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Research

Determinant Factors Associated with Behavior of COVID-19 Vaccination Acceptance in Elderly in Manutapen Health Center, Kupang, East Nusa Tenggara

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ABSTRACT

Background: COVID-19 disease is a disease caused by a person novel corona virus. one Vaccination is an effort made by the government for forming herd immunity and protected or immune to certain diseases, causing an indirect impact, namely being protected. vulnerable community groupsThis study aims to analyze the determinants of factors that influence the behavior of the elderly towards the acceptance of COVID-19 vaccination at the Manutapen Health Center, Kupang.
Subjects and Method: This observational analytic study was conducted at Manutapen Health Center, Kupang, East Nusa Tenggara. A total of 88 subjects was selected by simple random sampling. The dependent variables were behavior of the elderly towards receiving the COVID-19 vaccination. The independent variables are education, knowledge, attitudes, personal experience, social support, availability of information. The data wer collected using questionnaire and analyzed using Chi Square test and logistic regression.
Results: The behavior of the elderly towards receiving the COVID-19 vaccination, including the level of education (OR= 5.83; 95 % CI= 1.52 to 22.29; p= 0.001), knowledge (OR= 2.21; 95 % CI= 1.30 to 3.75; p= 0.001), attitude (OR= 2.61; 95 % CI= 1.51 to 4.51; p= 0.001), and information availability (OR= 2.42; 95 % CI= 1.43 to 4.11; p= 0.001).
Conclusion: Factors associated with elderly towards receiving the COVID-19 vaccination, including the level of education, knowledge, attitude, and information availability.

Keywords: determinant factors, behavior of the elderly, covid-19 vaccination.

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BACKGROUND

COVID-19 is a disease caused by a person infected with the novel corona virus. This disease first emerged from the Chinese city of Wuhan at the end of 2019. On January 30, 2020, WHO designated COVID-19 as a Public Health Emergency of International Concern (PHEIC) or Public Health Emergency that is disturbing the world and entered Indonesia at the beginning March 2020. The entry of COVID-19 in Indonesia began with the discovery of two Indonesian citizens who were confirmed positive with a history of close contact with foreign nationals from countries that were confirmed positive for COVID-19 (imported cases)

(Diah Handayani, 2019). Currently, the increase in the number of confirmed cases of COVID-19 is getting out of control. Data from the national COVID-19 task force shows that there are 2,567,630 confirmed cases of COVID-19 and 67,355 people (2.6% of confirmed COVID-19) have died. NTT Province data shows that 24,528 NTT people have been confirmed positive for COVID-19, and the most distribution is in Kupang City, reaching 8,420 positive confirmed cases (the NTT Province Covid 19 Task Force as of July 12, 2021).

Various efforts have been made by the government to break the chain of transmission of COVID-19. Efforts that have been made include the implementation of PSBB (Large-Scale Social Restrictions) and PPKM (Enforcement of Restrictions on Community Activities). These efforts were carried out with the aim of limiting community mobilization and avoiding crowds of people, but the increase in cases continued to occur.

The government is currently vaccinating against COVID-19. The COVID-19 vaccine is useful for protecting the body from falling ill by stimulating specific immunity in the body by administering a vaccine. Herd immunity is a situation where the majority of the community is protected or immune to certain diseases so that it has an indirect impact, namely the protection of vulnerable groups of people and is not the target of vaccination. Vaccination does not only aim to break the chain of disease transmission and stop the outbreak, but in the long run it can eliminate and even eradicate the disease itself. This condition can only be achieved with high and equitable vaccination coverage (Kemenkes, 2020).

In January 2021, one of the strategies carried out by the Government is the provision of free vaccines, in accordance with the Regulation of the Minister of Health of the Republic of Indonesia No. 10 of 2021 concerning the Implementation of Vaccination in the Context of Combating the COVID-19 Pandemic for all people (Ministry of Health of the Republic of Indonesia, 2021). At the beginning of its practice, through the Regulation of the Minister of Health of the Republic of Indonesia Number 84 of 2020, the criteria for the group of vaccine recipients are medical personnel, government sector workers, community/religious leaders, public sector workers, teachers/lecturers, and the general public other than pregnant and lactating women as well as those who have history of comorbidities (Ministry of Health RI, 2020).

However, research efforts continue to be carried out so that the vaccine is accepted by all circles of society regardless of the health risks of each target group. In addition to the government's efforts, the controversy regarding the COVID-19 vaccine in the community continues (Ministry of Health of the Republic of Indonesia, UNICEF and WHO, 2020).

