Knowledge, perception, and behavior of pregnant women against COVID-19 transmission

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Article Info

ABSTRACT

The outbreak of coronavirus disease 2019 (COVID-19) had a significant impact in terms of economic and social health. Assessing the community's knowledge regarding the transmission of COVID-19 is essential to specify the target of promoting and preventive actions. Therefore, the research aimed to assess pregnant women's knowledge, perception, and behavior against COVID-19 transmission. The research was a quantitative cross-sectional study. Pregnant women who received antenatal care at PKU Muhammadiyah Mamajang Makassar Hospital were included in the study. We are using random sampling, and the study was conducted from May 31-July 31, 2021. The study found that pregnant women's knowledge, perception, and behavior of COVID-19 transmission was high and good. Several factors were found to be related to the level of knowledge, including the story of education (p 0.013), perception (p 0.037), and behavior (p 0.0001). Meanwhile, age and parity have no association with knowledge (p 0.524 and p 0.499). Currently, it is hoped that more optimal education will continue to be carried out by health workers to mothers so that they can live their pregnancies in a prosperous manner so that mothers and fetuses will be healthy and safe during the pandemic COVID-19.

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1. INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic impacts health, resilience, and economic stabilization. Data from the World Health Organization (WHO) shows that on February 27, 2021, globally, there were 113,076,707 positive cases of COVID-19 with a mortality rate of 2,512,272 people. The highest number of COVID-19 cases is in the Americas, with 50,246,580 cases [1]. On February 28, 2021, the Government of Indonesia announced 1,334,634 people confirmed as infected by COVID-19 virus. There were 36,166 deaths recorded related to COVID-19 and 1,142,703 patients convalescence from the disease [2], [3]. WHO declared the name of the disease that led the extraordinary event in February 2020, namely the 2019 coronavirus initially identified in Wuhan, China. The name of this virus is Coronavirus disease 2019 or shortened to COVID-19, which was previously pointed to as "2019 novel coronavirus" or 2019-nCoV" [4].

The spread of this disease has a significant impact on economic and social health [5]. The government implements all forms of effort in prevention, including health behavior, wearing masks, and social distancing [6]. However, the number of patients with mild to moderate symptoms which fall to severe is challenging to control. The large number of COVID-19 patients who have experienced severe symptoms has made health care professionals think that preventive measures are the best steps before treatment.

Research from Feyisa [7] also stated that the best way to minimize the spread of the COVID-19 is to maximize how all individuals gain insight to take preventive action. The handling of COVID-19 in Indonesia was divided into pre-hospital and hospital [6].

The pre-hospital handling mechanism aims to break the chain of transmission, namely by making preventive measures which are the best steps before treatment. The best approach to controlling the spread of the disease includes prevention action, early detection, and identification and organization of successful treatment protocols [8]. To socialize preventive action to limit the transmission of COVID-19 through three steps, wearing masks, washing hands, and maintaining a distance [9]. Success in handling COVID-19 infection control requires a modification in individual behavior, which is influenced by an individual understanding of the details of the disease and its precaution [10].

Research related to knowledge, perceptions, and practices of preventing COVID-19 in Indonesia has been carried out on health workers, the general public, and students [11]–[14]. The basic knowledge of the community needs to be assessed [9]. By knowing the understanding of public regarding the transmission of COVID-19, the target of prevention can be carried [11]–[14]. However, it is unclear whether pregnant women in Indonesia are knowledgeable about COVID-19 and are practicing precautions against it.

Researchers in this study wanted to assess the public knowledge about the transmission of COVID-19, with the main target of pregnant women. The COVID-19 prevalence of disease during pregnancy may be higher and more at risk than in the general population [15]. Pregnant women are vulnerable groups with the highest mortality rate in Indonesia, especially in pandemic conditions where all aspects of health can be neglected due to the increased need for health services.

The high mortality rate and the emergence of this health emergency condition have made all parties, health workers, the government, and the public, try to think of all ways to break the chain of transmission of COVID-19. The whole community may not fully understand knowledge about the transmission of COVID-19. Pregnant women are one of the groups that must be maintained against COVID-19 [16] and are also related to Indonesia's high maternal mortality rate.

There is an increase in COVID-19 cases in Indonesia. It may also impact high cases of pregnant women as a vulnerable group [17]. Therefore, to minimize the transmission of COVID-19 to pregnant women, it is necessary to know the knowledge of pregnant women in terms of COVID-19 transmission. Consequently, researchers want to examine the knowledge of pregnant women related to the transmission of COVID 19 so the health workers can appropriately identify the targets.

2. RESEARCH METHOD

The research was a quantitative study using the approach of a cross-sectional study. The sample of this study was pregnant women who visit PKU Muhammadiyah Mamajang Makassar Hospital, in the City of Makassar, Indonesia. They came for antenatal care at the periode of pregnancy in the first, second, and third trimesters and were willing to take part in this study. The sampling method was random sampling, where all pregnant women who did antenatal care were taken as samples. The time for conducting the research lasts for two months, starting from May 31 to July 31, 2021.

