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THE EFFECTIVENESS OF AUDIOVISUAL MEDIA AND LEAFLETS IN ENHANCING KNOWLEDGE, ATTITUDES, AND PRACTICES OF PREGNANCY SERVICES

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A B S T R A C T

Introduction: Health education about pregnancy care is important to increase the knowledge of pregnant women so that it will encourage positive attitudes and behavior towards the health of the mother and fetus. Audiovisual media and leaflets are often used to convey health information. **Objective:** This research aims to determine the differences in the effectiveness of the two media in increasing knowledge, attitudes and practices of pregnancy services for pregnant women at the Tambakromo Community Health Center. **Method:** This research uses an experimental design with a two group pretest posttest design. The research sample was 76 pregnant women at the Tambakromo Community Health Center who were divided into two groups randomly. The first group was given health education using audiovisual media, and the second group was given leaflet media. Data were analyzed using the Independent Sample T-test and Mann Whitney with $p<0.05$. **Result:** Respondents' knowledge, attitudes and pregnancy care practices increased after being given health education. Audiovisual media is more effective than leaflet media in increasing knowledge (p-value = 0.004), practice (p-value = 0.007), and attitudes (p-value = 0.010) of pregnant women regarding pregnancy care. **Conclusion:** Increased knowledge, attitudes and practices show that both media are effective in increasing pregnant women's awareness about the importance of pregnancy checks. However, audiovisual media has proven to be more effective because it is multisensory, making it more interesting and easier to understand. Health education using audiovisual media is more effective than leaflet media in increasing knowledge, attitudes and practices of pregnancy care among pregnant women at the Tambakromo Community Health Center.

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1. INTRODUCTION

Pregnancy care is a series of supervision of pregnancy which aims to monitor the health of the mother and fetus, produce a quality next generation, prevent and detect early complications that may occur. Maternal health must be considered. Maternal Mortality Rate (MMR). It is an indicator that shows the level of maternal health. Referring to the Rencana Pembangunan Jangka Menengah Nasional (RPJMN) for 2020-2024, the MMR is targeted to decrease to 183 per 100,000 births, from previously 305 per 100,000 births (BPS, 2022). Even though there has been a decline in MMR in Indonesia, the figure is still high. Data shows that the MMR varies from province to province, with Central Java having a worrying MMR, even higher than the national average. Preventing maternal death requires efforts from the start of pregnancy, including through routine prenatal care. Pregnant women's knowledge about the importance of pregnancy checks is key in reducing maternal and infant mortality rates.

Even though there are ambitious pregnancy screening coverage targets, there are still many challenges faced, especially in achieving the MDGs targets related to reducing maternal mortality (Jolivet *et al.*, 2018). Factors such as high risk of pregnancy and abortion need further attention (Moradinazar, 2020). Pregnancy care services at community health centers are important to ensure that the pregnancy process runs normally and can be handled well when complications occur (WHO, 2015).

Data on pregnancy check-up visits at the Tambakromo Health Center, Pati Regency, shows that there are still some pregnant women who do not make return visits to health facilities, although there has been an increase from year to year. The maternal mortality rate in Pati Regency also shows that the main causes of maternal death include eclampsia, bleeding and infection. There are still many pregnant women who do not realize the importance of routine pregnancy checks, perhaps due to a lack of education and knowledge about this issue. Therefore, a broader and more comprehensive educational approach needs to be taken to increase awareness of the importance of routine pregnancy checks to prevent high risks and complications that can endanger the lives of the mother and fetus.

Knowledge is very important in shaping a person's actions (Rahayuningsih et al, 2021). Pregnant women's knowledge about healthy lifestyles during pregnancy is the result of a complex interaction of various factors, such as education level, personal experience, cultural background, socio-economic conditions, and exposure to information (Heriyanto & Rahayuningsih, 2023). In overcoming health problems, the use of audiovisual media and leaflet is a very important aspect. Audiovisual media has the advantage of attracting attention and making it easier to understand, so it is suitable for pregnant women with low literacy levels. However, disadvantages include higher production costs and the need for specialized equipment that must be considered. On the other hand, leaflets offer cheaper production costs and provide more detailed information, although they tend to be less interesting than audiovisual media.

