THE RELATIONSHIP OF KNOWLEDGE WITH ANEMIA PREVENTION ATTITUDES IN PREGNANT WOMEN AT KERENG BANGKIRAI PUBLIC HEALTH CENTRE

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ABSTRACT

Anemia is a disorder characterized by low hemoglobin levels in the blood. If it affects pregnant women, it can result in severe bleeding and even death during childbirth. In Indonesia, the number of pregnant women dying from anemia increased by 62.6% in 2020–2021. According to midwives at Palangka Raya City's Kereng Bangkirai Public Health Center, 86 pregnant women suffered from anemia in 2021. The purpose of this study to determine the relationship between knowledge and attitude to prevent anemia in pregnant women. This study used a quantitative correlational method with cross-sectional. The sample of this study is 50 first-trimester pregnant women who are registered at the Kereng Bangkirai Public Health Center in Palangka Raya City with accidental sampling as the sampling method. The instrument of this study uses a questionnaire on the knowledge and attitude to prevent anemia among pregnant women. The research was conducted in February-April 2023. The results showed that 25 (50%) pregnant women had good knowledge, which is 20 (20%) pregnant women had a positive anemia prevention attitude, and 5 (10%) pregnant women had a negative anemia prevention attitude. There was a relationship between knowledge and attitudes toward preventing anemia, as evidenced by the chi-square test results (p=0.047). A good level of knowledge can produce a positive attitude toward anemia prevention in pregnant women.

Keywords: Anemia, Attitude, Pregnancy, Pregnant Women

INTRODUCTION

Pregnancy is a normal physiological process that occurs in women. During the pregnancy process, pregnant women will experience several changes in body functions, such as physical, hematological, renal, cardiovascular, respiratory, and endocrine changes (Gangakhedkar & Kulkarni, 2021). So that the pregnancy process is well monitored, it is necessary to do early detection through antenatal check-ups at least six times during pregnancy.

One of the global health problems is the rate of maternal death. During or during pregnancy and childbirth, 295.000 women died in 2017, according to World Health Organization data, and 75% of these deaths were due to complications from severe bleeding, high blood pressure during pregnancy, unsafe abortion, and the presence of

infectious infections such as malaria, or chronic conditions such as heart disease or diabetes (Say et al., 2014). These complications are triggered by factors such as poverty, long distances to health facilities, lack of knowledge, poor quality services, and inappropriate cultural beliefs and practices. This has prompted countries to come together and set targets to accelerate the reduction of maternal mortality by 2030, which is included in the context of the Sustainable Development Goals (SDGs). The third SDG includes a target to "reduce global MMR to less than 70 per 100.000 births, with no country having a maternal mortality rate more than twice the global average" (WHO, 2019).

Anemia is a blood condition that causes a decrease in hemoglobin. pregnant women who have anemia when hemoglobin levels in the I and III trimesters <11 g/dL and in trimester II <10.5 g/dL (Rizki et al., 2018). Anemia is the cause of bleeding during pregnancy, where bleeding events occupy the second position as a cause of maternal death after COVID-19 in cases of maternal mortality (Kemenkes RI., 2022). Pregnant women who experience anemia due to bleeding can be exposed to detrimental risks (Turawa et al., 2021). The adverse impact caused by anemia in pregnant women is a risk of giving birth to premature babies, anemia in babies, low birth weight babies, and bleeding during delivery, making it more difficult to fight infections. One of the reasons is that you do not consume iron tablets (Pohan, 2022).

The high incidence of anemia is a negative impact of the lack of knowledge and attitudes of mothers towards anemia that occurs during pregnancy. Knowledge is a key factor in how one develops their attitude. Pregnant women understand and know the consequences of anemia as well. With prevention, the mother will have good health behavior and be expected to avoid the risk of anemia during pregnancy (Ibrahim et al., 2014).

The prevalence of anemia in pregnant women varies greatly across regions in Indonesia and the world. In 2019, the global prevalence of anemia was 36.5% (WHO, 2021), with the biggest contributing factor being iron deficiency. The World Health Organization (WHO) reports that among several nations, Africa has the highest frequency of anemia in pregnancy (57%), followed by Southeast Asia (48%) (Turawa et al., 2021).

