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Pregnant Women's Perceptions of Anemia and Iron Supplement Consumption

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Abstract---*Anemia is a condition that is commonly indicated by low hemoglobin levels in the blood. This situation is proven by the lack of quality and quantity of red blood cells that consequently decrease the amount of oxygen transported into the tissue. The high incidence of anemia in pregnancy can cause high maternal mortality after childbirth resulting from pregnancy complications such as bleeding. A lot of research on the factors that influence anemia and the prevention of anemia during pregnancy has been conducted previously. However, there is still few of research exploring women's perception of anemia and the consumption of iron supplements. This Scoping Review aims to determine the extent of women's perception of anemia and iron supplement consumption. The method used is Scoping Review using Wiley Online Library, PubMed, and ScienceDirect databases. The research results that match the criteria are then analyzed with the aim of generating these articles. Appropriation study applied here uses Joana Briggs Institute (JBI), and the synthesis method uses PEOS modification. Six of the 141 articles relevant to titles and abstracts met the inclusion and exclusion criteria. The review results have discovered four themes affecting pregnant women's perception of anemia and iron supplement consumption during pregnancy: mother's perception, knowledge, obstacle factors, and coping. This study helps to improve the management of anemia in pregnant women comprehensively by involving both husbands and family members and as one of the efforts to achieve the SDG's target of 2030 to reduce the incidence of mortality and morbidity in Indonesia.*
Keywords---*anemia, iron supplement, perception, pregnant women's*

Introduction

Anemia is the decrease of hemoglobin levels or red blood cells, which causes a reduction in oxygen transport to the body (Percy et al., 2017). Anemia becomes one of the causes of morbidity or mortality in pregnant women, especially in developing countries (Lebso et al., 2017). Anemia during pregnancy is a global health problem, especially in developing countries (Berhe et al., 2019). Pregnant women who experience anemia can also result in preterm birth, intrauterine growth restriction, perinatal mortality, and low birth weight (BMI) (Derso et al., 2017). Globally, anemia causes >115,000 mothers and 591,000 perinatal deaths each year. Approximately 56% of pregnant women with anemia are in low- and middle-income countries (Gudeta et al., 2019). According to World Health Organization (WHO), about 32.4 million (38.2%) pregnant women developed anemia in 2019. This places a high burden on developing countries, especially in Southeast Asia and Africa (Berhe et al., 2019).

The incidence of anemia in pregnant women is triggered by inadequate diet and poor prenatal vitamins. This affects the individuals' physical health and mental development (Berhe et al, 2019). During pregnancy, the expansion

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of the mass of red blood cells increases the transport of oxygen and the transfer of iron to the growing structures of the placenta and fetus (Helion et al, 2020). Iron requirements during pregnancy increased by two or three times. This iron is indispensable for producing more red blood cells than usual. The increase is necessary for the fetus and the placenta (Banhidy et al., 2011; Weinberg, 2009; Suharno et al., 1993; Mulyani et al., 2017).

Some efforts to prevent anemia in pregnant women are carried out by requiring the administration of iron supplements (TTD) during pregnancy (Kementerian Kesehatan Republik Indonesia, 2021). Following the Regulation of the Minister of Health of the Republic of Indonesia Number 75 of 2013 concerning Nutrition Adequacy and the Regulation of the Minister of Health of the Republic of Indonesia Number 88 of 2014, it is stipulated that pregnant women must be given iron supplement every day during pregnancy or at least 90 tablets during their pregnancy period. This regulation is one of the legal foundations for implementing the iron tablets supplementation program (TTD) to prevent anemia during pregnancy (Kemenkes, 2018).

Several factors affect the compliance of pregnant women in consuming iron supplements, one of which is the good perception or positive behavior toward iron supplement consumption (Wulandari & Indriyani, 2019). Perception is a process that involves the entry of messages and information into the human brain; the information and messages received appear in the form of stimuli that stimulate the brain to process further, which then affects someone in behaving (Qudriani & Hidayah, 2017). The reason pregnant women do not comply with consuming iron supplements is also due to a lack of knowledge, lack of support from the family, and the lack of interest experienced by the mother (Chusna, 2021). Based on the picture of the prevalence of anemia above, research on the perception of pregnant women on anemia and iron supplement consumption should be explored. This Scoping Review aims to explore how pregnant women perceive anemia and iron supplement consumption during pregnancy.

Method

The scoping reviews include steps that researchers do as follows: focus on the reviews, create a PEOS (Population, Exposure, Outcome, and Study design) framework, identify relevant studies, describe the process, identify literature using PRISM flowchart, data extraction, and mapping/scoping (Arksey & O'Malley, 2005 in Pham et al., 2014).

