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Health Education and Promotion of Covid-19 Vaccine on the Willingness of Pregnant Women for Covid-19 Vaccination

Sulastry Pakpahan
Tarutung Associate Nursery Major, Poltekkes Kemenkes Medan, Indonesia
lastryp@gmail.com

Abstract

Efforts to prevent Covid-19 by implementing various health protocols and the body's immune system are needed during pregnancy. Pregnant women are recommended to get the COVID-19 vaccine to protect pregnant women and their babies from infection with Covid-19. In Indonesia, the COVID-19 vaccine is given to pregnant women starting in the second trimester of pregnancy and the second dose is given according to the interval of the type of vaccine. Based on the initial survey where the Covid-19 vaccine coverage was still low for pregnant women for reasons such as fear of injections, lack of support from husbands and families, fear of being exposed to Covid-19 after vaccination. This study is a quantitative study with a pre-experimental design method of type one group pretest-posttest, to determine the effect of providing education and health promotion of Covid-19 vaccination to pregnant women on the willingness of pregnant women to be vaccinated against Covid-19. Sampling with stratified random and meet the inclusion criteria as many as 134 people. The instrument of data collection was done by using a questionnaire, the analysis using the Paired Sample T Test. the results of the t test were obtained t count > t table (p = 0.025; <0.05), so it was concluded that there was an effect of pregnant women's knowledge about the Covid-19 vaccine in pregnancy on the mother's willingness to participate in the Covid-19 vaccination. Efforts need to be made to increase the knowledge of pregnant women through health promotion education on Covid-19 vaccination by health workers to reduce the doubts of pregnant women in participating in the Covid-19 vaccination and increase the coverage of Covid-19 vaccination for pregnant women.

Keywords
health education; pregnant women; covid-19 vaccination

I. Introduction

Covid-19 is an emerging disease with a rapid increase in cases and deaths since it was first identified in Wuhan, China in December 2019. Covid-19 has caused more than 2 million deaths worldwide, with more than 412,000 deaths reported in the United States. At the present time, at least 57,786 pregnant women in the United States have been infected, and 71 pregnant women have died. (Stafford et al., 2021). While in Indonesia the number of deaths was recorded at 142,889 cases in October 2021. (KEMENKES, 2021)

On February 12, 2020, WHO officially declared this novel coronavirus disease in humans as Coronavirus Disease (COVID-19) and on March 11, 2020, WHO had declared COVID-19 as a pandemic. (WHO, 2020) The Covid-19 pandemic that has occurred almost all over the world, including Indonesia, has not only had an impact on the health sector but also on various other sectors of life. Corona virus disease 2019 (COVID-19) is a respiratory tract infection caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), which can persist in humans and animals with very diverse clinical

presentations, ranging from asymptomatic, symptomatic, light to heavy, even to death.(Kemenkes, 2020)

Covid-19 increases the risk of pregnancy complications. Physiological and hormonal changes during pregnancy allow pregnant women to be at higher risk of contracting COVID-19. Chen et al's study reported that of 9 cases of pregnant women diagnosed with Covid-19 in the third trimester of pregnancy, undergoing cesarean delivery and premature birth, 2 cases were monitored in fetal distress.(Chen et al., 2020). In two reports describing 18 pregnancies with COVID-19, all infected in the third trimester, the clinical findings in pregnant women were similar to those in non-pregnant adults. Fetal distress and premature delivery were found in some cases. In two cases a cesarean delivery was performed and testing for SARS-CoV-2 was found to be negative in all the infants examined. The risk of death can be higher if pregnant women have comorbidities such as diabetes, heart disease, and high blood pressure.(POGI, 2020).

The outbreak of this virus has an impact of a nation and Globally (Ningrum *et al*, 2020). The presence of Covid-19 as a pandemic certainly has an economic, social and psychological impact on society (Saleh and Mujahiddin, 2020). Covid 19 pandemic caused all efforts not to be as maximal as expected (Sihombing and Nasib, 2020).