The role of health workers, media and health education materials is very important in increasing the knowledge, attitudes and behavior of pregnant women. Research results from various researchers show various findings that support this. Ayatulloh et al (2021) emphasize that effective knowledge management in providing information and knowledge processes can improve

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decision-making capabilities, performance, quality of health services, and overall organizational effectiveness. In addition, research by Saepul et al (2019) highlights the important role of health workers in providing information about good nutrition during pregnancy. Findings from research by Rasdiyanah et al (2020) also show that health education using booklets and diaries can increase the self-efficacy of housewives. Furthermore, Fathoni et al (2022) have tested the effectiveness of audiovisual media in increasing public understanding.

This study tested the hypothesis that the use of audiovisual media is more effective than the distribution of leaflets in increasing knowledge, attitudes and practices of prenatal care in pregnant women. This study aims to explore the differences in effectiveness between audiovisual media and leaflets in increasing knowledge, attitudes and practices of prenatal care in pregnant women. This is important because lack of knowledge about pregnancy care is a serious problem in Indonesian public health, which can result in various pregnancy complications, difficult births, and even maternal and infant deaths. Maternal knowledge and education before delivery are important for postpartum readiness and for identifying risk factors for pregnant women with complications of pregnancy and childbirth (Sulastri & Nurhayati, 2021). The existence of misinformation and customs/customs in society which are considered to tend to be irrational, makes mothers confused (Rahayuningsih, 2015).

Audiovisual media and leaflets are two media commonly used to convey health information. Audiovisual media (video and animation) have the advantage of attracting attention and being easy to understand, while leaflets provide more detailed information and can be taken home. There has been no research that specifically compares the effectiveness of audiovisual media and leaflets in increasing knowledge, attitudes and practices of prenatal care in pregnant women. Therefore, it is important to carry out this research to determine the most effective media in improving health education for pregnant women.

The findings of this research make a significant contribution to improving the understanding and practice of prenatal care for pregnant women, which in turn helps improve the health of mothers and babies and improve public health standards in Indonesia. The results of this study provide valuable information to improve the effectiveness of health education for pregnant women. This research aims to improve prenatal care by combining health education and potentially increasing access. This is important because it enables early and consistent care, improves health outcomes for mothers and babies, and empowers women with the knowledge to make informed decisions. By combining two media, such as pamphlets and video tutorials, this research can reach a wider audience and increase engagement, while improving the accessibility of health information. Overall, the expected impact of this research is large, which is expected to increase the use of prenatal care services and improve the welfare of mothers and babies throughout Indonesia.

2. METHODS

Research Design

This research design uses a quantitative experimental design with design two groups pretest-posttest design.

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Population and Sample

The population of this study was all pregnant women registered at the Tambakromo Community Health Center. The research sample was taken using a total sampling technique, namely all pregnant women who met the research criteria, namely pregnant women with a gestational age of 20-32 weeks, were willing to be respondents, and had no pregnancy complications.

Instrument

The instrument of this research is a questionnaire whose validity and reliability have been tested. The validity test results show that the pregnancy care questionnaire has 30 valid questions, with a correlation value higher than 0.36, divided into knowledge, attitudes and pregnancy care practices. This indicates the ability of the questionnaire to measure the variable in question effectively. The reliability test confirmed the high level of consistency and trustworthiness of the questionnaire, with Cronbach's alpha values of 0.706, 0.701, and 0.706 for the items of knowledge, attitudes, and pregnancy care practices, respectively. The questionnaire consists of two parts, namely: First part: contains questions about the characteristics of the respondent (age, education, occupation and parity). Second part: contains questions about knowledge, attitudes and practices of pregnancy care.

