Effect of Whatsapp Reminder on Antenatal Care Revisit Compliance and Knowledge of Pregnancy Danger Signs During the Covid-19 Pandemic

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ABSTRACT

ANC repeat visits experienced a significant decline during the pandemic due to maternal concerns about the transmission of the Covid-19 virus. The absence of the mother in the visit causes limited information in recognizing the danger signs of pregnancy. This can be anticipated with the WhatsApp Reminder service as a supporting intervention to increase maternal compliance and knowledge. This study aims to determine the effect of WhatsApp Reminder on ANC visit compliance and knowledge of pregnancy danger signs. This pre-experimental study used a one group pre-test post-test design for one group of subjects. Sampling using simple random sampling was 30 respondents in third trimester mothers at Puskesmas 5 Ilir Palembang in June 2021. Collecting data with the MMAS-8 instrument and analyzed using the Marginal Homogeneity test with a significant level of <0.05. The results showed a high level of compliance 60% and good knowledge 74% with p = 0.000.

Keywords: antenatal care, knowledge, level of compliance, repeat visit, whatsApp reminder

BACKGROUND

One of the targets in the human health development goals is to reduce maternal mortality (MMR). Although MMR in Indonesia in 2017 experienced a sharp decline, reaching 1,712 cases compared to 2016 (4,912 cases), this is still far from achieving the 2030 Sustainable Development Goals (SDGs) target of 70 per 100,000 births (Ermalena & ICTOH, 2017). in Indonesia in 2019 as many as 305 per 100,000 live births and in South Sumatra Province as many as 102 per 100,000 live births (Kementerian Kesehatan RI, 2019; Dinkes Provinsi Sumsel, 2020) Globally, MMR is used as an indicator to measure the success of maternal health efforts in a country or region (Rahmawati et al., 2019).

The direct cause of the high maternal mortality rate is related to complications of pregnancy, childbirth and the postpartum period (Pusdatin, 2015). Meanwhile, according to Sulfianti et al., (2020) maternal death can occur due to pregnancy complications and not having regular visits during pregnancy. In addition, maternal mortality also occurs due to delays in accessing emergency health services caused by delays in recognizing danger signs and making decisions (Pamulat Sari et al., 2017 ; Handayani et al., 2018). One of the government's efforts to overcome maternal health problems is by issuing a strategic intervention policy in "safe motherhood" which consists of four pillars, namely family planning, clean and safe delivery, essential obstetric services, and antenatal care services (Andriani, 2019).

Antenatal Care (ANC) is a planned program in the form of observation, education, and medical treatment for pregnant women with the aim of keeping the mother healthy during pregnancy, childbirth and postpartum as well as ensuring that babies are born healthy, the process of pregnancy and delivery is safe and satisfying, monitoring the possibility of risks of pregnancy, planning optimal management of high-risk pregnancies, reducing perinatal maternal and fetal morbidity and mortality (Astuti, S., Susanti, A. I., Nurparidah, R., & Mandiri, 2017) The ANC itself consists of first visit and repead visits which can be used as an assessment of the implementation of health services for pregnant women. The first visit is the first contact of pregnant women with health workers who have the competence to get integrated and comprehensive services according to standards. The first contact should be made as early as possible in the first trimester (preferably before the 8th week). The importance of first visit examination is closely related to the large role of mothers in realizing health development goals, so it is necessary to establish synergy between the role of the government and the community to reduce maternal mortality. The coverage of first visit ANC shows access to health services and the level of compliance of pregnant women in checking their pregnancies to health workers.

Based on data from the Health Profile of South Sumatra Province in 2020, the percentage of first visit in 2020 was 94.2%, a decrease of 3.8% compared to 2019 which was 98%, with the highest achievement of first visit coverage, namely Ogan Komering Ulu Regency, Ogan Komering Ulu Selatan, Ogan Ilir and Empat Lawang are 100%. However, there is still one Regency/City with first visit coverage below 90%, namely in Palembang City (78.8%) (Dinkes Provinsi Sumsel, 2021).