The PRECEDE-PROCEED behavioral change model theory by Lawrence Green and M. Kreuter literally explains that many factors influence health behavior. These factors can be grouped into 3, namely predisposing factors: knowledge, attitudes, beliefs, values, perceptions, abilities and social demographics (age, gender, education, income, occupation), enabling factors: affordability and availability of resources, priorities and community commitment to health, skills related to health and driving factors: attitudes and behavior of officers and other personnel, family, peers, teachers, decision makers, community leaders and others (Nursalam, 2014).

Elderly (elderly) is someone aged 60 years and over. Elderly is an age classi-

fication in humans who have faced the final stage of a phase of life. This group which is classified as elderly generally undergoes a process in life called the Aging Process or the process of getting old. The process of getting old will continue to occur and cause various morphological changes that affect the function of the respiratory system. The respiratory system in the elderly shows a structural and functional decline, resulting in an increase in the work of breathing compared to other young people. This is associated with decreased ability at other times such as heart defects, bacterial or viral infections, and airway obstruction.

With regard to COVID-19, the elderly community is very vulnerable to infection with this virus, this is evidenced by the large number of elderly patients who were both treated and died when the early COVID-19 infection spread in China (Kai, Liu, et al., 2020). National data from the COVID-19 task force shows that most of the deaths due to COVID-19 are in the elderly group (48.9% of deaths). Therefore, the elderly are one of the priority groups for receiving the COVID-19 vaccine. This study aims to analyze the determinants of factors that influence the behavior of the elderly towards the acceptance of COVID-19 vaccination at the Manutapen Health Center, Kupang City.

SUBJECTS AND METHOD

1. Study Design

This research is an observational analytic study conducted at the Manutapen Health Center, Kupang, East Nusa Tenggara in October – December 2021.

2. Population and Sample

The population in this study were all people aged 60 years who were in the working area of the Manutapen Health Center in 2021. The sampling technique used was simple random sampling. A total of 88 subjects were selected for this study.

3. Study Variables

The independent variables are education, knowledge, attitudes, personal experience, social support, availability of information. The dependent variable is the behavior of the elderly towards receiving the COVID-19 vaccination.

4. Operational Definition of Variables

Education is the length of time of pursuing education, data obtained by means of interviews using a questionnaire.

Knowledge is the result of knowing, and this happens after people sense a certain object. Sensing occurs through the human senses, namely the senses of sight, hearing, smell, taste, and touch. Most of human knowledge is obtained through the eyes and ears obtained by means of interviews with questionnaires.

Attitude is the Elderly Assessment of the COVID-19 vaccination.

Personal experience is an event experienced by the elderly, whether it happened to him or someone closest to him in the past that can change the attitude of the elderly towards vaccination, obtained through the eyes and ears obtained by means of interviews with questionnaires.

Social support is the behavior of people around the elderly, especially families who provide support to the elderly, obtained through the eyes and ears obtained by means of interviews with questionnaires.

Availability of information is a source of information that carries suggestions and can direct the opinion of the elderly in assessing something that can affect the attitude of the elderly towards the covid 19 vaccine obtained through the eyes and ears obtained by means of interviews using questionnaires.

The behavior of the elderly in receiving vaccinations is the process of res-

ponding to vaccination efforts to provide immunity against COVID-19 obtained through the eyes and ears obtained by interview using a questionnaire.

5. Instruments

The data consists of primary data and secondary data. Primary data were obtained from questionnaires filled out by research subjects. Secondary data was obtained from the Manutapen Health Center, Kupang, East Nusa Tenggara in 2021.

6. Data Analysis

Univariate analysis was carried out to see the frequency distribution and characteristics of research subjects, while bivariate analysis was carried out using chi square test and calculation of odds ratio (OR) with 95% confidence level (CI) to study the relationship between smoking behavior in adolescents and independent variables. Multivariate analysis was performed using logistic regression through a stratified approach indicated by the Intra Class Correlation (ICC) value.

7. Research Ethics

This research has been through the due diligence process by the Health Research Ethics Commission, Faculty of Medicine, Nusa Cendana University with the number: 109/UN15.16/KEPK/2021 and was declared eligible on October 5, 2021.

RESULTS

1. Sample Characteristic

The general description of the sample in this study consisted of age and gender. Based on table 1, it was found that the most respondents were aged 60-69 years, namely 58 respondents (65.9%), and the most gender was female, namely 52 respondents (59.1%) (see table 1).

Table 1. Frequency distribution of sample characteristics by age and gender.

