

Original Research Article

COMPARATIVE METHODS OF SNOWBALL AND BRAINSTORMING ON MATERNAL KNOWLEDGE ABOUT DANGEROUS SIGNS OF PREGNANCY

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ABSTRACT

Introduction. Maternal and infant mortality in Indonesia is still quite persistent. Maternal knowledge of danger signs in pregnancy is one of the factors that can affect expectant mothers at high risk of pregnancy risk signs. Snowball is a multilevel discussion which eventually leads to consensus responses, while brainstorming begins with the group leader presenting a particular problem and then each participant responds with an opinion or feedback. The aim of this research is to find out the comparison of snowball and brainstorming methods on maternal knowledge about the danger signs of pregnant women. **Method.** This research uses a quasi-experimental design with a one-group design that is pre-tested and post-tested using the Snowball method and Brain Storming group. The population was 45 expectant mothers who made antenatal visits. The samples consisted of 26 expectant mothers who were selected by purposive sampling. Data was collected using a questionnaire and analyzed by Marginal Homogeneity test. **Result & Analysis.** Before the health promotion, most respondents in the brainstorming group had sufficient knowledge (61.5%) and those with insufficient knowledge amounted to 38.5%. After being trained with the brainstorming method, respondents' knowledge increased to 53.8% with good knowledge, 38.5% with fair knowledge, and 7.7% with insufficient knowledge (p value 0.008). Meanwhile, 92.3% of the respondents' knowledge was insufficient and 7.7% of the respondents' knowledge was adequate (p value 0.008). However, after the health promotion, the respondents' knowledge changed to 46.1% moderately knowledgeable, 38.5% less knowledgeable, and 15.4% well knowledgeable (p value 0.013). **Discussion.** There is a significant difference in the knowledge of pregnant women before and after being promoted with the brainstorming and snowball methods. It is expected that the brainstorming health promotion method can be applied as one of the methods in improving the knowledge of pregnant women.

Keywords: Brainstorming, Pregnancy Danger Signs, Snowball

INTRODUCTION

The Maternal Mortality Rate (MMR) indicator is one of the important signs that can indicate the welfare of society in a country. In 2020, there were 4,627

maternal deaths recorded by the family health program at the Indonesian Health Ministry. This amount increased compared to 2019 which recorded 4,221 cases of maternal death. Most maternal deaths in 2020 were caused by bleeding (1,330

cases), hypertension in pregnancy (1,110 cases), and circulatory system disorders (230 cases) (Primadi, 2021). There are still a high rate of maternal deaths in West Java. In 2020, there were 745 cases of maternal death or 85.77 per 100,000 live births. This number increases by 61 cases compared to 2019 which recorded 684 cases. Most of the maternal deaths were caused by bleeding (27.92%), hypertension in pregnancy (28.86%), infection (3.76%), circulatory system disorders (10.07%), metabolic disorders (3.49%), and other causes (25.91%) (S. M. M. S. S. M. dr. R Nina Susana Dewi, 2020).

If maternal mortality is to be reduced, every mother must be able to access good health services. Those services include pregnancy care, skilled birth attendance at a health facility, postnatal care for both mother and baby, specialized care and referrals for complications, and family planning services including postnatal contraception. The worldwide reported 72.0% of infant deaths occurred between 0-28 days of age (20,266 deaths). Another 19.1% of infant deaths occurred between 29 days and 11 months of age (5,386 deaths), and 9.9% of deaths occurred between 12 and 59 months of age (2,506 deaths). However, the main factor that caused the death of infants in 2020 was low birth weight (LBW). Other causes include asphyxia, infection, congenital anomalies, tetanus neonatorum, and others (Primadi, 2021). The Infant Mortality Rate (IMR) in West Java is about 30 per 1,000 live births. In 2020, the Infant Mortality Ratio was 3.18 per 1,000 live births or 2,760 cases, which decreased by 0.8 points from 2019 which amounted to 3.26 per 1,000 live births or 2,851 cases. Regarding infant deaths, 76.3% occurred in the neonatal period (0-28 days), and

17.2% occurred in the post-neonatal period (29 days to 11 months). The main causes of neonatal deaths were 38.41% due to low birth weight (LBW), 28.11% due to asphyxia, 0.13% due to tetanus neonatorum, 3.60% due to sepsis, 11.32% due to congenital abnormalities, and 18.43% due to other causes (S. M. M. S. S. M. dr. R Nina Susana Dewi, 2020).

