



The Influence of Health Education Using Media Booklets About the Importance of Hemoglobin Levels to Increase Knowledge of Pregnant Women in the Work Area of the Ngemplak Public Health Center

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<p>Track Record Article</p> <p>Accepted: 30 April 2023 Revised: 26 July 2023 Published: 31 July 2023</p> <p>How to cite : Ambarwati, I., & Sulastri. (2023). The Influence of Health Education Using Media Booklets About the Importance of Hemoglobin Levels to Increase Knowledge of Pregnant Women in the Work Area of the Ngemplak Public Health Center. Contagion : Scientific Periodical of Public Health and Coastal Health, 5(3), 824–833.</p>	<p style="text-align: center;">Abstract</p> <p><i>Low hemoglobin (HB) levels are a problem in pregnant women. Anemia is a major cause of morbidity and mortality in pregnant women. Anemia during pregnancy is defined as a hemoglobin level lower than 10 g/dl. Pregnant women in the Ngemplak Health Center's working area still know about the importance of hemoglobin levels during pregnancy, which is still relatively low. The purpose of this study was to determine the effect of health education using booklet media on the importance of hemoglobin levels in increasing pre and post health education knowledge among pregnant women. This research is pre-experimental quantitative research with a one-group pre-test post-test research design. This research was conducted in the working area of the Ngemplak Health Center from January to February 2023. The sampling technique in this study was purposive sampling. The research population is all pregnant women in the working area of the Ngemplak Health Center, as many as 150 people. The research sample was 60 people. The research instrument used a questionnaire. Data analysis with the Wilcoxon Signed Rank Test. The results showed a difference in the average value of increasing knowledge before and after being given an intervention through health education using booklet media and an effect of health education using booklet media about the importance of levels. (p-value = $0.000 < \alpha 0.05$). It is suggested that health workers provide health education through health promotion media such as booklets about the importance of hemoglobin levels during pregnancy which can be given at every class meeting of pregnant women by health workers to improve health and increase health the knowledge of pregnant women.</i></p> <p>Keywords: <i>Anemia in Pregnancy, Booklet, Health education, Hemoglobin Level, Knowledge</i></p>
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INTRODUCTION

The maternal mortality rate is a very important benchmark for assessing the health status of women in a region. anemia in pregnancy is defined as a hemoglobin level less than 10 g/dL. Anemia is a leading cause of maternal morbidity and mortality in developing countries. Half of pregnant women worldwide suffer from anemia, becoming a global health crisis (Safitri, 2020). The total sufferers of anemia in pregnant women in Indonesia is 70% meaning that out of 10 pregnant women, as many as 7 people suffer from anemia (Kemenkes RI, 2020a).

Based on Basic Health Research data collected every five years, the prevalence of anemia in Indonesia in 2018 was 48.9%, compared to 37.15% in 2013. Therefore, it can be said that there has been an increase in anemia problems in pregnant women by 11.8 % over the past five years (Kemenkes RI, 2020b).

The health profile of Central Java 2019 shows that the prevalence rate of causes of maternal death due to bleeding has increased from 22.60% in 2018 to 24.5% in 2020 (Dinas

Kesehatan Provinsi Jawa Tengah, 2020). The main cause of anemia during pregnancy is a lack of iron intake. In Indonesia, it is estimated that there are 41 cases of anemia every day, and 20 women die because of this condition. This high number is caused by insufficient knowledge and awareness of the dangers of anemia (Yulianti, 2018). Parity factors, insufficient iron consumption, chronic energy deficiency status, and mother's education are associated with anemia in pregnant women (Mardiana, 2020).

Anemia during pregnancy can adversely affect pregnant women and the unborn child. Pregnant women with more anemia can result in more serious difficulties for the mother during pregnancy, childbirth, and childbirth, including miscarriage (abortion), premature parturition, early birth of newborns, low birth weight babies, postpartum hemorrhage due to uterine atony, shock, infection intrapartum and postpartum (Amini et al., 2018). Cases of pregnancy-related anemia are usually caused by inadequate intake of iron in the body due to a poor diet (Mardiana, 2020). Knowledge about anemia during pregnancy is very important for pregnant women. Because information can influence attitudes and actions in maintaining daily food intake patterns to prevent anemia during pregnancy, pregnant women must receive good information about anemia (Chandra et al., 2019).

