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Brainstorming Effect in Pregnant Women on Knowledge of Childbirth Planning and Complications Prevention Programs

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Abstract:
The birth planning and complication prevention program (P4K) is an effort from the government to reduce maternal mortality (MMR). To support these efforts, learning needs to be provided; brainstorming provides a structured format that can increase the quantity and quality of responses from the participants. The brainstorming method effectively delivers information according to the mother's characteristics. However, the effect of health education on the brainstorming method for pregnant women on the P4K is still not explained. This study aims to explain the impact of brainstorming on pregnant women on knowledge of P4K in Kertosari Village, Lumajang Regency. The design of this research is a Quasy Experiment with a pre-post design. The sample in this study was 30 pregnant women who were taken using total sampling. This research was conducted in Kertosari Village, Pasrujambe District, Lumajang Regency. This research concludes that there is an effect of brainstorming on the knowledge of pregnant women about the Birth Planning and Complications Prevention (P4K) Program in Kertosari Village, Lumajang Regency, with (ρ=0.000<0.05). It is hoped that Brainstorming can be used as an alternative in providing health education to pregnant women in promotive and preventive efforts in the success of the Childbirth Planning and Complications Prevention Program (P4K).

Keywords:
brainstorming; childbirth planning and complications prevention (P4K) programs; knowledge

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INTRODUCTION

Indonesia is a developing country with a high maternal mortality rate (MMR). The delivery planning and complication prevention (P4K) program is an effort by the government to reduce the maternal mortality rate. The implementation of P4K facilitated by midwives in the village is to increase the active role of husbands, families, and communities in planning safe deliveries and preparing for complications for pregnant women, using postpartum family planning, including planning to increase the coverage and quality of maternal health services. Taking an inventory or recording pregnant women with stickers, every pregnancy up to childbirth and postpartum can proceed safely and safely so that no death occurs is a form of implementing the Delivery Planning and Complication Prevention Program (Werdiyanthi et al., 2017).

All components of society, including husbands, families, midwives, and nurses, can quickly and accurately monitor pregnant women who have been given a sticker. It is hoped that the implementation of P4K will run well so that monitoring is successful from the community's point of view. It is necessary to hold a standby village by and for the community (Werdiyanthi et al., 2017). Knowledge, family support, and geographic and cultural situations influence the implementation of

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P4K in pregnant women. Lack of knowledge of pregnant women who think that childbirth and pregnancy are natural things and do not require examination, causing pregnant women to be in the high-risk group (Werdiyanthi et al., 2017).

To support these efforts, the provision of learning needs to be done. Brainstorming provides a structured format that can increase the quantity and quality of participant responses. The brainstorming method is considered effective in conveying information and by the mother's characteristics. Still, the influence of the health education method brainstorming on pregnant women regarding the Birth Planning and Complications Prevention Program (P4K) cannot be explained.

Based on the theory put forward by Green (1991), namely an idea that develops an approach model that can be used for promotive and preventive efforts. Health promotion is an effort that can be used to solve the problem of mothers' knowledge, attitudes, and actions in the success of P4K. Health promotion contains health education which will influence predisposing factors, which consist of a person's level of knowledge, attitudes, actions, beliefs, and values (Nursalam, 2016). Health education can change knowledge, attitudes, and activities for the success of P4K. In addition, health education can influence how people can take perspectives regarding health actions to be taken (Ardiana et al., 2021; Putri et al., 2022).

One of the education that can be done is by method brainstorming. According to (Wilson, 2013), method brainstorming or brainstorming is a way to gather ideas or opinions from each member learning about a problem. Brainstorming can increase memory so that they are trained to think about something quantitative, increase attention, concentration, and understanding, develop creative thinking, foster self-confidence to get involved in expressing their opinions, and in the end will create an enjoyable discussion. The hope is that after carrying out these health education activities, the health of individuals and communities will also improve as during the Covid-19 pandemic, which required all elements to participate in improving the quality of life and public health (Afandi et al., 2021; Putri et al., 2021). The more educated you are, the more knowledgeable you will have about birth planning and complication prevention programs (Ratnasari, et al.,2021). Formal education influences one's experience and knowledge. In addition, the higher the level of education, the stronger in managing activities related to birth planning and preventing complications (Septiani et al., 2020).

This makes the mother feel more relaxed when giving explanations in brainstorming. So that this brainstorming method hopes to increase public understanding of health (Putri et al., 2023). Applying the brainstorming method will solve the problem of ideas the participants submit, which will then be discussed together. There will be an interaction between mothers, so it is hoped that there will be an exchange of opinions and an increase in the knowledge of other participants, which can change the attitudes and actions of the brainstorming participants.

