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Factors Affecting Anemia among Pregnant Women in Manokwari District Hospital 2016

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Abstract

Anemia is an indicator of poor nutrition and poor health. Anaemia in pregnant women is associated with mortality and morbidity in the mother and baby, including risk of miscarriage, stillbirth, prematurity and low birth weight. The incidence of anemia in Manokwari Hospital is still a problem in pregnant women. This research aimed to determine the factors that affect anemia in pregnant women in Manokwari District General Hospital in 2016. Method: This research is analytic survey with cross sectional approach .. The study was conducted in October 2016 in Manokwari Hospital. Population is the expectant mother as much as 208 people. The data were obtained using a questionnaire and analyzed using chi square. results indicated that there was an effect of knowledge of anemia in pregnant women (p-value 0.001; RP = 12.479; CI95% = 1.462 to 4.203). No effect of malaria on anemia in pregnant women. (P-value 0.001; RP = 3.599; CI95% = 2.322 to 5.579). No effect of worm infection to anemia in pregnant women (p-value 0.000; RP = 4.118; CI95% (2.764 to 6.133). There was an effect of compliance consumption of iron tablet of anemia in pregnant women (p-value 0.000; RP = 2,449; CI95% = 1.498 to 4.005). There is the influence of cigarette smoke exposure on anemia in pregnant women (p-value 0.000; RP = 4.678; CI95% = 2.828 to 7.738).

Keywords: Anemia; pregnancy; nutrition; health.

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1. Introdcution

Anemia is an indicator of poor nutrition and poor health. Anaemia in pregnant women is associated with mortality and morbidity in the mother and baby, including risk of miscarriage, stillbirth, prematurity and low birth weight [1,2]. In the ASEAN countries the maternal mortality ratio was highest in Indonesia is 359 per 100,000 live births while ASEAN countries such as Thailand is only 44 per 100,000 live births, Malaysia 39 per 100,000 live births, and Singapore 6 per 100,000 live births [3]. Based on the Indonesian Demographic and Health Survey IDHS, Maternal Mortality in Indonesia amounted to 359 per 100,000 live births. AKI significant increase from 228 (in 2007) to 359 (in 2012) per 100,000 live births [4]. Research Chi and his colleagues showed that the maternal mortality rate was 70% for mothers who are anemic and 19.7% for those who nonanemia. Maternal mortality 15-20% are directly or indirectly related to anemia. Anemia is a condition in which the number and size of red blood cells or hemoglobin concentrations below the normal limit value, the impact can interfere with the capacity of blood to carry oxygen kesekitar body. Thus anemia can occur due to the number of poor blood or red blood cell count or blood concentration is less than normal. While anemia in pregnancy occurs due to a condition in which pregnant women who have Hb <11.00 g% in trimesters I and II and III or Hb <10.50 g% in the second trimester, because there are differences hemodulusi mainly occurs in the second trimester. De-worming is also one of the most common infectious diseases found in developing countries [5]. Infeksi worm disease in humans either by roundworm, whipworm and hookworm can cause chronic bleeding resulting decline in the body's iron reserves and finally lack of iron causes anemia [6]. Worm infection are factors that aggravate anemia, because if the number of worms in the intestines increases the blood loss also increased, thus disturbing the balance of iron because iron is released more than iron masuk.Ibu especially anemic pregnant very dangerous if you have a positive wormy, because it will be a lot of blood loss that aggravate anemia [6]. In addition to the infectious disease, maternal adherence factor in consuming Fe tablet also affect the incidence of anemia among pregnant women. Link between consumption of tablet Fe compliance with the incidence of anemia among pregnant women.Other factors are also suspected to affect the incidence of anemia among pregnant women is the presence of cigarette smoke, for example, damage to the spinal cord that is caused by the tar and smoke free radicals from causing the red blood cell hemolysis. The results showed that the relationship between jumlahrokok smoked per day with anemia caused by low levels of folic acid in red blood cells due to an increased hepatic microsomal oxidases induced by carbon polycyclicaromatic hydratesyang contained in cigarettes. This condition is commonly referred to megaloblastic anemia and the study was conducted in pregnant women and nonpregnant. Based on the data that the authors take in Manokwari Hospital Delivery Room number of pregnant women attending maternity are anemic from January to June 2016 as many as 150 mothers or 12.93% (Manokwari Hospital Medical Record, 2016). Based on the above, the writer is interested in conducting research on the factors - factors that affect anemia in pregnant women in Manokwari District General Hospital in 2016.

