Journal Educational of Nursing (JEN)
Vol. 4 No. 1 – January – June 2021; page 20-28
p-ISSN : 2655-2418; e-ISSN : 2655-7630
journal homepage: https://ejournal.akperrspadjakarta.ac.id
DOI : 10.37430/jen.v4i1.81

Article history:
Received: February 19, 21
Revised: February 25, 21
Accepted: March 02, 21

Relationship of Nutrition Knowledge and Chronic Energy Loss With Anemia in Pregnant Women in Alalak Selatan Health Center

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Abstract

Anemia is an indicator of poor nutrition and health. The most common cause of anemia worldwide is iron deficiency, due to a prolonged iron imbalance caused by iron intake or food intake that is not strong. Iron deficiency anemia in pregnant women can affect the growth and development of the fetus or baby during pregnancy and afterwards. Factors that influence anemia in pregnant women include knowledge and direct factors that influence the incidence of anemia in pregnant women, namely the risk of chronic energy shortage (CES). The research objective to be achieved based on the above problem formulation is to know the relationship between nutritional knowledge and chronic energy shortages with anemia in pregnant women at Alalak Selatan Health Center. The study uses a quantitative descriptive design using accidental sampling technique approach by taking respondents who come to Alalak Selatan Health Center 2. Samples used in this study as many as 57 respondents, with data analysis using the Chi Square test. The results showed a significance of 0,000 <0.05 that there was a relationship between nutritional knowledge and anemia in pregnant women. Likewise with the relationship of chronic energy deficiency with anemia in pregnant women, the chi square test was obtained as significant as 0,000 <0.05 so it can be concluded that there is a relationship of chronic energy deficiency with anemia of pregnant women. Alalak Selatan Health Center should increase socialization regarding the importance of nutrition for pregnant women so that anemia does not occur during pregnancy, because it will affect fetal development.

Keywords: Anemia of Pregnant Women, Nutritional Knowledge, Chronic Energy Deficiency

Preliminary

Maternal Mortality Rate (MMR) is the number of maternal deaths per 100,000 live births during pregnancy, childbirth and childbirth or its management and not due to other causes such as accidents or falls (Ministry of Health, 2016). The Indonesian Demographic and Health Survey (IDHS, 2012) shows that the ratio of maternal mortality to maternal mortality (MMR) is 359 maternal deaths per 100,000 live births.

The low level of public awareness about the health of pregnant women is a determining factor in mortality, although there are other factors that influence it, such as bleeding, pregnancy poisoning accompanied by convulsions, abortion, and infection. Bleeding occupied the highest percentage of causes of maternal death at 28%, while the main causes of bleeding in pregnant women were anemia and chronic energy deficiency (CED) (Bappenas, 2015).

Anemia is a condition in which the number of red blood cells or oxygen-carrying capacity is insufficient to meet physiological needs that vary according to age, sex, height, smoking habits and pregnancy status so that it interferes with the capacity of the blood to carry oxygen in the body (WHO, 2018).

Anemia is an indicator of poor nutrition and health. The most common cause of anemia worldwide is iron deficiency, a result of a prolonged iron imbalance caused by poor iron intake or dietary intake. The need for iron increases during pregnancy or growth periods and is exacerbated by menstrual periods and intestinal worms.

Anemia generally occurs throughout the world, especially in developing countries and in low socio-economic groups. In the adult group, anemia occurs in women of reproductive age, especially pregnant women and breastfeeding women because they have a lot of iron deficiency.

Overall, anemia occurs in 45% of women in developing countries and 13% in developed countries (Riskesdas, 2013). It is estimated that 50% of anemia in women worldwide is caused by iron deficiency (WHO, 2014). The World Health Organization (2011) states that in 2011, the prevalence of anemia in pregnant women in the world was 38.2%.

