# Level of Knowledge of Pregnant Women About Anemia in the Working Area of the Pangkalan Baru Community Health Center, Bangka Belitung Islands

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A R T I C L E I N F O

A B S T R A C T

The purpose of this researchto determine the level of knowledge and characteristics of pregnant women regarding anemia in the Pangkalan Baru Community Health Center Working Area. This type of research is descriptive with a cross sectional approach. The total population was 34 pregnant women in the working area of the Pangkalan Baru community health center, taken using total sampling technique. The data collection method uses guided interviews. The research results showed that 61.8% of respondents had sufficient knowledge, 85.3% of respondents' age range was 20-35 years, 50% of respondents had a high school education, 94% of respondents' parity was <3, and 97.1% of respondents were housewives. The conclusion is that the level of knowledge of pregnant women about anemia in the work area of the Pangkalan Baru Community Health Center is in the sufficient category, namely 21 respondents (61.8%).

**INTRODUCTION**

The high incidence of maternal mortality in Indonesia still really needs attention. In 2019 the maternal mortality rate in Indonesia was 305/100,000 live births with 28% caused by bleeding. One of the causes of bleeding is anemia in pregnancy. The Sustainable Development Goals (SDGs) target for 2030 is to reduce MMR and IMR. In 2021 the number of maternal deaths will be 7,389 deaths. This figure has increased from 2020, namely 4,627 deaths or an estimated 166.4 per 100,000 KH. The highest causes of AKI in 2021 are Covid-19 (40.35%), bleeding (17.99%), and hypertension in pregnancy (14.57%) (RI Ministry of Health, 2022). Anemia is one of the factors that can cause death in pregnant women. The World Health Organization (WHO) reports that the prevalence of iron deficiency in pregnant women ranges from 35-75%, and this figure tends to increase as gestational age increases. The results of Basic Health Research (Riskesdas) in 2018 noted that in Indonesia, around 48.9% of pregnant women experienced anemia, with the incidence rate of anemia in the 15-24 year age group reaching 84.6%. Anemia is a global health problem that can contribute to high morbidity and mortality rates, occurring in both developed and developing countries. In pregnancy, anemia is considered a potential danger to the mother and fetus (RI Ministry of Health, 2022).

Iron insufficiency in pregnant women can cause anemia. In pregnant women, anemia can increase the risk of complications during pregnancy and childbirth, including the risk of maternal death, premature birth rates, and low birth weight babies. Iron supplementation during pregnancy has been shown to be effective in preventing iron deficiency, as a lack of iron can increase the risk of complications during delivery and can increase the risk of babies being born prematurely and with low birth weight. Fetal growth is very dependent on the availability of blood from the mother, but if the mother is anemic, this can result in poor fetal growth, risk of premature birth, and low birth weight. In addition, bleeding before and after delivery in women who are anemic can increase the risk of blood loss that is difficult to tolerate (Wibowo et al., 2021).

Knowledge plays a crucial role in the well-being of pregnant women, where a good understanding of the consequences of anemia and methods of preventing it enable pregnant women to adopt adequate health behavior. With this understanding, it is hoped that pregnant women can avoid various risks and consequences that can arise due to anemia during pregnancy. The Ministry of Health has made various efforts, including regularly giving iron tablets to pregnant women, as a step to overcome the problem of anemia(RI Ministry of Health, 2022). The importance of knowledge as a driving factor in health behavior is becoming apparent. If pregnant women have a good understanding of the consequences of anemia and methods of preventing it, it is hoped that they will adopt healthy living habits, in the hope of reducing the risk and impact of anemia during pregnancy (Suwirnawati et al., 2022).

Such health behavior plays an important role in reducing the incidence of anemia in pregnant women. Lack of knowledge about anemia can impact health behavior, especially when a woman is pregnant. This can result in less than optimal efforts by pregnant women to prevent anemia during pregnancy. Another research conducted by Delviana Devi, et al, entitled "Overview of Knowledge and Attitudes of Pregnant Women in Preventing Anemia in Pregnancy in Indonesia in Manado, North Sulawesi in 2021," shows that the majority of pregnant women in several regions in Indonesia have sufficient knowledge about anemia. and ways to prevent it, such as adherence to taking iron tablets. The majority of them are influenced by low socio-economic factors, such as the educational level of pregnant women, which can limit their access to information about anemia. Nevertheless, the majority of pregnant women in several regions in Indonesia have shown a positive attitude towards preventing anemia during pregnancy (Devi et al., 2021).

