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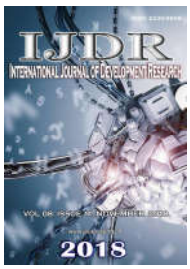

ORIGINAL RESEARCH ARTICLE OPEN ACCESS

SOCIO-ECONOMIC, FE TABLET CONSUMPTION AND ANEMIA INCIDENCE IN PREGNANT WOMEN ON COMMUNITY HEALTH CENTER TALISE IN PALU

***[1]Rosmala Nur, [1]Abd. Rahman, [1]Anaparagna, [2]NoviInriyanny S, [3]Sadly Syam, [1]Nurhaya S. and [4]Patui, Pitriani**

[1]Biostatistic, Family Planning and Demography Department, Public Health Faculty, Tadulako University
[2]Administration and Health Policy, Public Health Faculty, Tadulako University
[3]Health Promotion Department, Public Health Faculty, Tadulako University
[4]Enviromental Health Department, Public Health Faculty, Tadulako University

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ABSTRACT

Anemia in pregnancy is a major public health problem in developed countries. Anemia affects 41.8% of pregnant women. The study purpose is to know correlation between socio-economic, knowledge and compliance consumption of Fe tablets with the anemia incidence in pregnant women in the Community Health Center of Talise. This research is quantitative with a cross sectional study approach. The sample of the study are 80 pregnant women at the Community Health Center of Talise. The sampling used the *Accidental Sampling* method. Data collection was conducted by observation and interview using a questionnaire. The data analysis with *Chi Square* technique. The results showed the correlation of each independent variable with the incidence of anemia as follows: education (p = 0.002), occupation (p = 0.004), family income (p = 0.003), knowledge (p = 0.002) and compliance consumption of Fe tablets (p = 0.004). This study concluded that there is a significant correlation between socio-economic conditions (education, occupation, family income, knowledge) and compliance consumption of Fe tablets with the incidence of anemia. It is recommended that the Community Health Center conducts early detection of anemia in pregnant women so that prevention and precaution can be conducted.

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INTRODUCTION

Anemia in pregnancy is a major public health problem, especially in developed countries. The anemia affects 41.8% of pregnant women. Anemia in pregnant women will affect physical activity, increased morbidity and mortality, especially for those with severe anemia. Some factors that increase the incidence of anemia are factors related to age, parity, knowledge, compliance with Fe tablets consumption, frequency of ANC, husband's and work's support (AisyahdanFitriyani, 2016).Based on the results of the Household Health Survey (SKRT), the prevalence of anemia in pregnant women in Indonesia was 40.1% and in 2007 was 24.5%. Based on the results *of* the Basic Health Research (Riskesdas) in 2013, the prevalence of anemia in pregnant women in Indonesia rose to 37.1%. Thus this condition indicates that iron deficiency anemia is still a public health problem. According to WHO, 40% of maternal deaths in developed countries are related to anemia in pregnancy and most anemia in pregnancy is caused by iron deficiency. From the results of previous studies, childbirth in pregnant women who suffered iron deficiency anemia were 12-28% of fetal deaths, 30% of perinatal deaths and 7-10% of neonatal mortality rates (Paendong *et al*., 2016).According to Sin (2008), the incidence of anemia in Indonesia is higher due to anemia treatment is conducted during the pregnancy, not before it. The total number of anemia sufferers of pregnant women in Indonesia is 70%. This means that 7 out of 10 people will suffer anemia. The immediate cause of anemia is due to infection, bleeding and diseases such as marrow abnormalities, while indirect causes such as food intake in the form of nutrition are not sufficient for iron needs in the body.

***Corresponding author:*Pitriani**
Enviromental Health Department, Public Health Faculty, Tadulako University

Data from the Palu City Health Office stated that the highest incidence of anemia in pregnant women was in the Community Health Center of Talise as much as 100%, then the Community Health Center of Tawaeli and Nosarara were 85.7%. At Community Health Center of Kamonji was 80.9% and in Community Health Center of Bulili was 69.4%, beside that at Community Health Center of Bulili was 57.7%, Community Health Center of Pantoloan was 44.2%, Community Health Center of Sangurara was 26.7%, Community Health Center of Mabelopura was 24, 3%, Community Health Center of Birobuli was12.3%, Community Health Center of Singgani 11.3% and the lowest was Community Health Center of Kawatuna with 0.4%. The Community Health Center of Talise was community health center with the highest incidence of anemia in pregnant women, which reached 86.9% and in 2016 faced an increase in the incidence of anemia in pregnant women, which reached 100% divided into mild anemia 38.5% and moderate anemia 61, 4%. Therefore, the researchers are interested to find the correlation between socio-economic conditions and compliance with Fe tablets consumption in accordance with the incidence of anemia in pregnant women in the Community Health Center of Talise work area.