In Indonesia, the proportion of anemia in pregnant women is 37.1% (Riskesdas, 2013) and has increased by 48.9% (Riskesdas, 2018). Meanwhile, for South Kalimantan, the prevalence of anemia in pregnant women is 10.9% (Kalsel Health Office, 2016) and especially for Banjar Regency the incidence of anemia in pregnant women is still very high, this is evidenced by the provision of 11,772 F-1 iron tablets (94, 67%) and F-3 as many as 10,146 (81.59%) of 12,435 pregnant women in 2016 (Dinkes Kab Banjar, 2017).

Puskesmas Alalak Selatan is one of the most active puskesmas in providing services to patients. In the last 3 years the incidence of anemia in pregnant women has increased, where in 2016 there were 635 patients from 853 pregnant women or 89%, in 2017 it had increased to 665 patients from 853 pregnant women or 93%. And in 2018 the incidence of anemia in pregnant women increased to 715 patients from 868 pregnant women or 99%.

Pregnant women are one of the groups at high risk of developing anemia, although the anemia experienced is generally a relative anemia due to physiological changes in the body during pregnancy. Iron deficiency anemia in pregnant women can affect the growth and development of the fetus or baby during pregnancy and afterwards (Indonesia Health Profile, 2016). Pregnant women are considered to have anemia if their Hb level is below <11.0 g / dl. This anemia occurs due to an increase in plasma volume which results in dilution of Hb levels without changing the shape of red blood cells (Riskesdas, 2013).

The factors that influence anemia in pregnant women include the basic factors consisting of socio-economy, knowledge and education. Meanwhile, indirect factors include Antenatal Care (ANC) visits and the age of pregnant women. And the direct factors that affect the incidence of anemia in pregnant women are the adequacy of iron tablet consumption, maternal pregnancy distance, parity, and nutritional status by measuring LILA before and during pregnancy to determine the risk of chronic energy deficiency (CEC).

The results of Fidyah's (2014) study entitled "The Effect of Chronic Energy Deficiency (CEC) with the Incidence of Anemia in Pregnant Women" show that there is an effect of CEC on anemia in pregnant women at the Tanjung Pinang Public Health Center with a p value = 0.0002. The results of Zulhaida's (2017) study in Medan showed that there was a

relationship between CEC and anemia in pregnant women with OR 4.082 95% CI 1.604-10.387 which means that pregnant women with CEC have a 4 times higher risk of developing anemia compared to pregnant women who do not experience CEC.

The results of the Lindung study (2013) show that 50% of pregnant women who have a good and low level of knowledge about anemia at Moyudan Health Center. Pregnant women who have less knowledge will behave negatively and vice versa. Pregnant women who have good knowledge will behave positively. The results of this study were supported by research conducted by Nursilmi (2016) at the Jetis Health Center, Yogyakarta City, which said that there was a relationship between the level of knowledge about anemia and the incidence of anemia in pregnant women in the third trimester with p value = 0.006.

Knowledge about anemia during pregnancy is very important for those who are pregnant, because knowledge affects people's attitudes and behavior in maintaining their daily food consumption patterns so that it can prevent anemia during pregnancy. Meanwhile, the nutritional status during pregnancy also needs to be considered, the need for iron also increases as the gestational age increases.

Research methods

The research design used in this research is descriptive analytic research. This type of research is a survey research using an explanatory research approach that aims to explain the relationship between nutritional knowledge and chronic energy deficiency with anemia in pregnant women at Alalak Selatan Health Center.

The population in this study were pregnant women who came to the Alalak Selatan community health center in April 2019 with an average number of patients per month of 133 patients based on the number of visits by pregnant women patients in the last 3 (three) months. The sample in this research was 57 people. The sampling technique used random sampling techniques by taking respondents who came to the South Alalak Health Center.