Anemia in pregnancy can have a negative impact, especially during pregnancy, childbirth and the postpartum period. The impact of anemia on pregnancy can include the risk of miscarriage, premature labor, premature rupture of membranes, and impaired fetal growth. During labor, anemia can result in impaired uterine contractions and pushing strength, labor that lasts a long time in the first stage, labor that is tiring and requires operative intervention in the second stage, retained placenta, and postpartum bleeding due to uterine atony in the third stage. During the postpartum period, the impact of anemia can involve uterine subinvolution, postpartum bleeding, puerperium infection, reduced breast milk production, anemia in the postpartum phase, and time-consuming perineal wound healing (Manuaba, 2010).

This research was conducted to determine the level of knowledge of pregnant women about anemia in the work area of the Pangkalan Baru Community Health Center. The results of this research have the potential to be applied in developing and expanding understanding of pregnant women's knowledge regarding anemia during pregnancy. The information obtained can be the basis for designing more effective educational strategies and health interventions to increase awareness and understanding of pregnant women regarding anemia during pregnancy. Thus, the results of this research have contribution value to efforts to prevent and treat anemia in pregnant women.

## LITERATURE REVIEW
### Pregnancy Anemia

Anemia is a condition in which the number of erythrocytes is insufficient to deliver oxygen to the tissues. Anemia occurs when the hemoglobin (Hb), hematocrit (Ht), or number of erythrocytes per cubic millimeter are below normal limits. Anemia is defined as a condition in which the hemoglobin level in the blood falls below the normal limit, namely less than 13.5 g/dL in men, less than 11.5 g/dL in women, and less than 11.0 g/dL in children. -child (Fatmawati et al., 2023).

Anemia of pregnancy is a condition where a pregnant woman has a hemoglobin level below 11 g/dL during the first and third trimesters, or a hemoglobin level below 10.5 g/dL during the second trimester, and less than 10 g/dL after delivery (Fatmawati et al., 2023). Anemia in pregnancy can be divided into four types, namely Iron Deficiency anemia (around 62.3%), which is caused by a lack of iron in the blood; Megaloblastic anemia, which occurs due to a lack of folic acid and vitamin B12; Hyploplastic anemia and Aplastic anemia as much as 8%, which arise due to a lack of ability of the spinal cord to produce new cells; and Hemolytic anemia as much as 0.7%, which is caused by the destruction of red blood cells faster than their formation. One classification of anemia in pregnancy is Iron Deficiency (Fatmawati et al., 2023). Iron deficiency anemia is an anemia condition caused by a lack of iron, so that the process of forming red blood cells (erythrocytes) and other functions in the body are disrupted. Anemia not only affects the mother's health, but can also have an impact on the baby being born. Babies born to mothers who have iron deficiency anemia may have limited iron reserves. This condition can cause impaired cognitive function when you reach adolescence and adulthood. Anemia is a public health problem because it is associated with increased levels of morbidity and mortality during childbirth (Wahyuningsih, 2020).

### Etiology

Factors causing anemia can be classified into direct and indirect causes. Direct causes occur if there is a lack of iron in food (low availability of iron in foodstuffs, less than optimal feeding practices, and low socio-economic conditions), low iron absorption (due to less diverse food composition and the presence of iron absorption inhibitors), as well as increased iron requirements (especially during pregnancy and breastfeeding) (Wahyuningsih, 2020). During pregnancy, there are several situations that can increase the risk of anemia, including inadequate nutritional intake, gestational diabetes, gemelli, teenage pregnancy, and inflammation and infection in pregnancy.

**Pathophysiology**

Hemoglobin (Hb) is a protein found in red blood cells and plays a role in transporting oxygen from the lungs to the rest of the body. Hemoglobin is also responsible for carrying carbon dioxide back to the lungs for removal from the body. During pregnancy, there is an increase of approximately 30-40% in blood plasma volume, resulting in blood thinning or hemodilution. This condition can cause a decrease in Hb levels, which in turn can potentially cause miscarriage, stillbirth, low birth weight babies, bleeding before and during labor, and increase the risk of death for the mother (Manuaba, 2010). During pregnancy, there is an increase in plasma volume which results in hemodilution or dilution of blood cells, causing a decrease in hemoglobin levels from 15 gr/dl to 12.5 gr/dl. In around 6% of pregnant women, hemoglobin levels can fall below 11 gr/dl. The need for iron (Fe) during the first trimester is relatively low, around 0.8 mg per day, but increases significantly during the second and third trimesters to around 6.3 mg per day. This increase occurs because there is a gradual increase in blood volume starting from the 6th to 8th week of pregnancy, reaching its peak at the 32nd to 34th week, and experiencing small changes after that week (Damayanti et al., 2020).