Research Procedure

The research procedure included respondents who met the research criteria being asked to sign an informed consent , the respondent fills in the pretest sheet , the respondent is given health education using audiovisual media (video) or leaflets according to the arrival number and the respondent fills in the posttest sheet. This research was conducted at the Tambakromo Community Health Center in January-February 2022.

Data Analysis

The data analysis used in this research is: Univariate analysis to determine the distribution of respondents' characteristics and levels of knowledge, attitudes and practices. Bivariate analysis to determine the difference in effectiveness between audiovisual media and leaflets in health education. The statistical test used is the Independent Sample T-test for data that is normally distributed and the Mann Whitney U test for data that is not normally distributed.

Ethical Clearance

This research has received ethical clearance at the ethics committee of RSUD Dr Moewardi Surakarta.

3. RESULT

Based on table 1, it is known that the age of the respondents, the majority of respondents in both age groups were 18-25 years (55.3% for audiovisual and 39.5% for leaflet). The 26-35 year age group is quite significant (42.1% for both groups). There were only 2.6% of respondents in the 36-40 year age group in the audiovisual group and 18.4% in the leaflet group. The age of the

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Table 1. Frequency Distribution of Respondent Characteristics

Characteristics	Audio visual		Leaflets	
	Frequency	Percentage	Frequency	Percentage
Age				
18 – 25	21	55.3	15	39.5
26 – 35	16	42.1	16	42.1
36 – 40	1	2.6	7	18.4
Pregnancy				
Number 1	22	57.9	18	47.4
2nd	12	31.6	12	31.6
The 3rd	4	10.5	6	15.8
>3	0	0.0	2	5.3
Education				
Elementary School	0	0.0	2	5.3
Junior High School	13	34.2	16	42.1
Senior High School	15	39.5	14	36.8
College (D3/S1)	10	26.3	6	15.8
Work				
Housewife	23	60.5	24	63.2
Self-employed	8	21.1	11	28.9
Employee Private	1	2.6	2	5.3
Teacher	5	13.2	0	0.0
Midwife	0	0.0	1	2.6
Device Village	1	2.6	0	0.0
Total	**38**	**100%**	**38**	**100%**

Based on table 1, it is known that the age of the respondents, the majority of respondents in both age groups were 18-25 years (55.3% for audiovisual and 39.5% for leaflet). The 26-35 year age group is quite significant (42.1% for both groups). There were only 2.6% of respondents in the 36-40 year age group in the audiovisual group and 18.4% in the leaflet group .

Of the respondents' pregnancies, the first pregnancy occurred most frequently in both groups (57.9% for audiovisual and 47.4% for leaflet). Second pregnancies were significant (31.6% for both groups). The third and most common pregnancy group was in the leaflet group (15.8%) compared to the audiovisual group (10.5%).

Respondents' education, the majority of respondents had junior high school education (34.2% for audiovisual and 42.1% for leaflet) and high school (39.5% for audiovisual and 36.8% for leaflet). There were no respondents with elementary school education in the audiovisual group, while 5.3% of respondents in the leaflet group had elementary school education. There were more respondents with collage education in the audiovisual group (26.3%) than leaflet (15.8%).

Respondents' occupation, the majority of respondents were housewives (60.5% for audiovisual and 63.2% for leaflet). Self-employment is the second most common occupation (21.1% for audiovisual and 28.9% for leaflet). There were only 2.6% of respondents in the

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audiovisual group who worked as private employees, while in the leaflet group there were 5.3%. The teacher job group is only found in the audiovisual group (13.2%). The occupational groups of midwives and village officials are only found in the leaflet group (2.6% each).

Based on table 1, it is known that both groups have a fairly balanced distribution in terms of age, pregnancy and employment. The leaflet group had a higher proportion of respondents aged 36-40 years, third pregnancy or more, and elementary school education. The audiovisual group has a higher proportion of respondents with D3/S1 education and working as teachers.