Result

Respondent Characteristics

Table 1 Characteristics of Respondents

No	Characteristics	Frequency	Percentage (%)
1	Age		
	20 - 30	19	33%
	> 30 - 40	26	46%
	> 40 - 50	12	21%
Amount		57	100%
3	Education		
	Primary School	5	9%
	Junior High School	9	16%
	Senior High School	27	47%
	Bachelor	16	28%
Amout		57	100%

Respondents associated with this study were pregnant women, based on the table above, the characteristics of respondents for the ages between 20-30 years consisted of 19 people or 33%. Meanwhile, for those over 30-40 years old, there were 26 people 46%. 12 respondents or 21% over 40-50 years old.

The characteristics of the respondents based on the last education level of elementary school were 5 respondents or 9%, the latest junior high school education

was 9 respondents or 16%, the latest high school education was 27 respondents or 47% and the latest S1 education was 16 respondents or 28%.

1. Univariate Analysis

Anemia

Table 2 Distribution of Respondents for Anemia Incidence in Pregnant Women at Alalak Selatan Health Center in 2019

Kode	Anemia	Frequency	Percentage (%)
1	Normal	27	47%
2	Anemia	30	53%
	Total	57	100%

The table above shows that there were 30 pregnant women (53%) who experienced anemia and 27 people (47%) who were normal at Puskesmas Alalak Selatan.

Nutritional Knowledge

Table 3 Distribution of Respondents Based on Nutritional Knowledge at Puskesmas Alalak Selatan in 2019

Kode	Education	Frequency	Percentage (%)
1	Good	33	58%
2	Enough	24	42%
	Total	57	100%

Based on the data above, knowledge with sufficient categories is 24 respondents or 42% and good categories with 33 respondents or 58%. And there is no respondent in the poor category of knowledge, this shows that the average patient's knowledge is better.

Chronic Energy Deficiency (CEC)

Table 4 Distribution of Respondents Based on Chronic Energy Deficiency at Alalak Selatan Community Health Center in 2019

Kode	CEC	Frequency	Percentage (%)
1	Not CEC	32	56%
2	CEC	25	44%
	Total	57	100%

Based on the data above, it is obtained that the distribution value of the chronic energy deficiency variable with the No CEC category is 32 respondents or 56% and the CEC category is 25 respondents or 44%.

2. Bivariate Analysis

The Relationship between Nutritional Knowledge and The Incidence of Anemia in Pregnant Women

Table 5 The Relationship between Nutritional Knowledge and The Incidence of Anemia in Pregnant Women at Alalak Selatan Health Center in 2019

No	Knowledge	Anemia of Pregnant Women				Amount	%	P value
		Normal		Anemia				
		n	%	n	%			
1	Good	27	47,4	6	10,5	33	100	0,000
2	Enough	0	0	24	42,1	24	100	
Amount		27	47,4	30	52,6	57	100	

Based on the table data above regarding the relationship between nutritional knowledge and the incidence of anemia in pregnant women, for the good category, 27 respondents or 47.4% in normal conditions did not experience anemia and as many as 6 respondents or 10.5% had anemia. Meanwhile, for the moderate category, 24 respondents or 42.1% experienced anemia and 0 respondents for the less category. There are no respondents in the poor category of knowledge with anemia or normal conditions, so this shows that the average patient's knowledge is better.

Based on the chi square test data regarding the relationship between nutritional knowledge and anemia in pregnant women, it was obtained a significance of 0.000. Because the significance value of 0.000 <0.05, it can be concluded that Ho is rejected, meaning that there is a relationship between nutritional knowledge and the incidence of anemia in pregnant women.

The Relationship of Chronic Lack of Energy with the Incidence of Anemia in Pregnant Women

Table 6 The Relationship between Chronic Energy Deficiency and The Incidence of Anemia in Pregnant Women at Alalak Selatan Health Center in 2019

No	Chronic Energy Deficiency (CEC)	Anemia Ibu Hamil				Amount	%	*P value*
		Normal		Anemia				
		n	%	n	%			
1	Not CEC	24	42,1	8	14	32	100	0,000
2	CEC	3	5,3	22	38,6	25	100	
Amount		27	47,6	30	52,6	57	100	

The relationship between chronic energy deficiency and anemia in pregnant women, for the category not CEC as many as 24 respondents or 42.1% in normal conditions, and as many as 8 respondents or 14.0% in anemia conditions. Meanwhile, for the KEK category, there were 3 respondents or 5.3% in normal conditions and as many as 22 respondents or 38.6% in anemia conditions.

