HOW TO INCREASE PREGNANT WOMEN'S KNOWLEDGE ON ANEMIA : STUDY INTERVENTION

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ABSTRACT

The prevalence of anemia in pregnant women at the age of 15-49 is high.Anemia in pregnant woment is a condition where hemoglobin less than 11 gr/Dl. The cause of death in pregnant women is quite complex that is related to pregnancy, childbirth, and the puerperium. One cause of maternal death during pregnancy is anemia in pregnancy. Intervention can be done to prevent the incidence of anemia in pregnancy with provide health education by Pop-up Book. The purpose of this study was to determine the Effect of Health Education With Pop-up Book Media to Increase Pregnant Women's Knowledge About Anemia at Working Area of Pembina Public Health Center Palembang City In 2019. This research was an analytical observational study with quasi-experimental design with non-equivalent control group design. This study uses interventional procedure and performed pretest and posttest to get scores of the respondent' knowledge. 38 Samples were taken by purposive sampling (19 experiment group and 19 control group). The results showed that the average knowledge in the experimental group before the intervention was given 13.26 to 25.36 with a value (P = 0,000). While the average knowledge in the control group before the intervention was given 15.10 to 20.05 with a value (P = 0.000). The conclusion of this research is health education with pop-up book media can increase pregnant women's knowledge on anemia.

Keywords: Anemia, Knowledge, Lecture Method, Pop up Book, Pregnant Women

Introduction

Indonesian's health development for the period of 2015-2019 prioritizes four programs, namely control of infectious diseases, control of non-communicable diseases, reduction in the prevalence of stunting under five, and decreasing the prevalence of maternal (MMR) and infant mortality. The maternal mortality rate in Indonesia in 2015 was 305 per 100,000 live births.(1) Decreasing the prevalence of maternal mortality rate (MMR) is one of the priority programs because of the high maternal mortality rate which is one indicator of the low degree of reproductive health, maternal nutritional status and level health services. The cause of death in pregnant women is quite complex that is related to pregnancy, childbirth, and the puerperium. One cause of maternal death during pregnancy is anemia in pregnancy.(2)

Anemia is one of the problems of public health both in Indonesia and in the world that can reduce the quality of human resources (HR). Anemia in pregnancy is a condition of pregnant women with a hemoglobin value of less than 11 mg / dL that occurs during the second and third trimesters. Anemia in pregnancy that affects many pregnant women is anemia caused by iron deficiency, causing a decrease in hemoglobin levels.(3)

Based on the WHO database in 2005-2008 globally anemia affected 1.62 billion of 7.1 billion world population or around 24.8% of the total population. While the 2015 WHO global data states that in 2011 the prevalence of anemia in pregnant women at the age of 15-49 years was 83.2%. World Bank data in 2016 showed that anemia globally stood at 40.1% and entered into severe public health problems.[4] WHO estimates that more than 47% of women living in developing countries experience anemia.[5] Until now anemia is still one of Indonesia's public health problems. Based on criteria determined by WHO, the anemia interval limit in pregnant women population is 40%.[6] The prevalence of anemia in pregnant women in Indonesia is still relatively high both in rural areas (37.9%) and in urban areas (38.2%).[7] This prevalence is lower than the 2016 target of decreasing anemia prevalence by up to 28%. Based on the results of Riskesdas (2018) the proportion of anemia in pregnant women in Indonesia is 48.9%, the proportion increased from 2013 which was 37.1%.[8]

Anemia due to iron deficiency in pregnancy will increase the risk of miscarriage, Low Birth Weight Babies (LBW), bleeding during childbirth and cause death in mothers and infants.[9] The risk of developing iron deficiency anemia can be prevented if pregnant women can meet the need for iron. The need for iron in pregnant women has increased to 1070 mg because it is absolutely needed by the fetus and placenta.[10][11] This high amount of iron needs causes pregnant women to be at high risk of iron deficiency. Fulfillment of iron from food that is still lacking can be done with iron supplementation.[12]

Various prevention programs to reduce the prevalence of pregnant women have been carried out by the Government through the Ministry of Health since the early 1980s by providing Blood Tablets (TTD) through antenatal service centers such as Posyandu, Poskeskes, Polindes, Poskeskel or Puskesmas which are provided free of charge.[13][14][15] There are several factors affecting anemia in pregnant women are knowledge, frequency of ANC, and individual factors that are affected by infectious diseases and blood deficiency.[16]

According to research conducted by Purbadewi (2013) through a national survey in Indonesia, 50% of pregnant women have poor knowledge about anemia.[17] Likewise with the results of Fatimah and Kania's research (2019) in the working area of the Baregbeg health center, knowledge of pregnant women about anemia is very important as an effort to prevent anemia during pregnancy and the risk of LBW events.[18] This shows that knowledge pregnant women is one factor in the incidence of anemia in pregnant women.