Table 2. Statistical Data and Distribution of Pre-Test Post-Test Knowledge

Group	Media	Kategory	n	%	Mean	Median	Modus	Min	Max	SD
Pre-test	Audio visual	Low	3	7.9	6.58	6	6	4	9	1,348
		Medium	24	63.2						
		High	11	29						
	Leaflets	Low	1	2.6	6.61	6.5	6	4	9	1,285
		Medium	27	71.1						
		High	19	24						
Post test	Audio visual	Low	0	0	9.13	9	9	8	10	0.665
		Medium	11	71.1						
		High	27	28.9						
	Leaflets	Low	2	5.3	8.45	8.5	8	6	10	1,108
		Medium	7	18.4						
		High	29	76.3						

Based on table 2, the pretest results for the audiovisual media group, the majority of respondents (63.2%) had medium initial knowledge, 29% had high initial knowledge, only 7.9% had low initial knowledge, the average initial knowledge of respondents was 6.58 (out of a scale of 10), the majority of respondents have medium prior knowledge (score 6). In the leaflet group, the majority of respondents (71.1%) had medium initial knowledge, 24% had high initial knowledge, only 2.6% had low initial knowledge, the average initial knowledge of respondents was 6.58 (from the scale 10), the majority of respondents had medium prior knowledge (score 6). Respondents' initial knowledge scores in both groups varied between 4 and 9. The audiovisual group had a slightly higher standard deviation (1.348) than the leaflet group (1.285).

Post test results for the audiovisual media group **,** there were no respondents who had low knowledge, the majority of respondents (71.1%) had high knowledge, 28.9% had medium knowledge, the average initial knowledge of respondents was 6.58 (from the scale 10), the majority of respondents had medium prior knowledge (score 6). Leaflet group**,** 5.3% of respondents had low knowledge, the majority of respondents (76.3%) had high knowledge, 18.4% had medium knowledge, the average initial knowledge of respondents was 6.58 (from a scale of 10)**,** the majority of respondents had medium initial knowledge (score 6). The final knowledge scores of respondents in both groups varied between 6 and 10. The audiovisual group had a lower standard deviation (0.665) than the leaflet group (1.108).

Based on table 2, there was a significant increase in knowledge in both groups after attending the education. The audiovisual group showed a slightly higher average increase in knowledge than the leaflet group**.**

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Table 3. Statistical Data and Distribution of Pre-test Post-test Attitudes

Group	Media	Kategory	N	%	Mean	Median	Modus	Min-Max	SD
Pre-test	Audio visual	Low	4	10.5	40.76	41	40	31-49	3,759
		Medium	30	78.9					
		High	4	10.5					
	Leaflets	Low	7	18.4	40.05	40	39	33-47	3,448
		Medium	25	65.8					
		High	6	15.8					
Post test	Audio visual	Low	4	10.5	44.66	45	45	38-50	2,694
		Medium	25	65.8					
		High	9	23.7					
	Leaflets	Low	3	7.9	42.76	43	43	43-50	3,467
		Medium	26	68.4					
		High	9	23.7					

Based on table 3, the pre-test score for the audiovisual group was 10.5% of respondents had a low attitude (score 40-44), 78.9% of respondents had a medium attitude (score 45-49), 10.5% of respondents had a high attitude (score 45-49). score 50), the average attitude of respondents is 40.76 (from a scale of 50), the majority of respondents have a score of 41 (median), the minimum score is 31 and the maximum score is 49, and the standard deviation is 3.759. Pre-test scores for the leaflet group, 18.4% of respondents had a low attitude (score 33-39), 65.8% of respondents had a medium attitude (score 40-44), 15.8% of respondents had a high attitude (score 45-49), the average attitude of respondents is 40.05 (from a scale of 50), the majority of respondents have a score of 39 (median), the minimum score is 33 and the maximum score is 47, the standard deviation is 3.448.