2. Materials and Methods

2.1 Types of Research

Design research is analytic survey research with cross sectional study. Research Cross Sectional is a research

that aims to determine the relationship or influence of independent variables (knowledge, infectious diseases malaria, worm infection, compliance consume iron tablet, smoke exposure roko) to dependent (anemia in pregnant women) where measurements between cause and effect in time the same one [7].

2.2 Sampling Techniques

The sample is part of a population-wide characteristics cici investigated or measured. The technique used in this study using total sampling.

3. Research Results

3.1 Characteristics of Respondents

Table 1: Distribusi Respondents Pregnancy in Manokwari Hospital

No	Variabel	Number (n)	Percentage (%)
1	**Age**		
	< 20 year	27	13,0
	20 – 35 year	153	73,6
	> 35 year	28	13,4
2	**Education**		
	Not school	3	1,4
	Basic school	24	11,5
	Junior high sc	44	21,2
	Senior high sc	95	45,7
	Higher edu	42	20,2
3	**Occupation**		
	Not work	160	76,9
	Work	48	23,1
Number		208	

Based on Table 1, indicate that most respondents in the age group 20-35 years as many as 153 people (73.6%) and less in women aged <20 years as many as 27 people (13%). Most rsponden education with a high school education as many as 95 people (45.7%) and slightly schools totaling 3 (1.4%). Works most of the respondents did not work as many as 160 people (76.9%) and a minority of respondents were working as many as 48 people (23.1%).

3.2 Knowledge, Malaria, Infectious Kecacaingan, Compliance

Consumption Tablet Fe, Smoke Exposure Rokokdan Anemia

Based on table 2 of the 208 respondents, most have a good knowledge of as many as 112 people (53.8%) compared with less knowledge as many as 96 people (46.2%). Respondents suffering from malaria were 9 people (4.3%). Of the 208 respondents as many as 25 people (12%) positive worm disease, 61 (29.3%) exposed to smoke and 50 people (24%) and the incidence of anemia.

3.3 Analysis Bivariat

a. Influence Knowledge of Genesis Anemia

Table 3 shows that of the 96 respondents who lack knowledge there were 34 (35.4%) were anemia, and 62 (64.4%) were not anemic, while of the 112 respondents whose knowledge is either there were 96 (85.7%) were anemiadan not only 16 (14.3%) were anemia.

Hasil chi square statistical test on the value of the significance of 95% ($\alpha = 0.05$) was obtained p-value0,001 or $p < \alpha$ (0.05), thus no influence knowledge of anemia in pregnant women.

When viewed from the RP = 12.479; CI95% (1.462 to 4.203) which interpreted that knowledge is less likely to occur 2,479 times greater than with a good knowledge of anemia.

b. Malaria influence on the incidence of anemia

Table 4 shows that of the nine respondents who positively malaria have as many as seven (77.8%) were anemia, and 2 (22.2%) were not anemic, while of the 199 respondents were negative malaria, there were 156 (78.4%) did not anemia and 43 (21.6%) were anemia.

Hasil chi square statistical tests on the value of the significance of 95% ($\alpha = 0.05$), was Obtained p-value0,001 or $p < \alpha$ (12:05), Thus no influence against malaria anemia in pregnant women.