Patient education is one of the important pillars for optimizing therapy. If education can be carried out effectively, it can improve patient self-management of the disease. Education is provided through booklets for pregnant women, a medium for delivering information about anemia and the use of blood-boosting tablets to pregnant women (Trianingsih et al., 2020). Booklets are preferred as educational media for pregnant women because, compared to other visual educational media, such as leaflets and posters, the information in booklets can be more extensive and detailed (Siswati et al., 2021).

Based on research Hernawati (2022) states that counseling about anemia has an effect on the knowledge of pregnant women in consuming iron tablets (p -value = 0.000). This is because many pregnant women who pay attention to counseling materials understand the importance of taking iron tablets regularly. Paying attention to the process of health education and the respondents' question and answer process increases their understanding of health.

Data on pregnancies were obtained from 164 pregnant women as a result of a preliminary survey conducted at the Ngemplak Health Center. Based on the results of workplace interviews with her 12 pregnant women at Ngimplak Health Center, we found that very few women knew about the importance of hemoglobin levels during pregnancy. This study was conducted to determine the effect of health education using the media brochure on

pregnant women's knowledge of the importance of hemoglobin levels in the work area of the Ngimplak Health Center.

METHOD

This research is a pre-experimental quantitative research with a one-group pre-test post-test research design. The advantage of this method is that there is a pre-test before treatment and a post-test after treatment, so it is possible to compare the condition before treatment, so the result of treatment can be understood more accurately (Sugiyono, 2018).

This research was conducted in the working area of the Ngemplak Health Center from January to February 2023. The sampling technique in this study was purposive sampling. The research population is all pregnant women in the working area of the Ngemplak Health Center, totaling 150 people, and obtaining a research sample of 60 respondents.

The sample criteria for this study consisted of inclusion and exclusion criteria. The inclusion criteria were pregnant women in the first to third trimesters, women who were willing to be respondents and follow the procedure from the beginning to the end, pregnant women who could communicate well, and cooperative pregnant women. At the same time, the exclusion criteria were pregnant women who were not at the location when the research was taking place, and pregnant women who suddenly withdrew became respondents when the research was being conducted.

This study uses independent and dependent variables. The independent variable of this research is the effect of health education using booklet media. Meanwhile, the dependent variable is pregnant women's knowledge level about the importance of hemoglobin levels.

The research instrument was a knowledge questionnaire about hemoglobin levels consisting of 25 questions that had been tested for validity and reliability. The validity test was carried out by researchers with 30 questions using the Guttman scale method, with valid results being 25 questions, as evidenced by the value of r count >0.444 . The reliability test of the questionnaire used Cronbach's Alpha statistical test with reliable results with a value of 0.890.

Data analysis in this study used univariate and bivariate analysis. The univariate analysis includes respondent characteristics, frequency distribution, statistical data, and the percentage of each research variable. While bivariate data analysis using hypothesis testing. After the pretest and posttest results were obtained, a normality test was performed using the Kolmogorov-Smirnov test. After that, the Wilcoxon Signed Rank Test was carried out to determine the effect of health education on respondents' knowledge level.

This research was approved by the Health Research Ethics Committee at the Doctor Moewardi Regional General Hospital Number.255/II/HREC/2023.

RESULTS

Respondent Characteristics

Table 1. Frequency Distribution of Respondent Characteristics

Characteristics	Frequency	%
Age		
17-19 years	14	23,3
20-35 years	25	41,7
36-45 years	21	35,0
Last Education		
Primary school	5	8,3
Junior high school	15	25,0
Senior High School	30	50,0
Bachelor	10	16,7
Work		
Housewife	25	41,7
Entrepreneur	10	16,7
Businessman	5	8,3
Trader	10	16,7
Parity		
Primigravida	25	41,7
Multigravida	35	58,3

Based on table 1, it is known that the majority of respondents were aged 20-35 years, namely 25 respondents (41.7%), but this number was not much different from the ages of 36-45 years, namely 21 respondents (35%). In this study, the respondents' occupations varied from traders, homemakers to those who worked as civil servants. However, most of the respondents were dominated by homemakers, namely, 25 respondents (41.7%).