Search strategy

The PEOS (Population, Exposure, Outcome, and Study design) framework is used to help identify critical concepts on the review focus and develop appropriate terms to describe the problem. The PEOS used are as follows:

Table 1
Framework research question

Population	*Exposure*	*Outcomes*	*Study Research*
1. Pregnant	1. Anemia	1. Perspectives	Qualitative study
2. Pregnancy	2. Anemic	2. Perception	
3. Pregnancies	3. Iron-folic acid	3. Perceptions	
	4. Iron tablet		

The article search procedure uses journals published between 2011 and 2021. The articles obtained were taken from the electronic databases Wiley Online Library, PubMed, and ScienceDirect. The article search was performed using the keywords (((((Pregnant) OR (Pregnancy) OR (Pregnancies)) AND (("Perception")) OR ("Perceptions")) OR ("Perspectives")) AND ("Anemia") OR ("Anemic")) AND ("Iron-FolicAcid")) OR ("Iron Tablet")).

Inclusion criteria

The inclusion criteria used were articles published between 2011-2021, articles published in English, and articles from developed and developing countries.

Exclusion criteria

The exclusion criteria are opinion articles, review articles, reports, and books.

Search results

PRISMA results showed that there were 141 articles obtained from three databases. Article selection is made based on predetermined inclusion and exclusion criteria (Wulandari & Whelan, 2011; Vosnacos & Pinchon, 2015; Bencaiova et al., 2012). The research yielded six related articles. The seven articles obtained were analyzed for their critical appraisal using the Joanna Briggs Institute (JBI). The research journal selection stage is depicted in the PRISM diagram shown in Figure 1.

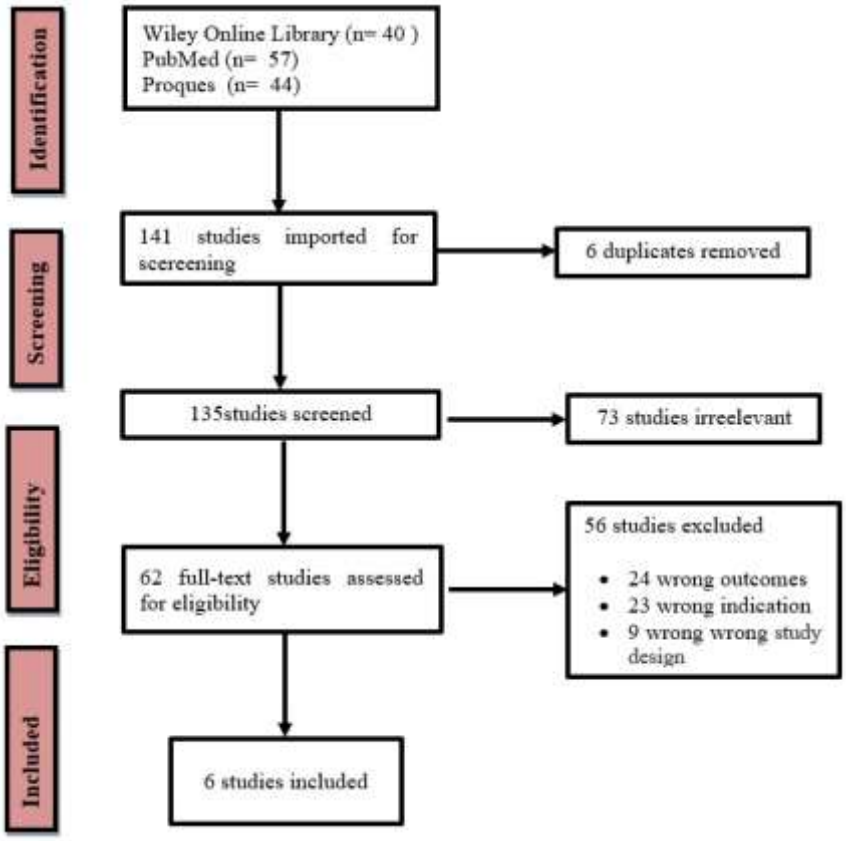

Figure 1: PRISMA flow diagram

Extraction data

The articles that have been obtained are then extracted. The articles are extracted based on the article's author, the year of publication, the country, the number of samples used, the study's findings, and the journal quality.