METHODS

The research design used in the study was analytic survey research with a cross sectional approach. This study was conducted at the Community Health Center of Talise on April-2018. The population in this study were all pregnant women in the Community Health Center of Talise, totaling 384 people. The determination of the minimum sample size in this cross sectional study used the Slovin formula, so that a sample of 80 pregnant women was obtained.

The criteria for sampling are as follows:

Inclusion criteria for sample are as: (1) Pregnant women who want to become research respondents, (2) Living permanently in the area, (3) I-III trimester pregnancy ages. Whileexclusion criteria isa women who are being treated for certain diseases and not willing to be a respondent.

Operational Definition and Objective Criteria

1. Maternal Anemia, is a condition of hemoglobin (Hb) levels in the blood <11 gr / dL obtained from the results of the Talise Community Health Center laboratory (KIA book). Anemia: if Hb is <11 g / dL, it is not anemia: if Hb is g11 g / dL.

2. Education, High: The level of education of a woman who graduated from high school or equal, Low: The level of education of a woman who was not graduated from junior high school or equal.

3. Knowledge Level, Poor: If the total score of the respondent's answer is <50%

Good: If the total score of the respondent's answer is> 50%.

4. **Occupation**, Employed: If the woman has a permanent occupation and Unemployed: If the woman does not have an occupation.

5. Income, Low: If the head of the household income <Rp 2,235,900, High: If the household income is ≥ Rp 2,235,900.

5. The pregnant women's compliance with Fe tablets consumption, Non-comply: the number of Fe tablets consumed by pregnant women does not suit with those which are given by health officers. Comply: the amount of Fe tablets consumed by pregnant women, suitable with what is given by health workers.

Data Collected: was obtained by researchers directly from respondents through filling out questionnaires distributed by researchers to respondents. The data analysis used the Chi-Square test.

RESULTS

Correlation of Socio-Economic Conditions and Anemia in Pregnant Women: The results of the relationship education study with the incidence of anemia in pregnant women at the Community Health Center of Talise can be seen in the following table:

Table 1. Correlation of Education and Anemia in Pregnant Women at the Community Health Center of Talise in Kecamatan Mantikulore, Palu

Variable	Incidence of Anemia				Total		*P value*
	Anemia		Not Anemia				
	n	%	n	%	n	%	
Education							0.002
Low	49	83.1	10	16.9	59	100	
High	10	47.6	11	52.4	21	100	
Work Status							0.004
Unemployed	40	87.0	6	13.0	46	100	
Employed	19	55.9	15	44.1	34	100	
Family Income							0.003
Low	43	86.0	7	14.0	50	100	
Hihg	16	53.3	14	46.7	30	100	
Knowledge							0.002
Poor	50	83.3	10	16.7	60	100	
Good	9	45.0	11	55.0	20	100	

Table 1 showed that pregnant women who have low education level who suffer from anemia are 49 people (83.1%), and those who are not anemia are 10 people (16.9%). While pregnant women with high education level who suffer from anemia are 10 people (47.6%), and those who do not suffer from anemia are 11 people (52.4%). Based on the results of the Chi Square test p value = 0.002 so that p <0.05, which means that there is a correlation between education with the incidence of anemia in pregnant women in the Community Health Center of Talise.
In this table it can also be seen that 40 pregnant women who do not work and suffer from anemia (87.0%), while 6 people who are not anemia (13.0%). While 19 pregnant women who work and suffer from anemia (55.9%), and 15 who do not suffer from anemia (44.1%). Based on the results of the Chi Square test p value = 0.004 so that p <0.05, which means there is a correlation between work and incidence of anemia in pregnant women in the Community Health Center of Talise.
Table 1 also described that pregnant women with low family income and suffer anemia are 43 people (86.0%), and those who do not suffer from anemia are 7 people (14.0%). Whereas 16 high-income pregnant women who suffer from anemia are 16 people (53.3%), and 14 who do not suffer from anemia (46.7%). Based on the Chi Square test results obtained p = 0.003 so that p <0.05, which means that there is a correlation between family income and complaints of anemia incidence in pregnant women at the Community Health Center of Talise. And in this table alsoshowed that pregnant women with poor

knowledge and suffer from anemia are 50 people (83.3%), and those who do not suffer from anemia are 10 people (16.7%). Whereas pregnant women with good level of knowledge who suffer from anemia are 9 people (45.0%), and those who do not suffer from anemia were 11 people (55.0%). Based on the Chi Square test results obtained p = 0.002 so that p <0.05, which means that there is a correlation between knowledge with the incidence of anemia in pregnant women in the Community Health Center of Talise.

