

# The Maternal Mobile Message Program Can Increase Knowledge And Attitude To Antenatal Care In Pregnant Women In Seluma District

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# The Maternal Mobile Message Program Can Increase Knowledge And Attitude To Antenatal Care In Pregnant Women In Seluma District

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**Abstract**—The 2012 Indonesian Demographic Survey shows that the Maternal Mortality Rate is still high; this is also the case in Seluma District in 2015. Education disparities and regions are obstacles to access and quality of services received, so information technology is needed to facilitate the delivery of information to healthy individuals who do not regularly contact health services through the use of mobile phones. This study aims to determine the effect of Maternal Mobile Message (M3) on knowledge to antenatal care in pregnant women in Seluma District. The design of this study was quasi-experimental with the control group, an intervention in the form of an M3 program for pregnant women containing health promotion messages about pregnancy care. The samples were 60 pregnant women who were selected by purposive sampling. Data were analyzed with the Wilcoxon test. There was an effect of Maternal Mobile Message (M3) on knowledge ( $p= 0.00$ ), and attitude ( $p= 0.00$ ) to antenatal care in pregnant women in Seluma District.

**Keywords**—Maternal Mobile Messages (M3), health promotion, pregnant women

## I. INTRODUCTION

Act3 of 1999 explains that pregnant women are one of the vulnerable groups that are easily influenced.

[1]. Pregnant women usually rely more on information based on experience, so this is likely to be inaccurate because pregnancy is different individually for each person [2]. The results of research on the Amungme and Kamoro tribes in Timika Papua find many cultural themes that are still laden with gender discrimination and ignoring women's reproductive rights [3]. Seluma District has the Lowest Human Development Index in Bengkulu Province, which has several issues related to maternal and child health [4]. Research report as much as 66.6% of mothers choose shamans as birth attendants in the area of the Talang Tinggi Health Center [5]. At Puguk Health

Center 48% of mothers choose shamans as birth attendants and the incidence of anemia is 59.19% [6].

The existence of educational disparities, regions and the number of health workers in the delivery of information and education communication (KIE) is a barrier to access, and quality of services received so that health promotion media are needed that can reach pregnant women by emphasizing health education efforts [7,8,9]. One of the most effective means of mass communication and being able to reach out to provide health information to people is geographically tricky with the use of cell phones.

Previous studies have found that mHealth is effective in increasing knowledge of pregnant women in

Pregnancy care, improving understanding of pregnant women against pregnancy complications and nutritional intake but this study has not examined the impact of use Health on compliance with consumption of Iron tablets, the use of telephone and SMS media can improve understanding, insight and information needs during treatment and delivery [10]. This study aims to improve knowledge and attitude to antenatal care in pregnant women in Seluma District, Bengkulu Province through media Maternal Mobile Message (M3).

## II. METHODS

Type of research is quasi-experimental pre and post-test with a control group. Samples are pregnant women Trimester III in the Seluma District Health Center area, Talang Tinggi Health Center, Ilir Talo Health Center, Pajar Bulan Health Center, Puguk Health Center, Tais Health Center, and Rimbo Kedui Health Center which consisted of 60 treatment and control groups. The treatment group consisted of 30 people given health promotion through posyandu or classes for pregnant women and then given an SMS reminder

through the program M3. A total of 30 control groups were given health promotion at posyandu activities and classes of pregnant women and then given leaflets. Samples that meet the criteria are given a questionnaire that aims to find out readiness of pregnant women and partners to receive messages M3. The inclusion criteria in this study were Trimester III pregnant women without pregnancy complications and having mobile phones that could receive SMS at least 250 characters.

The M3 program is an SMS reminder program for pregnant women that contains health promotion messages is designed using the SMS2WEB application from the PT Telkomsel provider with program placement on the personal computer of the researcher. The researcher guarantees that there is no conflict of interest in the selection of this provider; if a pregnant woman uses a different provider, the researcher sends the same message manually. The contents of the SMS message consisting of  $\leq 250$  characters, modified from the protective health class promotion material published by the Ministry of Health of the Republic of Indonesia and sent daily [11]. Data analysis using the *Wilcoxon Signed Ranks Test*.

**III. RESULT**

TABLE I. EFFECT OF M3 ON THE KNOWLEDGE AND ATTITUDE OF PREGNANT WOMEN IN TREATMENT GROUP

Variable		Mean $\pm$ SD	P Value	n
Knowledge	Pre	32.17 $\pm$ 2.76	0.00	30
	Post	39.28 $\pm$ 3.41		
Attitude	Pre	20.86 $\pm$ 3.37	0.00	30
	Post	34.07 $\pm$ 3.68		

Table I shows that there is a difference in the mean knowledge before and after the intervention of M3 in the treatment group, with  $p = 0.00$ , it means there is a significant difference the mean of knowledge in M3 treatment group before and after the intervention. Table 1 also shows that there is a significant difference in the mean attitudes before and after treatment in the treatment group with a value of  $p = 0.00$ , it means there is a significant difference the mean of attitude in M3 treatment group before and after the intervention.

