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Original Research

The Effect of Health Promotion Through Audio Visual on Knowledge of Danger Signs of Pregnancy

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Abstract
The World Health Organization estimates that approximately 303,000 maternal deaths occur globally each year. In ASEAN countries, the maternal mortality ratio reaches 235 deaths per 100,000 live births. One of the contributing factors to the high maternal mortality rate is the lack of maternal knowledge regarding pregnancy danger signs, which can lead to delays in seeking appropriate care. This study aimed to determine the effect of health promotion using audiovisual media on primigravida mothers' knowledge of pregnancy danger signs. This quantitative study employed a pre-experimental design using a one-group pretest–posttest approach without a control group. The study population consisted of 70 primigravida mothers, from which 59 respondents were selected using probability sampling techniques. Data were collected before and after the intervention to assess changes in knowledge levels. The results showed that prior to the audiovisual health promotion, most respondents had a low level of knowledge (57.6%). After the intervention, the majority of respondents demonstrated good knowledge (88.1%). Statistical analysis indicated a significant increase in knowledge, with a p-value of 0.000 ($p < 0.05$).

1. Introduction

Danger signs during pregnancy are signs a mother experiences during pregnancy that serve as warning signs. One of the main factors causing maternal mortality is a lack of knowledge and understanding of danger signs during pregnancy [1]. Danger signs during pregnancy include bleeding, blurred vision, seizures, dizziness, swelling of the feet and hands, premature rupture of membranes, and high fever (Morhason-Bello et al., 2016; Mwilike et al., 2018; Salem et al., 2018).

Maternal health is one of the national health indicators. The Center for Indonesian Medical Students' Activities (CIMSA) assesses that maternal health in Indonesia cannot be categorized as good. The Indonesian Ministry of Health (Kemenkes) recorded a maternal mortality rate of 183 per 100,000 live births in 2022. The maternal mortality rate (MMR) remained at 305 per 100,000 live births, significantly lower than the target of 183 per 100,000 live births in 2024. According to data from the East Java Health Office, the number of maternal deaths in East Java in 2022 was 499. This figure is significantly lower than the 1,279 cases recorded in 2021.

Several factors contribute to maternal mortality, one of which is a lack of knowledge among women, families, and medical personnel about pregnancy danger signs. A significant portion of maternal mortality is also due to delayed decision-making and delayed access to appropriate treatment (Jungari, 2020). Efforts to screen for complications include early detection of danger signs during pregnancy. Understanding pregnancy danger signs is influenced by an individual's knowledge (Herinawati et al., 2021). However, in reality, pregnant women's knowledge of recognizing pregnancy danger signs is still relatively low.

The importance of knowledge about pregnancy danger signs will help mothers and families make informed decisions (Mwilike et al., 2018). To increase health awareness, the government has implemented health promotion and education initiatives, the activities of which are regulated in Minister of Health Decree No. 1147 of 2015. Health education is necessary in the hope that these activities will increase pregnant women's knowledge about pregnancy danger signs, thereby reducing cases of delays (Gunawan et al., 2021). Health promotion is an activity or effort to convey health messages to the community, groups, or individuals. In its implementation, health education activities must be reinforced with appropriate media. Media used during health education generally uses print media in the form of posters, books, leaflets, banners, or billboards (Fajri et al., 2022).

The absorption or understanding of messages in the process of providing education for each person is different, namely by reading they can remember 10%, by listening they can remember 20%, by seeing they can remember 30%, by seeing and hearing they can remember 50%, by doing or demonstrating something they can remember 70%, and based on real experience they can remember 90% so it can be concluded that a person's memory can receive better if they use more than one sense when receiving counseling (Laiskodat, 2020; (Elfidia Arista et al., 2021)).

The author is interested in researching the effect of providing audiovisual media regarding pregnancy danger signs on increasing the knowledge of pregnant women. The use of audiovisual media is a form of health promotion media that can be used as an information delivery strategy, expected to clarify the information conveyed. Audiovisual media can enhance learning abilities through the senses of sight and hearing, allowing for greater comprehension. The more senses used to receive health messages and information from a medium, the higher or clearer the understanding of the message received.