Based on Riskesdas data, in Indonesia, the prevalence of anemia in pregnant women experienced an increase, from 37.1% in 2013 to 48.9% in 2018 (Kemenkes RI, 2019). The number of maternal deaths recorded from family health programs at the Ministry of Health experienced an increase every year. In 2021, there will be 7,389 cases of maternal mortality in Indonesia. This number shows an increase compared to 2020, which amounted to 4,627 deaths (Kemenkes RI., 2022).

According to data from the Central Kalimantan Provincial Health Office in 2016, the incidence of anemia was 1.017 people, or around 3.10% of the data visits of pregnant women (Cristina et al., 2018) . Based on the register book records in the MCH room, there was an increase in the number of pregnant women who experienced anemia from 2014 to 2016 in one of the Palangkaraya health centers. In 2014, all visits of pregnant women found 28.35% cases of pregnant women with anemia in 2015, it increased to 28.6% and in the January period until February 2016, it again increased to 28.8% (Sianipar et al., 2016). This shows

that cases of anemia in Central Kalimantan Province are still high and increasing every year.

Based on data from midwives interviewed by the author in one public health center in Palangkaraya, midwives said that in 2021, out of 253 mothers, pregnant women who do hemoglobin tests will have cases of anemia of around 33.9%, including 57 pregnant women suffering from mild anemia, 25 people with moderate anemia, and 4 people with severe anemia. In 2022, from January to August, 153 pregnant women who did a hemoglobin test were found to have approx. 26% of pregnant women suffering from anemia, consisting of 26 people with mild anemia and 14 with moderate anemia. The number of pregnant women suffering from anemia in 2022 has decreased; however, this is still beyond the expectations of the public health center, namely, no more pregnant women suffering from anemia. Therefore, this research was conducted with the aim of determining the relationship of knowledge with anemia prevention attitudes in pregnant women at Kereng Bangkirai Public Health Centre.

LITERATURE REVIEW

Knowledge comes from knowing, and it happens when someone experiences the act of perceiving an object. The five senses of human hearing, taste, smell, touch, and vision are all involved in sensing. A person who can identify and comprehend something that is recently discovered is said to process knowledge(Notoatmodjo, 2014).

Attitude is a response that cannot be directly seen by a person to an object or stimulus, where opinion and emotional factors are involved (Notoatmodjo, 2014). A preventive attitude is an attitude that arises after a person knows, is interested in, considers, and is convinced to make prevention efforts (Notoatmodjo, 2003).

Anemia causes the overall blood cell to count to decrease, which can be measured through hemoglobin (Hb), hematocrit (Hct), and red blood cell (RBC) examinations, which are usually lower than normal values (Di Renzo et al., 2015). Anemia in pregnant women will have an adverse impact on pregnant women and their babies, so prevention is needed (Noroyono et al., 2021).

Prevention is a process or action as well as ways and actions for preventing or restraining something from happening (Rosidin et al., 2021). In a study by Adznam et al., 79% of mothers had good knowledge about anemia, and 82.1% of mothers had a positive attitude toward preventing anemia. This was because mothers had received information or knowledge about anemia (Adznam et al., 2018). Anggreani's study found that 59.3% of mothers had poor knowledge about anemia, and 83.4% of mothers had a negative attitude toward preventing anemia (Muchtar & Anggraeni, 2021). Fauziah (2017) found in the study that although 60% of mothers had sufficient knowledge about anemia, 57.1% of mothers had a positive attitude towards preventing anemia (Fauziah, 2017).

Lack of knowledge can affect the attitude of pregnant women in preparation for the pregnancy process, but it is also found that there are pregnant women who are less knowledgeable but have a positive attitude toward preventing anemia, and vice versa, mothers with good knowledge about anemia but a negative attitude toward preventing anemia. Therefore, researchers are interested in

knowing whether there is a relationship between knowledge with anemia prevention attitudes in pregnant women.