When viewed from the RP = 3,599; CI95% (2322 to 5579) the which is interpreted that the mother understood that malaria 3,599 times greater chance of anemia Compared with negative pregnant women with malaria.

c. Influence Infection Anemia Helminthiases of Genesis

Table 2: Distribusi Knowledge, Malaria, Infectious Helminthiases, Compliance Consumption Tablet Fe, Cigarette Smoke Exposure and Pregnancy Anemia in Manokwari Hospital

No	Variabel	Number (n)	Percentage (%)
1	**Knowledge**		
	Less	96	46,2
	Good	112	53,8
2	**Malaria**		
	Positive	9	4,3
	Negative	199	95,7
3	**Infectious Helminthiases**		
	Positive	25	12
	Negative	183	88
4	**Compliance Consumption Tablet Fe**		
	Not comply		
	Comply	79	38
	Cigarette Smoke Exposure	129	62
5	Exposure		
	Not exposure	61	29,3
	Anemia occurrence	147	70,7
6	Anemia		
	Not Anemia	50	24
		158	76
Number		208	

Table 3: Influence Knowledge of Anemia In Pregnant Women in Manokwari Hospital

No	Pengetahuan	Kejadian Anemia				n	%
		Anemia		Tidak Anemia			
		n	%	N	%		
1	Kurang	34	35,4	62	64,6	96	100
2	Baik	16	14,3	96	85,7	112	100
Total		50	24	158	76	208	100
sp-value = 0,001;RP = 2,479; CI95% (1,462 – 4,203)							

Table 4: Effects of Malaria on Anemia In Pregnant Women in Manokwari Hospital

No	Malaria illness	Anemia occurrence				N	%
		Anemia		Not Anemia			
		n	%	N	%		
1	DDR Positive	7	77,8	2	22,2	9	100
2	DDR Negative	43	21,6	156	78,4	199	100
Total		50	24	158	76	208	100
p-value = 0,001;RP = 3,599; CI95% (2,322 – 5,579)							

Table 5: Infection influence Helminthiases against Anemia In Pregnant Women in Manokwari Hospital

No	Helminthiases	Anemia occurrence				n	%
		Anemia		Not Anemia			
		n	%	n	%		
1	Positive	18	72	7	28	25	100
2	Negative	32	17,5	151	82,5	183	100
Total		50	24	158	76	208	100
p-value = 0,000;RP = 4,118; CI95% (2,764 – 6,133)							

Table 5 shows that of the 25 respondents who positively infected with intestinal worms there are as many as 18 (72%) were anemia, and 7 (28%) were not anemic, while out of 183 respondents who are not infected kecacingann there were 151 (82.5%) were not anemic and 32 (17.5%) were anemia.Hasil chi square statistical

test on the value of the significance of 95% (α = 0.05) was obtained p-value0,000 or p <α (0.05), thus there is the effect of worm infection to anemia in pregnant women. When viewed from the RP = 4.118; CI95% (2.764 to 6.133) which interpreted that positive pregnant women worm infection 4.118 times greater chance of anemia compared with negative pregnant women kecacingan.

d. Influence Compliance Fe Tablet Consumption of Genesis Anemia

Table 6: Compliance Consumption Tablet Fe against Anemia In Pregnant Women in Manokwari Hospital

No	Compliance Consumption Tablet Fe	Anemia occurrence				n	%
		Anemia		Not Anemia			
		n	%	n	%		
1	Not comply	30	38	49	62	79	100
2	Comply	20	15,2	109	84,5	129	100
Total		50	24	158	76	208	100
p-value = 0,000;RP = 2,449; CI95% (1,498 – 4,005)							

Table 6 shows that of the 79 respondents who do not comply consuming Fe tablet there are as many as 49 (62%) are not anemic and 30 (38%) were anemia, whereas of the 129 respondents who dutifully consume the tablet Feada total of 109 (84.5%) did not anemia and 20 (15.2%) were anemia.Hasil chi square statistical test on the value of the significance of 95% (α = 0.05) was obtained p-value0,000 or p <α (0.05), thus no influence adherence konsumai Fe tablet against anemia in pregnant women. When viewed from the RP = 2,449; CI95% (1.498 to 4.005) which interpreted that pregnant women who do not comply tablet consumption 2,449 times greater Feberpeluang anemia compared with pregnant women who are obedient Fe tablet consumption.

e. Effect of Cigarette Smoke Exposure of Genesis Anemia

Table 7: Effect of Cigarette Smoke Exposure on Anemia In Pregnant Women in Manokwari Hospital

No	Cigarette Smoke Exposure	Anemia occurrence				n	%
		Anemia		Not Anemia			
		n	%	n	%		
1	Exposed	33	54,1	28	45,9	61	100
2	Not exposed	17	11,6	130	88,4	147	100
Total		50	24	158	76	208	100
p-value = 0,000;RP = 4,678; CI95% (2,828 – 7,738)							