Based on a preliminary study conducted in the TPMB Work Area, a brief observation to determine the level of knowledge of pregnant women regarding pregnancy danger signs was obtained from 15 pregnant women respondents, resulting in 2 (13%) pregnant women with poor knowledge, 10 (67%) pregnant women with sufficient knowledge, and 3 (20%) pregnant women with good knowledge. Based on the above problems, the researcher is interested in researching the effect of audiovisual media regarding pregnancy danger signs on the level of knowledge of pregnant women. Previous studies on health promotion related to pregnancy danger signs have been widely conducted; however, they are still predominantly limited to printed media and conventional lecture-based approaches. Moreover, such studies rarely focus on primigravida pregnant women, who are more vulnerable to delays in decision-making due to lack of experience and limited exposure to health information. The use of audiovisual media as an educational tool remains underexplored, despite its potential to enhance comprehension and information retention. Based on these conditions, the researcher is interested in examining the effect of audiovisual media on improving the level of knowledge of pregnant women—particularly primigravida—regarding pregnancy danger signs.

2. Research Method

Based on the type of research, the research is in the form of a pre-experimental pre-posttest design. The measured effect is knowledge before and after being given treatment in the form of an audio-visual media intervention on pregnancy danger signs, with a duration of 4 minutes 49 seconds. This research was conducted at TPMB with a population of 70 primigravida mothers and used a random sampling technique with simple random so that a research sample of 59 primigravida mothers was obtained. The sample size using a LemeshowThe data collection technique used in this study is primary data. Primary data was obtained by data collection techniques in the form of questionnaires, questionnaires on knowledge of primigravida mothers regarding pregnancy danger signs in the form of questions and statements directly (offline) which have been tested for validity and reliability. The statistical test used in this study is the Wilcoxon Sign Rank Test to determine the effect of health promotion through audio-visual media regarding with Kemenkes video by youtube using an Indonesian language pregnancy danger signs on increasing knowledge. This study pays attention to ethics in research, namely Informed Consent, Non-Maleficence, Anonymity, Confidentiality, Justice, Beneficence.

3. Results and Discussion

1. Univariable analysis

This analysis was conducted to determine the frequency distribution and percentage of the dependent variable (pregnant women's knowledge of pregnancy danger signs) and the independent variable (health promotion regarding pregnancy danger signs). Research data on knowledge of pregnancy danger signs was collected using a questionnaire and categorized into three categories: good (76% - 100%), sufficient (56% - 75%), and poor (<55%).

Tabel 1. Distribution of Pregnant Women's Knowledge Levels Prior to Health Promotion Regarding Danger Signs of Pregnancy in 2025

Pretest		Frequency	Percent
Valid	Good	9	15.3
	Enough	16	27.1
	Less	34	57.6
	Total	59	100.0

Table 1 shows that knowledge of danger signs of pregnancy before health promotion was mostly in the poor category for 34 mothers (57.6%), knowledge was in the adequate category for 16 mothers (27.1%), and knowledge was in the good category for 9 mothers (15.3%).

Table 2. Distribution of Pregnant Women's Knowledge Levels After Health Promotion Regarding Danger Signs of Pregnancy in 2025

Posttest		Frequency	Percent
Valid	Good	52	88.1
	Enough	5	8.5
	Less	2	3.4
	Total	59	100.0

Based on table 2, it shows that knowledge of danger signs after being given health promotion was mostly in the good category, as many as 52 mothers (88.1%), the level of knowledge was in the sufficient category as many as 5 mothers (8.5%), and the level of knowledge was in the poor category as many as 2 mothers (3.4%).

2. Bivariate Analysis

In this study, 59 respondents were used as the sample. The data were non-parametric, so the Wilcoxon test was used to test for differences in the knowledge variable, with the following results. Bivariate analysis was used to determine the effect between the dependent variable (knowledge) and the independent variable (health promotion regarding pregnancy danger signs).

Table 3. Results of the Wilcoxon Pretest and Posttest Tests on the Effect of Health Promotion Through Audiovisual Media on Pregnancy Danger Signs on Increasing the Knowledge of Pregnant Women.

