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## Nutrition Education Through by Smart Books of Anemia Prevention on the Behavior of Pregnant Women at the Puntikayu Health Center Palembang

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### ABSTRACT

According to WHO, the global prevalence of anemia in pregnant women is 41.8%. Iron deficiency anemia in pregnant women increases the risk of bleeding, preeclampsia, and infection. Pregnant women who suffer from iron deficiency anemia are also risky birth a babies with low birth weight, stunting (short.) The type of this research is a Pre and Post Quasi Experimental Research with The Intervention of Nutrition Education through the Anemia Prevention Smart Book. The sample in this study were 45 pregnant women using the Simple Random Sampling technique. Paired sample t test – Knowledge test, obtained p value = 0.000 means that there is a significant difference in knowledge before and after the nutrition education is given through the anemia prevention smart book. Paired sample t-test Attitude test, obtained p value = 0.002 means there is a significant difference in attitudes before and after being given nutrition education through the smart book on anemia prevention. Paired sample t-test action, obtained p value = 0.000 means that there is a significant difference before and after the action was given nutrition education through the anemia prevention smart book.

Keywords: Nutrition; Education; Anemia; Pregnant; Women

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## INTRODUCTION

Nutrition is one of the determinants the quality of human resources. Food which usually consumed everyday must contain nutrients as we need, so to support the optimal of growth and prevent the deficiency diseases, poisoning, and also prevent the diseases that can interfere with children's lives<sup>1</sup>

Nutritional anemia is the biggest public health problem in the world, especially for women of reproductive age (WUS). According to WHO, it is reported that the highest prevalence of anemia worldwide occurs in children who have not been in school that is 47.4%, then 41.8% pregnant women, and 30.2% non-pregnant women. The prevalence of anemia in pregnant women in Africa is 57.1%, in Southeast Asia 48.2%, in Europe 25.1%, and America 24.1%<sup>2</sup>

In Indonesia, the prevalence of anemia in pregnant women is still high, which is around 63.5%. Pregnant women in the second trimester found 23 people with the percentage (74%) suffer from anemia, and 13 people with percentage (42%) suffer from iron deficiency.<sup>3</sup>

According to data from the Palembang City Health Office the prevalence of anemia in pregnant women in Palembang City reached 6.2% or around 1793 pregnant women in Palembang City experienced anemia in pregnancy.<sup>4</sup>

Indonesian government has implemented efforts to prevent anemia in pregnant women by giving a minimum of 90 blood-added tablets (TTD). However, the achievement of these goals needs to be supported by compliance with the consumption of blood-added tablets in pregnant women. Efforts that can be made to increase compliance with the consumption of blood-added tablets are by providing education.<sup>5</sup>

The healthy behavior of a person or society is influenced by knowledge and attitudes. Good knowledge and positive attitude can support the efforts of pregnant women to prevent anemia. Anemia prevention education is one of the positive efforts to increase knowledge and change attitudes, so that in the end pregnant women can make various efforts to prevent anemia.<sup>6</sup>

This research was conducted in Puskesmas Puntikayu Palembang. The selection of the location because the cases of anemia in pregnant women are still found in this area and there is no research has been conducted on the Effect of Nutrition Education through the Anemia Prevention Smart Book on Knowledge, Attitudes and Actions of Pregnant Women. The purpose of this study was to determine the effect of Education Through Smart Books on Knowledge, Attitudes and Actions of Pregnant Women to prevent an anemia.

## METHOD

The type of this research is a quasi-experimental research (Quasi Experiment) with Pre Test and Post Test designs using one group with a sample of 45 respondents. The sampling technique is Simple Random Sampling. The form of intervention provided was in the form of nutrition education through a smart book on preventing anemia for pregnant women in the Puntikayu Palembang Health Center.

Furthermore, the data was processed and then analyzed in an univariate and bivariate by using a paired t test.

### RESULTS

The results of the study were analyzed using the Univariate including the Minimum Value and Maximum Value of the Respondents' Knowledge, Minimum Value and Maximum Value of the Respondents' Attitude and Minimum Value and Maximum Value of the Respondents' Action. Beside of Univariate analysis, Bivariate analysis was also carried out to determine the effect of Nutrition Education through Smart Books on the Knowledge, Attitude and Action of respondents to prevent anemia.

