

## **FACTORS THAT INFLUENCE THE ADHERENCE OF PREGNANT WOMEN IN CONSUMING IRON SUPPLEMENTS: SYSTEMATIC LITERATURE REVIEW**

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### **Abstract**

The main problem of iron in pregnancy is adherence, because women often fail to take supplement regularly as medical worker recommendation because of various factors and this also thought to be potential to increase high prevalence of anemia in pregnant women. The purpose of this systematic review is to find out the factors that are related to pregnant mother adherence towards iron consumption. This appraisal study used Joanna Briggs Institute (JBI), and the synthetic method used PEOS modification. The result of five journals that fulfills inclusion criteria obtained factors that influence pregnant women adherence in consuming iron supplements that are age, education, occupation, knowledge, socio-economy, and ANC visits. There are relationship of pregnant women adherence in consuming iron tablets with age, education, knowledge, ANC visits, occupation parity and parity. Factor that most related to pregnant women adherence in consuming iron tablets is ANC frequency.

**Keywords: adherence, factors, consumption, iron supplements, and pregnancy**

### **1. INTRODUCTION**

Anemia is one of the global society health problems that influence two billion people in the world. Almost half of all preschool children, pregnant women, and almost one-third of non pregnant women experience anemia throughout the world [1]. WHO estimates that total anemia in the world becomes very high (2 billions) and around 50% of all anemia can be linked to the lack of iron. Currently, anemia global prevalence is estimated as 30,2% in non-pregnant women has increased to 41,8% during pregnancy. Anemia prevalence in pregnant women is around 24,1% in America, 48,2% in Southeast Asia, 25,1% in Eropa, 44,2% in Eastern Mediterranean, 30,7% in West Pacific, and the highest is in Africa for 57,1%. Some researches has reported the relationship of anemia during pregnancy with mother death risk and bad pregnancy result in terms of low birth weight, and prematurity, which are the main causes of neonatal death in developing countries. In Uganda, anemia in pregnancy is estimated influence around 33% of pregnancy [2].

World Health Organization (WHO) recommended that all pregnant women must receive standard dose of 30-60 mg iron and 400 mg folic acid during pregnancy as part of ANC. Many countries focused on women to receive 90 or more tablets during pregnancy. But, in area where the prevalence of anemia is high (> 40%), supplementation which must continue for three months in the postpartum period. Other interventions such as food, water fortification, and anti-parasitic treatment also suggest that their effectiveness is not clear [3].

Based on Survey of Ethiopia Health Demography (EDH) 2011, iron supplementation coverage was very low because only 17.3% of women took supplements during their most recent pregnancy in the previous 5 years and only 0.4% were supplemented for 90 days or more. Despite the assumption that iron supplementation is an integral part of Antenatal Care (ANC), only 37% of women who have ANC receive iron supplements [4].

One of the programs from Ministry of Health in South Africa is to supply iron to all pregnant women to prevent anemia as recommended by World Health Organization [5]. Many developing countries now implement iron supplementation program, but only some countries has reported the significant increase in anemia control and prevention [6].

All pregnant women that prescribed iron supplements during their ANC visit. However, the lack of adherence is though to be the main reason to the low effectiveness of iron supplementation program. Therefore, this research was conducted to investigate factors related to prenatal adherence [6]. The purpose of this systematic review is to find out factors that related to pregnant mother adherence to wards iron consumption.

## 2. MATERIAL AND METHOD

### A. Framework of inclusion and exclusion criteria

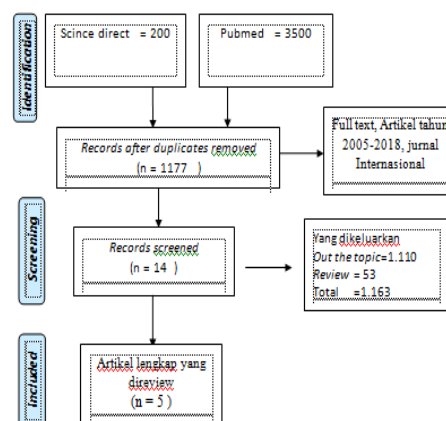
PEOS	Inclusion Criteria	Exclusion Criteria
P	Pregnant Women	Pregnant women who were seriously ill when data collection.
E	Factors that influence pregnant women adherence in consuming iron supplement.	
O	Pregnant mother adherence of consuming Fe tablets.	
S	Quantitative Study	

### B. Literature Search

The first step was keywords search. After obtain keywords, then search for journal in *database pubmed* and *science direct*. The second step was article search using *reference list* from some articles related to the topic.