Variable	Category	Subjects	
		n	%
Age	60-69 years	58	58
	70-79 years	26	26
	≥ 80 years	4	4
Gender	male	36	40.9
	female	52	59.1

Table 2 below showed that most subjects have a low level of education (75%), most respondents have good knowledge (54.5%), most respondents have a positive attitude (55.7%), most respondents do not have bad experiences (72.7%), most respondents obtaining information (56.8%), most of the social support did not support the respondents (83%). The table above shows the distribution of respondents based on behavior where the most respondents are respondents who are willing to receive the COVID-19 vaccination (58%).

Table 2. Frequency Distribution of Respondents Based on Education Level, Knowledge, Attitude, Personal Experience, Availability of Information, Social Support

Variable	Category	Total	%
Education Level	Low	66	75.0
	High	22	25.0
Knowledge	Lacking	40	45.5
	Good	48	54.5
Attitude	Negative	39	44.3
	Positive	49	55.7
Personal experience	Yes	24	27.3
	No	64	72.7
Information Availability	No	38	43.2
	Yes	50	56.8
Social Support	Don't support	73	83
	Support	15	17
Behavior	Not accept	37	42
	Accept	51	58

2. Bivariate Analysis

Bivariate analysis was conducted to determine the relationship between each independent variable and the dependent variable. The analysis was carried out using the chi-square test with a degree of error of 5%. The results of the bivariate analysis are as follows.

Table 3. Relationship between each independent variables and the dependent variable

Independent Variable	Behaviour of elder		OR	95% CI		p
	Don't accept	Accept		Lower limit	Upper limit	
Education Level						
Low	35	31	5.83	1.52	22.29	0.001
High	2	20				
Knowledge						
Lacking	24	16	2.21	1.30	3.75	0.001
Good	13	35				
Attitude						
Positive	25	14	2.61	1.51	4.51	0.001
Negative	12	37				
Personal experience						
Yes	11	13	1.12	0.66	1.90	0.843
No	26	38				
Availibity of Information						
Available	24	14	2.42	1.43	4.11	0.001
Unavailable	13	37				
Social Support						
Support	33	40	1.69	0.70	4.07	0.299
Don't support	4	11				

Table 2 showed the results of the bivariate analysis show that the determinants that influence the behavior of the elderly towards receiving COVID-19 vaccination include education level (OR= 5.83; 95% CI= 1.52 to 22.29; p= 0.001), educational knowledge (OR= 2.21; 95% CI= 1.30). up to 3.75; p= 0.001), attitude (OR= 2.61; 95% CI= 1.51 to 4.51; p= 0.001), and availability of educational information (OR= 2.42; 95% CI= 1.43 to 4.11; p= 0.001) .

DISCUSSION

The level of education is basically one of the factors that affect a person's level of knowledge and one's actions because knowledge will directly affect behavior. A person's education about health will affect health behavior, this is because the education obtained will gain knowledge and will create efforts to prevent a disease. The higher a person's education level, the easier it will be to absorb knowledge so that his insight will be wider. Iroma Maulida (2016) states that the longer a person gets education, the more likely he is to face complex problems compared to people with shorter education, and thus more likely to form more complex individuals and higher cognitive development.

The results of this study indicate that some respondents with low education (39.8%) are not willing to receive the COVID-19 vaccination. The results of this study are in line with Dewi and Hadid (2021), which showed that there was a significant effect between education and people's willingness to receive the COVID-19 vaccination. This study is also in line with research conducted by Zhong (2020) which states that the level of education has a significant relationship with behavior towards health protocols. However, this research is not in line with the research of Andesta Sari & Irwan Budiono (2021) where there is no significant influence between education and behavior.

According to the researcher's analysis, the elderly with low education have less knowledge about the importance of COVID-19 vaccination for the elderly as one of the vulnerable groups affected by COVID-19 disease so they tend to be unwilling to receive vaccinations and vice versa, the elderly with high education have good knowledge. about the COVID-19 vaccination so that they are willing to receive the vaccination. Education can affect a person, including a person's behavior for attitudes, in general, the higher a person's education, the easier it is to receive information. Education is the guidance that a person gets that can influence his behavior towards the pattern of life, especially in motivating attitudes that have a role in the development of health.

Education is an effort of persuasion or learning to maintain and improve health. Health changes produced by health education are based on the knowledge gained and awareness through the learning process. The higher a person's education, the more able to receive information from the outside that can be used for health improvement. Therefore, providing correct and continous information about COVID-19 vaccination to the elderly must be carried out.