Table 7 shows that out of 61 respondents were exposed to smoke as many as 33 (54.1%) were anemia, and 28 (45.9%) were not anemic, while the 147 respondents are not exposed to smoke as many as 130 (88.4%) no anemia, and 17 (11.6%) were anemia.Hasil chi square statistical test on = 0.05) was obtainedαthe value of the significance of 95% (p-value0,000 or p <α (0.05), thus no influence worm infection to anemia in pregnant women. When viewed from the RP = 4.678; CI95% (2.828 to 7.738) which interpreted that pregnant women exposed to secondhand smoke 4.678 times greater chance of anemia compared with pregnant women who are not exposed to smoke.

4. Discussion

Anemia in pregnancy is maternal condition with hemoglobin below 11g% in the first trimester and 3 or levels <10,5g% trimester 2. According to Saifuddin in 2001; the value of these limits occur due to hemodilution, especially in the second trimester.

The results of the 208 respondents 50 respondents (24%) experienced anemeia. According to Saifuddin in 2001, when pregnant, the body makes more blood to share with her baby. Body may require blood up to 30% more than when not pregnant. If the body does not have enough iron, the body can not make red blood cells needed to make the extra blood. Many women experience iron deficiency of the second and third trimesters. When the body needs more iron than the already available, then it can potentially be anemia.

1. Effect Genesis Knowledge of Anemia

The result showed that there was the influence of knowledge on anemia in pregnant women (p-value0,001), where anemia in pregnant women yangmenderita less knowledgeable respondents as many as 34 people (35.4%) is higher than with a good knowledge of 16 people (14.3%). The results are in line with Salmariantity [8] in pregnant women in the region kerjaPuskesmas Gajah Mada TembilahanKabupaten Manokwari revealed that there is the influence of knowledge on the incidence of anemia among pregnant women. Knowledge is the result out and this happened after people perform sensing to a particular object. Or cognitive knowledge which is essential for the formation of a person's actions. Knowledge is more subjective the introduction of an object [9].

Knowledge of pregnant women in hospitals Manokwari in the poor category does not know the result of anemia causes the blood pressure / blood pressure is low (58%) way to overcome anemia such as eating foods that contain iron and folic acid, drinking iron tablet once a week and one tablet every day for menstruation (42%), respondents also tidka know that the source of food and beverages to prevent anemiaseprti liver, meat, chicken, fish, drinks / fruit juice (40%) and 48% did not know the benefits of tablet Fe / blood added. Although most of the respondents of 208 112 people (53.8%) had a good knowledge as a source of food and how to prevent anemia so beriiski suffer from anemia. Khsusnya pregnant women who have knowledge of research kurang.Hasil is evident from the prevalence ratio that that knowledge is less likely to occur 2,479 times greater than with a good knowledge of anemia.

This is consistent with the theory [9], that the state of anemia can be caused by pregnant women knowledge about nutrition is low, so that the problem of consumption of makanaan menu is still low and not teratur.Selain

is the amount of iron that can be absorbed from the material makanaan only sedikit.Kurangnya knowledge and misconceptions about the nutritional needs and food values adalahumum encountered every country in the world. Poverty and lack of nutritious food supplies merupakaan important factor malnutrition. Another important cause of malnutrition is a lack of nutritional knowledge or the ability to apply information in everyday life. Or cognitive domain knowledge is very important for the formation of a person's actions. Because of the experience and penelitianternyata behavior based on knowledge will be more lasting than the behavior that is not based on knowledge.Prevention and treatment of anemia and iron deficiency also needs to be targeted specifically to mothers before they become pregnant so we need education about the importance of taking iron tablets once a week and one tablet daily during menstruation for women who are not pregnant and young women to prevent anemia [10].