The 4th visit is a repeat visit for pregnant women with 4 or more contacts with health workers who have the competence to get integrated and comprehensive services according to standards (1-1-2). 4 contacts were made at least once in the first trimester (0-12 weeks), once in the 2nd trimester (>12-24 weeks), and 2 times in the 3rd trimester (>24 weeks until birth). Antenatal visits can be more than 4 times as needed and if there are complaints, illnesses or pregnancy disorders. ANC repeat visits coverage shows the performance of the percentage of pregnant women receiving ANC services. The percentage of repeat visits in South Sumatra is 90.9%. There was a decrease of 4.3% from the previous year (95.2%). Ogan Ilir Regency

repeat visits coverage reached 118.9% making it the highest coverage in South Sumatra Province, and the lowest was in Palembang City (77.5%).

The low coverage of first visit and repeat visits in the city of Palembang in 2020 is possible because the city of Palembang is one of the areas that has the highest prevalence of contracting the Covid-19 virus compared to other areas of South Sumatra, so most pregnant women choose not to have a pregnancy checkup for fear of contracting the corona virus. In addition, the lack of information on the management of visits and the low involvement of health workers in disseminating maternal and neonatal service policies during the Covid-19 pandemic, has led to lower maternal visits for antenatal care to health services (Rofiasari, et al., 2020; Afidatul Ummah et al., 2020 ; Maryuni et al., 2020), so that it can have an impact on delaying early detection of problematic pregnancies and recognizing the danger signs of pregnancy, complications and disorders of fetal growth and development and maternal health (Mahendra, AD, 2020). Therefore, the participation of health workers, especially midwives in health promotion to pregnant women, plays an important role in increasing antenatal care visits and increasing knowledge of pregnant women about the danger signs of pregnancy (Aminah & Widyastuti, 2018).

One of the effective, attractive and easy-to-use promotional media to send instant messages and visit reminders is the WhatsApp chat service. According to Aminah & Widyastuti, (2018) the WhatsApp application has many features that make it easier for midwives and other health workers to communicate ANC programs and pregnancy care to the public, especially pregnant women. Research conducted by (Afidatul Ummah et al., 2020) shows the effect of Short Message Service on antenatal care compliance and early detection of danger signs in third trimester pregnant women. Likewise, the results of research by Sari et al., (2018) & Zamiatun, S., & Sariyati, (2020) explain that there are differences in pretest and posttest scores on the knowledge variable between the intervention and control groups after being educated through the WhatsApp application. Based on the results of the description, the researchers are interested in conducting research on the effect of reminders via whatsapp chat on adherence to antenatal care visits for third trimester pregnant women and knowledge of pregnancy danger signs during the Covid-19 pandemic.

METHODS

This research is a pre-experimental study with a one group pretest posttest design carried out in June 2021. The research location was conducted at the 5 Ilir Health Center Palembang. The population in this study were all pregnant women in the third trimester (28 weeks) who made a pregnancy check-up visit at the 5 Ilir Health Center in Palembang City. The research sample was 30 pregnant women. selected by simple random sampling technique. The independent variable in this study was reminder via whatsapp chat. The dependent variable in this study was adherence to antenatal care visits and knowledge of pregnancy danger signs. Data were collected in two stages, pre and post intervention using the MMAS-8 (Morisky Medication Adherence Scale) instrument for the adherence variable, consisting of 8 questions with a score of 0-8. Score 8 for high adherence, score 6-7 for moderate adherence, and score <6 for low adherence. The knowledge variable consists of 19 closed questions with true or false choices. The two instruments have been tested for validity and reliability with cronback alpha values of 0.955 and 0.710 (very reliable). Univariate analysis was carried out to determine the frequency distribution of respondents' characteristics. Bivariate analysis used the Marginal Homogeneity statistical test with a significance limit of $\alpha = 0.05$. Processing and data analysis in this study used SPSS 16 software. This study has received approval from the ethics commission board of the Poltekkes Kemenkes Palembang number 940/KEPK/Adm2/V/X/2021.

RESULTS

Table 1. Frequency Distribution of Respondents (n=30)

Variable	Frequency	%
Age		
<20 years	9	30
20-35 years	16	53,3
>35 years	5	16,7
Total	30	100
Last Education		
Primary school	2	6,6
Junior high school	6	20
Senior high school	18	60
College	4	13,4
Total	30	100
Mother's Job		
Not work	22	73,3
Working	8	26,7
Total	30	100
Residence		
My own house	10	33,3
Family house	14	46,7
Contract	6	20
Total	30	100

Primary data sources for 2021

Based on table 1, it is found that some respondents are in the reproductive age range (20-25 years), more than half of the respondents have high school education, most of the respondents do not work and almost half of the respondents live with their families.