Pre-test scores for the audiovisual group**,** 10.5% of respondents had a low attitude (score 38-44), 65.8% of respondents had a medium attitude (score 45-49), 23.7% of respondents had a high attitude (score 50), The average attitude of respondents is 44.66 (from a scale of 50), the majority of respondents have a score of 45 (median), the minimum score is 38 and the maximum score is 50, and the standard deviation is 2.694.

Group Pre-test values leaflet**,** 7.9% of respondents had a low attitude (score 43), 68.4% of respondents had a medium attitude (score 44-49), 23.7% of respondents had a high attitude (score 50), the average attitude of respondents was 42 .76 (out of a scale of 50), the majority of respondents had a score of 43 (median), the minimum score was 43 and the maximum score was 50, and the standard deviation was 3.467.

Based on table 3, there was a significant increase in attitudes in both groups after attending the education. The audiovisual group showed a slightly higher average increase in attitude than the leaflet group. In the post-test, the proportion of respondents with high attitudes in the audiovisual group was greater than in the leaflet group. The audiovisual group had a smaller standard deviation in the post-test, indicating that the respondents' attitudes were more homogeneous.

Based on table 4, the pre-test score for the audiovisual group was 7.9% of respondents had low practical skills (score 4-6), 57.9% of respondents had medium practical skills (score 7-9), 34.2% of respondents have high practical skills (score 10), the average practical skills of respondents is 8.58 (out of a scale of 10), the majority of respondents have a score of 9 (median), the minimum score is 4 and the maximum score is 10, the standard deviation is 1.536.

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Table 4. Statistical Data and Distribution of Pre-test Post-test Practice

Group	Media	Kategory	N	%	Mean	Median	Modus	Min-Max	SD
Pre-test	Audio visual	Low	3	7.9	8.58	9	10	4-10	1,536
		Medium	22	57.9					
		High	13	34.2					
	Leaflets	Low	6	15.8	8.71	9	9	5-10	1,285
		Medium	21	55.3					
		High	11	28.9					
Post test	Audio-ovisual	Low	5	13.2	9.87	10	10	9-10	0.665
		Medium	0	0					
		High	33	86.8					
	Leaflets	Low	3	7.9	9.50	10	10	7-10	1,108
		Medium	12	31.6					
		High	23	60.5					

Pre-test scores for the leaflet group were 15.8% of respondents had low practical skills (score 5-7), 55.3% of respondents had medium practical skills (score 8-9), 28.9% of respondents had low practical skills high (score 10), the average respondent's practical skills is 8.71 (out of a scale of 10), the majority of respondents have a score of 9 (median), the minimum score is 5 and the maximum score is 10, the standard deviation is 1.285.

Post-test scores for the audiovisual group were 13.2% of respondents had low practical skills (score 9), no respondents had medium practical skills, 86.8% of respondents had high practical skills (score 10) , raverage the respondent's practical skills are 9.87 (out of a scale of 10), the majority of respondents have a score of 10 (median), the minimum score is 9 and the maximum score is 10, the standard deviation is 0.665.

Post-test scores for the leaflet group were 7.9% of respondents had low practical skills (score 7-8), 31.6% of respondents had medium practical skills (score 9), 60.5% of respondents had high practical skills (score 9). score 10), The average practical skills of respondents is 9.50 (from a scale of 10), the majority of respondents have a score of 10 (median), the minimum value is 7 and the maximum value is 10, the standard deviation is 1.108.

There was a significant increase in practical skills in both groups after attending the education. The audiovisual group showed a slightly higher average increase in practical skills than the leaflet group. In the post-test, the proportion of respondents with high practical skills in the audiovisual group was greater than in the leaflet group . The audiovisual group had a smaller standard deviation in the post-test, indicating that the respondents' practice skills were more homogeneous.