Table 1. The Minimum and Maximum Values of the Respondents' Knowledge, Attitude and Action

Variable	N	Pretest value				Posttest value			
		Min	Max	Mean (x)	SD	Min	Max	Mean (x)	SD
Knowledge	45	7	13	10,51	1,456	9	14	11,71	1,121
Attitude	45	10	30	21,76	4,029	15	31	23,64	3,650
Action	45	5,0	7,0	6,0	0,739	7	9	8,0	0,674

Table 2. The Effect of Nutrition Education through Smart Books on the Knowledge, Attitude and Actions of respondents to prevent anemia.

Variable	n	Mean		Δ Deviation	SD	t	p Value
		Pretest	Post Test				
Knowledge	45	10,51	11,71	1,2	1,546	-5,206	0,000
Attitude	45	21,76	23,64	1,8	3,868	-3,276	0,002
Action	45	6,00	8,00	2,0	0,674	-19,90	0,000

Table 3. The Distribution of Knowledge by Gestational Age

Gestational Age	Knowledge Averange		Δ Deviation	Information
	Pretest	Post Test		
Trimester I	10,00	11,7	1,7	Increased
Trimester II	11,07	11,92	0,85	Increased
Trimester III	10,4	11,5	1,1	Increased

Table 4. The Distribution of Attitude by Gestational Age

Gestational Age	Attitude Average		$\Delta$ Deviation	Information
	<i>Pretest</i>	<i>Post Test</i>		
Trimester I	21,7	24,2	2,5	Increased
Trimester II	22,38	24,15	1,77	Increased
Trimester III	22,3	23,4	1,1	Increased

Table 5. The Distribution of Action by Gestational Age

Gestational Age	Action Average		$\Delta$ Deviation	Information
	<i>Pretest</i>	<i>Post Test</i>		
Trimester I	5,7	7,9	2,2	Increased
Trimester II	6,15	8,15	2,0	Increased
Trimester III	5,75	7,5	1,75	Increased

## DISCUSSION

Table 1. Minimum Value and Maximum Value of Knowledge, shows that the pre-test value obtained an average knowledge or mean in the amount of 10.51, while the post-test value obtained an average value of 11.71 with a standard deviation of knowledge in the pre-test of 1.456 and in the post test of 1.121. The Minimum and Maximum Values of Respondents' Attitudes indicate that the pre-test score obtained an average attitude or mean is 21.76, while the post-test value obtained an average value is 23.64. Meanwhile, the standard deviation of attitudes in the pre-test was 4.029 and the post-test was 3.650. While the Minimum and Maximum Values of Respondents' actions indicated that the pre-test score obtained an the average value is 6.0 or 6.0, while the post-test score is 8.0. While the standard deviation of the action on the pre test is 0.739 and the post test is 0.674.

Table 2 The Effect of Nutrition Education through the Anemia Prevention Smart Book on Respondents' Knowledge, Attitudes and Actions. The average value of knowledge of pregnant women on the pretest is 10.51, and the average value of knowledge of pregnant women on the post-test is 11.71.

In the t-test table, it shows that is the differences average between the knowledge of pregnant women on the pretest and post-test is 1.2 with a standard deviation of 1.546. From the results of the paired sample T-Test test, it shows p value = 0.000, meaning that there is a significant influence between knowledge before and after the nutrition education is given through the anemia prevention smart book. The results of this study are in line with previous studies which reported that there was a difference in knowledge before and after education of 8.06 with a P-Value of 0.000.<sup>7</sup>

The Increasing of knowledge occurs because pregnant women are encouraged to read and find out more about anemia and how to prevent it. Nutrition education is very important to improve

health. Education can change a person's behavior, lifestyle and increase motivation to improve environmental health.<sup>8</sup>

When pregnant women know and understand the consequences of anemia and how to prevent anemia, pregnant women will behave well, so there is a desire to prevent various consequences or risks of anemia in pregnancy. Such health behavior can affect the reduction of anemia in pregnant women.<sup>9</sup>

The results of a research which done by Munawaroh<sup>10</sup> reported that there was a difference in knowledge before and after being given a book pocket nutrition education with p value = 0.000. Knowledge is the result of knowing and will be obtained by someone after sensing a certain object. Supported by the results of Mardiana<sup>11</sup> research that there was an increase in the average score of knowledge after being given an intervention in the form of the drama about 1000 first days of life.