Table 2. Frequency Distribution of Respondents' Antenatal Care Revisit Compliance Levels Before and After the Intervention

Visit Compliance ANC repeat	Before		After	
	f	%	f	%
Low	11	36,7	2	6,7
Medium	15	50	10	33,3
High	4	13,3	18	60
Total	30	100	30	100

Primary data sources for 2021

Based on table 2, information on the high level of compliance of respondents to make repeat visits before the intervention was only a small percentage, namely 13.3%, after the intervention, the high level of compliance of respondents to make repeat visits increased to 60%.

Table 3. Frequency Distribution of Knowledge Level of Pregnancy Danger Signs Before and After Intervention

Knowledge of Pregnancy Danger Signs	Before		After	
	f	%	f	%
Not enough	9	30	1	3,3
Enough	17	56,7	8	26,7
Well	4	13,3	21	70
Total	30	100	30	100

Primary data sources for 2021

Based on table 3, it was obtained that the respondents' knowledge of the danger signs of pregnancy in the good category before the intervention was 13.3% (very low). After the intervention, the knowledge of respondents with good categories increased to 70%.

Table 4. The results of the bivariate analysis of the Reminder Intervention Via Chat Whatsapp on the Compliance of Antenatal Care Revisit

		Antenatal Care Revisit Compliance After Intervention						Total		P Value
		Low		Medium		High				
Antenatal Care Revisit Compliance Before Intervention		f	%	f	%	f	%			
	Low	2	18	4	36	5	46	11	100%	
	Medium	0	0	6	40	9	60	15	100%	0,000
	High	0	0	0	0	4	100	4	100%	
Total		2	6,7	10	33,3	18	60	30	100%	

Primary data sources for 2021

Based on table 4, information on the high level of adherence of respondents to do repeat visits before the intervention was 4 people (100%) and after the intervention the high level of adherence persisted in the 4 respondents (100%), while respondents with moderate levels of compliance, before the intervention as many as 15 people, after being given the intervention the level of compliance of the respondents became 9 people (60%) in the high compliance category and 6 people (40%) in the moderate compliance category. For respondents who have a low level of compliance, before being given an intervention as many as 11 people, after being given an intervention with Reminder Via Chat Whatsapp the level of compliance is 5 people (46%) in the high compliance category, 4 people (36%) moderate compliance and 2 people (18%) low compliance rate. Based on the p value of 0.000, which means there is a change in the level of respondent's compliance in conducting repeat visits before and after intervention with Whatsapp Reminder.

Table 5. Results of Bivariate Analysis of Reminder Intervention Via Chat Whatsapp Against Knowledge of Pregnancy Danger Signs

		Knowledge of Pregnancy Danger Signs After Intervention						Total		P Value
		Nor Enough		Enough		Well				
Knowledge of Pregnancy Danger Signs Before Intervention		f	%	f	%	f	%			
	Nor Enough	1	11,1	5	55,6	3	33,3	9	100%	
	Enough	0	0	3	17,7	14	82,3	17	100%	0,000
	Well	0	0	0	0	4	100	4	100%	
Total		1	3,3	8	26,7	21	70	30	100%	

Primary data sources for 2021

Based on table 5, information on the level of knowledge of respondents about the danger signs of pregnancy in the good category before the intervention was 4 people and after the intervention the level of good knowledge remained in 4 respondents (100%), while respondents with sufficient knowledge level, before the intervention were 17 people, after being given the intervention the level of knowledge of the respondents became 14 people

(82.3%) in the category of good knowledge and 3 people (40%) with sufficient knowledge. For respondents who have a low level of knowledge, before being given the intervention as many as 9 people, after being given the intervention the level of knowledge changed to 3 people (33.3%) with good knowledge, 5 people (55.6%) with sufficient knowledge and 1 person (11.1 %) less knowledgeable. Based on the p value of 0.000 which means there is a change in the level of knowledge of the respondents in recognizing the danger signs of pregnancy before and after intervention with Whatsapp Reminder.

