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# The Effect of Educational Media Development in Increasing Knowledge and Attitudes on Pregnancy Complications at Sayang Rakyat Hospital in Makassar

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## Abstract

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**Keywords:** Educational media; Leaflet; Pregnancy and childbirth complications

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**BACKGROUND:** Each pregnancy and childbirth has complication risks. These complications are accompanying pathological incidences that might cause maternal mortality.

**AIM:** This research aims to determine the effect of educational media development in increasing knowledge and attitudes about complications of pregnancy and childbirth in pregnant women.

**METHODS:** This research method passed through several stages as follows: First stage consisted of the development of educational media (leaflets), and second stage consisted of development test with leaflet media using a quasi-experimental research design. The samples are Trimester I to Trimester III pregnant women who visited Sayang Rakyat Hospital Makassar, which consisted of 30 people as intervention group and 30 people as control group. The intervention group provided leaflets while the control group was provided books on maternal and child health. Data analysis used Wilcoxon Signed Ranks Test and Mann-Whitney test.

**RESULTS:** The results showed that there are differences in case of knowledge and attitudes of pregnant women regarding complications of pregnancy and childbirth before and after being provided with leaflet intervention with a value of  $p = 0.000$ . Likewise, there are differences in the case of knowledge and attitudes of pregnant women regarding pregnancy and childbirth complications between the intervention and control groups with  $p = 0.041$  and  $0.001$ , respectively.

**CONCLUSION:** Educational media on knowledge and attitudes about complications of pregnancy and childbirth has a positive effect in pregnant women at Sayang Rakyat Hospital in Makassar.

## Introduction

Pregnancy occurs due to the meeting of sperm and egg cells. Pregnancy lasts for about 10 lunar months or 9 months calendar or 40 weeks 280 days. Pregnancy length is calculated from the 1<sup>st</sup> day of last menstrual period [1]. Childbirth is the process of fetus or URI delivery with mature age (37–42 weeks) or those that live outside the uterus through the birth canal or through another way, with or without assistance of cephalic presentation that takes place within 18 h, without complications either on the mother and fetus [2], [3].

Maternal health issues continue as one of the sustainable development goals (SDGs) after the millennium development goals 2015, and the target is to reduce the maternal mortality rate (MMR) [4], [5]. The MMRs due to complications of pregnancy and childbirth in 2017 was around 830 women who died every day. The global maternal mortality ratio is

216/100,000 live births which are still far from the expected target. Globally, the SDGs target of 2030 for maternal mortality is 70/100,000 live births [6]. Based on the data in the medical record of Sayang Rakyat Hospital, there were 85 obstetric complication cases (38%) and 24 (10.16%) prolonged labor cases in 2015, 38 abortion cases (36.02%) and 8 prolonged labor fetal distress cases (6.06%) in 2016, 61 abortion cases (57.00%), and 9 prolonged labor/fetal distress cases (8.41%) in 2017 [7].

Many factors may affect the case of obstetric complications, namely: Lack of knowledge on the danger signs of pregnancy has been proven to be a cause of delay in seeking treatment/help. This is supported by the research of Ogu and Orazulike, 2017 [8], [9], which shows that delay in seeking help is recognized as an important determinant of maternal mortality. It also shows that providing health education is absolutely effective in increasing the knowledge on pregnancy of pregnant women [9], [10], [11]. Health education using leaflets is important for pregnant women to

prevent complications and increase MMR and increase pregnant women's knowledge in dealing with the high risk of pregnancy and childbirth complications [12], [13].

## Materials and Methods

This research was a quasi-experimental design with a pretest-posttest control group design that aims to assess the effect of certain treatments on a variable. This research involved two groups: An intervention group provided with leaflets and a control group provided with a book of maternal and child health (MCH). Before the intervention, a measurement of knowledge and attitude (pre-test) was conducted for both the intervention group and the control group. After 2 weeks of intervention, the measurement was conducted to both knowledge and attitudes (post-test) in each group.

This research was conducted at Sayang Rakyat Hospital in Makassar, South Sulawesi. This place was chosen because the case of pregnancy and childbirth complications was still quite high compared to other hospitals in Makassar.

