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Comparison of printed and electronic bara (booklet for prevention of hypertension in pregnancy) on knowledge, attitudes and actions for prevention of hypertension in pregnancy

Zuraidah[1], Nadi Aprilyadi[1], Wiwin Martiningsih[2], Mujito[2], Indah Dewi Ridawati[1]*

[1]Prodi Keperawatan Lubuk Linggau, Poltekkes Kemenkes Palembang
[2]Prodi Keperawatan Blora, Poltekkes Kemenkes Semarang
Corresponding author. *E-mail: indahdewi@poltekkespalembang.ac.id

Abstract

Background: The maternal mortality rate in Indonesia is still considered high, at 305 per 100,000 live births. Hypertension in pregnancy is the second largest cause of maternal death in Indonesia. In 2018, two mothers died due to hypertension in pregnancy at the Simpang Periuk Health Center, Lubuklinggau City. One of the causes of hypertension in pregnancy that leads to death is the lack of information obtained by pregnant women. Health promotion through booklet media is a solution to increase the knowledge, attitudes and actions of pregnant women regarding the prevention of hypertension in pregnancy. BARA (Small Book of Prevention of Hypertension in Pregnancy) is a small book containing specific knowledge about successful strategies for preventing hypertension in pregnancy. Providing knowledge about the prevention of hypertension in pregnancy through booklets distributed to pregnant women has never been done at the Simpang Periuk Health Center.
Purpose: To compare the average score, difference, and percentage change in knowledge, attitude, and action regarding hypertension prevention before and after receiving BARA in pregnant women.
Method: Quantitative research using quasi-experimental design with control group. The sample used was 60 pregnant women obtained by Accidental Sampling formula. The study was conducted at Simpang Periuk Health Center, Lubuklinggau City. This location was chosen because based on initial data, the researcher concluded that many pregnant women at Simpang Periuk Health Center still have low levels of knowledge, attitudes, and actions regarding hypertension in pregnancy. Group 1 was given a printed BARA book, while Group 2 was included in the WhatsApp group where the electronic BARA book was distributed. Participants read the booklet and were encouraged to ask questions if they found something unclear.
Results: Almost all participants were aged between 20-35 years (90%) with an average age and standard deviation of 27.21 and 4.498. The majority of participants had a high school education (48.3%) and most participants were housewives (52%). The average results of hypertension prevention actions in pregnancy in participants who used printed and electronic books increased significantly. Preventive actions in the group using printed booklets increased from 16.33 to 19.20, while in the e-booklet group increased from 16.07 to 19.13. The results of the Wilcoxon statistical test showed a p-value of 0.000 ($p < 0.05$). This indicates a significant difference in actions before and after health promotion.
Conclusion: There is a significant difference in the level of knowledge, attitudes, and actions regarding hypertension in pregnancy before and after health education using both printed and electronic booklets. There was a significant increase in knowledge, attitudes, and actions to prevent hypertension in pregnancy ($p<0.000$) in both groups. The greatest increase occurred in the group given the e-booklet.

Keywords: Action; Attitude; BARA Electronic and Print Booklets; Hypertension in Pregnant Women; Knowledge.

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INTRODUCTION

The maternal mortality rate in Indonesia is still relatively high, at 305/100,000 live births. The national target for maternal mortality is 108/100,000 live births. Maternal mortality is still a health problem for mothers and children in Indonesia (Basana, Myrnawati, & Sembiring, 2018). Pregnancy is the meeting of the egg and sperm inside or outside the uterus and ends with the baby and placenta being released through the birth canal (Yulaikhah, 2019). Hypertension in pregnancy is the second leading cause of maternal death in Indonesia (Nurhidayah, Hasnah, & Pratiwi, 2022). A total of 30 mothers died from hypertension during pregnancy in South Sumatra Province. Lubuklinggau City has succeeded in reducing maternal mortality due to hypertension in pregnancy. In 2021, only one maternal death due to pregnancy-related hypertension was reported in Lubuklinggau City (South Sumatra Provincial Health Office, 2022).