Table 2
Extraction data

No	Author/ Year/Title	Aim	Data Collection	Participants/ Sample Size	Result
1	Aziz Ali et al. (2021), Perceptions of women, their husbands and healthcare providers about anemia in rural Pakistan: Findings from a qualitative	In Thatta, Pakistan, examine how women, their husbands, and medical professionals view anemia, its potential causes, and how	semi-structured interviews, Focus group discussions (FGD), and informant interviews	The sample in this study consisted of 10 participants with FGD (5 male and 5 female) and 10 KIIs each from 9 UC in Thatta district.	1. Understanding and awareness of anemia 2. The causes and effects of anemia 3. eating habits 4. Information and experience with supplementing with

	exploratory study	anemia affects mother and child health.	(KIIs)		folic acid 5. Elements affecting the management and prevention of anemia 6. Health practices for women.
2	Darmawati et al. (2020) /Exploring Indonesian mothers' perspectives on anemia during pregnancy: A qualitative approach	To learn how pregnant women in Indonesia perceive anemia so that culturally appropriate therapies might be designed	Focus group discussion (FGD)	The study's sample consisted of 24 expectant mothers, both with and without anemia, who were at least 10 weeks along in their pregnancy and had at least one antenatal care (ANC) appointment.	1. Pregnancy anemia is regarded as a woman's fate 2. Lack of knowledge of the clinical symptoms of anemia 3. Cultural taboos surrounding anemia 4. The husband and family offer assistance with anemia prevention 5. The demand for culturally and religiously appropriate health education.
3	Onyeneho & Igweonu (2016)/ Anaemia is typical of pregnancies: capturing community perception and management of anaemia in pregnancy in Anambra State, Nigeria	To explore perceptions/attitudes about anemia during pregnancy and how it influences their approach to managing and preventing anemia in pregnancy	Focus group discussions (FGD) and in-depth interviews	The number of participants in each focus group discussion session ranges from eight to 10. 20 in-depth interviews (IDI) with health professionals and women (15-49 years old) who gave birth in the six months prior to the survey were conducted in addition to 16 focus group discussions (FGD) with female husbands and mothers (15-49 years old) who gave birth in the six months prior to the survey.	1. Pregnancy-related anemia still has a high incidence rate. 2. Unclear management attitudes and practices 3. Lack of public understanding of the phenomenon
4	A Compaore et al. (2014)/ "There is iron and iron…" Burkinabe women's perceptions of iron supplementation: a qualitative study.	To evaluate women's knowledge of anemia and iron's role in preventing and treating it.	Focus group discussion (FGD)	The sample size for this investigation was not predetermined. In 12 study communities, focus groups (FGs) were performed by researchers. which	1. Blood, anemia, and iron perception 2. Replace lost blood

				represented 50% of the sample, which was considered sufficient to compile a sample of women's opinions on the causes and care of anemia.	
5	Nisar et al. (2014)/ Perceptions of antenatal iron-folic acid supplements in urban and rural Pakistan: a qualitative study	Explore the cultural and behavioral factors impacting the usage of antenatal iron folic acid supplements in rural and urban Pakistan, as well as the attitudes of women and healthcare professionals.	Focus group discussion (FGD) and in-depth interviews	10 focus group discussions (FGD) with women who were not pregnant, 10 in-depth interviews with women who were pregnant at the time, 6 in-depth interviews with women's health workers, and 4 in-depth interviews with prenatal care physicians were conducted.	1. How women view the advantages of taking the wrong supplements 2. Lack of information from medical professionals 3. Behavioral and cultural issues
6	Chatterjee & Fernandes (2014), 'This is normal during pregnancy': A qualitative study of anaemia-related perceptions and practices among pregnant women in Mumbai, India	to investigate the attitudes and behaviors of pregnant women in Mumbai, India against anemia.	Focus group discussion (FGD) and in-depth interviews	The sample for this study consisted of 31 pregnant women between the ages of 18 and 33, three high school graduates, and 28 stay-at-home mothers.	1. Lack of knowledge of pregnant women about clinical terms, causes or etiology of anemia. 2. Improper diet 3. Religious and cultural aspects 4. Economic factors

Quality assessment

Seven relevant articles were critically assessed using The Joanna Briggs Institute (JBI). Joanna Briggs Institute aims to provide a comprehensive and unbiased synthesis of several relevant studies within the boundaries of a single document using rigorous and transparent methods. Thus, the decision is obtained by considering health practices' feasibility, suitability, meaning, and effectiveness with the best available evidence. The credibility of the knowledge generated and the usefulness of the products produced based on review studies, according to epidemiological depictions, are closely related to methodological rigidity. This aspect can be qualified through guidelines from the review center (Galloway et al., 2002; Mulyani, 2018). From the final result of the article selection, the authors assessed the quality of the article with JBI.