2. Effect of Genesis Malaria Anemia

The result showed that adapengaruh malaria to anemia in pregnant women (p-value0,001), where respondents who suffer from anemia in malaria positive respondents as many as 7 people (77.8%) higher than the negative malaria by 43 people (21.6%). The results are consistent with research Rusjidi Malaria in pregnancy can lead to various pathological states disebbakan anemia in pregnant women and the fetus. Malaria is an important public health problem and affects almost half of the world's population. This condition is associated with high morbidity and mortality and if the pregnant women, can be bad for the mother and fetus. Malaria in pregnant women is associated with a higher risk for experiencing anemia (Hb <11g / dl) or severe anemia (Hb <7g / dl), having a baby with low birth weight (LBW), preterm labor and perinatal death, all These conditions contribute to high rates of maternal and infant mortality in malaria-endemic areas [2].

The results showed that out of 208 people, as many as 9 people (4.3%) positive malaria. Positive pregnant women are at greater malaria anemia (77.8%) than those without anemia (21.2%). Hasl is evident from the test results that the prevalence ratio that mothers suffering from malaria hami 3.599 times greater chance of anemia compared with negative pregnant women with malaria. Malaria infection will cause lysis of red blood cells that contain the parasite that would cause hemolytic anemia normokrom. In plasmodium falciparum infection can occur with severe anemia due to all ages erythrocytes can be attacked. Berparasit erythrocyte hemolysis or not berparasit suffered because of increased osmotic fragility. It can also be caused by an increase in erythrocyte berparasit autohemolisis good or not berparasit so erythrocyte life span becomes shorter and faster anemia occurs. West Papua, particularly Manokwari regency is endemic malaria.Sehingga knowledge needed malaria.Kejadian mother in preventing malaria infection in pregnant women is an issue of actual eradication of malaria around the world, especially in countries with high malaria endemicity stable. Malaria in pregnancy has a negative impact on the health of the mother and fetus. Malaria contributes tehadap maternal mortality and infant because of a risk / complications in pregnant women [2].

3. Effect of Tablet Fe Compliance Consumption of Genesis Anemia

The result showed that there was influence adherence iron tablet consumption against maternal anemia understood (p-value0,000), where respondents who suffer from anemia in respondents who do not abide iron

tablet consumption of 30 people (38%) higher than the respoonden obedient as many as 20 people (15.2%). Results of research consistent with research Nasyidah in the health center Any time that there was an effect kepatuhankonsumsi Fe tablet with anemia. Supplementation giving iron tablets in anemia prevention program has been studied and scientifically tested its effectiveness if implemented according to the dosage and conditions. However, a program providing iron tablets to pregnant women suffering from anemia fails to demonstrate tangible results. It is caused by two things, the adherence of iron tablets are not optimal and iron status of Women of fertile age (WUS) before pregnancy is very low, so the number of iron tablets consumed is not enough to increase hemoglobin (Hb) and iron deposits [9-12].

The results were obtained from 208 pregnant women sebanayk 79 people (38%) who do not comply consuming Fe tablet. Pregnant women who do not comply are known to have anemia (38%) higher compared to respondents who dutifully (15.2%). The results of the test showed that the prevalence rate of pregnant women who do not abide iron tablet consumption 2,449 times greater chance of anemia compared with pregnant women who are obedient Fe tablet consumption.

This is according to research Fanny (2012), hemoglobin level before giving pregnant women iron tablet each by 50% which has a value of Hb <11 g / dl and 50%, which has a value of Hb> 11 g / dl. Hb pregnant women after administration of iron tablet in general do not have anemia which is 70% and with anemia by 30%. There is no effect of iron tablet with a status between the initial hemoglobin concentration and hemoglobin end (p = 0.563)> p = 0.05), which proves that a change in the distribution of patients with anemia after iron tablet administration in pregnant women.

Respondents who do not comply mengkosnusmi Fe tablet due to a lack of knowledge as well as how to take the medicine tablet taken Fe evenings of 208 respondents as many as 45.7% with 20.2% of high school education and college education remainder of> 30% with low education.It needs a strong effort by pregnant women as to the benefits mengkonsuimsi tablet Fe Fe table in increasing hemoglobin levels. Support health care workers is very important, because pregnant women who do not know the benefits of tablet Fe will not comply consuming Fe tablet because of the taste and odor generated from medicinal tablets Fe and efeki moment like dizziness, sehingg pregnant women are given the strengthening of the knowledge of how to take the medicine tablet fe correct.