However, if efforts to maintain and improve this success are not sustainable, the number of maternal deaths may increase as happened in previous years. In 2018, there were two cases of maternal deaths due to hypertension during pregnancy that occurred at the Simpang Periuk Health Center, Lubuklinggau City (Sari, Sari, & Damayanti, 2022). Follow-up efforts must be made to ensure that no mothers die from hypertension during pregnancy (Lubuklinggau City Health Office, 2013). Hypertension in pregnancy, namely hypertension that occurs due to or during pregnancy, can affect the pregnancy itself, usually occurring at 20 weeks of gestation (Oksantika, 2020). Hypertension can be experienced by all levels of pregnant women so that knowledge about managing hypertension in pregnancy must be truly understood by all medical personnel both at the center and in the regions (Mustari, Yuniarti, Elis, Maryam, Marlina, & Badawi, 2022). Knowledge or cognitive is a very important domain for the formation of a person's actions (overt behavior) (Lake, Hadi, & Sutrining, 2017).

One of the factors causing hypertension in pregnancy that causes maternal death is the lack of information available to pregnant women. Limited information results in low knowledge which ultimately causes a lack of awareness of mothers to behave or act appropriately in maintaining their pregnancy. Adequate information can increase knowledge, awareness, and attitudes so that mothers can control their blood pressure within normal limits (Mustari, Yurniati, Elis, Maryam, Marlina, & Badawi, 2022). Health promotion through booklets is a solution to increase the knowledge, attitudes, and actions of pregnant women regarding the prevention of hypertension in pregnancy. Booklets contain important information, the contents of a booklet must be clear, firm, easy to understand and will be more interesting if the booklet is accompanied by pictures (Pralisaputri, Soegiyanto, & Muryani, 2016).

BARA (Hypertension Prevention Book in Pregnancy) is a small book containing specific knowledge about successful strategies to prevent hypertension during pregnancy. In addition to discussing prevention, this book also discusses the concept of pregnancy and hypertension in pregnancy. Knowledge about hypertension that pregnant women have can enable them to handle hypertension so that their blood pressure remains under control (Yusnanda & Pratiwi, 2022).

BARA is an innovation designed to support the Government's program in preventing hypertension in pregnancy. BARA can be used by both normal pregnant women and those at risk of developing hypertension during pregnancy. Some risk factors for hypertension in pregnancy include advanced maternal age (over 35 years), blood clotting during pregnancy, excessive caffeine consumption, lack of physical activity, excessive salt intake, smoking, alcohol consumption, excessive stress, poor nutritional intake, history of chronic hypertension, kidney disorders, genetic factors, and obesity (Fitria, Yarmaliza, & Zalmaliza, 2022).

Simpang Periuk Health Center recorded the highest number of hypertension cases in Lubuklinggau City, namely 5,249 visits. Among them, 21 pregnant women with hypertension were identified from a population of 368 pregnant women (Lubuklinggau City Health Office, 2013). However, education on preventing hypertension during pregnancy through booklets distributed to pregnant women has not been implemented.

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RESEARCH METHOD

Quantitative research with a quasi-experimental design using a control group. This study used a two-group pretest-posttest design. The intervention group was given a printed book, while the second group was given an e-book. The pretest was conducted to assess knowledge, attitudes, and actions before being given health education using a booklet, while the posttest observed these aspects after the intervention (Fadjarajani, Rosali, Patimah, Liriwati, Nasrullah, Sriekaningsih, & Nugraha, 2020). The study was conducted at the Simpang Periuk Health Center in Lubuklinggau City. This location was chosen because based on initial data, the researcher concluded that many pregnant women at the Simpang Periuk Health Center still had low levels of knowledge, attitudes, and actions regarding hypertension in pregnancy.