Results and Discussion

Geographical characteristics

The results of the review of articles from 6 articles that the journal has evaluated, the reports come from various developing countries, including Pakistan, India, Indonesia, Nigeria, and Burkina Faso (West Africa).

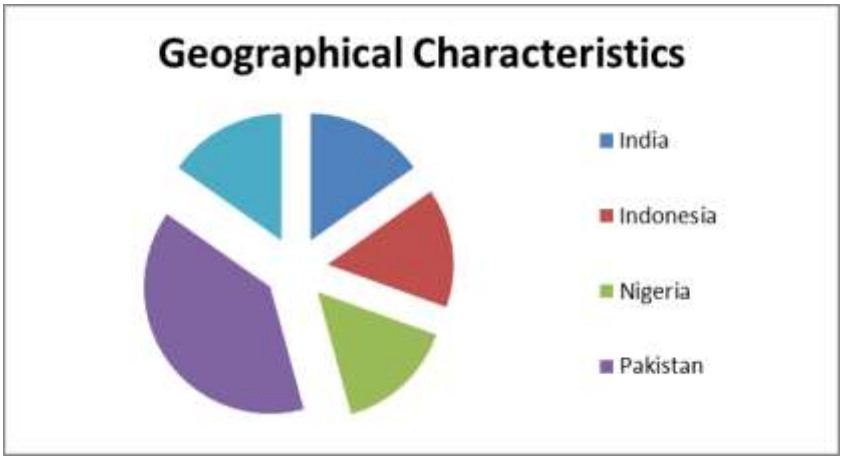

Figure 2. Geographical characteristics

The characteristics of The Joana Briggs Institute (JBI) Grade

An assessment was conducted based on the quality of an article using The Joana Briggs Institute (JBI) tool Grade with the results of grade A category (Good), grade B category (Fair), and grade C category (Poor). After passing through the assessment stages, four of the six articles used fall into category A (Good), while two items fit into category B (Fair).

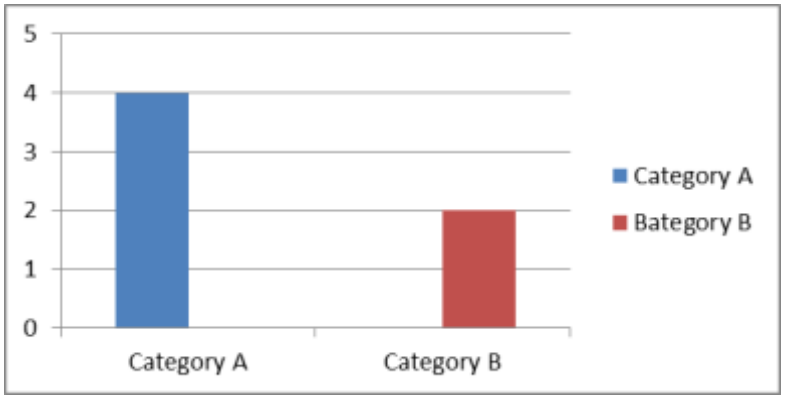

Figure 3. The Characteristics of The Joana Briggs Institute (JBI) Grade

Thematic

From the results of the seven articles' review process, several themes are found to be consistent with the focus of the review, including the following:

Table 3
Thematic

No	Theme	Sub-themes
1.	Mother's Perceptions	a. Anemia is considered the destiny of women [2, 4, 5]
2.	Mother's Knowledge	a. Knowledge and awareness of anemia [1,4]
		b. Causes and consequences of anemia [1]
		c. Use of blood value-added supplements [1,5,4]
		d. Lack of knowledge related to clinical indicators [2,3,6]
3.	Obstacle Factors	a. Lack of health knowledge [2,5]
		b. Anemia management [3]
		c. Traditional cultural factors related to anemia [2, 5, 6]

4.	Coping	a. Dietary practices [1] b. Health behaviors [1] c. Husband and family support [2]

Description: number is the article code on the data extraction

Discussion

Mother's perceptions

The previous study by (Darmawati et al., 2020), stated that all pregnant women experienced symptoms such as drowning, nausea, pallor, and tiredness, which were signs and symptoms of anemia. However, they consider anemia a normal condition experienced by pregnant women. Thus, many of them are less worried about the signs and symptoms. It is in line with the previous research by (Chatterjee & Fernandes, 2014), which stated that symptoms of anemia such as dizziness and fatigue should not be taken seriously since anemia is normal during pregnancy and must be accepted. Pregnant women are obligated to take advice from older women, who say that those symptoms are part of the pregnancy and do not harm either the mother or the baby.