The distribution of characteristics according to the last education of the respondents in the table above shows from various backgrounds. The table above shows that most of the respondents had the last high school education, namely 30 respondents (50.0%). However, there were also many respondents who had taken lectures in this study, namely 10 respondents (16.7%) ranging from bachelor education. Meanwhile, the distribution of respondents' characteristics according to delivery status in the table above shows that most respondents are multigravida pregnant women, with a total of 35 respondents.

Analysis of Knowledge Level of Pre-test and Post-test Respondents

Table 2. Distribution of Respondents Based on Pre-test Scores

Pre-test	Frequency	%
Not enough	25	41,7
Enough	31	51,7
Good	4	6
Total	60	100,0

Based on table 2 above, it can be seen that the majority of pregnant women have a lack of knowledge, as many as 25 people (41.7%) before being given health education about the importance of hemoglobin levels in pregnant women.

Table 3. Distribution of Respondents Based on Post-test Scores

Post-test	Frequency	%
Good	48	80,0
Enough	12	20,0
Total	60	60

Based on the analysis in table 3, from this it can be concluded that most of the respondents had sufficient knowledge of booklet media after health education with a percentage of 80.0%.

Analysis of the Influence of Health Education on Knowledge Level

Table 4. Data Normality Test Results

Group	P-value	Conclusion
<i>Prettest</i>	0.200	Normal
<i>Post test</i>	0.021	Abnormal

Based on Table 4. The results of the normality test with the Kolmogrov-Smirnov test in table 4. obtained a pre-test result of 0.200 and a post-test result of 0.021. According to these results, it can be concluded that the pre-test data is normal, while the post-test data is not normally distributed. Therefore, test the hypothesis of this study's data using the *Wilcoxon Signed Rank Test*.

Table 5. Wilcoxon Signed Rank Test Results

Grup	Mean	Std. Deviation	Min	Max	p-value
Pre-Test	13.9167	3.50927	8.00	19.00	0.000
Post-Test	21.9167	94406	20.00	23.00	

Based on table 5. The study results show a difference in mean knowledge acquisition before and after the health education intervention using the booklet media, with a pre-test score of 13.9167 and a post-test score of 21.9167 respectively. The minimum score obtained by pregnant women before being given intervention through health education with booklet media is 8.00, and the maximum score obtained by pregnant women is 19.00. And the minimum value obtained by pregnant women after being given intervention through health education with Booklet media is 20.00, and the maximum value obtained by pregnant women is 23.00

Based on the Wilcoxon we signed rank test results, a significance value of $p\text{-value} = 0.000 < \alpha 0.05$ was obtained, so it can be concluded that H_0 is rejected. H_a is accepted, which means there is an influence of health education with media booklets about the importance of levels.

DISCUSSION

1. Characteristics of Respondents

The study results showed that most pregnant women aged 25 (41.7%) were 20-35 years old. Pregnant women at a productive age as someone at the age of 20-35 years are a productive group where the level of productivity in the form of cognitive and motor skills is at its peak (Ayu, 2017). A person's age will generally be related to a person's level of knowledge. Pregnant women with a birth age over 25 years, independence, or maturity are better than mothers with a lower age group. Research conducted by Purwaningtyas said that pregnant women are at risk, namely age <20 years and age > 35 years, and ages not at risk, namely 20-35 years (Permanasari et al., 2020).

The majority of respondents are homemakers, as many as 25 respondents (41.7%). Research Prasetyo et al., (2020), homemakers have more time to visit health facilities, judging from the operating hours of the maternal and child health polyclinic at the public health center are 08.00 – 11.00 WIB.

Based on the characteristics of the respondents in terms of their final educational background, there are 30 (50.0%) respondents, with the majority having a high school diploma or equivalent. From this, the majority of the respondents had sufficient prior education. Based on research conducted by Sari et al., (2020) states that it is easy or not for someone to receive information can be seen from their level of education.

As many as 35 respondents were multigravida pregnant women. Based on research Lestari et al., (2022), data obtained that pregnant women who have given birth have more experience, so they have more information to examine their pregnancies in healthcare facilities.