From the output data of the chi square test regarding the relationship between chronic energy deficiency and anemia in pregnant women, it is obtained a significance of 0.000. Because the significant value is 0.000 <0.05, it can be concluded that Ho is rejected, meaning that there is a relationship between chronic lack of energy and anemia in pregnant women.

Discussion

1. Univariate Analysis

Incidence of anemia in pregnant women at Puskesmas Alalak Selatan

The incidence of anemia in pregnant women will affect the condition of the mother and the fetus in her womb, and can be fatal if it is not handled immediately, one of which is a miscarriage. Based on data obtained from 57 respondents of pregnant women at the Martapura Health Center, 27 respondents or 47% stated normal and 30 respondents or 53% stated anemia.

The incidence of anemia in pregnant women is caused by several factors, including the knowledge of nutrition which makes the nutritional intake of pregnant women mainly contain lots of iron plus consuming iron tablets, as research shows that consumption of iron tablets in pregnant women is influenced by the knowledge of pregnant women. The low knowledge of the mother, the lower the level of tablet consumption with blood added. Large anemia in pregnant women is the main cause of death and illness in pregnant women.

Knowledge of nutrition for pregnant women at Puskesmas Alalak Selatan

Knowledge is the main basis for someone to take an action. Based on the responses from 57 respondents at the Alalak Selatan Community Health Center, it was found that the distribution value of nutritional knowledge was in the sufficient category of 24 respondents or 42% and the good category with 33 respondents or 58%.

Of the 14 questions regarding knowledge about nutrition for pregnant women, the most answered questions correctly are: How many times do you consume protein sources? With the correct answer c. Every day, 49 out of 57 respondents answered correctly. Meanwhile, the question that many respondents answered incorrectly is the question: What foods contain protein (vegetable and animal)? With the correct answer a. Fish and tempeh, were answered correctly by 36 out of 57 respondents.

One of the causes of anemia in pregnant women is the lack of knowledge of pregnant women about good food during pregnancy and the low intake of foods containing iron.

Iron deficiency anemia can also be influenced by other factors such as nutritional status, diet, health facilities, growth, endurance and infection, as well as lack of iron intake such as iron tablets during pregnancy. Riskesdas (2013) shows that the higher education related to knowledge, the greater the percentage coverage of iron consumption.

Regarding the incidence of anemia at Alalak Selatan Puskesmas, nutritional knowledge is a factor in the incidence of anemia at Alalak Selatan Puskesmas. Research shows that pregnant women who have low knowledge are prone to iron deficiency. This is in line with the results of the study which stated that there was a relationship between the variable level of knowledge about anemia and the incidence of anemia in third trimester pregnant women.

Chronic lack of energy in pregnant women at Puskesmas Alalak Selatan

One way to determine the nutritional status of fertile women aged 15-49 years is to measure the circumference of the upper arm (LILA). The results of this measurement can be used as one way to identify how much a woman is at risk of giving birth to a LBW baby. The Chronic Energy Deficiency Indicator (KEK) uses the LILA <23.5 cm standard (Arisman, 2010).

Identification of chronic energy deficiency based on the measurement of LILA using the LILA band from 57 respondents obtained the value of the distribution of chronic energy deficiency variables with the No KEK category of 32 respondents or 56% and the KEK category of 25 respondents or 44%.

Related to the incidence of anemia in pregnant women, it is still quite high in the category of chronic energy deficiency. This is supported by the results of research which show that the nutritional status of pregnant women based on LILA is related to the incidence of anemia.