Table 6. Marginal Homogeneity Test Results

	ANC Revisit Compliance Pretest & ANC Revisit Compliance Posttest	Pretest Knowledge of Pregnancy Danger Signs & Posttest Knowledge of Pregnancy Danger Signs
Distinct Values	3	3
Off-Diagonal Cases	18	22
Observed MH Statistic	27.000	36.000
Mean MH Statistic	38.500	48.500
Std. Deviation of MH Statistic	2.872	2.784
Std. MH Statistic	-4.004	-4.490
Asymp. Sig. (2-tailed)	0.000	0.000

Based on table 6, information on the p-value of the Marginal Homogeneity test is 0.00 (<0.05), then the null hypothesis is rejected (H0), so it can be concluded that there are differences or changes in the level of compliance with repeat visits and knowledge of pregnancy danger signs in respondents before and after. after intervention with Whatsapp Reminder.

DISCUSSION

This study is a pre-experimental study with a one group pre-test post-test design, at the 5 Ilir Health Center, Palembang City in June 2021. Based on the results of the analysis of the characteristics of the respondents, it is known that the most ages are in the age range of 21-35 years (53.3%).) means that most of the respondents are at the optimal age in undergoing the pregnancy phase, namely 21-35 years because at that age a woman has perfect readiness in terms of physical and psychological (Rinata et al., 2018). In line with previous research, Heriani, (2016) stated that the most ideal ages for pregnancy and childbirth are >20 years and <35 years. The results of the study (Mahendra, AD, 2020) revealed that mothers with high adherence to ANC examinations were of productive age (21-30) years, so that the mother's rational ability to understand the risk of pregnancy in herself was better. This condition helps the mother to understand the importance of the antenatal care function for the maintenance of her womb which is manifested in the form of compliance in antenatal care visits. While the level of knowledge of pregnancy danger signs with good knowledge is mostly owned by the age group of 20-30 years. This shows that pregnant women have a good level of knowledge who are young and mature because they will be easy to receive information, especially about their pregnancy (Christina & Sukartiningsih, 2014) The results of the univariate analysis showed that more than half of the respondents had high school education (60%). Qomariah Rista Andaruni et al., (2017) stated that the higher a person's education level, the easier it is to receive information so that the more knowledge they have, on the other hand, less education will hinder a person's development of newly introduced values. This is in line with research (Nuraeni et al., 2017) which suggests that pregnant women who have a high level of education tend to have their pregnancy checked more than

those with low education. Meanwhile, the results of Budiarti research, (2018) show a significant relationship between the ability to understand the danger signs of pregnancy and the educational status of the mother, where mothers with higher education are 6 times more likely to recognize the danger signs of pregnancy than mothers with low education. So the results of this study concluded that high education has an influence on adherence to antenatal care visits for third trimester pregnant women and knowledge of pregnancy danger signs.

The results of the univariate analysis showed that almost of the respondents (73.3%) did not work. Work is seen more from the mother's working hours because it can affect the mother's opportunity to carry out an examination. Status as a housewife makes a mother have more time to add knowledge and insight, especially regarding knowledge about health that can make changes in attitudes towards the better (Diah Nur Awaliya, 2018). This is in line with research conducted by Faradhika, (2019) that pregnant women who work with high and dense activities prefer to prioritize their careers compared to their own health, making it difficult to comply with ANC visits compared to housewives who have less time. more free time to be able to optimally organize and schedule ANC visits. Herliani research, (2017)shows that pregnant women who have less knowledge about the danger signs of pregnancy have a greater proportion (90.0%) in working pregnant women compared to pregnant women who do not work. From this description, the authors conclude that work also affects adherence to antenatal care visits for pregnant women in the third trimester and knowledge of pregnancy danger signs because the more busy a pregnant woman is with her work, the smaller the opportunity for repeat antenatal care visits, so pregnant women who work do not get information. complete information about the danger signs of pregnancy.