Management must be optimal in health care facilities with strict maternal and fetal monitoring, because the 2019 coronavirus disease can increase the risk of pregnancy complications. The principles of handling Covid-19 in pregnancy include early isolation, aggressive infection control procedures, oxygen therapy, avoidance of excess fluids, consideration empiric antibiotics (secondary risk of bacterial infection), laboratory testing for viruses and coinfection, fetal and uterine contraction monitoring, early mechanical ventilation for progressive respiratory failure, individualized delivery planning, and team-based approach with multispecialty consultation. (Rasmussen et al., 2020)

In the midst of the current COVID-19 pandemic, implementing various health protocols such as washing hands for 20 seconds, wearing masks and maintaining social distance is very necessary to prevent the body from being exposed to the Corona virus that causes COVID-19. In addition to complying with health protocols, pregnant women also need a good immune system during pregnancy. Its function is so that the body can fight off attacks of germs, bacteria, and even viruses that might stick to the body. Maintaining the immune system can reduce the risk of disease. Weak immune system causes disease to attack the body's defenses. As a result, the body will fall ill and daily activities will be disrupted. The immunity of pregnant women can be maintained and improved, especially with healthy living habits, including maintaining cleanliness, good nutritional intake plus, exercise, and regular pregnancy check-ups.

There is an increased risk of morbidity and mortality due to exposure to Covid-19 in pregnant women, so several countries recommend Covid-19 vaccination for pregnant women. These recommendations are based on research based on developmental toxicology studies and clinical findings in humans, the Advisory Committee on Immunization Practices, the American College of Obstetricians and Gynecologists, the Society for Maternal-Fetal Medicine, and the Academy of Breastfeeding Medicine) have issued guidelines supporting COVID-19 vaccination. in pregnant and lactating women. (Rasmussen et al., 2021)

Pregnant women are recommended to get the COVID-19 vaccine to protect pregnant women and their babies from infection with Covid-19. In Indonesia, based on POGI recommendations, the government has allowed the COVID-19 vaccine to be given to pregnant women starting in the second trimester of pregnancy and for the second dose to be given according to the interval of the type of vaccine.. (Kemenkes RI, 2021) The

COVID-19 vaccines that can be used for pregnant and lactating women in Indonesia are Sinovac, Pfizer, and Moderna vaccines. This vaccine is made from an inactivated virus, so it cannot cause COVID-19 disease and is safe for pregnant women.

Based on the initial survey of the research site in North Tapanuli Regency, there were 2478 pregnant women recorded from January to July 2021. The number of pregnant women whose gestational age is above 13 weeks to 33 weeks as of September 1, 2021 is 1038 pregnant women. Vaccine coverage for pregnant women is still low for reasons such as fear of being injected, lack of support from husband and family, fear of being exposed to Covid-19 after vaccination. Based on this, researchers are interested in conducting research to determine the effect of education and health promotion of Covid-19 vaccination on pregnant women on the willingness to take part in the Covid-19 vaccine in North Tapanuli Regency in 2021.

II. Research Method

This study is a quantitative study with a pre-experimental design method of type one group pretest-posttest, in which before the treatment is given a pretest (initial test) and at the end of the treatment a posttest (final test) is given to determine the effect of providing education and health promotion of Covid-19 vaccination on pregnant women on the willingness of pregnant women to vaccinate against Covid-19. The research location is in the Public Health Center area of North Tapanuli Regency. The study population was all pregnant women with a gestational age of 13-33 weeks in North Tapanuli Regency for the period January-September 2021 as many as 1038 people. Sampling was randomly stratified and met the inclusion criteria: willing to be respondents, gestational age 13-33 weeks, pregnant women in good health. The number of samples was 134 people consisting of 18 people from the Situmeang Habinsaran Health Center, 35 people from the Siborong Borong Health Center, 24 people from the Sitada-Tada Health Center, 34 people from the Sipahutar Health Center, 23 from the Siatas Barita Health Center. The data collection instrument was carried out using a questionnaire compiled by the researcher. Test the validity of the instrument using the Pearson Product Moment formula and test the reliability using the Alpha Coefficient of Cronbach. (Arikunto, 2012) The analysis in this study used the IBM SPSS program with the Paired Sample T Test and the Normality Test using Kolmogorov Smirnov to determine the effect of knowledge of pregnant women after being given treatment (covid-19 vaccine health promotion education) on the willingness of pregnant women to vaccinate Covid-19.