2. Bivariate Analysis

The relationship between nutritional knowledge and the incidence of anemia in pregnant women at Alalak Selatan Health Center

Based on data regarding the relationship between knowledge of nutrition and anemia in pregnant women at the Alalak Selatan community health center, based on the last elementary education level as many as 5 respondents or 9%, the latest junior high school education was 9 respondents or 16%, the latest high school education was 27 respondents or 47% and education Finally, S1 as many as 16 respondents or 28%, it can be seen that the level of education is above high school, this means that the knowledge possessed by pregnant women is in the good category by 58%

Meanwhile, the relationship between nutritional knowledge and anemia in pregnant women was in the good category as many as 27 respondents or 47.4% in normal conditions did not experience anemia and as many as 6 respondents or 19.5% had anemia, the condition of anemia was due to lack of nutritional intake consumed by pregnant women. . Meanwhile, for the moderate category, 24 respondents or 42.1% experienced anemia due to pregnant women ignorance of the importance of nutritional intake during pregnancy.

Based on the chi square test data regarding the relationship between nutritional knowledge and anemia in pregnant women, it was obtained a significance of 0.000 <0.05, it can be concluded that there was a relationship between nutritional knowledge and anemia in pregnant women. Likewise, research which states that there is a moderate level of relationship between the level of knowledge about anemia

and the incidence of anemia in pregnant women and in line with the results of research which states that there is a relationship between nutritional knowledge and anemia.

Nutritional knowledge is knowledge about someone related to food and health. A person's diet is influenced by the environment and knowledge of food without having or paying attention to knowledge of nutritious food ingredients.

One of the main nutritional problems in Indonesian society is anemia. With good nutrition knowledge from mothers, it is hoped that mothers can compile a diet rich in iron so that family members and mothers themselves, especially pregnant women, can avoid anemia. This means that good nutritional knowledge will let the mother know how to deal with or handle it when the mother or her family member is diagnosed with anemia.

The relationship between chronic lack of energy and anemia in pregnant women at Alalak Selatan Health Center

Maternal Mortality Rate (MMR) is one indicator of the success of health services in a country. WHO (2017) explains that the causes of maternal death are bleeding and infection which can be caused by anemia and chronic lack of energy. About 40% of maternal mortality in developing countries is related to anemia in pregnancy and most anemia in pregnancy is caused by acute bleeding and poor nutritional status. Pregnant women with poor nutritional status can cause chronic energy deficiency.

In this study, the relationship between chronic energy deficiency and anemia in pregnant women, for the category not KEK as many as 24 respondents or 42.1% in normal conditions, and as many as 8 respondents or 14.0% in anemia conditions. Meanwhile, for the KEK category, there were 3 respondents or 5.3% in normal conditions and as many as 22 respondents or 38.6% in anemia conditions. This is because the needs of pregnant women will increase than usual, especially in the third trimester. Due to the increase in the amount of consumption, food needs to be increased, especially the consumption of food sources of energy to meet the needs of the mother and fetus. Lack of energy intake in pregnant women will cause nutritional deficiencies.

Based on the output of the chi square test regarding the relationship between chronic energy deficiency and anemia in pregnant women, it is obtained a significant value of 0.000 <0.05, it can be concluded that there is a relationship between chronic energy deficiency and anemia in pregnant women. This is supported by Aminin's research (2014) from the results of the study showing that there is an effect of Chronic Energy Deficiency (KEK) on anemia in pregnant women.

Conclusion

1. The incidence of anemia in pregnant women at Alalak Selatan Health Center is 53%, this indicates that the incidence of anemia in pregnant women is still quite high.
2. Knowledge of nutrition with adequate category was 24 respondents or 42% and good category with 33 respondents or 58%.
3. Chronic energy deficiency with the No KEK category was 32 respondents or 56% and the KEK category was 25 respondents or 44%.
4. The relationship between nutritional knowledge and anemia in pregnant women, obtained a significance of 0.000 <0.05, it can be concluded that there is a relationship between nutritional knowledge and anemia in pregnant women.