The results of the researcher's analysis above can be expected for health promotion at the puskesmas to further develop promotive and preventive programs, namely adding information media such as banners, billboards and brochures about vaccination in addition to being more active in providing counseling and visits to homes about COVID-19 vaccination. Knowledge is one of the factors that influence behavior. Behavior will be good if it is based on knowledge. Lawreence Green's theory, suggests that knowledge affects behavior.

Knowledge or cognitive is an important domain for individuals to take action.

Knowledge is one of the predisposing factors for the formation of a new behavior, thus to obtain good knowledge related to the behavior of receiving COVID-19 vaccination, it is necessary to have continuous and continuous information on the elderly and the general public. Someone who has good knowledge regarding healthy behavior has a tendency to behave well (Gladys, 2016). This means that in order to improve healthy and safe behavior, it is also necessary to increase knowledge about health

The results showed that some subjects with good knowledge (39.8%) were willing to receive the COVID-19 vaccination. The results of this study are in line with Febriyanti (2021), which states that there is an influence between knowledge and willingness to vaccinate, this research is also in line with research conducted by Sari (2021), which states that there is a significant relationship between the level of knowledge and behavior prevention of COVID-19 transmission. This research is in line with research conducted by Mujiburrahman (2020) which states that there is a relationship between respondents' knowledge and COVID-19 prevention behavior.

According to the researcher's analysis, the elderly with good knowledge will have good behavior about health. Good knowledge of the elderly about various ways to achieve health care, how to avoid disease, will increase public knowledge for positive behavior. Knowledge plays an important role in determining complete behavior because knowledge will form beliefs which then in perceiving reality, provide a basis for decision making and determine behavior towards certain objects so that it will affect the elderly in behavior. Knowledge is the most important factor in the formation of individual behavior so that the good and bad behavior of a person is strongly influenced by the level of knowledge. This is in line with the results of this study because respondents who have good knowledge, have the behavior of being willing to receive the COVID-19 vaccination. Likewise, subjects who have low knowledge have the behavior of being unwilling to receive the COVID-19 vaccination. Therefore, it is hoped that the role of health promotion personnel at health centers can increase health counseling activities for the community, especially the elderly so that they can increase the knowledge and understanding of the elderly about the importance of COVID-19 vaccination.

Attitude is a person's closed response to a particular stimulus or object, which already involves the opinion and emotion factor concerned. The process of the occurrence of attitudes due to stimuli such as public knowledge. These stimuli stimulate the community to respond in the form of positive and negative attitudes which will eventually manifest in real action. Knowledge will encourage a person to think that involves components of emotions and beliefs, which in turn will predict behavior. Attitude can determine if it appears or is raised in a person's consciousness. Harju et al (2006) stated that attitudes can play a key role for a person in deciding when and where to seek medical care.

The results showed that some subjects were positive (42.1%) willing to receive the COVID-19 vaccination. The results of this study are in line with research conducted by Andesta Sari (2021) which states that there is a significant relationship between attitudes and behavior to prevent transmission of COVID-19, research conducted by Umi Shalihah (2020) also states that there is a

relationship between attitude and COVID-19 prevention behavior. -19. However, this study is not in line with research conducted by Misna Tazkiah (2020) which states that there is no significant relationship between attitudes and actions of midwives regarding the prevention of COVID-19 transmission.

According to the researcher's analysis, the elderly who are willing to receive the COVID-19 vaccination have a positive attitude due to good knowledge, trust and confidence in vaccination. Attitude is one that underlies the occurrence of a behavior where the attitude has three important components that are interconnected, namely the cognitive, affective and conative components. A positive attitude in the elderly can increase the trust and confidence of the elderly towards the COVID-19 vaccination so that there is a tendency to be willing to receive vaccinations.

The above is in line with Notoatmodjo's (2010) theory where attitude is a reaction or response of a person who is still closed to a stimulus or object. Attitude is a collection of symptoms in response to a stimulus or object that involves thoughts, feelings, attention, and other psychiatric symptoms. Newcomb, a social psychologist stated that attitude is a readiness or willingness to act and is not the implementation of certain motives. In other words, attitude is not an action (open reaction) or activity, but is a predisposition to action behavior, or closed reaction.

People who have good attitudes and beliefs will have the intention to take countermeasures (Manurung et al., 2020). The better a person's attitude towards something, the stronger the attitude will be manifested in the form of behavior (Manurung et al., 2020). Thus, to get the right attitude towards the behavior of receiving COVID-19 vaccination, the elderly, families and communities need to be given regular information or counseling about the importance of vaccination. Increasing the understanding of the elderly, families and communities about COVID-19 vaccination will create a good attitude so that appropriate behavior will also be formed in receiving COVID-19 vaccinations.