The research population was all 1–3-trimester pregnant women who examined their pregnancies at Sayang Rakyat Hospital on March to May 2020. The research sample was some of the 1–3-trimester pregnant women who examined their pregnancies at Sayang Rakyat Hospital. The data analysis used Wilcoxon Signed Ranks Test and Mann-Whitney test with SPSS software.

## Results

The process of educational media development a modified leaflet from the 2016 MCH handbook of Ministry of Health of the Republic of Indonesia and making of Counseling Event Unit. The MCH handbook is modified into a leaflet with several improvements. In preparing this modified leaflet, the researchers involved several parties at Sayang Rakyat Hospital, including Hospital Health Promotion (PKRS) team, the Midwives in charge of the midwifery department, and several pregnant women.

Bivariate analysis was performed to determine differences in knowledge and attitudes about pregnancy complications before and after being provided with leaflet. The results of the bivariate analysis using the Wilcoxon test are as follows:

In Table 1, with the results of Wilcoxon signed ranks test, the knowledge variable obtained  $p = 0.000$  that was smaller than  $\alpha = 0.05$ . It could be concluded

that there were differences in maternal knowledge about complications of pregnancy and childbirth before and after being provided with leaflet intervention of MCH handbook modification.

Statistical test results on the attitude obtained  $p = 0.000$ , in which smaller than  $\alpha = 0.05$ . It could be concluded that there were differences in the attitudes of mothers regarding complications of pregnancy and childbirth before and after being provided with leaflet intervention of MCH handbook modification. Bivariate analysis was performed in the control group to determine differences in knowledge and attitudes about pregnancy complications before and after being provided with MCH handbook. The results of the bivariate analysis using the Wilcoxon test are as follows:

**Table 1: Analysis of differences in knowledge and attitudes before and after the leaflet intervention at Sayang Rakyat Hospital in 2020**

Variable		Test results	
		Z	p
Knowledge	Pretest-posttest	- 4.547	0.000
	Attitude	- 4.714	0.000

In Table 2, with the results of the Wilcoxon signed ranks test, knowledge variable obtained  $p = 0.000$  that was smaller than  $\alpha = 0.05$ . It could be concluded that there were differences in maternal knowledge about complications of pregnancy and childbirth before and after the control group who was only provided with the MCH handbook.

**Table 2: Analysis of differences in knowledge and attitudes before and after being provided with MCH handbook at Sayang Rakyat Hospital in 2020**

Variable		Test results	
		Z	p
Knowledge	Pretest-posttest	- 3.857	0.000
	Attitude	- 3.163	0.002

Statistical test results on attitude obtained  $p = 0.002$  that was smaller than  $\alpha = 0.05$ . It could be concluded that there were differences in the attitudes of pregnant women regarding complications of pregnancy and childbirth before and after the control group who was only provided with MCH handbook. To determine the differences in knowledge and attitudes between the intervention group and the control group, two analyses were conducted by comparing knowledge and attitudes between the intervention and control groups before (pre-test) and after (post-test) the intervention. The results of the analysis can be seen in Table 3:

**Table 3: Analysis of differences in knowledge and attitudes before and after being provided with MCH handbook at Sayang Rakyat Hospital in 2020**

Variable		Test results	
		Z	Sig
Knowledge	Pre-test	- 1.789	0.074
	Post-test	- 2.048	0.041
Attitudes	Pre-test	- 2.399	0.016
	Post-test	- 3.451	0.001

Based on Table 3 using the Mann-Whitney test, it showed that the comparison of knowledge between the intervention and control groups before

the intervention obtained  $p = 0.074$ . This was  $>0.05$  which meant the intervention and control groups had no difference in knowledge. Whereas after the intervention, the comparison of knowledge between the intervention and control groups obtained  $p = 0.041$ . This was smaller than  $0.05$  which meant the intervention and control groups had differences in knowledge.

The comparison analysis results of attitudes between the intervention and control groups before the intervention obtained  $p = 0.016$ . This was smaller than  $0.05$  which meant the intervention and control groups had differences in attitudes. After the intervention, the results of attitudes comparison between the intervention and control groups obtained  $p = 0.001$ . This was smaller than  $0.05$  which meant the intervention and control groups had differences in attitudes.