**Signs and Symptoms**

Signs and symptoms of anemia include rapid fatigue, dizziness, a tendency to faint easily, malnutrition, frequent dizziness, blurred vision, malaise, sores on the tongue, decreased appetite, loss of concentration, and shortness of breath. If a mother is not aware of the symptoms and signs of anemia, the consequences can have an impact on the pregnancy, such as the risk of abortion, disruption of contractions during labor, as well as problems with placental retention and uterine subinvolution after delivery (Wahyuningsih, 2020).

The signs and symptoms detected in pregnant women with iron deficiency are similar to the symptoms of anemia in general, which are caused by a decrease in oxygen transport to the tissues. In the early stages, sufferers will experience low tolerance for physical activity, shortness of breath when doing light activities, and feel tired easily. Symptoms of anemia can be divided into acute and chronic. Acute anemia can cause symptoms such as sudden shortness of breath, dizziness, and sudden fatigue. In chronic anemia, such as in the case of iron deficiency, the symptoms appear gradually and are only noticed by the sufferer when the number of erythrocytes is very low (Wibowo et al., 2021).

Anemia syndrome includes various symptoms such as weakness, lethargy, fatigue, pale skin, dim vision, cold sensation in the feet, and difficulty breathing. In pregnant women, symptoms of anemia involve rapid fatigue, weakness, dizziness, decreased appetite, blurred vision, decreased concentration, shortness of breath, pale skin, cold feet and hands, and nausea that is more intense in early pregnancy. Signs of anemia in pregnant women include increased heart rate, faster breathing, dizziness, fatigue, pale skin, and nausea. Symptoms of anemia generally become more pronounced (symptomatic anemia) when the hemoglobin level is less than 7 g/dL (Fatmawati et al., 2023).

**Supporting investigation**

Anemia screening examinations in pregnancy are recommended during the first trimester, at 24–28 weeks of age, and within 24–48 hours after delivery (according to indications). To diagnose iron deficiency anemia (IDA), the following examination parameters can be performed:(Wibowo et al., 2021)

1. Hemoglobin concentration (Hb)
   Hemoglobin is a protein in the blood that can represent iron levels in circulation. WHO classifies the severity of anemia as follows:
   a. Mild: Hb level < 11 mg/dl
   b. Moderate: Hb level < 10 mg/dl
   c. Weight: Hb level < 7 mg/dl

2. Hematocrit level (Ht)
   Hematocrit levels <33% indicate anemia.

3. Erythrocyte Count
   Anemia is characterized by a decrease in the number of erythrocytes accompanied by reduced hemoglobin levels or changes in erythrocyte morphology. In pregnant women, the number of erythrocytes < 3.42 x 106/mm3 is called anemia.

4. Mean Corpuscular Volume (MCV) and Mean Corpuscular Hemoglobin (MCH)
   In iron deficiency anemia, there is a decrease in the MCV value < 80 fl and MCH < 26 pg, and the peripheral blood smear shows hypochromic microcytic erythrocytes.

5. Red-cell Distribution Width (RDW) RDW is a routine examination because it is included in the Complete Peripheral Blood (DPL) examination. Studies show that RDW values >14.5% confirm the diagnosis of iron deficiency anemia with a sensitivity of 43.8% and a specificity of 73.7%.

6. Reticulocytes
   Reticulocytes can be used to assess bone marrow response to anemia. A reticulocyte production index (RPI) value of <2% is associated with hypoproliferative anemia and erythrocyte maturation disorders, such as iron deficiency anemia.

7. Reticulocyte Hemoglobin Content (Ret-He/CHr)
   Ret-He provides information regarding the patient's response to therapy. Using a cutoff of <27.2 pg, Ret-He can detect iron deficiency with a sensitivity of 93.3%.