Compliance Consumption of Fe Tablet With The Incidence Of Anemia In Pregnant Women: The results of the study of the relation of compliance consumption of Fe tablets with the incidence of anemia in pregnant women at the Community Health Center of Talise can be seen in the following table:

Table 2. Correlation of Compliance of Tablet Fe Consumption and Anemia in Pregnant Women at Community Health Center of Talise in Mantikulore, Palu

Compliance Consumption of FeTablet	Incidence of Anemia				Total		*pvalue*
	Anemia		Unanemia				
	n	%	n	%	n	%	0,004
Comply	49	83,1	10	16,9	59	100	
Non-Comply	10	47,6	11	52,4	21	100	
Total	59	73,8	21	26,3	80	100	

Table 2 showed that pregnant women who do not comply the Fe tablets consumption and suffer from anemia are 49 people (83.1%), and those who do not suffer from anemia are 10 people (16.9%). While pregnant women who comply to Fe tablets consumption and suffer from anemia are 10 people (47.6%), and those who do not suffer from anemia are 11 people (52.4%). Based on the Chi Square test results obtained p = 0.004 so that p <0.05, which means that there is a correlation between the compliance of Fe tablet consumption with the incidence of anemia in pregnant women in the Community Health Center of Talise.

DISCUSSION

Table 1 showed that there is a correlation between education and the incidence of anemia in pregnant women. It is known that the majority of pregnant women with low education who are at risk to have anemia are 18 people (100%). This happens because the women's level of education will give influences in receiving information so that can increase her knowledge about herself and her fetus. Thus, it will affect the women healthy condition and healthy fetal growth. Pregnant women who are highly educated can improve their consumption patterns and nutrient intake as needed. Therefore, health education especially they which are connected to women pregnancy is very important to do. It explains the importance of nutritional counseling by paying attention to women pregnancy education and local culture in the first trimester to prevent anemia early (Rosmala, 2017). Arisman (2004) argued the level of education influences the incidence of anemia, because the level of education also determines whether someone easily absorbs and understands the knowledge of nutrition they obtain or not. The low level of education is closely related to the level of understanding of Fe tablets and their awareness of Fe tablets consumption for pregnant women. The condition of iron deficiency in pregnant women is determined by many things, including the education of pregnant women. The low level of education of pregnant women influences the reception of information so the knowledge of Fe becomes limited and has an impact on the occurrence of iron deficiency. The better the education of pregnant women, the better the information which is received, especially about the benefits of Fe tablets. The results of this study are similar with Balarajan *et al* (2011), that there is a significant correlation between educational factors on the incidence of anemia in pregnant women. The results of this study are different from the results of Mawaddah and Hardinsyah (2013), where of multivariate analysis of respondents' educational background have an influence on a high understanding of the decrease in the prevalence of anemia. Occupation will determine socio-economic status because from it all needs will be fulfilled. The occupation does not only have economic value but also human effort to get satisfaction and get rewards or wages, in the form of goods and services will fulfill their life needs (Soeroto, 1986). Table 1 showed that there is a correlation between Occupation and the incidence of anemia on pregnant women, it is known that the majority of pregnant women who do not work are at risk of facing anemia, which are 43 people (66.2%). This happens because pregnant women who are unemployed tend to have lower socio-economic status and they have to work hard during pregnancy to meet their needs. So that nutritional needs are not fulfilled, short birth spacing, inadequate antenatal care (Rosmala, 2017).

Pregnant women with unemployed working status, only as housewives, are a risk factor for anemia because most of their income depends on their husband's income to meet their needs. Anemia is found in low monthly income (Obay *et al*, 2016). This is in accordance with research by Taseer *et al* (2011), work is a risk factor for anemia in pregnancy, especially iron deficiency anemia. This is not in accordance with research by Ugi (2013), explaining that there is no relationship between work and the incidence of anemia in the Community Health Centers of Karawang. Family income have a big role in nutrition and family eating habits. Food availability of a family is strongly influenced by the level of family income. Low income is an obstacle that causes people unable to buy, choosing foods that are good at nutritional quality and variety (Citrakesumasari, 2012).Table 1 showed that there is a correlation between family income and the incidence of anemia in pregnant women. It is known that pregnant women with low income are at most at risk of facing anemia, which is 36 people (75%). This happens because the lack of family income causes a decrease in location and to buy food everyday so the family has to reduce the amount and quality of pregnant women's food per day which results in a decrease in nutritional status. Food sources that are needed to prevent anemia generally come from protein sources that are more expensive, and difficult to buy by those on low incomes. These deficiencies increase the risk of anemia in pregnant women and exacerbate the risk of pain in the mother and newborn baby. Anemia contributes to the high mortality rate of pregnant women and increases along with increasing gestational age (Rosmala, 2017; Purwanto, 2012).