The variables assessed in this study were pregnant women's knowledge, perceptions, and behavior about COVID-19. Several types of sociodemographic data were collected from pregnant women, including age, education, and parity. In this study, age groups were divided into two categories, namely adolescents (17-25 years) and adults (26-45 years) [18]. The categories of pregnancy are divided into primigravida and multigravida. The education category is divided into low education (elementary school and junior high school) and higher education (high school and college education) [19]. Several questions about knowledge, perceptions, and behavior are asked, and the level of understanding of the pregnant woman and its association with existing sociodemographic factors are later assessed. Questionnaires were given to respondents during antenatal care. The questionnaires were in paper-based surveys and were filled indirectly. The questionnaire consisted of 3 items, namely knowledge, perception, and behavior, with the knowledge and perception items having ten questions and behavior having nine questions. The answer options are only "yes" and "no" or "true" and "false." Each question item gets a score of 1 if true and 0 if false. The objective measurement of the instrument is divided into two categories, namely high or good if the score is ≥ 5 and low or less if the score is < 5 [20]. Knowledge, perceptions, and behavior questionnaires are taken from Shivangappa [21] research tested for validity and reliability. Data analysis in this study used a Fischer-exact statistical test.

Researchers made administrative preparations before researching respondents, namely submitting a letter of ethics and a statement of passing the ethical test. A statement letter on research ethics was issued by the Health Research Ethics Commission of the Faculty of Medicine and Health Sciences of UIN Alauddin Makassar with a recommendation of ethical approval Number B.075/KEPK/FKIK/V/2021.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1. Demographic data

Demographic data of respondents are shown in Table 1. This study included 220 pregnant women as participants. The dominant respondents aged categories are adults were 61.4%. Respondents education level is dominated by high education with 88.2%. Most of the respondents were multigravida (52.7%). Respondents in this study dominantly have a high knowledge level (99.1%), with a good perception overview of COVID-19 (80.5%) and good behavior towards COVID-19 (97.7%).

Tabel 1. Demographic data of pregnant women undergoing antenatal care at Hospital, May-July 2021 (n=220)

Demographic data	Frequency (n)	Percentage (%)
Age category		
Teenager	85	38.6
Adult	135	61.4
Education level		
Low	26	11.8
High	194	88.2
Pregnancy status		
Primigravida	104	47.3
Multigravida	116	52.7
Knowledge level		
Low	2	0.9
High	218	99.1
Perception overview		
Not good	43	19.5
Good	177	80.5
Behavior overview		
Not good	5	2.3
Good	215	97.7
Total	220	100

3.1.2. Association between knowledge level and age

In this study, there was no association between age and respondents level of knowledge regarding the transmission of COVID-19 with a p-value of 0.524>0.05. The results of association between knowledge level and age are shown in Table 2.

Tabel 2. The association between knowledge level and age category (n=220)

Age category	Knowledge level				Total		p-value
	Low		High				
	n	%	n	%	n	%	
Teenager	0	0.0	85	100.0	85	100.0	0.524
Adult	2	1.5	133	98.5	135	100.0	

Fisher exact test

3.1.3. Association between knowledge level and respondent parity

It was found that there was no association between parity and level of knowledge of respondents regarding the transmission of COVID-19 with a p-value of 0.499>0.05. The results of association between knowledge level and parity are shown in Table 3.

Table 3. Association between knowledge level and respondents parity (n=220)

Parity	Knowledge level				Total		p-value
	Low		High				
	n	%	n	%	n	%	
Primigravida	0	0.0	104	100.0	104	100.0	0.499
Multigravida	2	1.7	114	98.3	116	100.0	

Fisher exact test

3.1.4. Association between knowledge level and education level

In this study, it was found that there was an association between the level of education and the level of knowledge of respondents regarding the transmission of COVID-19 with a p-value of 0.013<0.05. The results of association between knowledge level and education level are shown in Table 4.

Table 4. Association between knowledge level and education level (n=220)

Education level	Knowledge level				Total		p-value
	Low		High				
	n	%	n	%	n	%	
Low	2	7.7	24	92.3	26	100	0.013
High	0	0.0	194	100.0	194	100	

Fisher exact test

3.1.5. Association between knowledge level and perception of pregnant women

In this study, it was found that there was an association between the perception of pregnant women and the level of knowledge of respondents regarding the transmission of COVID-19 with p-value 0.037<0.05. The results of association between knowledge level and perception are shown in Table 5.