Increased knowledge in pregnant women about anemia and consumption of added blood tablets can be done with health education. Health education is one form of Information, Education, and Communication (IEC) activities in the form of educational approaches that aim to increase knowledge for its targets. With the existence of health education activities, it is expected to

increase his knowledge can reduce the prevalence of anemia in pregnant women. To convey knowledge in the process of health education requires counseling media.

Various media can be used to convey messages related to the consumption of added tablets of blood and anemia. Media or props in health promotion can be interpreted as a tool for health promotion that can be seen, heard, touched, felt or smelled, to facilitate communication and dissemination of information.[19] Health education cannot be separated from the media because through the media, the messages conveyed can be more interesting and understood, so the target can study the message until it decides to adopt positive behavior.[20] Media used in this activity include pop-up book.

Pop-up Book is a term for a book that has movable parts because it has 3-dimensional elements. Pop-up Book provides visualization of material that is more interesting, starting from the appearance of images that look more dimensionless, having textures that use their original shape.[21] This can make the material made in pop-up books more interesting so that it can convey the contents of the book's message more easily for readers. Several studies that show the influence of the Pop-up Book media on increasing the knowledge of pregnant women towards exclusive breastfeeding are proven to be effective in increasing knowledge (P Value = 0.026).[22] This shows that health education using the right media can increase effectiveness to achieve health education goals. So, it can be concluded that health education using visual media can facilitate the delivery of information.The purpose of this study was to determine the effect of health education by using the Pop-up Book media to increase knowledge about anemia in pregnant women in the working area of the health center in Palembang city in 2019.

Methods

This research is an analytical international study with a quasi-experimental research design with a non-research design equivalent control group design. This research was conducted by providing health education as a form of intervention that was preceded by measurement of knowledge before the intervention and after the intervention. This study two groups, namely the intervention group who were given health education about anemia with pop-up book media containing information about anemia consisting of several parts, namely the definition of anemia, the characteristics of anemia, the causes of anemia, the impact of anemia on pregnant women, and how to prevent anemia in pregnant women by meeting the nutritional needs during pregnancy, and the control group was given health education about anemia with the lecture method. Calculation of the minimum sample size of this study uses the formula for testing the hypothesis of the difference in the average pair (paired). The sample of this study was 38 pregnant respondents in the working area of the Palembang City Public Health Center. Sampling is done by purposive sampling with due regard to inclusion and exclusion criteria that have been set. The inclusion criteria of this study

are pregnant women who are willing to be respondents, pregnant women who can read, see and hear, pregnant women who have lived for at least 6 months in the working area of Palembang City Public Health Center, and Pregnant Women who are Registered in Pregnant Women Classes in the work area. Palembang City Guidance Community Health Center. The time interval for measuring knowledge between pretest and posttest can be done within two weeks.

Prior to data collection, the pop-up book media was validated with a team of experts consisting of a team of material experts and design experts. Material validation will be carried out by material experts who are health promotion experts who are competent in their fields. Material experts examine the suitability of the material with the accuracy of the content of the material. And media design validation will be discussed with a team of design experts to find out the weaknesses and strengths of the pop-up book learning media. Media experts and material experts are given a questionnaire and will be asked to evaluate the pop-up book made by the researcher. The experts will look at the media and provide assessments, suggestions and opinions by filling out pop-up book media assessment sheets by media experts and material assessment sheets by material experts. Media experts gave an assessment from the aspects of coloring, appearance, and presentation that were classified as good. Material experts provide an assessment of the word aspect, language is of very good value and the contents of the pop-up book media are of good value.

The validity of the questionnaire was carried out by testing the validity, namely the test carried out by correlating the scores of each variable with the total score. The validity test was carried out outside the research object, namely on 30 pregnant women in the working area of the Merdeka Health Center in Palembang City who had the same characteristics as the research location.

The analysis used in this study includes univariate and bivariate analysis. The results of the univariate analysis will be presented in tabular form and interpreted. The variables in this study were the respondent's age, education level, economic status, gravida and the frequency of antenatal care as well as knowledge about anemia in pregnancy. Bivariate analysis using paired samples T test. This test is used to see the difference in the mean scores in the groups and the independent T test is used to find out the differences between groups.