Low economic (income) levels can affect eating patterns. Most of the expenditure is intended to meet the needs of food, oriented to the type of carbohydrate food. This is due to foods that contain lots of carbohydrates, are cheaper than food of iron sources, so that iron needs will be difficult to fulfill, and can have an impact on the occurrence of iron-deficiency anemia (Winda, 2012).This is in accordance with research conducted by Balarajan *et al* (2011), income is a risk factor for

anemia in pregnancy, especially iron deficiency anemia. Income is closely related to economic status in which the results of research conducted by Kurniasih (2011) explain that there is a significant correlation between economic status and the incidence of anemia in the UPTD Community Health Center of Sukahaji in Kabupaten Majalengka. Knowledge is the result of knowing and occurs after people sense a particular object. Sensing occurs through the human senses, such as vision, hearing, smell, taste, and touch (Notoatmodjo, 2012). Table 1 shows that there is a correlation between knowledge with the incidence of anemia in pregnant women, it is known that the majority of pregnant women with poor knowledge, are at risk of anemia are 44 people (77.8%). Lack of women's knowledge of anemia will affect the women in consuming foods that contain lots of iron and in processing the right food, resulting intake of food which contains inadequate iron. In this case, iron is very influential in the incidence of anemia. Less knowledge causes nutritious food ingredients are not consumed optimally. The choice of food ingredients and the wrong eating pattern, contribute to the incidence of anemia. This anemia condition can be caused by the knowledge of pregnant women about low and irregular nutrition. In addition, iron is only a small amount that can be absorbed from food ingredients. Lack of knowledge and misconceptions about nutritional needs and food values are common. Poverty and lack of nutritious food supply are important factors in the problem of malnutrition or the ability to apply information in daily life.

A good proportion of knowledge will increase the compliance with Fe tablets consumption in pregnant women, so that the prevalence of anemia can decrease. Compliance with Fe tablets consumption is a form of behavior that can be realized because of the knowledge gained from outside as well as beliefs and encouragement from other people, including health officers, neighbors, or close friends (Green, 2015).The results of this study are similar to Sonkar VK *et al*'s (2017) study, showing a significant correlation between knowledge and the incidence of anemia. It can be concluded that pregnant women with low knowledge have a higher chance to not comply in Fe tablets consumption than pregnant women with high knowledge. The results of this study are similar to Maisa's (2011) study, there is a correlation between knowledge of pregnant women with the incidence of gravidarum anemia. Compliance with iron tablets consumption is measured by the accuracy of the number of tablets that are consumed, the accuracy of how to consume iron tablets, the frequency of consumption per day. Iron supplementation or administration of Fe tablets are important efforts to prevent and overcome anemia, especially iron deficiency anemia. Iron supplementation is an effective way because iron contents are supplemented with folic acid which can prevent anemia due to folic acid deficiency (Hidayah and Anasari, 2012). Table 2 showed that there is a correlation between Compliance with Fe Tablet consumption and the incidence of anemia in pregnant women. It is known that the majority of pregnant women who do not comply are at risk of facing anemia, which are 44 people (75.9%). From these results, it appears that pregnant women who consume Fe tablets in sufficient quantities tend to not face anemia compared to pregnant women who consume Fe tablets in less amounts. But there are still pregnant women who suffer from anemia even though they have consumed enough Fe tablets. This can occur due to digestive problems such as nausea and vomiting in pregnant women so that the Fe tablets have not been absorbed optimally in the body. In addition, absorption of Fe in the body must be supported by other nutrients such as vitamin C, so another food intake is needed in addition to Fe tablets. While there are also pregnant women who do not face anemia but the level of tablet consumption is lacking. This is because the level of need is able to be fulfilled based on daily food consumption. The results of this study are supported by research Septi *et al* (2017), where the results of the study showed a significant correlation between Tablet Fe consumption and the incidence of nutritional anemia in pregnant women. The research results of Rochayati (2015), statistical tests prove a significant correlation between the determination of anemia with the compliance of Fe tablets consumption in pregnant women. This means that pregnant women with not good determination of anemia are at a higher risk to not consume Fe tablets, compared to pregnant women with good determination of anemia. The results of this study are similar to those of Djamilus and Herlina (2011), pregnant women who do not comply with Fe tablets consumption, have a greater risk of anemia than those who comply with Fe tablets consumption.

Conclusion

Based on research at the Public Health Center of Talise, there was a correlation between socio-economic conditions (education, occupation, income, knowledge) and the compliance consumption of Fe tablets with incidence of anemia in pregnant women. It is recommended that the community health center should provide information about the benefits of Fe tablets to pregnant women so that their consume Fe tablets according the recommended dose to pregnant women and Community Health Center must due early detection by checking the maternal Hb levels regularly so that the incidence of anemia can be known, so that the health center can handle anemia in pregnant women.

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