Furthermore, the results of Harsita<sup>12</sup> research, reported that there was a difference in the average of knowledge score before and after being given an intervention in the form of counseling with a p value of 0.000. The change in the average of knowledge score of respondents occurred because there was an appropriate factor that make an easier process of changing behavior which related to knowledge.

The average value of respondent's attitude before the intervention was given 21.76, and after the intervention was 23.64. The average difference between attitudes before and after the intervention was 1.8 with a standard deviation of 3.868. From the results using paired sample t - test, p value = 0.002, it can be conclude that there is a significant difference between attitudes before and after the intervention. This shows that the attitude of pregnant women before and after nutrition education has increased, the increasing of attitude probably happened due to increasing of knowledge that will influence respondents to motivate themselves for change a better attitude to prevent anemia as early as possible.

This is shows that the attitude of pregnant women before and after an education of nutrition has increased, the increasing of the attitude probably happened due to increasing of knowledge that will influence respondents to motivate themselves for change a better attitude to prevent anemia as early as possible.

Karmi<sup>13</sup> research, reported that there were differences in the attitudes of pregnant women before and after being given the intervention, the value of p = 0.000. Attitude is a person's closed response to a certain object that show person's perspective (like or dislike). A person's attitude to an object shows that person's knowledge of the object in concerned. The basic Factors that form an attitude include knowledge, personal experience, environment and other people who are important.<sup>6</sup>

The average value of the respondent's actions before the intervention was 6.00 and after the intervention was 8.00. The difference average between the respondent's actions before and after intervention was 2.0 with a standard deviation of 0.674. From the results by using paired sample t-test, p value = 0.000, it can be concluded that there is a significant difference between the average action before and after being given nutrition education through the anemia prevention smart book.

A High knowledge and good attitude affect the increasing of actions by respondents in daily life. Respondents were given nutrition education through the anemia prevention smart book, there was

an interest from the respondent to read the book which have been given and could be repeated, so the result by giving an education and reading the anemia prevention smart book is the stimulation of action on the material that has been given.

This study was in line with Elmika<sup>14</sup> that reported there was a significant increase in the post-test of pregnant women's actions by 22 and p value = 0.000. Health education with CAMIL and Leaflet media is effective to improve the actions of pregnant women.

Table 3 shows that the average value of knowledge by gestational age in the highest pretest is in the second trimester pregnancy age group, which is 11.07, as well as in the post test the average value of knowledge according to the gestational age is highest in the second trimester gestational age group, which is 11 ,93.

Table 4 shows that the highest average value of Attitude according to Gestational Age in the pretest was in the second trimester group of gestational age, which is 22.38, while in the post-test the average value of attitude according to gestational age was highest in the first trimester gestational age group, which is 24, 2.

Table 5 shows that the average value of Actions according to Gestational Age in the highest pretest is in the second trimester pregnancy age group, which is 6.15, as well as in the Post Test the average value of actions according to gestational age is highest in the second trimester gestational age group, which is 8 ,15.

The nutritional fulfillment in pregnant women in the first trimester, during this trimester the fetus is having a formation and a development so the nutritional needs of the mother must be fulfilled. In the first week to the fourth week (1month fetal development), pregnant women must consume foods that contain high calories and protein, the number of calories which must be consumed is at least 2000 kcal per day.

The nutritional fulfillment for pregnant women in the second trimester, when a pregnant women enter this period, pregnant women and their fetuses will experience some various rapid progress and developments. Therefore, during this period, nutritional fulfillment must increase compared to the previous trimester.

The nutritional fulfillment in pregnant women in the third trimester, this trimester is the final trimester of pregnancy. When entering this period of pregnancy, pregnant women needs a lot of nutrients to prepare for childbirth. Therefore, the fulfillment of the nutrition in this period should not be ruled out. A pregnant women have to maintain the quality and quantity of food that they will consume, An additional calories are also needed in the last 20 weeks, the number of additional calories needed is as much as 300 calories per day.

## CONCLUSION AND SUGGESTION

There is an effect of Nutrition Education by the Anemia Prevention Smart Book on Knowledge, Attitudes and Actions of Pregnant Women to Prevent Anemia.

Pregnant women should increase their knowledge by a smart book that have been given and take part in the Maternity Class activities carried out by the Punti Kayu Palembang Health Center.

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