This study aims to explain the influence of brainstorming in pregnant women the knowledge of the birth planning and complication prevention program (P4K) in Kertosari Village, Lumajang Regency.

METHOD

The research design used in this study is a quasi-experiment with a pre–posttest design. The research was conducted in Kertosari Village, Pasrujambe District, Lumajang Regency, in July 2022. The samples in this study were 30 pregnant women who were taken using total sampling. The independent variable in this study is Brainstorming with pregnant women about the Birth Planning and Complications Prevention Program. In contrast, the dependent variable in this study

was knowledge of the Birth Planning and Complications Prevention Program to prevent MMR in pregnant women. The instrument used in this study is the SAP method of brainstorming and questionnaires. To know influence brainstorming in pregnant women on knowledge of the Birth Planning and Complication Prevention Program (P4K) using paired t-test.

RESULT

The Pasrujambe Health Center has a working area of 7 villages, including Kertosari Village. Kertosari Village is in the south of the Pasrujambe District of Lumajang Regency with an area of 5951.65 Ha; the northern region is bordered by Sukorejo Village, the eastern region is bordered by Tumpeng and Karanganom Villages, the southern region is bordered by Kelapasawit Village and the western region is bordered by Jambearum Village and Pasrujambe Village. The average air temperature is 23-28 °C. Kertosari Village consists of 5 hamlets, four community units, eight neighborhood units, 900 families, and 2342 poor families and has a population of 4,180 people consisting of 1,645 men and 2,535 women. Most of the population is Muslim. The most dominating occupation in this region is Farmers, totaling 3,411 people; the second population rank is student status. The people in this Kelurahan are mostly settled and are native to Lumajang.

The health facilities in Kertosari Village consist of 1 government PONKESDES (Village Health Post), 1 Doctor's independent practice unit, 1 Midwife's independent practice unit, and 1 Nurse's independent practice unit.

The total population in Kertosari Village is 4180, divided into 900 households. The Kertosari Village area is a dense and clustered residential area with houses that are very close together and still much vacant land. The public facilities in Krajan Hamlet are two mosques, 1 Village Hall, 4 RW halls, 3 Elementary Schools, 4 Kindergartens, and 5 pre-schools.

Table 1. Characteristics of Respondents based on Age, Education, Occupation, and P4K Information Background (n=30)

Variable	Frequency (f)	Percentage (%)
Age (years old)		
20-30 years	19	63%
31-40 years	11	37%
Education		
Elementary school	6	20%
Junior High School	14	47%
Senior High School	10	33%
Occupation		
Housewife	21	70%
Self-employed	9	30%
P4K Information Background		
Yes	8	27%
No	22	73%

The respondents' characteristic is shown in Table 1. It shows that most respondents are between the ages of 20-30 years, amounting to 19 people (63%), and a small portion is in the age range of 31-40 years, amounting to 11 respondents (37%). It shows that the most recent education of respondents in the treatment group was 14 junior high school students (47%), ten high school students (33%), and six elementary school respondents (20%). The results showed that 21 people (70%) worked as housewives and nine (30%) worked as employees/private sector. The table above shows that based on the health information received about P4K in pregnant women, 22

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people (73%). As many as eight mothers (27%) said pregnant women had never received health information about P4K.

Table 2. Respondents' P4K Knowledge Before It Was Given Brainstorming

No.	Knowledge	Category		
		Good	Enough	Less
1.	Definition of P4K	16 (53%)	10 (33%)	4 (14%)
2.	Purpose of P4K	10 (33%)	15 (50%)	5 (17%)
3.	P4K benefits, goals, and outputs	20 (67%)	8 (27%)	2 (6%)
4.	P4K Components with Stickers	16 (53%)	10 (33%)	4 (14%)
5.	Level of P4K Activities and Agreements	8 (26%)	11 (37%)	11 (37%)
	Total	12 (40%)	12 (40%)	6 (20%)

Based on Table 2 it is shown that the knowledge of the respondents in the group pretest most of them had a good level of knowledge, namely 12 people (40%), while at a sufficient level of knowledge, namely 12 people (40%), and at a less knowledge level, namely six people (20%).