		N	Mean Rank	Sum of Ranks
knowledge posttest - konowledge pretest	**Negative Ranks**	3[a]	23.00	69.00
	Positive Ranks	52[b]	28.29	1471.00
	Ties	4[c]		
	Total	59		

a. knowledge posttest < knowledge pretest
b. knowledge posttest > knowledge pretest
c. knowledge posttest = knowledge pretest

Table 4. Results of Pretest and Posttest Statistical Tests on the Effect of Health Promotion Through Audiovisual Media on Pregnancy Danger Signs on Increasing the Knowledge of Pregnant Women

Test Statistics[a]

	pengetahuan posttest - pengetahuan pretest
Z	-5.888[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Based on the Wilcoxon test results for the knowledge variable, the average knowledge score before counseling was 20.49, which is in the poor category, while the average score after counseling was 24.47, which is in the good category. The average score after counseling increased from 20.49 ± 3.798 to 24.47 ± 1.623, a highly significant result with a p-value of 0,000. Therefore, Ha is accepted and Ho is rejected, as the value of -5.888 is less than <0.005. Therefore, it can be concluded that providing health promotion through audio-visual media regarding pregnancy danger signs has an effect on increasing pregnant women's knowledge.

Discussion

A. Knowledge of Primigravida Pregnant Women at Muarofah Health Center Before Health Promotion Through Audiovisual Media Regarding Danger Signs of Pregnancy

Based on the data in Table 1, the level of knowledge of respondents before health promotion through audiovisual media regarding danger signs of pregnancy shows that the majority of primigravida pregnant women had a knowledge level in the poor category, with 34 respondents (57.6%) having an average pretest score of 20.49. Many factors can influence a person's level of knowledge. This is consistent with Notoatmodjo's (2018) statement that one factor influencing knowledge is the respondent's age, and higher education will influence their insight and effort in obtaining information. A person's high level of education and age do not guarantee a high level of knowledge, as several other factors influence a person's level of knowledge, including mass media/information, social, environmental, economic, cultural, and experience. Information sources also influence a person's knowledge. A person who receives accurate and up-to-date information is likely to be more knowledgeable than someone who receives less information. This is supported by research that states that the more information a person receives, the better their knowledge (Hasbullah, 2013). Therefore, in this case, researchers conducted health promotion through mass media/information in the form of electronic media, namely audiovisual, in the hope of increasing pregnant women's knowledge about pregnancy danger signs. The use of audiovisual is one form of learning media that can be used as a strategy to increase pregnant women's knowledge about pregnancy danger signs. The use of audiovisual can also be called audiovisual. Audiovisual media can improve learning abilities through the senses of the eyes and ears so that information can be received more. Audiovisual media can also be increased, the audiovisual playback repeated if it is not clear so that it can increase the knowledge of pregnant women.

B. Knowledge of Primigravida Pregnant Women at Health Center (TPMB) After Health Promotion Through Audiovisual Media Regarding Danger Signs of Pregnancy

Data analysis in Table 2 indicates a change in the knowledge of pregnant women, indicating an increase in respondents' knowledge after receiving health promotion. Table 3 shows a very significant increase in knowledge among primigravida women, with almost all respondents (52 respondents) having good knowledge. The results of the analysis in Table 3 indicate that the average score before health promotion increased from 20.49 to 24.47 after health promotion. The Wilcoxon test yielded an Asymp. Sig. (2-tailed) value of -5.888, with a significance level less than 0.05 (p=0.000<0.05). This indicates a difference in respondents' knowledge before and after treatment. Therefore, it can be concluded that audiovisual media health promotion regarding danger signs of pregnancy has an effect on improving pregnant women's knowledge.

In this study, the posttest was conducted 7 days after health promotion. The hope is that this will lead to the retention of knowledge within the respondents, thus supporting a more ingrained knowledge change (Notoatmodjo, 2012). This is in line with Saban's (2017) research on audiovisual counseling compared to leaflets for female students at SMAN 2 Ngaglik, Sleman, which found that audiovisual media was more effective in improving health knowledge than flipcharts. Subjects receiving health education using audiovisuals will more easily understand the information because it activates more of their five senses compared to flipcharts alone. This audiovisual information will enhance mothers' understanding, thus improving their knowledge. The use of various media is expected to accelerate the absorption of information regarding pregnancy danger signs, allowing for early detection if any signs are detected. Providing health education through audiovisuals is more effective because audiovisuals, as an audiovisual medium, can be accompanied by animated images, can be played on mobile phones, and via audiovisual compact discs (Oktaviani, 2018).