Based on table 5, the results of the knowledge, attitude and practice hypothesis test, it was found that knowledge for both the audiovisual and leaflet groups showed a significant increase in knowledge after attending education (p-value < 0.05). The average post-test knowledge of the audiovisual group was slightly higher than that of the leaflet group. Attitudes**,** both the audiovisual and leaflet groups showed a significant increase in attitudes after attending education (p- value < 0.05). The average post-test attitude of the audiovisual group was slightly higher than the leaflet group. Practice**,** both the audiovisual and leaflet groups showed a significant increase in practice after attending education (p-value < 0.05). The average post-test practice of the audiovisual group was slightly higher than the leaflet group.

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Table 5. Test Results of Differences in Respondents' Knowledge, Attitudes, and Practices

Group	Media	Category	Mean	*p value*	Conclusion
Knowledge	Audiovisual	Pre-test	6.58	0.001	Ho was rejected
		Post test	9.13		
	Leaflets	Pre-test	6.61	0.0001	Ho was rejected
		Post test	8.45		
Attitude	Audiovisual	Pre-test	40.76	0.001	Ho was rejected
		Post test	44.66		
	Leaflets	Pre-test	40.05	0.0001	Ho was rejected
		Post test	42.76		
Practice	Audiovisual	Pre-test	8.58	0.001	Ho was rejected
		Post test	9.87		
	Leaflets	Pre-test	8.71	0.0001	Ho was rejected
		Post test	9.50		

Both media used in health education are able to increase respondents' knowledge, attitudes and practices. After carrying out the *Wilcoxon test* on knowledge and practice items, as well as the *Paired test Sample T-test* on attitude items obtained *p value* each item < 0.005 which means H0 is rejected. So the conclusion is that there are changes in knowledge, attitudes and practices between before and after health education regarding pregnancy care using audiovisual media and leaflets, however, the average increase in knowledge, attitudes and practice scores for audiovisual media respondents is higher than for leaflet media respondents.

Table 6. Differences in the Effectiveness of Audiovisual Media and Leaflet Media

Variable	Media	Mean	Mean Different	*p value*
Knowledge	Audio visual	9.13	0.68	0.004
	Leaflets	8.45		
Attitude	Audio visual	44.66	1.9	0.010
	Leaflets	42.76		
Practice	Audio visual	9.87	0.37	0.007
	Leaflets	9.50		

Based on table 6, the audiovisual group has a significantly higher average post-test knowledge (0.68 points) than the leaflet group (p-value = 0.004). The attitude of the audiovisual group had a significantly higher average post-test attitude (1.9 points) than the leaflet group (p-value = 0.010). Practice, the audiovisual group had a significantly higher post-test practice average (0.37 points) than the leaflet group (p-value = 0.007).

Based on table 6, there is an average difference in knowledge of 0.68. *The Mann Whitney* test shows *the p value results* = 0.004 so H0 is rejected. The average attitude value of respondents has a difference of 1.9 and the *Independent Sample T- test* shows the results of *the p value* = 0.010 so H0 is rejected. Meanwhile, the average practice value of respondents has a difference of 0.37 using the *Mann Whitney test with p value* results = 0.007 so H0 is rejected and the conclusion is that there is a significant difference in the average value of knowledge, attitudes and practices of respondents after receiving health education using audiovisual media and leaflets.

Based on the results of statistical tests on knowledge, attitudes and practices, it was concluded that audiovisual media was more effective than leaflet media in increasing the knowledge, attitudes and practices of pregnancy care in pregnant women.

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4. DISCUSSION

Audiovisual media and leaflets are two media used in maternal health education to increase knowledge of pregnant women. Studies show that audiovisual media is more effective in increasing understanding of pregnant women than leaflets. The advantage of audiovisual media lies in its ability to present information that is interesting and easy to understand. However, using both media together can provide a holistic approach to maternal health education. It is important to consider the characteristics of the target population and user preferences in the use of the media (Widyaningsih, 2023).

A. Differences in the effectiveness of audiovisual media and leaflets in increasing the knowledge of pregnant women

There was a significant increase in knowledge in both groups after participating in the education, indicating that both audiovisual media and leaflets were effective in conveying information to education participants. The education provided was effective in increasing respondents' knowledge of pregnant women.