### C. Article Selection

In article search, 3500 articles were identified from *database pubmed* and 200 articles from *database science direct*, after filtered for relevance was obtained 14 articles. Then further filter for articles was conducted to search right and complete reference about pregnant women adherence who consume iron supplement and obtained 5 articles that will be used for *Systematic literature Review*. The author filtered titles and abstracts of all articles to be made inclusion criteria. Complete text study was taken and reviewed independently based on those criteria. So that left 5 articles for the last review.



### 3. RESULTS AND DISCUSSION

Identification result of *Search* method on *Pubmed* and *science direct* obtained 3700 search result data. The researchers conducted *screening* including results from the same search data type and has the same research title. After *screening* stage was conducted then *include* stage which is the suitability of the search data with the inclusion criteria set by the researchers including studies on adherence to pregnant women in consuming iron supplements, knowing the factors that influence adherence of pregnant women to consume iron supplements, Full text, Article of 2013-2018, International journal. The study result obtained and conducted *screening* until *include* to get documents that are compatible to criteria of research study. Based on the result of the synthesis, there were 5 documents that were in accordance with the study criteria and then there are an indepth analysis (*critical thinking*) to get the best evidence in knowing the factors that affect the adherence of pregnant women to consume iron is the highest quality research. The research literature result has high credibility and the result can be trusted.

The study result of *systematic review* obtained that factors that influence pregnant women adherence in consuming iron tablets are age, education, knowledge, ANC visit, occupation, and socio economy.

#### A. ANC Visit

The medical workers have very important role to improve pregnant women adherence in consuming iron supplement by giving a service to society based on their needs, as at visit of *Antenatal Care* to pregnant women beside conducted examination also given counseling of the importance of consuming iron supplement during pregnancy to prevent the occurrence of anemia in pregnant women. The purpose of giving iron supplements is to prevent anemia if pregnant women experience anemia can cause an increased risk of miscarriage, prematurity, or low birth weight (LBW). Factors that influence the adherence of pregnant women to consume iron supplements are the behavior of health workers where adherence can be further improved if health workers are able to provide counseling as optimal as possible, especially about the importance of taking iron supplements to pregnant women to maintain their own health and fetus [7].

ANC visit provided service for pregnant women and early detection that important for mother health and fetus health. Women who have more ANC visits have bigger potentation to use iron supplement. Because iron supplement is received by pregnant women at ANC activity. The higher the gestational age, the more likely the mother is in contact with health care facilities as well as getting iron supplements and explanations from health workers, so that if mothers visit ANC more often, they are expected to be more obedient in taking Fe tablets [8].

The result of research by Gebreamlak et al shows that frequency of ANC influenced pregnant women adherence in consuming Fe tablets. By conducting ANC examination regularly for minimum 4 times during pregnancy is useful to find out mother and fetus condition so that can detect or prevent if there is something that can harm mother and fetus.

#### B. Age

Age is one indicators that can reflect someone maturity in conducting action including decision-making. This early adult age can show positive behavior in preparing the future, including preparing the baby as a family descent that is a duty in maintaining the health of themselves and the fetus in their body. When early adulthood, the thought of pregnant women

can already sort out the good and able to think for their health and the fetus by consuming iron supplements [9].

The result of research by Taye et al, one of the factors has proven to have significant relationship with adherence is participants age. Women aged 35-49 is three times more obedient in consuming iron supplement rather than women with younger age (15-24 years old). The reason is that older women maybe are more care about their health and pregnancy result, obtain support needed from their family members and have better experience in prevention and treatment of iron deficiency anemia.