4. Effect of Cigarette Smoke Exposure of Genesis Anemia

The result showed that there was the influence of worm infection to anemia in pregnant women (p-value0,000), where respondents who suffer from anemia in respondents exposed to smoke as many as 33 people (54.1%) higher than the respondents are not exposed to smoke smoking as many as 17 people (11.6%). The significance of the risk of anemia by exposure to tobacco smoke in the first trimester with an OR of 5.43 (1.12 <OR < 34.41), this means that respondents who began exposed to smoke during the first trimester of gestation have a risk of having anemia of 5.43 times than respondents who were never exposed to smoke from trimester I.

Of research findings obtained from 208 people that exposure to cigarette smoke are exposed to as many as 61

people (29.3%), where respondents were exposed to secondhand smoke have anemia (54.1%) higher than the respondents are not exposed to smoke (11.6%). The test results constellation prevalence that pregnant women exposed to secondhand smoke 4.678 times greater chance of anemia compared with pregnant women who are not exposed to smoke. Pregnant women of 208 people that exposure to cigarette smoke more frequently in families of smokers in the home, compared with the external environment. This shows the low maish family support to pregnant women to prevent exposure to cigarette saap in pregnant women in the family. So that the efforts of health workers is essential to improve the knowledge of pregnant women to prevent exposure to cigarette smoke to remind families that smoking and avoid secondhand smoker.

4. Conclusion

There is the influence of knowledge on anemia in pregnant women (p-value0,001; RP = 12.479; CI95% = 1.462 to 4.203). No effect of malaria on anemia in pregnant women. (P-value0,001; RP = 3.599; CI95% = 2.322 to 5.579). No effect of worm infection to anemia in pregnant women (p-value0,000; RP = 4.118; CI95% (2.764 to 6.133). There was an effect of compliance Fe tablet consumption of anemia in pregnant women (p-value0,000; RP = 2,449; CI95% = 1.498 to 4.005). There is the influence of exposure to cigarette smoke against anemia in pregnant women (p-value0,000; RP = 4.678; CI95% = 2.828 to 7.738)

References

[1] World Health Organization, 2011. Haemoglobin Concentrations ForThe Diagnosis Of Anemia AndAssessment Of Severity. Vitaminand Mineral Nutrition Information System. Diunduh tanggal 10 September 2016

[2] World Health Organization, 2008. Worldwide Prevalence of Anemia. Diunduh tanggal 10 September 2016

[3] 2013.Laporan Hasil Riset KesehatanDasar (Riskesdas) 2013. Kementerian Kesehatan RI DinKes Jateng2013. Jakarta

[4] BAPPENAS, 2010. Laporan Pencapaian Tujuan Pembangunan Milenium Di Indonesia.

[5] Pawlowski ZS, dkk, 1991. Hookworm Infection and Anemia Approaches to Prevention on Control. WHO. Geneva

[6] Rasmaliah.2009. Anemia Kurang Besi Dalam Hubungannya Dengan Infeksi CacingPada Ibu Hamil. Diunduh pada tanggal 10 Sepetember 2016

[7] Notoatmodjo S, 2012. Motode Penelitian Kesehatan. Rineka Cipta. Jakarta

[8] Salmariantity, 2012. Faktor-Faktor Yang Berhubungan DenganAnemia Pada Ibu Hamil Diwilayah KerjaPuskesmas Gajah Mada TembilahanKabupaten ManokwariTahun 2012. http://www.fk_ui.co.id.

Diakses 10 September 2016.

[9] Romauli, 2012. Asuhan Kebidanan I. Konsep Dasar Asuhan Kehamilan. Nuha Medika. Yogyakarta

[10] Depkes, 2008. Profil Kesehatan Indonesia.

[11] Amiruddin, dkk, 2007. Anemia Defesiensi Zat Besi Pada Ibu Hamil Di Indonesia (Evidenced Based). Di Akses Tanggal 10 September 2016.

[12] Brooks GF, Janet SB, and Stephen AM. 2005. MikrobiologiKedokteran. Buku 2. Salemba Medika. Jakarta.