There was 1 case of maternal death in Cipeundeuy in 2021, which was caused by bleeding after a caesarean section. In addition, there were 19 cases of infant mortality, consisting of 14 newborns (neonates) and 5 stillbirths or Intrauterine Fetal Death (IUFD). Expectant mothers' knowledge of danger signs in pregnancy is very important. When pregnant women know about these danger signs, they can be more careful to prevent it from further complications in future pregnancies. Furthermore, pregnancy check-ups should be scheduled at the health center or other medical facilities to prevent possible dangers. By detecting danger signs during pregnancy early, we can prevent the occurrence of more serious problems. Based on the results of interviews with 7 pregnant women (0.09%), it was obtained that 5 out of 7 pregnant women (0.06%) did not know about danger signs in pregnancy. Because of this fact, this research is conducted to determine the differences in expectant mothers' knowledge about pregnancy danger signs before and after receiving the Snowball and Brain Storming methods.

METHOD AND ANALYSIS

This research uses a quasi-experimental method with a one group pretest posttest approach and control to observe differences in respondents'

knowledge in health promotion group using Snowball and Brain Storming methods. The population in this research was 45 expectant mothers who made antenatal visits to the Cipeundeuy Health Center during the last month. The sample used in this research was 26 pregnant women who were in the working area of the Cipeundeuy Health Center, selected by purposive sampling technique. This research instrument is a questionnaire about danger signs in pregnancy before and after being provided with health promotion with Snowball and Brain Storming methods. Questionnaire knowledge consists of 10 questions with multiple choices answers. Data analysis was performed with the Marginal Homogeneity test to assess differences in categorical variables in a 2x3 table. This research considers research ethics with the principles of beneficence, respect for human dignity, and justice.

RESULT

This research was conducted at the Cipeundeuy Health Center with 26 pregnant women. 13 mothers used the brainstorming method and 13 mothers used the snowball method when participating in the pregnant women's class. Marginal Homogeneity was used to compare their knowledge, as this is a hypothesis test for categories. Knowledge was divided into three categories, such as good, adequate, and deficient. The aim was to compare the mothers' knowledge before the pre-test and after the post-test using the two methods.

Table 1. The Result of Brainstorming Test

	Range Knowledge						To tal	p
	Good		Adequate		Less			
	F	%	F	%	F	%		
Pre Knowledg e	0	0%	8	61,5%	5	38,5%	13	0.0 08
Post Knowledg e	7	53,8%	5	38,5%	1	7,7%	13	
Total	7	30%	13	50%	6	23%	26	

Source: Processed Data by Researchers

The analysis indicated that before using the brainstorming method, 61.5% of respondents had sufficient knowledge and 38.5% had less knowledge. After using the brainstorming method, 53.8% of respondents had good knowledge, 38.5% had sufficient knowledge, and 7.7% had less knowledge. The Marginal Homogeneity test showed a p value is 0.008, which means the null hypothesis is rejected. This indicates that the brainstorming method affects the respondents' knowledge.

Table 2. The Result of Snowball Test

	Range Knowledge						Total	p
	Good		Adequate		Less			
	F	%	F	%	F	%		
Pre Knowledge	0	0%	1	7,7%	12	92,3%	13	0.013
Post Knowledge	2	15,4%	6	46,1%	5	38,5%	13	
Total	2	7,6%	7	26,9%	17	65,3%	26	

Source: Processed Data by Researchers

The analysis showed that before using the Snowball method, 92.3% of respondents had less knowledge, and 7.7% had sufficient knowledge. After using the Snowball method, 46.1% of respondents had sufficient knowledge, 38.5% still had insufficient knowledge, and 15.4% had

good knowledge. The Marginal Homogeneity test results showed a p value of 0.013, which means the null hypothesis is rejected. Therefore, it can be concluded that the snowball method affects the respondents' knowledge.