III. Results and Discussion

3.1 Results

a. Respondent Characteristic based on Age, Education Level, and Parity

Table.1 Respondent Frequency Distribution based on Age, Education Level, and Parity

Characteristic	Sum	Percentage
Age cathegory		
<20 years old	11	8,20
20-35 years old	76	56,7
>35 years old	47	35,0
Total	134	100

Educational Level		
Elementary Education	18	13,4
Secondary Education	83	61,9
Higher Education	33	24,6
Total	134	100
Parity		
Primipara	34	25,4
Multipara	74	55,2
Grandemultipara	26	19,4
Total	134	100

Source: Processed Primary Data

From the frequency distribution of the characteristics of the respondents in the table. 1, based on the age category, most of the respondents were aged 25-35 years (56.7%). Education varied from basic education to tertiary education, and most were secondary education (61.9%), while parity was mostly multiparous (55.2%).

b. Exposure to Information Knowledge and Sources of Information About the Covid-19 Vaccine in Pregnant Women

Table 2. Distribution of Respondents According to Exposure to Covid-19 Vaccine Knowledge Information and Information Sources

Information type	**Informed**			
	Yes	%	No	%
Information Source				
Health Protocol *5 m*	116	86,6	28	
Covid Vaccination for Pregnant Women	18	13,4	106	
Information Source				
Printed Media	4	3,0	130	
Electronic Media	27	20,1	107	
Digital Media	93	69,4	41	
Health Officials	10	7,5	124	

Source: Processed Primary Data

Based on table 2. the distribution of the frequency of respondents according to exposure to information on knowledge about prevention of Covid-19 with the 5M health protocol, most of them have received information of 86.6% but knowledge about Covid-19 vaccination is still low at 13.4%. Most of the information obtained about Covid-19 in pregnant women was obtained from digital media, which was 69.4%.

c. Respondents' knowledge of covid 19 vaccination before and after health education and promotion

Table 3. Distribution of Knowledge Level of Pregnant Women Before and After Health Education and Promotion of Covid 19 Vaccination in North Tapanuli Regency in 2021

Knowledge	**Pretest**		**Posttest**	
	n	**%**	**n**	**%**
Good	37	27,6	102	76,1

Poor	97	72,4	32	23,9
	134	100	134	100

Source: Processed Primary Data

From the distribution of knowledge of pregnant women about the Covid-19 vaccine before being given education and health promotion, most of them were still lacking (72.4%), and after being given education and health promotion it was found that the knowledge of pregnant women was mostly increased by 76.1%.

d. The Effect of Providing Health Promotion Education for the Covid-19 Vaccine on the Willingness of Pregnant Women to Participate in Vaccination

Table 4. Distribution of Willingness of Pregnant Women to Participate in Covid-19 Vaccination Before and After Education and Health Promotion of Covid 19 Vaccination in North Tapanuli Regency in 2021

Willingness	Pretest		Posttest	
	n	%	n	%
Willing	43	32,1	106	79,1
Unwilling	91	67,9	28	20,9
	134	100	134	100

Source: Processed Primary Data

The distribution of the willingness of pregnant women to take part in the Covid-19 vaccination after being given health promotion education for the covid-19 vaccination in North Tapanuli Regency increased by 47.0%, while those who were unwilling decreased by 47.0%.

Table 5. The Effect of Knowledge on the Willingness of Pregnant Women for the Covid-19 Vaccine

	Willingness				
		Mean	SD	t	*sig*
Knowledge	Willing	1,80	0,403	2,270	0,025
	Unwilling	1,72	0,449		

Source: Processed Primary Data; T test paired Sample Test

The effect of knowledge on the willingness of pregnant women to vaccinate against Covid-19 in North Tapanuli Regency, the results of the t test obtained a t-count value of 2.270 and a t-table of 1.978 with a p value of 0.025 (<0.05). If the t-count value is greater than the t-table value, the hypothesis of this study is accepted or there is an influence of pregnant women's knowledge about the Covid-19 vaccine in pregnancy with the mother's willingness to participate in the Covid-19 vaccination in North Tapanuli Regency.

