Effectiveness of literacy about COVID-19

by Tengku Sri Wahyuni

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Effectiveness of Literacy about COVID-19 to Compliance of Pregnant Women to Antenatal Care in Pematangsiantar City

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Abstract

BACKGROUND: In the COVID-19 pandemic situation, there are almost all routine services including maternal and newborn health services. For example, pregnant women are reluctant to go to the community health center or other facilities for fear of being infected and services delay pregnancy checks and classes for pregnant women. This causes maternal and newborn health services to be one of the services affected, both in terms of access and quality. Therefore, in improving maternal health, literacy about COVID-19 and Antenatal Care (ANC) services are needed during the adaptation period of the COVID-19 period. The general purpose of the study was to determine the effectiveness of providing literacy about COVID-19 on the compliance of pregnant women in conducting ANC in Pematangsiantar City.

AIM: The specific objectives of the study were to determine the level of health literacy about COVID- 19 in pregnant women, to know the coverage of ANC during the COVID-19 pandemic, and to analyze the effectiveness of providing literacy about COVID-19 on the compliance of pregnant women with ANC in Pematangsiantar City.

METHODS: This research used a quasi-experimental design by providing literacy about COVID-19 and ANC to pregnant women. Literacy ability was assessed using a 16-item S-HLS-EU-Q questionnaire with a Likert scale. The number of samples in this study was 33 for the intervention group and 33 for the control group. Consecutive sampling and data analysis using the Chi-square test using the Statistical Package and Service Solutions version 25.0 application.

RESULTS: The results of the study were 33 respondents in the intervention group, all of whom had high literacy about the health-care domain. While in the control group, only 75.8% had high literacy. The results of Fisher's test showed p = 0.005. In the intervention group, 97% of the disease prevention domain had high literacy, and in the control group, there were 84.8% who had high literacy. The results of Fisher's test showed p = 0.197. In the intervention group, the domain of health promotion overall had high literacy, and in the control group, there were 84.8% who had high literacy. Fisher's test results show p = 0.053.

CONCLUSION: The results, based on research, need to be made efforts to overcome the compliance of pregnant women in implementing an ANC.

Introduction

The coronavirus outbreak (COVID-19) has had unprecedented consequences and it was being felt around the world. This pandemic greatly affects the entire order of life including in the field of health. The government established this situation as a national disaster through presidential decree of the Republic of Indonesia Number 12 of 2020 on the Determination of Non-Natural Disasters spreading Coronavirus Disease 2019 (COVID-19). The COVID-19 pandemic began in December 2019, the WHO China Country Office reported an unknown case of pneumonia in Wuhan City, Hubei Province, China. On January 7, 2020, China identified the unknown etiological pneumonia as a new type of coronavirus (coronavirus disease, COVID-19). On January 30, 2020, the WHO has designated it into a Public Health Emergency of International Concern. The increase in the number of COVID-19 cases is happening quite quickly and there has been a spread outside the Wuhan area and other countries [1].

In Indonesia, the number of people who have been examined was 951,910, confirmed with COVID-19 as many as 121,226 people, cured (positive COVID-19) of 77,557, died (positive COVID-19) of 5593 people (CFR 4.6%), and negative cases of 830,684. There were 4693 cases, the number of cases recovered 1912 cases and the number of cases died of 221 cases in North Sumatra Province [1]. Data on August 8, 2020, in Pematangsiantar City obtained data on the number of suspects treated were 58 cases, suspects died of seven cases, confirmed treated was 60 cases, confirmed cured was 122 cases, and confirmed death was five cases [2]. Maternal and child mortality in Indonesia is still a major challenge and very important to note, especially during the COVID-19 outbreak. The number of confirmed patients of COVID-19 as of September 14, 2020, was 221,523, 71.5% of the confirmed cured. In the group of pregnant

women, there were 4.9% who were confirmed positive from 1483 cases that had data on the condition of participation. These data showed that pregnant women are also vulnerable targets to COVID-19 infection and this condition is feared to increase the morbidity and mortality of mothers and newborns [1].

In the situation of the COVID-19 pandemic, many restrictions on almost all routine services including maternal and newborn health services. Pregnant women become reluctant to go to puskesmas or other health care facilities for fear of contracting, due to recommendations for postponing pregnancy examinations and classes for pregnant women, and also unpreparedness of the services in terms of infrastructure, including personal protective equipment. This situation caused maternal and newborn health services to be one of the services affected, both access and quality [1]. Health-care coverage data for pregnant women in Pematangsiantar City in 2019 were about 85% and decreased to 75.3% during the COVID-19 pandemic in 2020 [2].