Table 3. Respondents' P4K Knowledge After It Was Given Brainstorming

No.	Knowledge	Category		
		Good	Enough	Less
1.	Definition of P4K	30 (100%)	0 (0%)	0 (0%)
2.	Purpose of P4K	28 (93%)	2 (7%)	0 (0%)
3.	P4K benefits, goals, and outputs	29 (97%)	1 (3%)	0 (0%)
4.	P4K Components with Stickers	24 (80%)	6 (20%)	0 (0%)
5.	Level of P4K Activities and Agreements	27 (90%)	3 (10%)	0 (0%)
	Total	27 (90%)	3 (10%)	0 (0%)

Based on Table 3 it is shown that the knowledge of the respondents in the current group posttest most of them had a good level of knowledge, namely as many as 27 people (90%), while at a sufficient level of expertise, namely three people (10%) and at a less knowledge level, namely 0/none.

Table 4. The effect of brainstorming on pregnant women on Knowledge of the Birth Planning and Complication Prevention Program (P4K)

No.	Group	Category			p-value
		Good	Enough	Less	
1.	Before (pre-test)	12 (40%)	12 (40%)	6 (20%)	0.000
2.	After (post-test)	27 (90%)	3 (10%)	0 (0%)	

The table above is shown to determine the influence of researchers using the paired t-test obtained p=0.000 with a significant level of α=0.05, from the results of the analysis it can be concluded that there is a significant effect on the data before and after being given brainstorming to pregnant women on the knowledge of the Birth Planning and Complication Prevention Program (P4K) in Kertosari Village, Lumajang Regency.

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DISCUSSION

The results of the data analysis on the knowledge of pregnant women in the research group in the knowledge of the Birth Planning and Prevention of Complications Program (P4K) before being carried out brainstorming shows that all of them vary in the category. Results pretest with good categories 40% (12 people), 40% enough (12 people), and less than 20% (6 people). This is evidenced that the knowledge of the Birth Planning and Complication Prevention Program (P4K) obtained a good score for eight people (26%), an adequate score for 11 people (37%), and a poor score for 11 people (37%).

A person's knowledge is influenced by several factors, which include education, mass media or information, social culture, economy, environment, and age (Notoatmodjo, 2011). Education will provide knowledge so that there is increased positive behavior change. According to Widyastuti (2005), a low level of education is one factor that influences a person's health behavior. Low education means the knowledge gained must also improve and form a bad attitude. Knowledge is an important domain for the formation of attitudes. Experience is a source of knowledge and is a way to obtain the truth of knowledge (Notoatmodjo, 2011). So, it can be concluded that the more experience a person has, the better his knowledge will be.

The results showed that 47% of mothers had junior high school education, and even 20% had graduated from elementary school. It is also known that 70% of mothers in Kertosari Village are housewives and 30% work as self-employed or farm laborers. This proves the existence of a relationship between the level of knowledge about health with the level of education and one's occupation. Moreover, it was supported by a need for more health information about the Birth Planning and Complication Prevention Program (P4K).

The results of data analysis on the knowledge of mothers in the research group in the prevention of diarrhea after the health education method was carried out brainstorming show that all of them vary in the category. The good category is 90% (27 people), enough 10% (3 people), and less than 0% (none). This is evidenced in the knowledge of the Birth Planning and Prevention of Complications Program (questions 15-25). Mothers who got good scores were 27 people (90%), enough scores were three people (10%), and poor scores were none (0%).

The information obtained about the Birth Planning and Complications Prevention Program will also influence the respondents' knowledge. Respondents who had sufficient knowledge had never previously received information about P4K. This fact is supported by Green's theory (1991) which states that the lack of facilities and infrastructure, in this case, information or health education, the Delivery Planning and Complication Prevention Program can affect the level of knowledge of mothers who are not yet in the good category. This lack of information is supported by interviews with the person in charge of P4K, who stated that information about P4K was given only when seeking treatment at the public health center. In addition, the cause of the lack of knowledge is also due to the experience factor. Respondents who understand P4K have more experience regarding the Birth Planning and Complication Prevention Program.

According to (Notoatmodjo, 2011) Health education is the application or application of education in the health sector. Operationally health education is all activities to provide and improve knowledge, attitudes, and practices both individuals, groups, or communities in maintaining and improving their health. Health education with brainstorming is proven to affect mothers' knowledge in implementing the Birth Planning and Complications Prevention Program (P4K).

The value of knowledge is sufficient to be obtained by respondents with numbers 05, 21, and 28, where it can be seen from the demographic data of the respondents in the education category

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that they have a background in elementary school education. According to (Mubarak, 2007), education is one factor that influences a person's knowledge. The respondent's education level influences the amount of information a person receives. A low level of education allows a person to have less absorption of the information received. This can also be influenced by the role of nurses who can provide health education to the community (Asmaningrum & Afandi, 2022).