DISCUSSION

The results showed that before using the brainstorming method, most respondents (61.5%) had sufficient knowledge, while 38.5% had less knowledge. After using the brainstorming method, 53.8% of respondents had good knowledge, 38.5% had sufficient knowledge, and 7.7% still had insufficient knowledge. It can be concluded that the brainstorming method affected the improvement of respondents' knowledge. Snowball method research showed that before receiving health education (pre-test), most respondents (92.3%) had less knowledge, while 7.7% had sufficient knowledge. After the counseling, the respondents' knowledge changed to 46.1% moderate, 38.5% deficient, and 15.4% good. It indicates that the snowball method has affected the respondents' knowledge before and after the health promotion was conducted.

The knowledge gap of pregnant women showed that brainstorming and snowball methods both increased knowledge significantly. It means that the methods are effective in improving pregnant women's understanding and absorption of the material. This increase shows that pregnant women become more aware and understand the information provided. Therefore, one of the best ways to change behavior is to increase knowledge through pregnant women's classes. Knowledge is the results of

something we find out after we have perceived or observed something. We get information through our five senses of sight, hearing, smell, taste and touch. Most of our knowledge comes from the things we see and hear (Wardani and Prianggajati, 2013).

Data were analyzed using Marginal Homogeneity. The results showed that before the health promotion, many pregnant women were in the deficient category. However, after the health promotion was conducted, their knowledge improved and more women were in the good category. The success of health promotion is affected by several factors, such as the methods used, media, and delivery methods. In this research, the methods used were brainstorming and snowball, with leaflet media. This research indicated that mothers' knowledge could increase after receiving health promotion. This increase occurred because the information presented was interesting and the mothers were able to understand it properly, so they listened and received the material well.

Increased knowledge can be affected by motivation. According to research by Mustari and Elis (2019), motivation is related to competency test results. Motivation is the encouragement that makes someone do something to achieve their goals, and this encouragement comes from a variety of needs. Based on the wishes list written by the pregnant women in this sample, they had strong motivation to maintain their pregnancies and expected mothers and babies to be born alive and healthy.

Research by Munthe *et al* (2021) showed that health counseling using brainstorming methods and simulation games can improve adolescent girls'

knowledge about menstruation. The result was that their knowledge increased after receiving health education using the brainstorming method. This research is also supported by the study of Noviana (2019), who examined the effect of health education on postnatal care using the snowball throwing method. Her research shows that this method can improve the knowledge of pregnant women in Kartasura Village, Kartasura, Sukoharjo.

Snowball is a teaching method where students begin learning in small groups, then join larger groups for gradual discussion, until they reach an accepted answer that is shared by the whole group (Juliana Putra, 2019). The discussion process makes pregnant women more knowledgeable about the danger signs of pregnancy.

During brainstorming technique, group leaders begin with offering a question, and then each participant provides an answer or response. The responses are collected. Both methods can improve the knowledge of pregnant women because there is a process of exchanging opinions about danger signs in pregnant women during health counseling in pregnant women's classes. Both methods are effective in improving the knowledge of pregnant women. Based on the post-test results, the brainstorming method is more effective in improving knowledge compared to the snowball method. It is because the brainstorming technique is an easy and enjoyable way to get a lot of ideas. Participants can be free to convey their opinions without hesitation or fear of being wrong as long as it is still within the topic of discussion. Each participant gets a chance to express their ideas. The improvement in knowledge from the Snowball and Brainstorming

methods can also be observed from the scores before and after the counseling. The scores show an increase, indicating that these two methods can increase community knowledge.

CONCLUSION AND SUGGESTION

Conclusion

Based on the research results, there are differences in health promotion outcomes between brainstorming and snowball methods. In conclusion, the brainstorming method is more effective than the snowball method. According to the Marginal Homogeneity table for the brainstorming method, the significance value is 0.008, then H_0 is rejected. From the Marginal Homogeneity table for the snowball method, the significance value is 0.013, so H_0 is rejected. This means there is a significant difference between the mean scores before and after counseling. Therefore, there is an increase in the knowledge of pregnant women about pregnancy danger signs in each group.

Suggestion

It is expected that practice sites can improve the quality of information about warning signs in pregnancy to prevent complications. Additionally, practice sites can implement health promotion methods to make counseling more effective, so that pregnant women better understand the material presented. Then, it is hoped that educational institutions can use this research as reading material. For future researchers, it is hoped that this research can provide additional information and references for future researchers and encourage more studies related to other health promotion methods.

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