The role of pregnant women in conducting routine pregnancy checks to the health service has an important role in efforts to improve the health quality of mother herself and the child in the womb and reduce the rate of morbidity and maternal mortality. The coronavirus is transmitted based on droplets of infection from individual to individual, then transmission can occur both at home, travel, work, places of worship, tourist attractions, and other places where there are people interacting socially [1]. Based on this, it is very important if the mother is equipped with the provision of health literacy about COVID-19. The tradition of health literacy must be really attached in the life of the mother. Health literacy is a cognitive and social skill, which determines an individual's motivation and ability to gain access and use information in a way that promotes and maintains good health [3].

Some research results have suggested that good health literacy skills have a significant effect on self-care management. Sabil (2018), in his research, obtained p = 0.00 with a picture of about 48.7% of respondents who have good literacy skills are also able to carry out self-care well [4]. Research conducted by Solhi, M., (2018) also found a significant difference ($P < 0.001$) in the average scores of total self-care and total health literacy between the control and intervention groups (65 ± 6.23 vs. 76.77 ± 4.28 and 30.95 ± 4.63 vs. 40 ± 3.54). Similarly, there was a significant difference ($P < 0.001$) between the average scores 2 months after the intervention compared to 1 month of intervention [5]. Research on the effectiveness of health literacy about COVID in pregnant women has never been carried out in Pematangsiantar City, besides that it is different from previous research for the provision of literacy to respondents conducted through sharing pocket books and animated video links related to COVID-19

information and pregnancy checks Antenatal Care (ANC), so researchers are interested in conducting research "Effectiveness of Literacy Provision about COVID-19 On Compliance of Pregnant Women Doing ANC in the City Pematangsiantar."

Methods

Quasi-experimental research design. Research site in Pematangsiantar City in June-October 2021. The population of this study is all pregnant women in the Pematangsiantar City area. The sample of this study was pregnant women who met the following criteria for normal pregnant women, all gestational ages (trimesters 1 to 3), age at least 20–35 years, gravida 1–5, able to read and speak well in Indonesian, and willing to be respondents to the study. The determination of the size of the sample in this study was determined based on the formula of calculating the size of the sample using two independent populations [6]. A sample of 33 respondents to the intervention group and 33 respondents of the control group was obtained. How to take non-probability sampling consecutive sampling? Samples were obtained from pregnant women who conducted examinations at the PMB of Pematangsiantar City area.

Literacy ability measurement instruments using the S-HLS-EU-Q questionnaire are adjusted to COVID conditions. The questionnaire contains 16 questions to measure three domains: Health care, disease prevention, and health promotion. Measurement of health care domain questions no. 1–7, disease prevention questions no. 8–12, and health promotion questions no.13–16. The assessment criteria equal to the highest score deducted the lowest score then divided by the number of categories. Literacy scores are categorized into two levels, namely, high and low, health-care domain (0): Low, if the answer score is 7–16; 1, high, if the answer score is 17–28. Disease prevention domain: 0: Low, if the answer score is 5–12; 1: High, if the answer score is 13–20; health promotion domain: 0: Low, if the answer score is 4–9; 1: High, if the answer score is 10–16.

The compliance measuring instrument of pregnant women conducts an ANC examination with an observation sheet. The intervention group carried out the provision of health literacy about COVID-19 and ANC to pregnant women 4 times, while the control group was not given treatment, then at the 4th meeting, refilled the questionnaire was carried out in both the intervention group and the control group. The questionnaire validity test used the Pearson Bivariate correlation (Pearson correlation product moment) and the Kuesioner reliability test using alpha Cronbach's. In

accordance with the hypothesis of statistical analysis, the research used is the chi square test, the established error rate is <0.05.

Results

Test for the validity and reliability of knowledge questionnaires

All question items on the health literacy questionnaire about COVID-19 have a valid status because the value r calculates ≥ r table (r count between 0.399 and 0.864≥ r table 0.344).

Reliability tests are performed on question instruments that are declared valid. The result of the coefficient of reliability of health literacy instruments about COVID-19 all question items is 0.855. This means that the health literacy questionnaire about COVID-19 is declared reliable.