There is a difference in the average increase in knowledge between the audiovisual group and the leaflet group, reflecting the potential advantages of audiovisual media in reaching and communicating information more effectively. This is in line with the finding that audiovisual media tends to attract more attention and is easier to understand, so it can have a greater influence on increasing knowledge (Dai & Wang, 2023). Several possible explanations for why audiovisual media shows a slightly higher increase in pregnancy knowledge than leaflet media (Smith et al, 2020).

Audiovisual media is multi-sensory learning involving sight and hearing, stimulating the two main senses that play a role in the learning process (Alexandra et al, 2018). Audiovisual media allows respondents to process information through two sensory pathways, improving retention and understanding (Seijdel et al, 2024). Audiovisual media can present information in a more interesting and engaging way than leaflets. The use of images, videos and audio can attract respondents' attention and make them focus more on educational material. Audiovisual media can present complex information in a way that is easier to understand. Visualizations and animations can help respondents understand abstract concepts and complex processes (Strømme et al, 2021). Audiovisual media can display situations or events realistically, providing a clearer context for respondents to understand the information (Abdurrahman et al, 2020). This can increase the relevance and usefulness of the information for them. Audiovisual media can encourage more active learning than leaflets. Interaction with multimedia elements, such as answering questions or completing assignments, can increase respondent participation and engagement (Wang et al, 2022). Some respondents may have a visual or auditory learning style that is better suited to audiovisual media. This allows them to process information more effectively and efficiently. Audiovisual media can increase respondents' motivation and enthusiasm for learning. The use of interesting and interactive multimedia elements can make the learning process more fun and rewarding (Brame, 2016).

The greater proportion of respondents with high knowledge in the audiovisual group in the post-test shows that the use of audiovisual media can influence a better level of understanding.

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The possibility of visual and audio effects in this media can facilitate the learning process and increase information retention. Audiovisual media can present complex information in a more easily understandable way. Visualization and animation can help respondents in comprehending abstract concepts and intricate processes (Bobek & Tversky, 2016).

The smaller standard deviation in the audiovisual group in the post-test indicates that the respondents' knowledge is more homogeneous. The homogeneous knowledge of respondents may be caused by the uniformity of the way information is conveyed in audiovisual media, which can produce a uniform level of understanding among educational participants (Joger at al 2017)

However, other factors can influence increasing knowledge, such as participant characteristics, material delivery methods, and the educational context itself (Nkyekyer at al 2021). For example, participants' educational background, study habits, and individual preferences can also play an important role in how they absorb information.

B. Differences in the effectiveness of audiovisual media and leaflets in improving pregnant women's attitudes about pregnancy care.

Based on table 3, there was a significant increase in attitudes in both groups after attending the education. The audiovisual group showed a slightly higher average increase in attitude than the leaflet group. In the post-test, the proportion of respondents with high attitudes in the audiovisual group was greater than in the leaflet group. The audiovisual group had a smaller standard deviation in the post-test, indicating that the respondents' attitudes were more homogeneous.

There was a significant increase in attitudes in both groups (audiovisual and leaflet) after attending the education. This shows that the education provided is effective in increasing respondents' positive attitudes towards educational topics. The audiovisual group showed a slightly higher average increase in attitude than the leaflet group. Audiovisual media may be more effective in increasing positive attitudes than leaflet media (Hasanica at al 2020)

In the post-test, the proportion of respondents with high attitudes in the audiovisual group was greater than in the leaflet group. This supports previous findings that audiovisual media may be more effective in increasing positive attitudes. The audiovisual group had a smaller standard deviation in the post-test, indicating that the respondents' attitudes were more homogeneous. This can be interpreted that audiovisual media is more effective in generalizing the level of positive attitudes of respondents (Otic at.al, 2021)

There are several possible explanations for why audiovisual media shows a slightly higher increase in attitudes than leaflet media, namely multisensory audiovisual media learning, involving sight and hearing, stimulates the two main senses that play a role in the learning process (Volpe, G & Gori, M 2019, Darmawati et al, 2023). This allows respondents to process information through two sensory pathways, improving retention and understanding. Audiovisual media can present information in a more interesting and engaging way than leaflets (Mahdi, 2022).