In this study, the posttest was conducted after two audiovisual broadcasts on YouTube. Information frequency refers to how often a mother receives information about pregnancy danger signs during her current pregnancy. With increasing access to information and frequent exposure to information, it is estimated that knowledge will increase, which will ultimately lead to changes in behavior (Mahardani, 2011). This is consistent with research (Susanti, 2020), which shows that dental health education for pregnant women is categorized as good. Pregnant women watched health education for 14 consecutive days (52.4%), with a viewing frequency of more than 14 times (88.1%). Health promotion using audiovisual media is considered effective in conveying messages to pregnant women compared to no media or only conventional lectures and discussions. This aligns with the Edgar-Dale "cone of learning experience," which states that 50% of the learning experience gained through viewing audiovisuals and demonstrations is retained in memory.

Additionally, with participant participation in discussions and Q&A sessions, the material is retained in memory by 70%. Audiovisual media can stimulate the senses of hearing and sight, resulting in more optimal results. Audiovisuals added to verbal messages can increase motivation to receive messages and remember them better because audiovisual media offers more interesting and non-monotonous counseling by displaying movements, images and sounds so that people who see it have curiosity about the content of the audiovisual which is expected to absorb information and implement it in daily behavior and lifestyle. Audio visual is one of the audio-visual media that combines several senses, not only listening to what is explained but also seeing what is displayed in the media.

he findings of this study demonstrate that health promotion using audiovisual media significantly improves primigravida mothers' knowledge of pregnancy danger signs. The increase in mean knowledge scores from pretest to posttest indicates that audiovisual-based education is an effective method for delivering maternal health information. This improvement may be attributed to the ability of audiovisual media to simultaneously stimulate visual and auditory senses, thereby enhancing comprehension and memory retention.

However, beyond the observed improvement, several methodological considerations should be discussed. First, this study employed a one-group pretest–posttest design without a control group, which limits the ability to attribute knowledge improvement solely to the intervention. External factors such as prior exposure to information, discussions with family members, or access to other health-related content during the study period may have influenced the results. This design also increases the potential for testing effects, in which respondents may perform better on the posttest simply due to familiarity with the questionnaire.

Second, the posttest was conducted only seven days after the intervention. While this short interval was intended to assess short-term knowledge retention, it does not allow for evaluation of long-term knowledge sustainability or behavioral change. The observed increase in knowledge may reflect a short-term effect, and further studies with longer follow-up periods are needed to determine whether the knowledge gained is retained and translated into timely decision-making during pregnancy.

Additionally, information exposure frequency through repeated audiovisual broadcasts may have contributed to the improvement in knowledge. While repetition can strengthen learning, it also introduces potential bias related to unequal access to information or varying levels of engagement among respondents.

Despite these limitations, the findings support existing theories such as the Edgar Dale Cone of Experience, which suggests that audiovisual learning enhances memory retention. Future research

is recommended to use controlled or quasi-experimental designs and to assess long-term outcomes, including behavioral changes and early detection practices related to pregnancy danger signs.

4. Conclusion

Based on the research results and analysis described above, it can be concluded that:

1. The majority of primigravida mothers (34 respondents, 57.6%) had poor knowledge regarding pregnancy danger signs before receiving health promotion through audiovisual media.
2. The knowledge of primigravida mothers regarding pregnancy danger signs increased after receiving health promotion through audiovisual media. The increase in knowledge of pregnant women at the Health Center (TPMB) in was in the poor category before the pre-test (57.6%) and improved (88.1%) in the post-test.
3. The Wilcoxon test showed that health promotion through audiovisual media regarding Pregnancy Danger Signs improved maternal knowledge, with a p-value (Asymp. Sig. 2-tailed) of 0.000 < 0.05.

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