8. Ferritin
   Ferritin is a protein containing iron, and describes the total iron stored in the body. Serum ferritin levels <15 ug/L are used as a benchmark diagnosis of iron deficiency.

9. Serum Iron (SI) and Total Iron Binding Capacity (TIBC)
   Normal TIBC levels are between 300–350 mg/dL (increasing to 300–400 mg/dL in pregnancy). Serum iron less than 60 mg/dL, or TIBC more than 400 mg/dL indicates iron deficiency anemia in pregnancy.

10. Receptor Transferrin/solubleTransferrin Receptor (sTfR) The sensitivity of sTfR in detecting iron deficiency anemia is 86% with a specificity of 75%.
11. Transferrin Saturation (TSAT)
TSAT <20% is a sign of chronic iron deficiency in pregnancy which occurs due to the large amount of iron released from circulating transferrin to maintain erythropoiesis.
12. Microcytic/hypochromic ratio (MCV/MCH)
An MCV/MCH ratio >0.9 is associated with beta-thalassemia trait, while an MCV/MCH ratio <0.9 is associated with iron deficiency.
13. Hepcidin

**Diagnosis**

Determining the severity of anemia and testing for iron deficiency can be done through laboratory tests. Routine blood tests such as measuring hemoglobin (Hb), hematocrit (Ht), red blood cell (RBC) count, red blood cell shape, and reticulocyte count are laboratory examination methods commonly used to determine the presence of anemia. In addition, iron deficiency testing can be done by examining serum ferritin, transferrin saturation, and erythrocyte protoporphyrin. From a clinical perspective, the diagnosis of anemia in Indonesia is generally made based on laboratory results, namely hemoglobin levels < 10 g/dl, hematolrit levels < 30 g/dl, and erythrocytes < 2.8 million/mm3 (Astuti & Ertiana, 2018).

Criteria for anemia according to WHO include: (Astuti & Ertiana, 2018)
1. Adult males with Hb levels <13 g/dl
2. Non-pregnant adult women with Hb levels <12 g/dl
3. Pregnant women with Hb levels <11 g/dl
4. Children aged 6-14 years with Hb levels <12 g/dl
5. Children aged 6 months - 6 years with Hb levels <11 g/dl

**Prevention and Management**

Anemia in pregnant women needs to be detected so that it can be treated early. Recognition and treatment of anemia in pregnant women can be done in basic health services, including: (Wibowo et al., 2021)
1. Carry out a clinical diagnosis and refer for laboratory examination to a more comprehensive health facility.
2. Providing oral treatment to pregnant women (with 90 mg iron tablets/day).
3. Providing nutritional education to pregnant and breastfeeding mothers.
4. Identifychronic diseases such as malaria and tuberculosis and their treatment.

The need for iron (Fe) during the first trimester is relatively low, around 0.8 mg per day, but increases significantly during the second and third trimesters to around 6.3 mg per day. This increase is caused by a progressive increase in blood volume during pregnancy, starting from the 6th to 8th week, reaching a peak at the 32nd to 34th week, with minimal changes after that week. During pregnancy, the total iron requirement is estimated to be around 1000 mg. A total of 500 mg is needed to increase red blood cell mass, 300 mg for transportation to the fetus, and another 200 mg to replace fluids lost from the body. Although a certain amount of iron is absorbed from food and body reserves, this amount is usually not sufficient for pregnant women's needs, so an increase in iron intake is needed to help restore hemoglobin levels (Rizki et al., 2017). Giving oral iron supplements can reduce the risk of anemia in pregnant women until the pregnancy reaches the specified time. Recommendations for iron and folic acid supplementation apply to all pregnant women worldwide. The supplementation dose recommended by WHO for pregnant women is 60 mg of elemental iron for a minimum of 90 days during pregnancy and is recommended to be continued for up to 3 months after giving birth. This recommendation is based on the high prevalence of anemia in pregnancy in Indonesia, which reaches more than 40%, namely around 48.9%. Assessment of ferritin levels in early pregnancy can provide useful information for determining the required supplementation dose (Wibowo et al., 2021).

**METHODOLOGY**

Provide clear and concise versions of your methods of conducting research, population and samples, and data analysis tools.