5. The correlation between chronic energy deficiency and anemia in pregnant women, obtained a significant value of 0.000 <0.05, it can be concluded that there is a relationship between chronic energy deficiency and anemia in pregnant women.

Suggestion

1. This study can add to the knowledge of knowledge, especially about anemia in pregnant women and the factors that influence anemia in pregnant women.
2. Practical aspects of this research are
   a. Puskesmas Alalak Selatan should increase socialization regarding the importance of nutritional intake for pregnant women so that anemia does not occur during pregnancy, because it will affect fetal development.
   b. Hold health education or talk shows with the general public to provide an overview of fetal development and the health of pregnant women.

Bibliography

[1]. Admin. 2017. http://www.beritasatu.com/kesra/441051-28-persen-kematianibu-melahirkan-akibat-pendarahan.html (Di akses Tanggal 18 April 2019)

[2]. Andriani, M. 2013. Pengantar Gizi Masyarakat. Jakarta : Kharisma Putra Utama.

[3]. Arikunto, S. 2010. Prosedur Penelitian Suatu Pendekatan Praktik. Jakarta: Rineka Cipta.

[4]. Arisman. 2014. Gizi dalam Daur Kehidupan: Buku Ajar Ilmu Gizi. Jakarta: EGC.

[5]. Aritonang, E. 2014. Kebutuhan Gizi Ibu Hamil. Bogor : IPB Press.

[6]. Bappenas. 2015. https://www.bappenas.go.id/index.php/download_file/view/7450/ 5666/ (Di akses tanggal 18 April 2019)

[7]. Budiarti, A. 2014. Fisiologis dan Patologis pada Kehamilan. Yogyakarta: Nuha Medika

[8]. Faatih M, Sariadji K, Susanti I, Putri RR, Dany F, Nikmah UA. 2017. Penggunaan alat pengukuran hemoglobin di puskesmas, polindes, dan pustu. Ejournal Litbang Depkes. 1(1):1-8

[9]. Fatmah. 2010. Gizi dan Kesehatan Masyarakat. Jakarta: Rajawali Pers.bagai Faktor Resiko Kejadian Dislipidemia pada Dosen Universitas Gadjah Mada yang Melakukan Medical Check Up di GMC Health Center Yogyakarta. Tesis. Fakultas Kedokteran UGM.

[10]. Fikawati, S. 2015. Gizi Ibu dan Bayi. Jakarta : PT Raja Grafindo Persada.

[11]. Fidyah Aminin, 2014, Pengaruh Kekurangan Energi Kronis (Kek) Dengan Kejadian Anemia Pada Ibu Hamil

[12]. Fitriana Dyah, Primadani, 2016, Faktor-Faktor Yang Mempengaruhi Kejadian Kek Pada Ibu Hamil Di Puskesmas Baturraden Ii Kabupaten Banyumas. Bachelor Thesis, Universitas Muhammadiyah Purwokerto.

[13]. Indra, M. 2011. Hubungan Antara Pengetahuan Gizi dan Status Gizi dengan Anemia Pada Ibu-Ibu Usia Produktif di Desa Mangli Kecamatan Kaliangkrik Kabupaten Magelang. eprints.ums.ac.id/22218/.

[14]. Istiarti., 2010. Menanti buah hati kaitan antara kemiskinan dan kesehatan. Yogyakarta : Pressindo.

[15]. Kartasapoetra, G. 2013. Ilmu Gizi Korelasi Gizi, Kesehatan dan Produktivitas Kerja. Jakarta : PT Rineka Cipta

[16]. Kemenkes RI. 2016. Profil Kesehatan Indonesia Tahun 2016.

[17]. Kementerian Kesehatan RI. 2014. Pedoman Gizi Seimbang. In D. B. G. d. KIA (Ed.), Nutritional Requirement (Vol. 2014). Jakarta: Kementerian Kesehatan RI.

[18]. Khomsan, Ali. 2014. Pangan dan Gizi Untuk Kesehatan. Jakarta : Raja Grafindo Persada.