TABLE II. EFFECT OF M3 ON THE KNOWLEDGE AND ATTITUDE OF PREGNANT WOMEN IN CONTROL GROUP

Variable		Mean $\pm$ SD	P Value	n
Knowledge	Pre	32.71 $\pm$ 3.2	0.07	30
	Post	32.39 $\pm$ 3.10		

Attitude	Pre	20.89 $\pm$ 3.37	0,053	30
	Post	21.32 $\pm$ 3.52		

Table II shows that there is no difference in the mean knowledge before and after intervention in the control group, with  $p = 0.07$ , it means there was no significant difference the mean of knowledge in M3 control group before and after the intervention. Table II also shows that there is no difference in the mean attitudes before and after treatment in the control group with a value of  $p = 0.053$ , it means there is no significant difference the mean of attitude in M3 control group before and after the intervention.

**IV. DISCUSSION**

The results of this study found that there was an increase in knowledge, attitude and pregnant women on pregnancy care. It is in line with previous studies conducted that SMS reminder can be used as an educational medium for pregnant women and increase the knowledge of pregnant women in pregnancy care [10,12]. The use of M3 as an SMS reminder in this study serves as a media that repeats health promotion messages given to pregnant women in maternity class or posyandu. Repetition of messages given through SMS of pregnant women increases the knowledge and attitudes of pregnant women about pregnancy care.

The M3 program is different from the SMS Mother program from the Ministry of Health of the Republic of Indonesia because it is not done continuously every day as a reminder for pregnant women to take care during pregnancy in the previous program the target group. It was not specific for pregnant women but was also directed at mothers who have toddlers so that the information received was not by the condition of the current recipient of the message [13].

In this study, a message aimed at a select group of pregnant women was adapted to the needs of health education for pregnant women. Providing complete information supports adequate knowledge for pregnant women [13]. In this study, the contents of the messages delivered included maternal care during pregnancy, childbirth, child birth, and newborns, family planning and danger signs at each of these stages. This complete information supports a small increase in knowledge for pregnant women. The results of this study supported the understanding of pregnant women against pregnancy complications and increased nutritional intake after an SMS-based promotion intervention because SMS reminder is perceived as comfortable, attractive and innovative. SMS media has proven to be useful for conveying health information so that it can increase maternal awareness in

conducting routine antenatal care checks on medical personnel. The program mHealth achieves satisfactory results over a year of research period and can be applied as a media for health promotion in the community [14].

The location of this research was carried out in remote areas with a low level of community education so that modification of health promotion media was needed like the M3 program. It is consistent with the results of previous studies that factors of education, shelter, age or parity affect visits to health services, but cellular phones are low-cost information technology that can provide health information that reaches all levels of society and has the potential to positively influence the health behavior of pregnant women [16].

The results of this study support previous studies which found that there was an increase in the understanding of pregnant women in remote areas about complications of pregnancy and nutritional intake so that it is expected to increase the awareness of mothers in conducting routine antenatal care for health workers [17]. The results of this study also found that there was a relationship between health promotion through M3 on the attitude of pregnant women about antenatal care. This proves that the message of health information provided through SMS reminder has a positive effect on knowledge as a result of a positive attitude change about health care during pregnancy.

The results of the same study also revealed that structured health promotion could increase the knowledge and attitudes of pregnant women about antenatal care. Teaching materials about antenatal care can be prepared and distributed to pregnant women during antenatal visits. Health care providers must disseminate appropriate information about antenatal care to increase public awareness of healthy lifestyle changes, positive attitudes, and make antenatal visits in order to obtain adequate health services during pregnancy and get immediate help from health workers for complications experienced. Therefore adequate information about care as long as it must be given in the class of pregnant women and carried out repeatedly [10] so that it can increase awareness about maternal and child health, achieve the goal of antenatal care, healthy birth from a healthy mother [18].

The results of this study support previous research that the delivery of advice from health workers who are less familiar, insufficient, lack of encouragement from health workers, family

support that is absent or not optimal and many factors including the motivation of pregnant women themselves so that technology-based health promotion media are needed information [19,20]. Knowledge and attitudes play an essential role in the quality of antenatal care received by pregnant women because knowledge is an obstacle for pregnant women to make antenatal visits; therefore health workers must provide high motivation so that pregnant women and their families can utilize the health care facilities provided by the government [21]. The findings of the previous study also obtained the same results that the knowledge and attitudes of pregnant women were factors that influence the lack of antenatal visits [21,22]. The opportunity to use mobile cellular technology (mHealth) as a health promotion strategy is expected to improve public health because this technology can facilitate the delivery of information more closely, reaching healthy but irregular individuals who contact health services [10,23].

Although there are weaknesses in this study, if the pregnant woman does not activate the cellular telephone, the message will be late, but to overcome this, the researcher has repeated the same message in the following period. SMS sending is carried out at night before 19.00 WIB so that pregnant women can read SMS messages received before going to bed, and this is done because most pregnant women work as farmers and still work in the fields even though they are pregnant.

Approach through text messaging about information relating to pregnancy, lactation, baby care is very beneficial for pregnant women and is the right choice for people with low access to health services [16]. The remembrance of the use of information technology through mobile phones has reduced health financing by increasing the efficiency of healthcare systems and prevention promotion through behavioral change communication. Approach phone cell can be accepted to improve the health of low-income pregnant women and post-partum in developing countries [16,17]. The results of this study are supported by previous research that the use of telephone and SMS media can improve understanding, insight, and information needs in during care and delivery [8,10, 9,12,24].

#### V. CONCLUSION

There is an effect of Maternal Mobile Message (M3) on knowledge and attitudes to antenatal care in pregnant women in Seluma District.

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