Univariate analysis

Table 1 shows that the average age of respondents was 28.88 years (SB ± 6.15), the average gravida was 2.21 (SB ± 1.22), the average gestational age in the second trimester was 28.12 weeks (SB ± 4.43), the most education level was high school (47.8%), most respondents were housewives (75.8%), and the majority respondents were *Batak* tribe (66.7%).

Table 1: Characteristics of respondents

Variable	Average ± Standard Deviation (n = 33)	f (%)
Mother's age (year)	28.88 ± 6.15	
Gravida	2.21 ± 1.22	
Gestational age (weeks)	28.12 ± 4.43	
Education		
Primary school		1 (3.0)
Junior high school		5 (15.2)
High school		22 (47.8)
Associate degree (D-3)		2 (6.1)
Bachelor		3 (9.1)
Employment status		
Housewife		25 (75.8)
Work		8 (24.2)
Tribe		
Batak		22 (66.7)
Dompu		1 (3.0)
Jawa		7 (21.2)
Minang		2 (6.1)
Nias		1 (3.0)

Based on Table 2, it can be seen that of the 33 respondents in the intervention group had high literacy about the health-care domain. In the control group, only 75.8% had high literacy. Fisher's test results showed p = 0.005. In the intervention group, the disease prevention domain was 97% who had high literacy, and in the control group, there were 84.8% who had high literacy. Fisher's test result showed p = 0.197. In the intervention group, the health promotion domain,

all had high literacy, and in the control group, there were 84.8% who had high literacy. Fisher's test results showed p = 0.053.

Table 2: Results of health literacy analysis on COVID-19 in treatment and control groups after intervention

Variable	Group				p*-value
	Intervention (n = 33)		Control (n = 33)		
	n	%	n	%	
Health literacy about COVID-19 with the domain of health care					
Low	0	0.0	8	24,2	0.005
High	33	100	25	75.8	
	33	100	33	100	
Health literacy about COVID-19 with the domain of disease Prevention					
Low	1	3.00	5	15.2	0.197
High	32	97.0	28	84.8	
	33	100	33	100	
Health literacy about COVID-19 with domain of health promotion					
Low	0	0		15.2	0.053
High	33	100		84.8	
	33	100	33	100	

Based on Table 3, it can be known that of the 33 respondents in the intervention group, there were 69.7% who were obedient in conducting the ANC, and in the control group, there were 54.5% who had compliance doing ANC well. Chi-square test results showed p = 0.310.

Table 3: Results of ANC compliance analysis of treatment and control groups after intervention

Variable	Group				p*-value
	Intervention (n = 33)		Control (n = 33)		
	n	%	n	%	
ANC compliance					
Obedient	23	69.7	18	54.5	0.310
Disobedient	10	30.3	15	45.5	
	33	100	33	100	

*Chi-square.

Based on Table 4, it can be seen that of 33 respondents, all (100%) have high literacy about the health-care domain, 69.7% were compliant to do ANC and 30.3% were uncompliant to do ANC. Of the 33 respondents, 32 (97%) had high literacy about the disease prevention domain, 68.8% were compliant to do ANC, and 31.3% were uncompliant to do ANC. Furthermore, of all respondents who are highly literate in the health promotion domain, there were 69.7% who were ANC compliant and 30.3% were uncompliant to do ANC.

Table 4: Results of health literacy effectiveness analysis on COVID-19 with ANC compliance after intervention

Literacy sub-domain about COVID-19	ANC compliance (n = 33)				Total	p-value
	Obedient		Disobedient			
	n	%	n	%		
Health Care						
High	23	69.7	10	30.3	33	-
Low	0	0.0	0	0.0	0	
	23	69.7	10	30.3	33	
Disease prevention						
High	22	68.8	10	31.3	32	1.000
Low	1	100.0	0	0.0	1	
	23	69.7	10	30.3	33	
Health promotion						
High	23	69.7	10	30.3	33	-
Low	0	0.0	0	0.0	0.0	
	23	69.7	10	30.3	33	

*Fisher's test, ANC: Antenatal Care.

Discussion

This study aims to analyze the effectiveness of literacy about COVID-19 to the compliance of pregnant women doing ANC on. The study used the S-HLS-EU-Q questionnaire as a measuring tool which was then added with questions about COVID-19. There has been a validity and reliability test and the overall question in the questionnaire was declared valid and reliable according to the Pearson correlation product moment correlation test with a significant level of 0.05. After our study, we found that of the 33 respondents in the intervention group, all had high literacy about the health-care domain. In the control group, only 75.8% had high literacy. Fisher's test results showed p = 0.005. In the intervention group, the disease prevention domain was 97% who had high literacy, and in the control group, there were 84.8% who had high literacy. Fisher's test result showed p = 0.197. In the intervention group, the health promotion domain, all had high literacy, and in the control group, there were 84.8% who had high literacy. Fisher's test results showed p = 0.053.