3.2 Discussion

In this study from table 1 it was found that the majority of respondents were in the age group of 20-35 years (56.7%). The age of 20-35 years is a safe age for pregnancy, below and above that age will increase the risk of pregnancy and childbirth. Increasing age is followed by changes in the development of organs in the pelvic cavity. In young women where the reproductive organs are not completely perfect and the mind is not ready to become a mother, the pregnancy can end in a miscarriage, a low birth weight baby (LBW),

and can be accompanied by obstructed labor. (Manuaba, 2012). A person's age will affect a person's grasping power and mindset, the older he gets, the more his capture power and mindset will develop so that the knowledge gained is getting better. At the age of 20-35 years, individuals will spend more time looking for information by reading so that intellectual abilities, verbal abilities can increase.

In this study, the characteristics of respondents based on parity were mostly multiparous (55.2%). Various complications in pregnancy will appear along with the amount of maternal parity. High parity is associated with an increased risk of hypertension, placenta previa, and uterine rupture. Parity is the number or number of deliveries the mother has ever experienced, both live and stillbirth. Parity 2 to 3 is the safest parity in terms of maternal mortality. Mothers with high parity more than 3 have high maternal rates because endometrial disorders can occur. The cause of endometrial disorders is due to repeated pregnancies. While the first parity is risky because the uterus is receiving the products of conception for the first time and the flexibility of the uterine muscles is still limited for fetal growth. (Prawirohardjo, 2016). There is a tendency for maternal health with low parity to be better than high parity, there is an association between parity levels and certain diseases related to pregnancy. Parity can be divided into nullipara, i.e. parity 0, primipara, i.e. parity 1, multipara, i.e. parity 2-4, and grandemultipara, i.e. parity more than 4. (Prawirohardjo, 2016)

The distribution of education of respondents mostly have secondary education as much as 69.1%. The level of education is the length of time following formal education and having a diploma according to the educational strata in Indonesia. According to the Law of the Republic of Indonesia Number 20 of 2003 that formal education levels consist of basic education, secondary education and higher education which are classified as basic education including elementary, junior high or equivalent, secondary education namely high school and equivalent and higher education including diploma, undergraduate, master, specialists, and doctorates organized by higher education. The level of education can affect one's knowledge and affect one's mindset to accept and understand problems, especially pregnancy. The higher a person's education, the faster they receive and understand information so that their knowledge is also higher. Education is an effort to develop personality and abilities inside and outside school and lasts a lifetime (Notoadmojo, 2017). Mastery of knowledge is closely related to a person's level of education. This is in line with the research of Cornelis et al. which states that the education level of pregnant women also plays a very important role in maintaining physical and psychological health during pregnancy. Acceptance and understanding of the information received by someone with higher education is better than someone with low education. (Corneles & Losu, 2015)

Pregnant women with low levels of education sometimes don't get enough information about their health, so they don't know how to do good pregnancy care. This shows that the higher a person's education, the better his knowledge of something. The level of education greatly affects how a person acts and looks for causes and solutions in his life. Highly educated people usually act more rationally. Therefore, educated people will be more receptive to new ideas. Likewise, highly educated mothers will have their pregnancy checked regularly in order to maintain the health of themselves and the children in their womb. The level of education affects the opportunity to obtain and receive information about health. Respondents with higher education levels are expected to be able to receive and understand the information that has been conveyed by health workers. This will be different at low levels of education tend to be less understanding of the information that has been conveyed by health workers. In accordance with what was stated by Notoadmodjo that the higher the level of education, the greater the knowledge and the

easier it is to develop knowledge and understand the information obtained and can change a person's behavior for the better. Thus, the low level of education can affect respondents' knowledge in receiving and understanding information about Covid-19 vaccination in pregnancy.