After conducting health education with brainstorming based on the results post-test, there were 27 respondents with good knowledge (90%), which can be seen from the demographic data that the respondents had education with junior and senior high school graduates. Other respondents from high school graduates also all have good grades. According to (Nursalam, 2016), the higher a person's education, the easier it is to receive information the more knowledge one has. Respondents with higher education will find it easier to understand what is conveyed in the brainstorming method of health education because respondents are more likely to receive information and will provide convenience in the adaptation process in providing health education. There is a limitation of research time, so the researcher could not dig into more detail to the respondents what caused them not to give exclusive breast milk to their children.

By knowing the factors that influence exclusive breastfeeding, health workers can formulate strategies that need to be implemented to increase exclusive breastfeeding outcomes in the region. So that the health of infants and toddlers increases and the Infant Mortality Rate decreases.

Results of analysis of data on knowledge of pregnant women in the research group in the Birth Planning and Complication Prevention Program (P4K) after conducting health education method brainstorming it is known that there is a significant effect between before/pre, and after/post seen in the categorization and SPSS statistical test results using the paired sample t-test. This can happen because the information in health education with brainstorming can be accepted and responded to well by respondents. obtained a value of p=0.000 with a significant level of α=0.05, from the results of this analysis, it can be concluded that there is a significant effect on the data before and after being given brainstorming on pregnant women on the knowledge of birth planning and complication prevention (P4K) programs in Kertosari village, Lumajang district.

The health education provided in this study was health education with brainstorming. Brainstorming can increase memory so that they are trained to think about something quantitative, increase attention, concentration, and understanding, develop creative thinking, foster self-confidence to get involved in expressing their opinions, and in the end will create an enjoyable discussion. Previous research conducted by Zahra (2010) and Hardita (2014) showed that health education brainstorming affects the knowledge of pregnant women.

Research conducted (Kusuma, 2019) stated that mother's knowledge about preventing diarrhea in children under five after being given health education using the Brainstorming method at Posyandu Putra Palapa Kertosari Village had increased from initially 40% (enough category) to 90% (good category). Thus, health education using the Brainstorming method can show a significant improvement rate so that this method can continue to be developed.

Health education in which information is conveyed, can add new information previously unknown to someone. Health education with brainstorming is problem-solving when each member gives suggestions about all possible solutions to problems thought quickly. After all group members expressed their opinions, a critical evaluation of all the opinions was carried out. This method will generate creative thoughts, stimulate participation, look for possible solutions to problems, seek new opinions, and create a pleasant atmosphere in the group (Mubarak, 2007). Respondents tended to be more active based on researchers' observations while providing health

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education. All respondents can convey their ideas regarding the topics discussed in the brainstorming process. Respondents who had knowledge and experience about the Birth Planning and Complication Prevention Program shared their knowledge and experience so that additional information was provided for other participants. It is fit for purpose brainstorming itself, namely making a collection of opinions, information, and experiences of all participants who are the same or different.

From the results of the above analysis, it can be concluded that there is a significant effect on the data before and after being given brainstorming in pregnant women on the knowledge of birth planning and complication prevention (P4K) programs in Kertosari Village, Lumajang district. The mother's level of knowledge evidence increased knowledge during the post-test with good category 27 people (90%), enough three people (10%), and less (0%).

Limitations or obstacles to researchers in the preparation of research include the lack of area of research that makes it difficult for researchers to explain the questionnaire. The guidelines used by researchers are imperfect, where variables cannot be observed, so behavior, when given health education, cannot be cross-checked with further observations. In addition, researchers only conduct research to gain influence on the level of knowledge of pregnant women, so behavior, attitudes, and actions have not been carried out to determine the effectiveness of brainstorming. So that it can also be compared with other health education methods.

Based on the study's results, it was found that there was an influence-brainstorming in pregnant women on knowledge of birth planning programs and prevention of complications. This is shown by the enthusiasm of pregnant women to participate in health education about P4K, where which can increase the knowledge of pregnant women about the Birth Planning and Complication Prevention Program (P4K), as well as the motivation and environmental support for clean and healthy living behaviors.

CONCLUSION

Based on the results of the research conducted, it can be concluded that there is influence-brainstorming on the knowledge of pregnant women about the Birth Planning and Complication Prevention Program (P4K) in Kertosari Village, Lumajang Regency with ρ=0.000. Expected Brainstorming can be used as an alternative in providing health education to pregnant women in promotive and preventive efforts in the success of the Birth Planning and Complications Prevention Program (P4K).

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CONFLICT OF INTEREST

The author states no conflict of interest in writing research articles.

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