Results

A. Respondent Characteristic

Based on the results of the analysis of Table 1 obtained from 38 respondents it can be seen that in both groups the majority of the same age is in the age group of 25-35 years. In the Experiment group 10 people (52.6%) and the control group 11 people (57.9%). The education level of the respondents in the experimental group was the most with high school education as many as 7 people (36.8%), while in the last education control group the respondents were high school as

many as 10 people (52.6%). The majority of Gravida respondents in the experimental and control group were equal to the multigravida status, namely in the experimental group by 15 people (78.9%) and the control group by 17 people (89.5%). The family income category in the experimental group had the most low income, as many as 12 people (63.2%) while in the control group the most high income was 11 people (57.9%).

Table 1. Distribution of Respondents by Characteristics in The Experimental and Control Group

Characteristics	Experimental group (n=19)	Control Group (n=19)	Total (n=38)
Age of Respondent (n, %)			
17-24	6 (31,6%)	5 (26,3%)	11 (28,95%)
25-35	10(52,6%)	11(57,9%)	21 (55,27%)
36-45	3 (15,8%)	3 (15,8%)	6 (15,78%)
Education Level (n, %)			
Elementary School	5 (26,3%)	5 (26,3%)	10 (26,31%)
Junior High School	5 (26,3%)	4 (21,1%)	9 (23.69%)
Senior High School	7 (36,8%)	10(52,6%)	17 (44.73%)
PT	2 (10,5%)	0 (0)	2 (5,27%)
Gravida (n, %)			
Primigravida	4 (21,1%)	2 (10,5%)	6 (15,78%)
Multigravida	15 (78,9%)	17 (89,5%)	32 (84,22%)
Family Income (n, %)			
Low	12 (63,2%)	8 (42,1%)	20 (52,64%)
High	7 (36,8%)	11(57,9%)	18 (47,36%)

B. Differences in Knowledge of Pregnant Women Regarding Anemia before and after the intervention in the experimental and control groups

Table 2 shows that the results of the analysis of knowledge in the Experiment group before getting health education with the Pop-up Book media the average respondent's knowledge of anemia was 13,263 with a standard deviation of 4,628, then to 25.36 with a standard deviation of 1,738. The average change in respondents' knowledge in the experimental group was 12.10 with a p-value of 0.0000. Whereas in the control group the results of knowledge analysis showed that before getting health education with the lecture method the average knowledge of respondents was 15.10 with a standard deviation of 3.229, then increased to 20.05 with a standard deviation of 2.222. The average change in respondent's knowledge in the control group was 4.95 and a p-value of 0.0000 was obtained. This means that health education about anemia using Pop Up Book media and lectures has a significant effect on respondents' knowledge about anemia in pregnancy.

Table 2. Analysis of Differences in Knowledge of Pregnant Women Regarding Anemia before and after the intervention in the experimental and control groups

Variable	Experimental Group (Pop-up Book) (n=19)	Control Group (Lecture) (n=19)s
Knowledge (Mean ± SD)		
Pre	13,26 ± 4,628	15,10 ± 3,229
Post	25,36 ± 1,738	20,05 ± 2,222
Δ_1	12,10 ± 4,829	4,95 ± 2,778
Sig (p)	0,000	0,000

C. Differences in Knowledge of Pregnant Women Regarding Anemia Between Groups Before and After Intervention in Experiments and Control Groups

Table 2. Differences in Knowledge of Pregnant Women Regarding Anemia Between Groups Before and After Intervention in Experimental and Control Groups

Group	Mean	SD	Mean Difference	P-value
Experimental	25,37	1,739		
Control	20,05	2,223	5,32	0,000

Table 3 shows that the average change in knowledge scores in the experimental group given health education with pop-up book media was 25.37 with a standard deviation of 1.739, whereas in the control group given health education with visual media the average change in knowledge score of respondents was 20.05 with a standard deviation of 2.223. Statistical test results obtained a p value of 0,000 <0.05, meaning that statistically there are differences in the average score of knowledge between respondents who received health education with pop-up book media and respondents who received health education by lecture method with a 5.32 point difference.

Discussion

Based on the average difference test, it was found that the pop-up book media in the experimental group was more effectively used as a medium for health education. Changes in knowledge in pregnant women in the experimental group were higher than knowledge of pregnant women in the control group. This can be seen from the knowledge of pregnant women after getting intervention using the media pop-up book has increased scores higher than the pregnant women in the control group. This is due to the respondents' interest to read and see the Pop-up Book media that is different from the media that was given during counseling at community health centers or integrated service posts. In the control group using the lecture method the information was also given the same as the information contained in the pop-up book media. The control group obtained

a p-value of 0,000 which showed that health education using the lecture method also had a significant influence on respondents' knowledge.