From table 2. it can be seen that most of the respondents got the source of information about health protocols and covid-19 vaccination from digital media (69.4%). Information sources aim to collect, prepare, store, manipulate, publish, analyze and disseminate information for a specific purpose. Information affects a person's knowledge if they often get information about a lesson, it will increase their knowledge and insight, while someone who does not often receive information will not increase their knowledge and insight. Information related to pregnancy is needed so that it will increase their knowledge. in addition to physical needs, pregnant women also need support and information about pregnancy and childbirth problems that often occur so they need a lot of discussion about this information. Steps to control the spread of Covid-19 have been widely disseminated through various media, both print, electronic, digital and from health workers. Behavior and adherence to health protocols to prevent Covid-19 disease in pregnant women is very dependent on the knowledge of the pregnant women.

From table 3. it is known that most of the respondents' knowledge about Covid-19 vaccination is not good (lack in understanding) (72.4%). However, after being given education and health promotion about COVID-19 vaccination, there was an increase in respondents' knowledge of 76.1%. According to Budiman and Riyanto (2013) the level of knowledge is grouped into two groups, namely: 1) The level of knowledge in the Good category is > 50% 2) The level of knowledge in the Poor category is 50%. (Budiman & Riyanto. A, 2013) Knowledge is obtained from one's efforts to find out in advance about stimuli in the form of objects from outside through sensory processes and interactions between themselves and the social environment so as to gain new knowledge about an object. From one's knowledge, this will affect one's perception of what is seen and felt and will result in changes in behavior according to his perception. The better the mother's level of knowledge about the Covid-19 vaccination, the pregnant women can perceive the importance of the Covid-19 vaccination in order to increase the immunity of pregnant women against Covid-19 infection.

Table 4 shows that after being given education and health promotion for Covid-19 vaccination, most of the respondents were able to reduce their doubts and expressed their willingness to take part in the Covid-19 vaccination, which increased by 47.0% (79.1%). Vaccines will make a person's body recognize the bacteria/viruses that cause certain diseases, so that when exposed to these bacteria/viruses they will become more resistant. Vaccination is the administration of specific antigens into the human body that can stimulate the body's immune system and ultimately produce immunity against appropriate infectious agents. (WHO, 2017) High and even coverage of immunization will form herd immunity so that it can prevent transmission and the severity of a disease. According to the International Federation of Obstetrics and Gynecology, pregnancy is defined as the fertilization or union of a spermatozoa and an ovum followed by nidation or implantation. When calculated from the time of fertilization to the birth of the baby, a normal pregnancy will take place within 40 weeks or 10 months or 9 months according to the international calendar. Pregnancy is divided into 3 trimesters, where the first trimester lasts for 12 weeks, the second trimester is 15 weeks (weeks 13 to 27), and the third trimester is 13 weeks (weeks 28 to 40). (Prawirohardjo, 2016). The benefits of the COVID-19 vaccine are higher for pregnant women who are at high risk of exposure or with co-morbidities. Based on the results of the study by Blakeway et al. that of pregnant women who were eligible for

COVID-19 vaccination, less than a third received the COVID-19 vaccination during pregnancy, and they experienced pregnancy outcomes similar to those of unvaccinated pregnant women. There is lower uptake among women of younger, non-white ethnicity, and of lower socioeconomic backgrounds. This study has contributed to the evidence that having COVID-19 vaccination in pregnancy does not change perinatal outcomes. (Blakeway et al., 2021). Knowledge of pregnant women affects the willingness to take part in the Covid-19 vaccination, this can be seen in table 5, the results of the t test obtained that the t count value is greater than the table ($p = 0.025$; <0.05). then the hypothesis of this study is accepted or there is an influence of knowledge of pregnant women about the Covid-19 vaccine in pregnancy with the mother's willingness to take part in the Covid-19 vaccination.

IV. Conclusion

Based on the results of the study, it was concluded that the knowledge of pregnant women after being given education and health promotion of the Covid-19 vaccination affected the willingness of pregnant women to participate in the Covid-19 vaccination. Efforts need to be made to increase the knowledge of pregnant women through health promotion education on Covid-19 vaccination by health workers to reduce the doubts of pregnant women in participating in the covid-19 vaccination, so that the coverage of Covid-19 vaccination in pregnant women can increase as well as the morbidity and mortality rates of pregnant women due to infection. Covid-19 can be brought down.

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