## Discussion

Leaflet is media of delivering health information through folded sheets. Leaflet is a publication media in the form of paper sheet with a certain size, can be folded (generally, 2–3 folds) or not. The advantages of using this media, including the target, could adjust as well as learned independently and practically because it reduced the need to take notes. The target also could see the contents while relaxed, it was very economical and provided detailed information that was not provided verbally.

The results of knowledge comparative analysis before and after the intervention with the Wilcoxon signed ranks test showed that there were significant differences in both the intervention group and the control group. Although each group had a significant increase in knowledge, the intervention group provided with leaflets had a greater increase in knowledge. For the knowledge comparative analysis between the intervention and control groups using Mann–Whitney test, significant results were obtained. By considering these two results, it can be concluded that the development of educational media in the form of leaflets had a positive effect in increasing pregnant women knowledge about complications of pregnancy and childbirth.

This research was in line with research conducted by Indrawati *et al.* [14] that there was a difference between the pre-counseling knowledge (leaflet) and post-counseling knowledge (leaflet) about increasing the knowledge of high-risk pregnant women with media-based counseling ( $p = 0.000$ ). Similar to the research conducted by Fitriani *et al.* [10], it also showed that the average knowledge of pregnant women before and after being provided with health education about high-risk pregnancies in the experimental group showed  $p = 0.000$ . It meant that there was a significant difference between

the average knowledge of pregnant women before and after being provided with health education about high-risk pregnancies. Health education with leaflets had an effect on the level of pregnant women knowledge regarding healthy lifestyles during pregnancy [15]. In addition, the research conducted by Jannah *et al.* [16] also showed an increase in students' knowledge after being provided with a leaflet about dental caries.

Development of educational media through leaflets modification of the MCH Handbook was done by adding material in the form of high-risk pregnancy, ways to prevent high-risk pregnancies, and avoid high-risk pregnancies. Modified leaflets can help pregnant women to easily understand the complications of pregnancy and childbirth. In addition to the complete material, the targets could also adjust and learn independently and practically because it reduced the need to take notes, they could easily see the content, and various information could be read by target group members to be discussed together. Last, it could provide detailed information which was not provided verbally.

The results of attitude comparative analysis before and after the intervention using Wilcoxon Signed Ranks Test showed that there were significant differences in both intervention and control groups. Although the significant change in the attitude of each group occurred, on the intervention group with leaflets, they had a greater positive attitude than the control group. The results of attitude comparative analysis between the intervention and control groups using the Mann–Whitney test obtained significant results. By considering these two results, it can be concluded that the development of educational media in the form of leaflets had a positive effect on the changes in pregnant women attitudes about complications of pregnancy and childbirth.

This research was in line with the research conducted by Indrawati *et al.* [14] that there was a difference between pre-counseling attitudes (leaflets) and post-counseling attitudes (leaflets) about increasing attitudes of high-risk pregnant women with media-based counseling ( $p = 0.000$ ). This research was also in line with the research conducted by Jannah *et al.* [16], in which there were differences in attitude before and after health education about dental caries with a  $p = 0.0001$ . Moreover, research conducted by Nurhasto *et al.* [17] about adolescents in Klaten showed that there was an effect of counseling about the dangers of free sex on adolescent attitudes. However, this research was actually different from the research conducted by Nurhamsyah *et al.* [18] that there was no effect of education on changes in student attitudes about the adolescent reproductive health triad.

## Recommendation

It is expected that the development of educational media both modified leaflets and MCH handbook can be used as a reference and option in

providing health education regarding complications of pregnancy and childbirth to pregnant women in improving knowledge and attitudes at Sayang Rakyat Hospital in Makassar.

Further research is needed regarding the management of pregnancy complications with educational media using application so that they can increase their knowledge and attitudes further about handling the pregnancy and childbirth complications.

## Conclusion

Educational media on knowledge and attitudes about complications of pregnancy and childbirth has a positive effect in pregnant women at Sayang Rakyat Hospital in Makassar.

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