Health education in this study was given for 2 weeks with three meetings making respondents accustomed to receive information about knowledge about anemia in pregnancy so as to increase respondents' knowledge. This can be seen from the increase in the average value of knowledge variables before and after the intervention. Measurement of knowledge is carried out within a period of two weeks or 14 days in accordance with the theory of evaluation. Knowledge is a very important domain in the formation of an attitude, action or behavior of a person (Overt Behavior) because of that knowledge possessed by someone is very influential on actions that can improve the degree of health of that person.[23]

According to the results of Ratnaningsih research, that behavior based on knowledge will be longer than a behavior that is not based on knowledge. In addition, knowledge is also an early stage in adoption to adopt new behaviors before the formation of attitudes towards new objects it faces.[24] The results of this study are in line with research conducted by Laon et al. That there is a significant difference in knowledge scores in groups of children given health education with media pop-up book on children's knowledge about oral health. If you can draw conclusions from this study, the researcher concludes that an interesting pop-up book media has the ability not only to provide knowledge to children but also to provide knowledge to pregnant women.[22]

Based on the analysis test that has been conducted by researchers regarding the differences in the average score of respondents' knowledge in the experimental group and the control group. It can be seen that after health education was carried out using the pop-up book in the experimental group and the lecture method in the control group it was found that the average change in knowledge score in the experimental group given health education with pop-up Book media was 12.10 with a standard deviation of 4.82 whereas in the control group given health education using the lecture method, the average score of respondents' knowledge score was 4.94 with a standard deviation of 2.77.

Statistical test results obtained Pvalue 0,000 <0.05, meaning that there is a significant difference in the average score of knowledge between respondents who received health education with pop-up book media and respondents who received health education using the lecture method. One of the differences in the average score of respondents' knowledge can be caused by the two interventions given to each group. In addition to being caused by the characteristics of the respondents, the media used in health education can influence differences in the changes in the average knowledge of respondents in the experimental group and the control group.

The results of this study are in line with the Shinta 2017 study. The results of this study show that there are differences in the knowledge of respondents in the treatment group who were given health education with pop-up book media and the control group who was given health education

with leaflets. The results of this study stated that health education with pop-up media was more able to increase respondents' knowledge about obesity prevention in the experimental group than knowledge in the control group. In this study the difference in the average change in knowledge scores is caused by the use of pop-up book media and leaflet media. pop-up book media is more able to attract the attention of respondents in the experimental group compared to the use of leaflets. But the use of leaflets still influences the average knowledge of the respondents.[25]

In this study, respondents actively used the media pop-up book by looking, reading, touching, holding open and close each page in the book. So, the learning experience in the pop-up book group is more concrete than the lecture method. In these activities, the pop-up book media group gained learning experiences in a more active way whereas respondents with the lecture method respondents only listened to information through the lecture. Although both groups were given the treatment of learning experience by listening to the instructor, the learning experience of the pop-up book media group was more concrete than the lecture method. because the pop-up book group has added value in the learning experience namely the activities of touching, opening and closing each page of the pop-up book media repeatedly so that the activity can spur motor development and stimulate respondents' imagination.

The use of the lecture method as a learning medium relies on one of the human senses, namely the sense of hearing to study the material delivered by the instructor. The material in the lecture is delivered in language that is easily understood by people. The advantage of the lecture method is that the language delivered is easy to understand and the existence of two-way communication between the health educator and the questions of the respondent makes the respondent better understand the material delivered by the instructor. According to Khadijah and Widodo 2019, factors influencing a person's level of knowledge came from the information he received, with more sources of information, one of which came from health workers, would increase wider knowledge.[26]

In this study, based on observations from researchers at the time of conducting research. Respondents have a high interest in reading media pop up books about anemia in pregnancy for respondents in the experimental group. Meanwhile, the response to the control group, respondents eagerly listen to the information conveyed and discuss it with other respondents. However, after the posttest was done in the experimental and control groups, the difference in the average score of respondents' knowledge in the experimental group was higher than in the control group with a difference of 5.32 points. This shows that health education with pop-up book media is more effective compared to the method of reflection when viewed statistically.

Conclusion

Health education with pop-up book media and lectures has a significant influence on respondents' knowledge about anemia. Making effective the class program for pregnant women by providing education and counseling using interesting media can increase respondents' knowledge about anemia.

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Conflict of Interest

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