The independent variables used in this study are printed and electronic bara (booklet for prevention of hypertension in pregnancy), while the dependent variables used are knowledge, attitudes, and actions. The population of this study was all pregnant women at the Simpang Periuk Health Center in Lubuklinggau City. Sampling was carried out by Accidental Sampling, with the number of samples needed as many as 30 people for the group given a printed booklet and 30 samples for the group receiving an e-booklet. The criteria for participants in this study were willingness to participate from beginning to end, willingness to sign an informed consent form, ability to communicate effectively, good hearing, and having a mobile phone. Exclusion criteria were lack of family support.

The research instrument used was a questionnaire. This questionnaire collected participant characteristics, measured the level of knowledge, attitudes, and preventive actions against hypertension in pregnancy. The attitude and action questionnaires were adapted directly from previous research (Endiyani, 2019), while the knowledge questionnaire was updated according to the contents of the BARA booklet.

The knowledge questionnaire consisted of 15 questions, scored 1 for correct answers and 0 for incorrect answers, with a score range of 0–15. The attitude questionnaire used a Likert scale ranging from 1 to 5, while the action questionnaire used a Likert scale ranging from 1 to 4. This study involved 10 research assistants. Participants were gathered in one location and the researcher explained the research procedure. Those who agreed to participate signed an informed consent form. Participants filled out a pretest questionnaire measuring knowledge, attitudes, and actions, after which they were randomly divided into two groups.

Group 1 was given a printed BARA booklet, while Group 2 was put into a WhatsApp group where the electronic BARA booklet was distributed. Participants read the booklet and were encouraged to ask questions if they found anything unclear. They continued to read the booklet repeatedly at home. The researcher shared the e-booklet file every two weeks in the WhatsApp group. After two months, both groups completed the posttest questionnaire. This study received ethical approval from the Ethics Committee of the Palembang Polytechnic with approval number 0576/KEPK/Adm2/IV/2024.

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RESEARCH RESULTS

Table 1. Characteristics of Participant (N=60)

Variabels	Results
Age (Mean±SD)(Range)(Month)	**(27.21±4.498)(20-35)**
Age (n/%)	
<20	2/3.3
20-35	54/90.0
>35	4/6.7
Education (n/%)	
Elementary Education	7/11.7
Junior High School	12/20.0
Senior High School	29/48.3
Diploma	2/3.3
Bachelor	10/16.7
Work (n/%)	
Housewife	52/86.7
Teacher	2/3.3
Merchant	1/1.7
Other	2/3.3
Gestational Age (n/%)	
Trimester 1	8/13.3
Trimester 2	16/26.7
Trimester 3	36/60.0
Gestation Status (n/%)	
G1P0A0	18/30.0
G2P1A0	23/38.3
G3P1A1	4/6.6
G3P2A0	11/18.3
G4P2A0	1/1.7
G4P2A1	1/1.7
G5P2A2	1/1.7
G5P3A1	1/1.7
Hypertension Pregnancy (n/%)	
Yes	6/10.0
No	54/90.0
Family History of Hypertension (n/%)	
Yes	11/18.3
No	49/81.7

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BMI (n/%)	
Less	9/15.0
Normal	25/41.7
Excessive	18/30.0
Obesity	8/13.3
Consume Fast Food (n/%)	
Yes	23/38.3
No	37/61.7
Stress (Lots Of Thought) (n/%)	
Yes	11/18.3
No	49/81.7

Table 1 shows that almost all participants were aged between 20-35 years (90%) with a mean age and standard deviation of 27.21 and 4.498. The majority of participants had a high school education (48.3%) and most participants were housewives (52%). The majority were in their third trimester of pregnancy (60%), with a pregnancy status of G2P1A0 (38.3%). Most participants did not suffer from hypertension during pregnancy (54%), had no family history of hypertension (81.7%), had a normal BMI (41.7%), did not consume fast food (61.7%), and were not stressed (49%).

