conducted between variables as well as with sociodemographic variables to see if there was an interaction between the variables. In this study, there was no interaction between health belief model variables or sociodemographic variables on community compliance variables in participating in the Covid_19 vaccination program.

DISCUSSION

The Relationship of Perceived Succeptibility with Community Compliance in Participating in the Covid-19 Vaccination

The majority of research respondents who have a high perception of vulnerability have been vaccinated against COVID-19, which is 82.6%. Statistically, the perception of vulnerability has a significant relationship with adherence to the covid_19 vaccination program with $p < 0.05$, namely $p = 0.000$. It was also found that research respondents who have a high perception of vulnerability will have a 4.1-fold possibility to comply with the covid_19 vaccination program. A person will do a prevention against a disease if the person feels himself vulnerable to being affected (Notoatmodjo, 2010). Individuals who feel that they are at high risk are more likely to perform healthy behaviors to prevent a disease (Onoruoiza SI, Musa, Umar BD, 2015). This individual belief is related to cognitive aspects, such as the individual's knowledge of a health problem.

The Relationship of Perceived Seriousness with Community Compliance in Participating in the Covid-19 Vaccination

The majority of research respondents who have a high perception of seriousness have been vaccinated against COVID-19, which is 82.3%. Statistically, the perception of seriousness has a significant relationship with adherence to the covid_19 vaccination program with $p<0.05$, namely $p=0.000$. This is assessed from several questions whether respondents believe they will accept the consequences of their non-compliance or not, such as believing that COVID-19 can cause death, COVID-19 cannot be cured, social sanctions from the community, and consequences of delaying

education or losing a job if exposed to it. covid-19. Sholiha's research (2014) states that the severity of a disease will cause individuals to feel that the consequences of the disease are a threat to themselves, so that the individual will take action to carry out a prevention or treatment (Sholiha M, 2014). Perceived vulnerability and perceived severity will form a threat perception, which can affect a person's motivation to carry out a health behavior (Witte, et al).

The Relationship of Perceived Benefits with Community Compliance in Participating in the Covid-19 Vaccination

The majority of research respondents who have a high perception of benefit have been vaccinated against COVID-19, which is 75.2%. Statistically, the perception of benefits has a significant relationship with adherence to the covid_19 vaccination program with $p < 0.05$, namely $p = 0.000$. It was also found that research respondents who have a high perception of benefits will have a 4.1-fold possibility to comply with the covid_19 vaccination program. This is assessed from several questions whether respondents feel that after being vaccinated against COVID-19 provides benefits for increasing the body's immunity so as to provide a sense of security from Covid-19 transmission. Individual belief in the magnitude of the benefits of an action, will encourage individuals to take these actions. If an individual has a belief that a certain action will reduce his or her susceptibility to a disease, or reduce the severity of a disease, then the individual has a high probability of taking that action. This is in line with research which states that there is a significant relationship between perceived benefits and individual commitment in tertiary prevention of hypertension (Adawiyah, 2014).

The Relationship of Perceived Barriers with Community Compliance in Participating in the Covid-19 Vaccination

The majority of research respondents who have a perception of low barriers have had the covid-19 vaccine, which is 80.1%. Statistically, perceived barriers have a significant relationship with adherence to the covid_19 vaccination program with $p<0.05$, i.e. $p=0.000$. It was also found that research respondents who have a low perception of barriers will have 2.5 times the possibility to comply with the covid_19 vaccination program. According to the Health Belief Model, the probability of an individual to take a preventive action depends on two things, namely the perceived threat and the advantages and disadvantages considered. Barriers found when performing a health behavior will affect the effort of a person, if the perceived obstacle is very large, the possibility of a person to perform a health behavior will be smaller (Hall, 2011). This is in accordance with other studies which state that there is a significant relationship between perceived barriers and behavior to seek treatment (Trisnawan, 2015). This is also in line with the research of Kurniawati and Sulistyowati (2014) which shows that the perception of obstacles has a significant relationship with the prevention of pathological vaginal discharge (Kurniawati and Sulistyowati, 2014). tertiary prevention of hypertension (Purwono, 2014).

The Relationship of Self Efficacy with Community Compliance in Participating in the Covid-19 Vaccination

The majority of research respondents who have good self-efficacy have been vaccinated against COVID-19, which is 84.6%. Statistically, self-efficacy has a significant relationship with adherence to the covid_19 vaccination program with $p<0.05$, namely $p=0.000$. This is assessed from several questions whether the respondent has the ability to receive the covid_19 vaccine, feels that his body's immunity will be able to fight COVID-19 after vaccinating against Covid_19. Self-confidence is the key to changing health behavior. Individuals will be more likely to perform a health behavior if they believe that they will succeed. An individual's belief in his ability to carry out an action will increase his motivation to take that action. This study is in line with other studies

which state that the patient's self-efficacy has a significant relationship with the patient's adherence to taking antihypertensive drugs regularly. Purwono's research (2014) also states that there is a significant relationship between perceptions of self-efficacy and individual commitment to tertiary prevention of hypertension (Purwono, 2014).

Cues To Action Relationship with Community Compliance in Participating in Covid-19 Vaccination

The majority of research respondents who received a signal to act well had been vaccinated against COVID-19, namely 82.0%. Statistically, cues to act had a significant relationship with adherence to the covid_19 vaccination program with $p<0.05$, i.e. $p=0.000$. It was also found that research respondents who received good action cues were 4.2 times more likely to comply with the covid_19 vaccination program. This is assessed from several questions whether the respondent has received examples from community leaders / health workers / family / neighbors / friends in participating in the covid_19 vaccination program, and whether the respondent is easy to receive information about covid-19 prevention. According to the Health Belief Model, threat perception can increase if a person gets cues to act. Giving cues to act is more effective than trying to increase the benefits or reduce perceived barriers.23 In line with research (Yue et al. 2015) which states that cues to act have a significant relationship with a person's adherence to routinely taking antihypertensive drugs. Cues for action can be internal or external. Internal cues, for example, are feeling a symptom. External cues, for example, are information or advice obtained from others, which can come from the closest people, health workers, and social media (Yue, et al. 2015).

The Most Influential Factors on Public Compliance in participating in the Covid-19 Vaccination

In this study, the results of multivariate analysis showed that the self-efficacy variable was the most dominant factor in influencing community compliance in participating in the Covid_19 vaccination program, where the variable was significant and had the greatest Exp (B) relationship strength, which was 4,616. People with good self-efficacy have 4,236 times the chance to comply with the Covid_19 vaccination program. It was also found that gender played a confounding factor. An interaction test was conducted between variables as well as with sociodemographic variables to see if there was an interaction between the variables. In this study, there was no interaction between health belief model variables or sociodemographic variables on community compliance variables in participating in the Covid_19 vaccination program. The results of this study are in line with previous research which states that self-efficacy is the most powerful factor in influencing a DM patient's compliance in undergoing a treatment. On the other hand, this result is not in line with research which shows that the biggest factor influencing medication adherence is perceived severity (Ulum et al. 2015).

CONCLUSION

In this study, it was concluded that the dominant variable affecting community compliance in participating in the covid-19 vaccination program was the self-efficacy variable. Self-confidence that having the ability to obey and want to be vaccinated against covid-19, has the most effect on compliance in participating in the covid-19 vaccination program. People with good self-efficacy have a 4.2 times chance of being obedient to the covid-19 vaccine.

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