C. Education

The level of education will influence the level of knowledge. The higher the education of pregnant women, the better knowledge about nutrition than those with low education. Pregnant women who have higher education will better understand and choose good quality food for daily consumption. The selection of balanced nutritious foods is expected to affect the health of pregnant women and fetus.

The result of research by Taye et al, educated women have better knowledge about iron deficiency anemia and therapy, better knowledge about benefits of supplement and increase concern about pregnancy result [6].

D. Knowledge

Knowledge is one risk factors for the occurrence of anemia in pregnant women. The better the knowledge, the easier it will be to accept behavioral changes in a better direction [10]. Knowledge related to adherence because knowledge is very important *domain* for the formation of behavior. Behavior will last if it is based on knowledge. Knowledge obtained through sensing pregnant women on health information during pregnancy will influence the behavior of pregnant women in maintaining their health. Pregnant women who have good knowledge of iron supplements during pregnancy are 3.5 times more likely to adhere to iron supplements during pregnancy compared to those who have poor knowledge about iron supplements. The reason is knowledge that helps women to have a good perception about the prevention and treatment of anemia during pregnancy by consuming iron supplements during pregnancy [11].

The result of research by Taye et al, women that have higher knowledge about anemia are four times more possible become obedient to iron supplementation compared to women who have low knowledge.

E. Occupation

As a housewife, there are limitation for socialization and interaction if compared to mothers who work. They are less in getting information about their pregnancy especially iron supplements. Housewife will be limited in obtaining information because the lack of interaction with others, but mothers who work will easily interact so that information about Fe tablets is easy to obtain [9].

Pregnant women who do not work, do not have their own income to fulfill their daily needs and it becomes husband responsibilities. In the other words, mothers who do not work are tend to have family economy expense. That condition is affected the routine of ANC visit to pregnant women to get iron supplement from medical workers [11].

According to research by Kiwanuka et al., 2017, work environment can influence someone to get knowledge both directly and indirectly. So that someone can get experience of getting information. [12].

**F. Socio Economy**

The level of economy that less adequate to fulfill mothers needs during pregnancy really influence mother pregnancy. If mothers are in sufficient economy, then they can fulfill all of their needs during pregnancy especially in consuming foods or drinks and vice versa, if mothers are in less economy, they will priorotize family needs first and do not thinking about food needs for theirselves.

According to research by Gebremedhin et al., 2014 rich mothers may consider them less susceptible to anemia cause they will have bad adherence. So that prevalence of anemia occurence is higher for women with economic disadvantage [5].

**4. CONCLUSION**

Based on result of *systematic literature review* and discussion that has been conducted by researcher about factors that influence pregnant women adherence in consuming iron supplement, then it can be concluded as follows. Age has meaningful positive relationship with mother adherence in consuming iron supplement. Knowledge has positive relationship related to mother adherence in consuming iron supplement. Education has meaningful positive relationship with mother adherence inconsuming iron supplement. Economy status has meanigful positive relationship with mother adherence in consuming iron supplement. Occupation has meaningful positive relationship with mother adherence in consuming iron supplement. ANC visit has meaningful positive relationship with mother adherence in consuming iron supplement. Frequency of ANC visit is variable that most positively related to mother adherence in consuming iron supplements.

**5. RECOMMENDATION**

- A. Midwives are expected to be able to give care for anemic pregnant women by giving regular health education using flipcharts and other applications for the importance of adherence for iron tablets consumption according to program recommendation during pregnancy.
- B. Promote the benefits earlier and often the ANC, improving the ANC counseling quality including guidelines on managing side effects and promoting women knowledge about anemia are important elements to improve service utilization.
- C. Giving clear instruction about iron supplement tablet intake and educate them about health benefits from iron supplement to increase pregnant women adherence in consuming iron supplementation.
- D. Adherence must be improved through nutrition education, monitoring, and evaluation of birth result in Indonesia to eliminate anemia related to side effects.
- E. We recommend national evaluation of adherence towards iron supplement and search for manner to improve adherence. Develope intervention, target all pregannt women by improving ANC coverage to increase the use of antenatal iron supplements.

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