Table 2. Before and After Receiving Printed and Electronic Booklets

Variabel	Mean		p-value
	Print (P)	Electric (E)	
Knowladge			
Pre test	9.7	9.6	0.000
Post Test	12.93	13.83	
Attitutdes			
Pre test	9.7	19.9	0.000
Post Test	12.93	22.5	
Actions			
Pre Test	16.33	16.07	0.000
Post Test	19.20	19.13	

Based on Table 2, the results obtained were that the average level of knowledge of preventing hypertension in pregnancy in participants who used printed books increased from 9.7 to 12.93. In line with these results, the level of knowledge of hypertension in pregnancy in participants who used e-booklets increased from 9.6 to 13.83 with a p value of 0.000 <0.05.

In addition, the attitude of hypertension prevention in pregnancy in participants who used printed books increased from 9.7 to 12.93. The attitude towards hypertension prevention in the group using e-booklets increased from 19.9 to 22.5. The results of the Wilcoxon statistical test showed a p-value of 0.000 (p <0.05). Therefore, this indicates a significant difference in attitudes before and after health promotion. The average results of hypertension prevention actions in pregnancy in participants who used printed and electronic books increased significantly. Preventive actions in the group using printed booklets increased from 16.33 to 19.20, while in the e-booklet group increased from

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16.07 to 19.13. The results of the Wilcoxon statistical test showed a p-value of 0.000 (p <0.05). This indicates a significant difference in actions before and after health promotion.

DISCUSSION

Table 2 shows that the average knowledge of participants increased in both the intervention and control groups. The average knowledge score of participants who were given printed books was 3.23, while the average knowledge score of participants who were given e-books was 4.7. The knowledge score in the "good" category increased significantly to 21 participants (70%) in those who received printed books and 87% (26 participants) in those who received e-books. In addition, no participants had a "bad" knowledge score after receiving the booklet.

The results of the Wilcoxon statistical test showed a p-value of 0.000 (p <0.05). This shows a significant difference in the level of knowledge, attitudes, and actions about hypertension in pregnancy before and after health education using both printed and electronic booklets.

A booklet is a tool in the form of a book equipped with written text and images that are adjusted to the target reader. The information in the booklet is arranged clearly and in detail so that it can be understood well by the target education and does not cause misperceptions (Krisdianto, Natasyah, & Malini, 2023). Health promotion with e-booklets is effective in increasing pregnant women's knowledge about hypertension in pregnancy.

Booklets have two advantages compared to other media, namely they can be studied at any time because they are designed in book form and contain more information (Roza, 2012). Booklet media was chosen as a health education medium because it is able to disseminate information in a relatively short time, so that it can increase the knowledge of pregnant women (Listyarini & Fatmawati, 2020).

The results of another study stated that there was an influence of health education through booklets on the knowledge of pregnant women about hypertension with an average knowledge of pregnant women being 66.49% and after being given education of (80%) (Evitasari, 2021). So this shows that providing health booklets to pregnant women about hypertension, either in printed form or e-books, will have a positive and good influence.

Providing routine health promotion about preeclampsia can increase maternal knowledge so that mothers are able to prevent complications in pregnancy, childbirth or in the fetus, especially due to preeclampsia. High knowledge can make mothers apply the knowledge they have gained in their daily lives (Wellyanah, Hermawati, & Kiftia, 2021).

This study is also in line with other studies which state that providing health education using booklet media can increase individual knowledge regarding hypertension in pregnancy (Pratiwi, Margareta, & Sriastutik, 2024).

CONCLUSION

The results of the Wilcoxon statistical test showed a p-value of 0.000 (p < 0.05). This indicates a significant difference in the level of knowledge, attitudes, and actions about hypertension in pregnancy before and after health education using both printed and electronic booklets. Booklets can be used as a health promotion media to improve knowledge, attitudes, and preventive actions against hypertension in pregnancy.

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