**RESEARCH RESULT**

This research uses a descriptive research method using a cross sectional design. The population of this study were pregnant women who were in the working area of the Pangkalan Baru Community Health Center, namely Air Mesu Village and Kampung Dul from October to November 2023. The variables in this study were the mother's level of knowledge about anemia, age, parity, education and employment. The number of samples in this research was 34 respondents. The sampling technique used was total sampling. The data used in this research is primary data obtained directly using a knowledge questionnaire which includes the understanding, causes, signs and symptoms of anemia, the impact and prevention of anemia in pregnancy. and secondary data by collecting data from records of pregnant women at the Pangkalan Baru Community Health Center.

**RESULTS RESEARCH**
**Steps of Your Test Results here**

**Table 1. Frequency Distribution of Knowledge Level**

| Knowledge level | Frequency (n) | Percentage (%) |
|---|---|---|
| Good | 12 | 35.3 |
| Enough | 21 | 61.8 |
| Not enough | 1 | 2.9 |
| Total | 34 | 100 |

From Table 1 the research results show that the majority of respondents 21 (61.8%) have a sufficient level of knowledge about anemia. Distribution of respondents based on sufficient level of knowledge about anemia.

**Table 2. Distribution of Respondents Based on Age**

| Age | Frequency (n) | Percentage (%) |
|---|---|---|
| <20 | 2 | 5.9 |
| 20-35 | 29 | 85.3 |
| >35 | 3 | 8.8 |
| Total | 34 | 100 |

From Table 2, the results of this study ranged in age from 20-35 years, 29 respondents (85.3%).

**Table 3. Distribution of Respondents Based on Education**

| Education | Frequency (n) | Percentage (%) |
|---|---|---|
| College | 5 | 14.7 |
| JUNIOR HIGH SCHOOL | 7 | 50 |
| SENIOR HIGH SCHOOL | 17 | 20.6 |
| elementary school | 5 | 14.7 |
| Total | 34 | 100 |

From Table 3 the research results show that the majority of respondents 17 (50%) have a senior secondary education (SMA) background.

**Table 4. Distribution of Respondents Based on Parity**

| Parity | Frequency (n) | Percentage (%) |
|---|---|---|
| <3 | 32 | 94 |
| >3 | 2 | 6 |
| Total | 34 | 100 |

From Table 4, the research results depicting the level of knowledge of pregnant women about anemia based on parity show that some respondents (94%) or 32 respondents have <3 children.

**Table 5. Distribution of Respondents Based on Occupation**

| Work | Frequency (n) | Percentage (%) |
|---|---|---|
| Private employees | 0 | 0 |
| Teacher | 1 | 2.9 |
| Not Working (IRT) | 33 | 97.1 |
| Total | 34 | 100 |

From Table 5, the research results depicting the level of knowledge of pregnant women about anemia based on employment status show that almost all 33 respondents (97.1%) are Housewives (IRT).

## DISCUSSION
**Respondent Characteristics**
1. Age

The results of research conducted on 34 respondents in the Pangkalan Baru Community Health Center Work Area showed that a number of respondents were in the age group ≤ 20 years and ≥ 35 years. This finding contradicts the theory which states that a healthy reproductive period or a low risk of pregnancy complications is in the age range of 20-35 years. At age ≤ 20 years, the risk of anemia during pregnancy increases because at this phase, biological development, especially reproductive organs, has not reached optimal levels. Young pregnant women also tend to experience mental disorders, which can result in a lack of attention to meeting nutritional needs during pregnancy. Meanwhile, at age ≥ 35 years, pregnancy is considered high risk because older women are susceptible to anemia due to decreased immune system, thereby increasing the risk of developing various infections during pregnancy (Suwirnawati et al., 2022).

Some respondents showed a sufficient level of knowledge and most came from the 20-35 year age range. This finding is in accordance with the views of Notoatmodjo (2007), who states that the older a person is, the more experience they have, and this affects their knowledge, meaning that the older they are, the better their knowledge becomes (Suwirnawati et al., 2022). Apart from that, the results of research by Siti Zaerotun entitled "The Relationship between Characteristics, Parity and Knowledge with Efforts to Overcome Nausea and Vomiting in the First Trimester of Pregnancy with Hyperemesis Gravidarum at the PKU Muhammadiyah Gubug Hospital, Grobogan Regency in 2011" also show that as a person's age increases, the level of maturity think better, which in turn can provide motivation to maintain one's health (Wahyuningsih, 2020).