Based on the results of univariate analysis, almost most of the respondents live with their families (46.7%). Family is the closest environment for pregnant women, support from husband and family plays an important role in influencing the psychology and motivation of mothers in carrying out health behaviors. With good support, the mother will pay attention to the health of herself and her fetus by regularly checking her pregnancy (Rachmawati et al., 2017). Support from the family can help pregnant women comply with ANC visits. According to research by Mahadew, E. P., Nadhiroh, M., & Heryana, (2018) pregnant women who have poor family support, some (50%) do not comply with ANC repeat visits. This is in line with research by Fitrayeni, F., Suryati, S., & Faranti, (2017) showing that family support plays an important role in realizing positive things, so that the need for pregnant women to carry out ANC visits properly and completely is achieved. In this study, the authors concluded that ANC follow-up adherence and knowledge of pregnancy danger signs were influenced by home and living environment. Pregnant women who do not get family support for antenatal care, such as families who are too busy, families who do not provide information about pregnancy so that mothers do not fully know how useful it is to make antenatal care visits and the importance of knowledge of pregnancy danger signs.

The results showed that after being given a reminder via whatsapp chat, the majority of respondents experienced behavioral changes for the better, namely in the form of compliance with antenatal care visits and knowledge of pregnancy danger signs. Based on the results of the analysis, it was found that the high level of compliance of respondents to make ANC repeat visits increased to 60% and the knowledge of respondents with good categories increased to 70% after intervention with Reminder Via Chat Whatsapp. The results of this study are in line with the benefits of providing reminders as a service for delivering information or reminders in the form of SMS or chat sent to pregnant women to carry out pregnancy checks based on a predetermined schedule (Kaunang et al., 2018). The results of this study are also in line with research (Herlina et al., 2013) on the effectiveness of SMS reminders as a medium for promoting the health of pregnant women in remote areas where the use of short message service media to pregnant women shows that short message services

lead to an increase in the presence of pregnant women in health services effectively. in increasing promotive efforts to change knowledge, attitudes and health behavior. Re-visit for pregnant women for antenatal care is very important because it can help reduce maternal and infant mortality. If pregnant women do not perform antenatal care examinations, it will not be known whether their pregnancy can go well or experience high risk conditions and obstetric complications that can endanger the lives of mothers and fetuses, causing high rates of morbidity and mortality (L Oktavia, 2018). Through ANC, various information and education related to pregnancy and preparation for delivery can be given to mothers as early as possible.

Based on the results of the Marginal Homogeneity statistical test, a p-value of 0.000 was obtained (p-value <0.05), meaning that there was an effect of giving a WhatsApp Reminder intervention to the Compliance of Antenatal Care Revisit and Knowledge of Pregnancy Danger Signs at the 5 Ilir Health Center, Palembang City in 2021. With Thus the hypothesis which states that there is an effect of WhatsApp Reminder on Compliance with Antenatal Care Repeat Visits and Knowledge of Pregnancy Danger Signs at Puskesmas 5 Ilir Palembang City in 2021 can be accepted. This study is in line with the research of Afidatul Ummah et al., (2020) showing the effect of Short Message Service on antenatal care compliance in third trimester pregnant women (p = 0.002) and the level of ability to detect early warning signs of third trimester pregnant women in the intervention group (0.001). Media information about the importance of antenatal care services (such as WhatsApp Reminder) can increase mother's knowledge and motivation in making visits (Rahmawati et al., 2019). This is because the information received when using the right methods and techniques and is carried out repeatedly will stimulate the target so that it is easier to accept the message given (Herlina et al., 2013). The results of this study are also supported by Nirmala, (2019) who said that one of the intervention strategies that have been proven effective in improving the care that clients should receive is by reminding the client. Reminder messages can encourage them to comply. This result is consistent with a previous study which found that two thirds of patients felt that reminder messages could reduce forgetting (Akhu-Zaheya, L. M., & Wa'ed, 2017). Researchers assume that by being given a WhatsApp Reminder, respondents can remember the schedule for ANC visits between their busy lives and pregnant women feel more cared for by health workers, so they are motivated to obey health services. In addition, the increase in information and knowledge received through the reminder service via Whatsapp chat also forms the awareness of pregnant women to pay more attention to the health condition of their fetus and to continue to have their pregnancy checked regularly without worrying too much during the COVID-19 pandemic.

CONCLUSION

Based on the results of the study, it was shown that there was an effect of giving the WhatsApp Reminder intervention to the compliance of ANC visits and knowledge of the danger signs of pregnancy. The results of this study are expected to be a guideline for improving the antenatal care service program for health workers, especially midwives in increasing ANC visits during the COVID-19 pandemic and further research is expected to develop similar research related to the benefits of WhatsApp Reminder in the application of midwifery services with different variables.

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