METHOD

In this study, a cross-sectional descriptive study is used. Knowledge was the independent variable, while anemia attitudes were the dependent variable. This study aims to ascertain the association between knowledge and attitude of anemia in pregnant women. This research has received ethical approval from The Ethics Committee of the Faculty of Medicine, Pelita Harapan University with number 089/K-LKJ/ETIK/II/2023. The sample of this study was 50 respondents, selected using accidental sampling technique. The respondents of this research were 50 of pregnant women in trimester I who registered at the health center in Kereng Bangkirai City, Palangkaraya, with inclusion criteria being respondents the first-trimester pregnant women who are willing and come to the public health center to carry out prenatal checks in Kereng Bangkirai public health center, Palangkaraya in the period of research that is February–March 2023 and the exclusion criteria in this study were first-trimester pregnant women who come to public health centers only for treatment.

This instrument was adopted from (Nasution, 2019) and (Juniliyanti, 2017) which have been tested for validity and reliability. Anemia knowledge questionnaire has r count is greater than the r table (r ≥ 0.361) and the value reliability is Cronbach's Alpha 0.977, whereas attitude of anemia prevention questionnaire have (r ≥ 0.3) and the value reliability is Cronbach's Alpha 0.894. The research was conducted in Kereng Bangkirai City, Palangkaraya in Central Kalimantan. This research used two types of data analysis, namely univariate and bivariate analysis. Univariate was used to determine the level of anemia knowledge and the level of attitude of anemia prevention. Analysis to determine the relationship between the two variables' knowledge and attitude of anemia prevention used Pearson Chi-square.

RESULTS AND DISCUSSION

Table 1. Distribution of Respondents Characteristics (n=50)

Ages	**Frequency**	**Percentage (%)**
<20 years	2	4
20-35 years	41	82
>35 years	7	14
Education	**Frequency**	**Percentage (%)**
No school	4	8
Elementary	4	8
Middle school	6	12
High school	26	52
Diploma	2	4
Bachelor	7	14
Magister	1	2
Doctoral	0	0
Family income	**Frequency**	**Percentage (%)**

<1.500.000	7	14
1.500.000 – 2.500.000	15	30
>2.500.000	28	56
Monthly routine control	**Frequency**	**Percentage (%)**
Yes	50	100
No	0	0
Source of Information	**Frequency**	**Percentage (%)**
Social media	15	30
Health worker	33	66
Witch doctor	0	0
Print media/newspaper	2	4
Cadre	0	0
Gravida	**Frequency**	**Percentage (%)**
1st pregnancy	21	42
2nd pregnancy	10	20
3rd pregnancy	14	26
4th pregnancy	4	8
5th pregnancy	1	2
Mother's job	**Frequency**	**Percentage (%)**
Housewives	38	76
Government employees	1	2
Private employees	6	12
Trader	1	2
Teacher	2	4
Village Apparatus	1	2
Contract employees	1	2
Husband's job	**Frequency**	**Percentage (%)**
Police	0	0
Farmer	1	2
Government employees	3	6
Laborer	5	10
Private employees	35	70
Trader	3	6
Furniture worker	1	2
Builder	1	2
Honor worker	1	2
Gestational age	**Frequency**	**Percentage (%)**
Fifth weeks	2	4
Sixt weeks	4	8
Seventh weeks	2	4
Eight weeks	5	10
Nine weeks	1	2
Ten weeks	12	24
Eleven weeks	5	10
Twelve weeks	19	38

Table 1 shows that the majority of 41 (82%) respondents have an age range of 20–35 years, with 26 (52%) respondents having the last education of senior high school. In this study, 28 respondents (56%) earned a monthly family income of >2.500,000, with the result that 36

(76%) respondents did not work or were housewives. It was found that the highest source of information regarding anemia was obtained by pregnant women through health workers, namely 33 (66%) respondents. Overall, pregnant women have good awareness to carry out monthly checks, and as many as 29 (42%) respondents experienced their first pregnancy.

Table 2. Distribution of Respondents' Knowledge about anemia prevention (n=50)

Category	Frequency	Percentage (%)
Good	25	50
Enough	17	34
Poor	8	16

Table 2 shows that 25 (50%) of respondents have a good level of knowledge, 17 (34%) have a enough level of knowledge and 8 (16%) respondents have a poor level of knowledge about anemia prevention.