Experience is something that has been experienced, lived or felt which is then stored in memory. Personal experience can be the basis of attitude formation if the experience leaves a strong impression. Attitude will be more easily formed if the personal experience occurs in situations that involve emotional factors. What we have experienced and are currently experiencing will shape and influence our appreciation of social stimuli (Middlebrook, 1974).

The results showed that some subjects who did not have personal experience (43.2%) were willing to receive the COVID-19 vaccination. The results of this study are in line with Ari (2014) which states that there is no relationship between personal experience factors and attitudes. The results of research in the field found that the elderly were willing to be vaccinated against COVID-19 not because they had bad personal experiences in the past but because the elderly had good knowledge about the importance of COVID-19 vaccination. The results of this study are not in line with the theory which says that experience can be the basis for forming attitude, personal experience must leave a strong impression. In situations that involve emotions, the appreciation of the experience will be deeper and last longer. According to Azwar (2012) personal experiences in the past that were very memorable and involved emotional factors would affect a person's attitude towards his health.

Mass media as a means of communication, various mass media such as

television, radio, have a major influence in the formation of people's opinions and beliefs. The suggestive messages conveyed by the information, if strong enough, will provide an affective basis in perceiving and assessing something so that a certain attitude direction is formed. (Rohmawati 2011). The availability of information through electronic media sourced from official information directly from the government, health institutions, licensed health experts and trusted journalists will also provide actual facts and information, which will have a positive impact on the behavior of the elderly in receiving COVID-19 vaccinations. The results showed that some respondents received information (42.0%) that they were willing to receive the COVID-19 vaccination.

The results of this study are in line with research conducted by Kundari (2020) which states that there is a relationship between the availability of information and COVID-19 prevention behavior, this research is in line Sari (2021), which states that there is a significant relationship between sources of information and COVID-19 transmission prevention behavior. This research is also in line with Anggraini (2019), which states that there is an influence between sources of information on breast self-examination (BSE).

The results of research in the field show that the elderly are willing to be vaccinated against COVID-19, namely the elderly who get the right and correct information about the COVID-19 vaccination. The results also show that compared to respondents who choose print or direct media, respondents who use electronic media as the main source of information related to COVID-19 vaccination tend to have good behavior in receiving vaccinations. Information through electronic media sourced from official information directly from the government, health institutions, licensed health experts and trusted journalists will also provide actual facts and information, which will have a positive impact on the behavior of the elderly receiving COVID-19 vaccinations. Information is also obtained by the elderly directly by health workers. Sources of information provided by health workers are efforts to increase individual health knowledge at least about the importance of COVID-19 vaccination for the elderly. Sources of information from health workers related to COVID-19 vaccination are very important in order to increase the knowledge of the elderly and the behavior of the elderly in receiving COVID-19 vaccinations.

Social support is a transaction between individuals that includes positive affection, affirmation, and support based on the opinions of others. Social support generally describes the role or influence that can be caused by other meaningful people such as family, friends, relatives, and co-workers. Social support includes four aspects, namely emotional support, information support, instrument support and positive assessment. Thoits stated that the environment around the individual plays a role in providing social support, such as partners, family, friends and friends, co-workers and other communities (Kundari, 2020). Family, friends play a role in conveying information, reminding, and motivating to always implement preventive behavior.

The results showed that some subjects with unsupportive social support (45.5%) were willing to receive vaccination. The results of this study are in line with Paykan et al. (2021) where there is no relationship between social support from family, friends and others on stay at home compliance. However, this is not in line with the

research conducted by Andesta Sari (2021) which stated that there was a significant relationship between the support of colleagues and the behavior of preventing the transmission of COVID-19. According to the researcher's analysis, the elderly did not receive social support but were still willing to receive the COVID-19 vaccination. This is because the elderly have good information and knowledge about the importance of COVID-19 vaccination. This result contradicts the theory that social support is one of the factors that influence behavior. Behavior will be good if it is based on information support and good motivation.

The determinant factors that influence the behavior of the elderly towards receiving COVID-19 vaccination in the Manutapen Health Center Work Area include education level, level of knowledge, attitude, and availability of information. Therefore, it is important to increase public understanding and awareness, especially the elderly regarding the importance of COVID-19 vaccination in order to break the chain and transmission and create herd immunity in community groups.

AUTHOR CONTRIBUTION

Pius Weraman is the main researcher, Ferderika Lobo is a research member.

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This study is self-funded.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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