The use of images, videos and audio can attract respondents' attention and make them focus more on educational material. Audiovisual media can present complex information in a way that is easier to understand. Visualizations and animations can help respondents understand abstract concepts and complex processes (Strømme & Mork , 2021). Audiovisual media can use emotional

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and motivational elements, such as music, stories and testimonials, to encourage changes in respondents' attitudes.

Based on table 4, there was a significant increase in practical skills in both groups after attending the education. The audiovisual group showed a slightly higher average increase in practical skills than the leaflet group. In the post-test, the proportion of respondents with high practical skills in the audiovisual group was greater than in the leaflet group. The audiovisual group had a smaller standard deviation in the post-test, indicating that the respondents' practice skills were more homogeneous. The education provided was effective in improving respondents' practical skills. Audiovisual media shows a slightly higher increase in practical skills than leaflet media. Increased Practical Skills: There was a significant increase in practical skills in both groups (audiovisual and leaflet) after attending the education (Ibe & Abamuche, 2019; Darmawati et al, 2020). This shows that the education provided is effective in improving the respondents' practical skills (Santos et al, 2022).

The audiovisual group showed a slightly higher average increase in practical skills than the leaflet group. This shows that audiovisual media may be more effective in improving practical skills than leaflet media. In the post-test, the proportion of respondents with high practical skills in the audiovisual group was greater than in the leaflet group . This supports previous findings that audiovisual media may be more effective in improving practical skills (Noetel et al, 2021).

The audiovisual group had a smaller standard deviation in the post-test, indicating that the respondents' practice skills were more homogeneous. This can be interpreted that audiovisual media is more effective in generalizing the level of respondents' practical skills (Shaojie et al, 2022).

C. Differences in the effectiveness of audiovisual media and leaflets in improving pregnant women's practical skills regarding pregnancy care.

Health education can improve health care skills (Setyaningsih & Maliya, 2018). The following are several possible explanations for why audiovisual media shows a slightly higher increase in practical skills than leaflet media: Multi-Sensory Learning: Audiovisual media involves sight and hearing, stimulating the two main senses that play a role in the learning process (Podolskiy, 2012).

This allows respondents to process information through two sensory pathways, improving retention and understanding. Audiovisual media can present information in a more interesting and engaging way than leaflets. The use of images, videos and audio can attract respondents' attention and make them focus more on educational material (Dai & Wang, 2023). Audiovisual media can present complex information in a way that is easier to understand. Visualizations and animations can help respondents understand abstract concepts and complex processes (Bobek & Tversky, 2016). Audiovisual media can simulate practice virtually, allowing responders to practice without risk and in a safe environment (Kman et al, 2023).

Differences in the effectiveness of audiovisual media and leaflets in increasing knowledge, attitudes and practices of pregnant women regarding pregnancy care. Both media used in health education are able to increase respondents' knowledge, attitudes and practices. After carrying out the Wilcoxon test on knowledge and practice items, as well as the Paired test the sample T-test on attitude items found that the p value for each item was <0.005, which means H0 was rejected. That

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there are changes in knowledge, attitudes and practices between before and after health education regarding pregnancy care using audiovisual media and leaflets, however, the average increase in knowledge, attitudes and practice scores for audiovisual media respondents is higher than for leaflets media respondents.

5. CONCLUSION

Both media, both audiovisual and leaflets, were proven to be able to increase respondents' knowledge, attitudes and practices regarding pregnancy care. This shows that health education using these two media is effective in achieving its goals.

Although both media are effective, the results show that audiovisual media produces a higher average increase in knowledge, attitude and practice scores than leaflet media. This suggests that audiovisual media may be more effective in increasing respondents' knowledge, attitudes and practices regarding pregnancy care.

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