Table 5. Association between knowledge level and perception (n=220)

Perception level	Knowledge level				Total		p-value
	Low		High				
	n	%	n	%	n	%	
Not good	2	4.7	41	95.3	43	100.0	0.037
Good	0	0.0	177	100.0	177	100.0	

Fisher exact test

3.1.6. Association between knowledge level and behavior of pregnant women

In this study, it was found that there was an association between the behavior of pregnant women and the level of knowledge of respondents regarding the transmission of COVID-19 with p-value 0.0001<0.05. The results of association between knowledge level and behavior are shown in Table 6.

Table 6. Association between knowledge level and behavior (n=220)

Behavior level	Knowledge level				Total		p-value
	Low		High				
	n	%	n	%	n	%	
Not good	2	40.0	3	60.0	5	100.0	0.0001
Good	0	0.0	215	100.0	215	100.0	

Fisher exact test

3.2. Discussion

In this study, it was found that the knowledge about transmission of COVID-19 among pregnant women was very high, as well as behavior and perception. This shows that the respondents generally have good knowledge about COVID-19. The current pandemic causes a lot of information to be spread freely about the virus so that people, especially pregnant women, have no trouble getting this information. As many as 194 people (88.2%) had a high level of education. This study shows that the level of education is significantly related to the respondents level of knowledge, in line with the research by Quijano et al. [22], which states that the level of education is the leading indicator of knowledge about the disease and its transmission and attitudes and practices in a person.

In this study, it was found that the knowledge of pregnant women regarding COVID-19 was very high, with a percentage of 99.1%. This research is in line with Maharlouei's [23] research; approximately 80% of pregnant women answered correctly regarding knowledge about the transmission of COVID-19. This high level of knowledge can be said to be a good point because it can lead people to take appropriate preventive measures. Having an acceptable level of knowledge regarding the common symptoms of this condition can help people become aware of the common symptoms of the disease and timely referral to

health centers and hospitals so that they will not transmit to other individuals. However, this domain deserves special attention because it can double-edged sword. If people refer to the hospital to find nonessential manifestations of COVID-19, it could lead to fatigue among health workers.

Other research that supports the results of this study is the research of Anikwe [24] in Nigeria, which shows good knowledge among women who have been interviewed. High knowledge is hoped will increase the activity of practice and prevention. It is hoped that this good knowledge will increase the overall behavior of preventative action to reduce the burden of disease in Nigeria. Besides, to reduce the risk of infection in the antenatal participant population should carry further education should be carried out to convey the importance of observing recommended practices to reduce contractions and transmission of COVID-19. Research conducted by Shivanagappal [21], Awad *et al.* [25], Nwafor *et al.* [26], Aghababaei *et al.* [27], Alemu Degu *et al.* [28] also found that the knowledge of pregnant women about the transmission of COVID-19 was high. On the other hand, research conducted by Fikadu *et al.* [29] and Ayele *et al.* [30] found that the knowledge and practice of pregnant women regarding COVID-19 were poor.

This study also shows that the knowledge score has a significant relationship with pregnant women's perception and behavior scores related to COVID-19. The score of perception and behavior is perfect, with a percentage of 80.5% (perception) and 97.7% (behavior). This study is in line with the research conducted by Kumbeni *et al.* [31], and Aghababaei [27] found that the prevalence of knowledge, prevention behavior, and perception were good scores among pregnant women COVID-19.

Pregnancy, which is a unique situation prone to several infections, including COVID-19, requires more attention from medical and health professionals. Pregnant women must proportionally know basic knowledge related to COVID-19 and preventive actions. Knowledge is a crucial thing in all areas of human endeavor. In the project of preventing and treating coronavirus infections, the community needs to know entirely and precisely about these new viral infections because misleading information spread through social media can lead the public to wrong actions [21]. It is crucial to increase knowledge, attitudes, and behavior in the general public, especially pregnant women, especially in the current period of rising cases of COVID-19 [32].

This research found a relationship between knowledge and behavior toward COVID-19 transmission. Increasing community knowledge regarding the information of COVID-19 is very important in changing attitudes related to COVID-19, which will have an impact on appropriate behavior among the community [33]. When knowledge increases, the practice of preventing transmission will go hand in hand. In addition to expertise, rules play an essential role in changing one's behavior. Singaporeans do safety steps to reduce the risk of COVID-19 transmission in the environment, including staying at home, going outside when needed, physical distancing, using surgical masks in public areas, and hand sanitation practice. They obey all the rules because there are significant fines and penalties for violation [34]. The government must implement several steps to reduce the COVID-19 transmission, including increasing knowledge and changing perception to affect behavior among pregnant women to maintain the health of pregnant women.

4.   CONCLUSION

The study shows that pregnant women's knowledge, behavior, and perceptions regarding the transmission of COVID-19 are very high, pleasing, and significantly related. The implications of the results of this study are used as primary data related to pregnant women to develop effective intervention strategies to prevent the spread of COVID-19 in pregnant women. Currently, more optimal education will continue to be carried out by health workers to the pregnant women to undergo their pregnancies in a prosperous manner and remain healthy during the COVID-19 pandemic.

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