2. Education

The distribution of respondents based on education level shows that the majority of them have a senior secondary education (SMA) background, with the majority understanding anemia quite well. This knowledge is closely related to the level of education. The higher a person's level of education, the more information they can obtain, so they can understand health problems, especially those related to nutritional problems and how to handle them. In addition, adequate understanding is needed to receive information that can change behavior and attitudes regarding nutrition, which in turn can help prevent anemia. According to research conducted by Erwin Prapitasari regarding the relationship between the level of knowledge of anemia and the attitude of pregnant women in consuming Fe tablets and the incidence of anemia in the working area of the Kerjo Health Center, Karanganyar Regency, it was found that the basic educational background of respondents can influence their knowledge regarding nutrition, food choices, and how to food processing, and menu preparation. Therefore, education has a significant influence on a person's ability to take action and seek causes and solutions related to aspects of their personal health (Wahyuningsih, 2020).

3. Parity

Parity is a crucial factor in determining the fate of the mother and fetus during pregnancy and childbirth. Parity with a number ≥ 3 was identified as a contributing factor to the incidence of anemia. Research findings show that the majority of respondents have a parity of less than 3. This result is consistent with the theory which states that the lower the parity, the smaller the possibility of anemia because the body's reserves of nutrients are still relatively large. On the other hand, parity ≥ 3 indicates that the more often a woman gives birth, the potential for iron loss increases, and the opportunity or risk of developing anemia will be greater. This can happen because repeated labor processes can deplete the nutritional reserves in the mother's body. Parity refers to the number of living children born to a mother. The number of children is one of the factors that has an impact on the participation of pregnant women, because the more children they have or more than one, the more experienced the mother becomes in recognizing and preventing anemia (Walyani, 2015).

4. Work

A person's knowledge is influenced by work directly or indirectly. According to the theory, the type of job determines a person's income, so a lack of income can limit access to buying foods rich in iron. Apart from that, the mother's low income can also affect her access to information. In the context of this research, almost all respondents as Housewives (IRT). They are not working women, so respondents have plenty of time to ensure the correctness of the information obtained at work through consultation with health workers (Wahyuningsih, 2020).

**Level of Knowledge of Pregnant Women About Anemia**

Based on the results of research on 34 respondents, it can be concluded that the majority of them have sufficient knowledge, namely 21 respondents (61.8%). Meanwhile, the number of respondents who had a good level of knowledge was 12 respondents (35.3%). Based on research conducted by Maulida NS with the title "The Relationship between the Level of Knowledge About Anemia in Pregnant Women and Compliance in Consuming Iron (Fe) Tablets at the Keling II Community Health Center, Jepara Regency," it was concluded that the respondents had sufficient knowledge about anemia. Adequate knowledge tends to be influenced by the high number of respondents in the 20-35 year age group, which reached 63.8%. In this age range, explanations and information conveyed by health workers and through various media can still be received and understood well. Apart from that, the level of knowledge is also influenced by the level of formal education, where 52.2% of respondents have a basic education background. Thus, the majority of respondents in this study had a level of knowledge that was considered sufficient. The level of education has a significant influence on the level of knowledge, so that individuals with lower levels of education tend to have limitations in receiving information and understanding knowledge about the benefits of iron (Fe) tablets (Retnorini et al., 2017).

In measuring respondents' knowledge, researchers used a questionnaire containing 28 statements. From the analysis of each question, it was revealed that the majority of respondents already knew and understood anemia in pregnant women. However, there was one question, namely question number 2 regarding symptoms and signs of anemia, which could only be answered correctly by 16 respondents. This may be due to the lack of clarity in the information provided to respondents, and also the possibility that respondents consider these symptoms and signs to be normal and nothing to worry about. It is important to note that symptoms and signs of anemia include fatigue, dizziness, fainting easily, malnutrition, frequent dizziness, dizzy eyes, malaise, sore tongue, decreased appetite, loss of concentration, and shortness of breath. In addition, not knowing the signs and symptoms of anemia can have serious impacts on pregnancy, such as the risk of abortion, vaginal disorders during labor, and the possibility of placental retention and uterine subinvolution after delivery.