Table 3. Distribution of the respondents' attitudes prevention to anemia (n=50)

Category	Frequency	Percentage (%)
Positive	32	64
Negative	28	36

Table 3 shows that 32 (64%) of respondents have a positive attitude prevention of anemia and 28 (36%) have a negative attitude prevention of anemia.

Table 4. Analysis of The Relationship between Knowledge with Attitudes Prevention to Anemia (n=50)

Knowledge	Attitude Prevention to Anemia						*p-value*
	Positive		Negative		Total		
	n	%	n	%	n	%	
Good	20	40	5	10	25	50	
Fair	9	18	8	16	17	34	*0.047*
Poor	3	6	5	10	8	16	
Total	32	64	18	36	50		

Table 4 show that 20 (40%) of respondents have a good knowledge and positive attitude prevention of anemia and only 5 (10%) respondents have a negative attitude prevention of anemia, while 17 (34%) respondents have enough knowledge, which 9 (18%) respondents have positive attitude prevention for anemia and 8 (16%) respondents have negative attitude prevention of anemia. Out of 8 (16%) respondents with poor level of knowledge, 8 (16%) respondents have negative attitudes and only 3 (6%) have a positive attitude towards anemia prevention. There is a relationship between knowledge and

attitudes prevention of anemia with p=0.047, which means the results are significant.

Table 5. Distribution of Respondents Based on Knowledge Indicators

Knowledge Indicator	Respondent answer	
	True (%)	False (%)
Anemia definition	82	18
Sign and symptoms of anemia	75	25
Prevention of anemia	73.3	26.7
Complication of anemia	68	32

Table 5 shows that 82% respondents can answer correctly on the question of the definition of anemia and 32% of respondent, more incorrectly answered on the complications of anemia questions.

DISCUSSION

The majority of respondents were 20–35 years (82%) This research is in line with Rohmatika et al and Indra et al research, where 90% and 82.6% of pregnant women are in the age range of 20–35 years, which is a healthy and safe age for pregnancy, but in Gusnidarsih's research found that 58.6% of pregnant women were aged <20 and >35 years, which is an age susceptible to anemia due to decreased power body resistance (Gusnidarsih, 2020).

The study found that 52% of respondents graduated from high school. Education level will affect the level of knowledge because the ability to understand and receive something is determined by the education one has. Education has a significant impact on behavior and is related to pregnant women's health in terms of preventing anemia (Sasono et al., 2021). The results of this study are in line with the research conducted by Chandra et al that 63.8% of respondents graduated from high school. In contrast to research conducted by Edison, show that 90.3% of respondents who experienced anemia is pregnant women who graduated from elementary and junior high school. The low education of pregnant women will have an impact on knowledge and awareness of obtaining health services as well as the prevention of anemia (Fuada et al., 2019).

In this research, 56% of pregnant women have a family income of >2.500.000. This is in line with Herliawati et al research, whereby sufficient income will influence the knowledge and attitudes of pregnant women toward meeting their needs. Good economic conditions greatly affect pregnant women because capable women provide nutritious and appropriate food to prevent anemia, but low economic in the family can prevent mothers from carrying out routine pregnancy checks (Afriyanti, 2020).

The result of this study found that, 78% respondents are housewives, and this is in line with Kraemer et al, where 93% of pregnant women are housewives and research by Hariati et al,also found, that 58.2% of pregnant women who came to the health public center were housewives. Different from the results of research conducted by

Bakhtiar et al, 75% of pregnant women who came to the health public center were pregnant women who worked. Pregnant women as housewives are more obedient in control routine and consuming Fe tablets compared to pregnant women who work because they have many opportunities to come and check out compared to working mothers (Wulandini & Triska, 2020).

In this study, found that all of respondents had a level of adherence to controls during pregnancy. The more routinely pregnant women carry out controls, the more their knowledge about the occurrence of anemia will increase (Akhtar et al., 2018). Implementation of routine controls will make pregnant women aware that the content is getting better. Of course, the attitude of pregnant women toward preventing anemia influences this, but this is not in line with research conducted by Nurmasari & Sumarmi where 80% of pregnant women suffering from anemia, because practice irregular pregnancy control. During the pregnancy process, pregnant women are required to carry out examinations at least six times during pregnancy (Permenkes RI, 2021).