2. Knowledge Level of Respondents Before and After Being Given Health Education

After health education, most respondents had sufficient knowledge of 12 respondents (20.0%), and 48 respondents had good knowledge (80.0%). Sufficient knowledge of respondents due to health education with media booklets provided by researchers. The lowest knowledge was shown by respondents regarding the administration of Fe tablets during pregnancy. Supplementation with one iron tablet (60 mg iron and 0.400 mg folic acid) daily for at least 90 consecutive days during pregnancy (Sari et al., 2020).

Respondents' average level of knowledge increased after being given health education using the media module. Based on research conducted by (Yulianingsih et al., 2020) states that by conducting health education with booklet media, a person's knowledge increases, the increase in knowledge shows a positive impact on efforts to improve health status.

3. The Effect of Health Education Using Media Booklets About the Importance of Hemoglobin Levels in Pregnant Women to Increase Knowledge in the Work Area of the Ngemplak Public Health Center

These health promotion activities can be started by developing communication, information, educational media, audio visual, and booklet media. Audio visual media has elements of sound and images, with the advantages of quickly spreading news and reaching the wider community. Booklets are used as a means of information, to help communicate concerns and warnings, and to campaign for an issue, and they can be used as reference material or reading (Muyassaroh et al., 2020).

The Wilcoxon test results show a significance level of $p\text{-value} = 0.000$. From this it can be concluded that there is a significant influence on the level of knowledge of pregnant women before and after the implementation of health education through print media. This is evidenced by the majority of respondents needing more knowledge before conducting health counseling on printed media such as booklets, namely 25 respondents (41.7%). However, after health education was carried out, most respondents had good knowledge of 48 respondents (80.0%). This is consistent with research, which shows that H_0 is rejected and H_a is accepted in the Wilcoxon Signed Rank Test.

The data collection process was carried out using the lecture method with booklet media which aims to make it easier for pregnant women to receive the material. According to research by Listyarini et al., (2020) booklets have two advantages compared to other media. They can be studied at any time because they are designed in book form and contain more information. Booklet media was chosen for health education because it can disseminate information in a relatively short time and increase the knowledge of pregnant women.

Based on the research conducted by Suryani et al. (2022), booklet media is more effective in increasing respondents' knowledge than audiovisual media. This can be seen from the results of the Kruskal Wallis test obtained <0.05 , and from the mean rank value obtained, it shows that the mean rank value of booklet media is higher than that of audiovisual media. Study Nadiya et al., (2020) stated that there was an effect of being given counseling using booklet media with knowledge of pregnant women about nutrition during pregnancy in Pulo Kiton Village, Kota Juang District, Bireuen Regency in 2019.

Research Adawiyani (2013) stated that giving anemia booklets affected the knowledge of pregnant women in the test group (given anemia booklets) compared to the control group (not given anemia booklets). By the theory of Kemm and Close, booklet media can be studied at any time because it is designed similarly to a book and can contain relatively more

information than posters. With this media booklet, pregnant women receive education, and the level of adherence of mothers to the consumption of Fe tablets increases (Mardiana et al., 2022). The advantages of using booklet media are that the production costs used are affordable, the information included is complete and easy to understand, the design is more attractive so that it can make someone interested and not bored to read, and easy to carry anywhere and anywhere (Suryani et al., 2022).

Based on the results of this study, the researchers assumed that distributing booklets could increase knowledge about the importance of hemoglobin or iron levels in pregnant women in preventing chronic energy deficiency. The use of booklet media aims to provide information through books that contain short, concise, easy-to-understand sentences and pictures.

CONCLUSION

The conclusions from the results of this study are:

1. There is a significant effect on pregnant women's knowledge level before and after health education using booklet media ($p\text{-value} = 0.000 < \alpha 0.05$).
2. The respondents' knowledge level before being given health education using booklets about the importance of hemoglobin levels needed to be improved.
3. The respondents' knowledge level after being given health education using booklets about the importance of hemoglobin levels was good.

It is suggested to health services or health workers to provide health education related to hemoglobin levels during pregnancy can be given at every class meeting of pregnant women by health workers to improve health and increase knowledge. Pregnant women are expected to make the best use of the booklet on the importance of hemoglobin levels they receive. An understanding of pregnant women about hemoglobin levels is expected to increase awareness to maintain their health so that the incidence of anemia can be prevented, and for future researchers, this research can be used as a reference for similar research using different learning media and different locations.

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