This study was conducted at the time of the COVID-19 pandemic which has occurred for approximately 2 years since it was discovered in December 2019. There has been a lot of information about COVID-19 that spread to all levels of society through health workers, mass media, electronic media, and social media. Information obtained by many people allows respondents to have high literacy skills. Almost the same research results were also stated by Adelweis, namely, that when experiencing the COVID-19 outbreak, many people searched for information through various media such as TV as much as 31.5%, social media (Instagram, Twitter, Facebook, and WhatsApp) as much as 37.2%, and the internet as much as 27.3%. Many companies, especially in the health sector, share information about COVID-19 through various media such as magazines, newspapers, journals, websites, and social media. Respondents have been searching for information about COVID-19 through various online and mass media [7].

Health literacy has a strategic role in the development of public health including pregnant women. The ability of pregnant women to know the health related to themselves and fetuses in the womb is important to improve the quality of health including during the COVID-19 pandemic. The level of health literacy directly or indirectly can better monitor the health of personal, family, and community. The results of the reduced data illustrate that health literacy can contribute preventively, curatively, and rehabilitatively to the community when facing the risk of disease, especially in the face of the COVID-19 outbreak [8]. The provision of literacy to respondents was done through the sharing of pocket books and animated video links related to COVID-19 information and pregnancy examinations (ANC). This action in accordance with the need for health literacy in growing awareness of the dangers of the coronavirus requires the use of sufficient information for the world community including Indonesia which is still low in literacy culture [9]. In light of the current outbreak, new innovations are being developed or adapted to improve people's digital health literacy and that communities need to seek, discover, understand, and use health information from electronic sources as well as apply the knowledge gained to address or solve health problems [10].

Statistically, our results found that providing health literacy about COVID-19 was not effective in improving the compliance of pregnant women to do ANC (p = 1,000). However, in practice, all pregnant women who became respondents have experienced an increase in the frequency of ANC to independent practice midwives and to gynecological obstetricians. Standards measuring pregnant women's compliance for an ANC must be in accordance with the frequency specified by the mother and child health program. This is contained in the following information: ANC services in normal pregnancy at least 6 times with details of twice in Trimester 1, once in Trimester 2, and 3 times in Trimester 3. Pregnancy check-ups are performed by a doctor at least twice during the 1st visit in Trimester 1 and during the 5th visit in Trimester 3. Screening of birth risk factors is done by a doctor by applying health protocols. Screening is done to establish the risk factors of childbirth, determine the place of delivery, and determine whether a planned referral is needed or not, face to face is preceded by an appointment/teleregistration with anamnesa screening through communication media (telephone)/online to look for risk factors and symptoms of COVID-19. If there are symptoms of COVID-19, the mother is referred to the hospital for swabs or if it is difficult to access the referral hospital then rapid test is carried out [1].

In information literacy, there are several levels that describe a person's position in understanding health information. At the basic level, a person has enough basic skills in reading and writing to be able to function effectively in everyday situations. The next level is called communicative or interactive literacy, in this level, a person has the skills to communicate health information that has been possessed to his environment in daily activities. At the critical literacy level, one can critically analyze information, and use this information to control events and situations in everyday life. The health literacy level of pregnant women is also influenced by several factors such as age, type of work, and quality of health services [11]. Today, the majority of pregnant women are millennials, born between 1980 and 2000, they often get health information from the internet and media. Available information, such as from the internet and media, does not guarantee the quality or accuracy of information [12]. However, the amount of information they get does not guarantee that pregnant women will understand the information obtained and can apply it to their health needs. This need is especially important in pregnant women who may have low levels of health literacy. Even many pregnant women believe more in the myths that exist in society related to food problems.

Conclusion

The results, based on research, need to be made efforts to overcome the compliance of pregnant women in implementing an ANC.

Ethical Considerations

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors. This study had been evaluated by the health research ethics committee "*Poltekkes Kemenkes Medan*" with Number: 01.1942/KEPK/*Poltekkes Kemenkes Medan*/2021.

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Data Availability

Data and any supplementary material related to this article can be obtained from the corresponding author on request.

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FINAL GRADE

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GENERAL COMMENTS

Instructor

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