[19]. Lindung, P. 2013. Hubungan Tingkat Pengetahuan Tentang Anemia dengan Kejadian Anemia Pada Ibu Hamil. Jurnal Gizi UMS, Vol 2 (1), April 2013.
[20]. Lubis, LA. 2016. Faktor-Faktor Yang Berhubungan Dengan Kejadian Kekurangan Energi Kronik (KEK) Pada Ibu Hamil Di Puskesmas Langsa Lama Kota Langsa Tahun 2015.
[21]. Manuaba. 2018. Ilmu Kebidanan, Penyakit Kandungan dan KB. Jakarta : EGC
[22]. Mochtar, R. 2018. Sinopsis Obstetric, Sinopsis Fisiologi, Obstetric Patologi. Jakarta : EGC.
[23]. NIH. 2011. Your Guide to Anemia. US Department of Health and Human Services.
[24]. Notoatmodjo, S. 2012. Ilmu Kesehatan Masyarakat Prinsip-Prinsip Dasar. Jakarta : Rineka Cipta.
[25]. Nursilmi, K. 2016. Hubungan Tingkat Pengetahuan Ibu Hamil Tentang Anemia dengan Kejadian Anemia Pada Ibu Hamil Trimester III di Puskesmas Jetis Kota Yogyakarta. Skripsi : Universitas „Aisyiyah Yogyakarta.
[26]. Proverawati, A. 2011. Anemia dan Anemia Kehamilan. Yogyakarta : Nuha Medika.
[27]. Riskesdas. 2013. Riset Kesehatan Dasar. Kementerian RI.
[28]. Saifudin, AB. 2016. Buku Panduan Praktis Pelayanan Kesehatan Maternal & Neonatal. Jakarta : Yayasan Bina Pustaka Sarwono Prawirohardjo.
[29]. Sandra, F et al. 2017. Gizi Anak dan Remaja. Depok : PT Raja Grafindo Persada.
[30]. Sediaoetama, AD. 2010. Ilmu Gizi untuk Mahasiswa dan Profesi. Jakarta : Dian Rakyat.
[31]. Soetjiningsih. 2017.Tumbuh kembang anak. Jakarta: EGC.
[32]. Suhardjo. 2016. Pangan, Gizi dan Pertanian. Jakarta : UI – Press.
[33]. Tarwoto, W. 2014. Buku Saku Anemia Pada Ibu Hamil, Konsep dan Penatalaksanaan. Jakarta : Trans Info Media.
[34]. Waryana. 2013. Gizi Reproduksi. Yogyakarta : Pustaka Rihama.
[35]. WHO. 2011. The Global Prevalence of Anemia in 2011. http://www.who.int/ nutrition/publications/micronutrients/ global_prevalence_anaemia_2011/en/ (Di akses Tanggal 18 April 2019)
[36]. WHO. 2014. Maternal Mortality.
[37]. WHO. 2017. Global Anaemia Prevalence And Number Of Individuals Affected.
[38]. WHO. 2018. http://www.who.int/topics/anaemia/en/. (Di akses tanggal 18 April 2019)
[39]. Wiknjosastro, H. 2014. *Ilmu Kebidanan*. Jakarta : Yayasan Bina Pustaka Sarwono Prawirohardjo.
[40]. Yanti, Desi Ari Madi Yanti, Apri Sulistianingsih, Sumi Anggraeni. 2018. Peningkatan Pengetahuan, Sikap dan Kepatuhan Melalui Konseling Nutrisi pada Ibu Hamil Anemia di Kabupaten Pringsewu. Media Publikasi Penelitian, Vol. 15(2).
[41]. Zulhaida. Lubis. 2013. Status Gizi Ibu Hamil Serta Pengaruhnya Terhadap Bayi yang Dilahirkan.
[42]. Zulhaida, Lubis, Jumirah, Maya Fitria. 2017. Chronic Energy Malnutrition and Anemia in Pregnant Women in Medan. Advances in Health Sciences Research, volume 1: 337-340