Mother's knowledge

Pregnant women with little understanding often neglect their health. Suppose pregnant women have a good knowledge of anemia; they can understand better what can support a good quality pregnancy in terms of food choices and supplements that can be used to prevent conditions threatening the mother and fetus, such as anemia (Devi et al., 2021). Basically, pregnant women who have good knowledge can increase their motivation to take preventive measures against anemia during pregnancy (Darmawati et al., 2020). Mothers' knowledge about the importance of nutrition during their pregnancy is a factor that determines their behavior in applying variations of nutritious foods during their pregnancy (Farida, 2019).

Obstacle factors

Traditional cultural beliefs affect pregnant women who suffer from anemia since it is revealed that the pregnancy process is substantially influenced by the traditions that have been believed (Kapoh et al., 2021). In addition, in Ethiopian culture, pregnant women should limit the consumption of green leafy vegetables, yogurt, cheese, and sugar cane during pregnancy (Nadziroh et al., 2020). Whereas the Indian people believe that pregnant women should limit the consumption of fruits, vegetables, meat, and eggs because these foods will harm the pregnancy (Darmawati et al., 2020). A healthy diet with a balanced menu is essential for the development of the fetus in the womb. Mothers during pregnancy need extra iron and multivitamins. In order to get more iron benefits, pregnant women should consume more vegetables and combine them with foods that contain vitamin C, such as fruits (Mitra et al., 2021; Lawan et al., 2015).

Coping

Coping is a term used to describe cognitive and behavioral efforts to manage psychological stress to ensure psychological and physiological well-being (Oni et al., 2015). A good diet during pregnancy can help the body cope with special needs during pregnancy, as well as have a positive effect on the baby's health. A healthy diet in pregnant women means that food consumed by the mother needs to have several calories and nutrients that follow the body's needs such as carbohydrates, fats, proteins, vitamins, minerals, fiber, and water (Mariana et al., 2018). A pregnant woman should have good health behavior towards everything related to her pregnancy to avoid unwanted things during pregnancy (Helsika Jiniliyanti, 2017). Preventing anemia in pregnant women can be done by implementing proper health behaviors. Health behaviors such as setting a diet high in iron, routinely taking iron tablets, and doing Antenatal care during pregnancy can reduce the prevalence of anemia in pregnant women. Family support, especially during pregnancy, is immensely expected by pregnant women. Family support means a process of relationship in which there is a relationship between the family and the environment, which the family can support and constructively assist the other family members (Tabita et al., 2021). The positive impact of the husband's role in pregnancy can increase the mental strength and self-confidence of mothers who become increasingly high during pregnancy, childbirth, and after delivery. While less support can make pregnant women assume that they are alone

thus can furtherly cause them to experience anxiety since they have no place to vent their grievances (Darmawati et al., 2020).

Conclusions and Suggestions

Based on the scoping review that has been carried out, the conclusion is that there are four themes taken from the perception of pregnant women about anemia and iron supplement consumption: mother's perception, mother's knowledge, obstacle factors, and coping. In the perceptions section, many pregnant women consider anemia a normal condition experienced by the mother during pregnancy. Therefore, they do not feel worried about signs and symptoms such as drowning, nausea, pallor, and tiredness, which are signs and symptoms of anemia. Obstacle factors include the lack of health knowledge, anemia management, and traditional cultural factors. In contrast, the knowledge of pregnant women about the importance of nutrition during pregnancy is one factor that supports pregnant women's behavior in implementing nutritious food variations during pregnancy (Chatterjee & Fernandes, 2014; Galloway & McGuire, 1994; Paesano et al., 2009).

Efforts to prevent and mitigate iron nutritional anemia can be made through the provision of iron supplements that are prioritized in pregnant women. A healthy diet with a balanced menu is essential for the fetus' development in the womb. Mothers during pregnancy need extra iron and multivitamins. Diet is an essential factor that pregnant women must consider to meet the iron requirements during pregnancy and compliance in taking iron tablets. Another effort to reduce anemia is the regularity of pregnant women conducting pregnancy examinations. The role of the husband and family positively impacts the mother's pregnancy condition. Through emotional support from the family by feeling empathy, understanding the mother's feelings, and creating comfort for the pregnant woman, the other emotional support that the family can provide are such as attention, love, and affection; therefore, the pregnant woman feels appreciated and cared by the family. Furthermore, the pregnant woman's mental strength and confidence become increasingly high in going through pregnancy, childbirth, and after delivery.

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