Questions regarding knowledge, especially number 17 regarding side effects, showed that 16 respondents (47%) could answer correctly. This was caused by the explanation received by respondents which was considered inadequate. Some mothers also noted that not all health workers provided an explanation regarding the possibility of side effects resulting from consuming blood supplement tablets. However, several informants admitted that if an explanation was given beforehand, they would feel calmer and less worried when side effects appeared. These findings are in accordance with research by Titaley CR, et al entitled "Perceptions of Pregnant and Postpartum Women regarding Anemia and Consumption of Blood Additive Tablets During Pregnancy, Qualitative Study in Purwakarta and Lebak Regencies," which shows that information regarding the side effects of blood added tablets is still considered insufficient (Titaley et al., 2014).

In question number 19 which relates to foods that contain iron, 20 respondents (59%) stated that they did not know food ingredients that contained iron tablets. This is caused by a lack of information or understanding regarding the consumption of foods containing iron. This finding is in line with Erwin Prapitasari's research in 2003 entitled "The Relationship Between the Level of Anemia Knowledge and the Attitude of Pregnant Women in Consuming Fe Tablets and the Incidence of Anemia in the Working Area of the Kerjo Health Center, Karanganyar Regency." This research shows that insufficient knowledge among pregnant women about anemia and the factors that influence it can have an impact on the lack of consumption of foods containing iron. This can cause pregnant women to experience anemia which will ultimately affect the growth and development of the fetus. It is important to remember that consuming foods that contain iron is very crucial for pregnant women because it plays a role in the formation of red blood cells.

In questions regarding knowledge, especially in question number 21 regarding checking Hb levels during pregnancy, 21 respondents (62%) stated that they had never received information about Hb checking. These findings are consistent with the results of research conducted by Happy Dwi Aprilina and colleagues on "Health Education and Anemia Detection for Pregnant Women in Central Sokaraja, Banyumas." This research shows that there is a lack of information about anemia and a lack of understanding of pregnant women regarding the importance of routine pregnancy checks, including the need to check Hb levels. Examination of Hb levels is an important parameter used to determine the prevalence of anemia and also as an oxygen-carrying compound in red blood cells.

In terms of knowledge regarding the consequences that arise when mothers give birth and lack of blood supplement tablets, 23 respondents (68%) gave the wrong answer to question number 23. This condition may be caused by a lack of knowledge or information given to mothers who may lack experience in handling anemia during pregnancy. The book "Nutrition Textbook for Midwives" by Proverawati A explains that the consequences that may arise during childbirth due to a lack of blood supplement tablets include primary and secondary disorders, fetuses born with anemia, labor with action, the mother getting tired quickly, and labor disorders that require action. operative (Proverawati, 2011).

Question number 24 regarding the consequences that arise after giving birth if there is a lack of blood supplement tablets received answers from 28 respondents (82%) who stated that they did not know about these consequences. This may be due to the lack of information and experience that respondents have in preventing anemia during the delivery process. In the book "Nutrition Textbook for Midwives" by Proverawati A, it is explained that the consequences that may arise after giving birth due to a lack of blood supplement tablets include bleeding, retained placenta, wounds that are difficult to heal, the occurrence of febris puerpuralis, and uterine subinvolution (Wahyuningsih, 2020).

In question number 28 regarding when pregnant women consume blood supplement tablets, 19 respondents (56%) gave the wrong answer. This may be caused by the mother's ignorance regarding the consumption of Fe tablets during pregnancy. It is important to know that consumption of Fe tablets usually starts in the second trimester, because in the first trimester many pregnant women experience nausea and vomiting, making it difficult to consume blood supplement tablets. The book "Midwifery Care" by Hellen Varney shows that in the first trimester, pregnant women often experience nausea and vomiting, while in the second trimester, pregnant women are better able to adjust to their pregnancy (Apriyani, 2016).

## CONCLUSIONS AND RECOMMENDATIONS

From the research that has been carried out it can be concluded thatThe level of knowledge of pregnant women about anemia in the work area of the Pangkalan Baru Community Health Center, namely in the sufficient category, was 21 respondents (61.8%), 85.3% of respondents' age range was 20-35 years, 50% of respondents had a high school education, 94% mostly respondent parity <3, and 97.1% of respondents were housewives.

## ADVANCED RESEARCH

Future researchers can expand the research focus by exploring the relationship between pregnant women's knowledge and aspects of their characteristics, or investigating the relationship between the level of knowledge and the level of compliance of pregnant women in consuming Fe tablets.

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