The most common source of information for respondents, 66%, came from health workers. This is in line with Temitope et al research, where 53.21% of respondents got information about anemia from health workers. The health workers play an important role in increasing the knowledge and attitude of pregnant women about preventing anemia (Sukmawati et al., 2019), but contrary, in Hidayani et al research found, that all pregnant women experienced an increase knowledge about early detection of anemia after being given education through WhatsApp (Hidayani et al., 2022).

The results of this study found 42% of respondents are experiencing their first pregnancy; this is in line with the research of Siantarin et al, which shows that many respondents experienced their first pregnancy, namely 64.1% of respondents. However, the results of this study are different from Bakhtiar et al, research, that found 62.5% of respondents were experiencing their second and third pregnancies. Mothers who had just experienced their first pregnancy paid more attention to their health and were diligent in controlling to prevent anemia, while mothers who were pregnant with their second and third child considered pregnancy to be normal because they had experienced a previous pregnancy (Rizkah & Mahmudiono, 2017).

The result of this study found 70% of the husband of pregnant mother work as private employees, but Cahyanti et al in her research found that 70% of husbands of pregnant women had jobs as entrepreneurs. The level of income that husbands get from their jobs tends to be able to meet the nutritional needs of pregnant women, so that income is a determining factor for the adequacy of nutritional intake and the quality of pregnancy for pregnant women (Ngurah Rai et al., 2016).

Table 2 shows that based on the level of knowledge, 50% of respondents have good knowledge about anemia. This is in line with Chandra et al research that found, 70.7% of pregnant women in Jambi City had good knowledge. Age will greatly affect a person's comprehension (Wulandini & Triska, 2020) and the higher education level of pregnant women, the more rational they will be in acting and looking for causes and solutions. However, the results of this study are not in line with Herawati &

Rusmiati research, that found age and education level are not related to pregnant women's knowledge of anemia, pregnant women aged 20–35 years can get anemia if they are not supported by good nutrition (Herawati & Rusmiati, 2018).

In this study, as shown in table 3 shows, 64% of respondents have positive attitude prevention of anemia. This is in line with Ahamed et al, that found 66.2% of respondents had a positive anemia prevention attitude because mothers were diligent in controlling and taking iron tablets; this was of course influenced by age, income, and the history of anemia that pregnant women had before. This study is not in line with Ghimire & Pandey research, which found that 66% of pregnant women have a negative attitude toward preventing anemia by not taking iron tablets regularly during pregnancy. In their research, Wulandini & Triska found that pregnant women who do not work have a more positive attitude compared to pregnant women who work because they have more time and opportunities to check their pregnancies and take Fe tablets (Wulandini & Triska, 2020), and Table 5 shows that pregnant women are more knowledgeable in the definition, signs, and symptoms of anemia, as well as in the prevention of anemia, but pregnant women in this study still need information and knowledge about the complications of anemia, which proved that only 68% answered correctly.

The result in table 4 shows there is relationship between knowledge and attitude prevention of anemia with a *p-value* 0.047, which means there is a relationship between anemia knowledge and attitude prevention of anemia. The results are supported by Muchtar & Anggraeni's research, found that 83.3% of pregnant women have good level of anemia knowledge and 92.6% of pregnant women have a positive attitude towards this prevention, influenced by their level of education and age, because it can affect their perception and mindset. Factors of age, education, monthly income, husband and mother's work, source of information, routine control, gravida, and gestational age will affect pregnant women knowledge, and that knowledge will influence a pregnant woman to act and have attitude to do prevention from anemia during pregnancy. Good knowledge will also produce good decisions.

CONCLUSION AND SUGGESTION

The results of this study indicate that there is a significant relationship between knowledge and attitude prevention of anemia at Kereng Bangkirai public health center, Palangkaraya City. Knowledge and attitude prevention of anemia is very important for preventing death in pregnant women and fetuses. Good knowledge and positif attitude prevention will make pregnant women aware about anemia. A good level of knowledge can produce a positive attitude toward anemia prevention in pregnant women. In the nursing field, nurses will continually provide education about anemia so that maternal mortality can be reduced. Suggestion for further research are to examine other factors that influence the attitude toward preventing anemia in pregnant women.

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