

JURNAL 22

by Heni Puji Wahyuningsih

Submission date: 30-Sep-2020 04:04PM (UTC+0800)

Submission ID: 1401135767

File name: Jurnal_22.pdf (2.15M)

Word count: 4360

Character count: 22851

education achieved was found to be associated with anaemia, low level of education associated with unemployment that led to poverty, one of the risk factors of anaemia during pregnancy.⁽⁶⁾ Derso et al's (2017) study in Dera Region, Northwest Ethiopia showed the risk factors that increased the occurrence of gravidarumanaemia were residence, parity, economic status, adherence to iron tablets and maternal chronic energy shortage or CED status.⁽⁷⁾ Anlaakuu et al (2017) study on anaemia during pregnancy and related factors at Sunyani City Hospital, Ghana showed that malaria infection, frequency of fish / snail consumption and gestational age at the first ANC check were factors related to anaemia in pregnant women⁽⁸⁾ while Chowdhury et al (2015) study on factors related to anaemia in pregnant women in Dhaka City indicated that age, education, family income and mother residence significantly correlated with anaemia in pregnant women.⁽⁹⁾

Several studies about anaemia factors in pregnant women also had been conducted in Indonesia by Desi Ari MadiYanti et al (2015) research in Pringsewu Public Health Center showed that there was correlation between education, economic status and compliance of Fe tablet consumption with anaemia in pregnant women.⁽¹⁰⁾ AtikPurwandari et al (2016) study at Tonsea Lama Public Health Center showed that there was a significant correlation between parity, maternal age, and ANC visit with anaemia level in the third trimester pregnant women.⁽¹¹⁾

Study on the factors of anaemia in pregnant women had also been done in Java, one of them is a study by NoviyanaIdwiyani and Sri Tjahyani Budi Utami (2013) in Public Health Center of Kebayoran Lama Sub-district, South Jakarta. It showed that there was a significant correlation between sociodemography factors such as knowledge, education, attitudes and ANC visit including the frequency of ANC and iron tablet consumption.⁽¹²⁾ Based on the results of these studies, it can be concluded that there are frequently occurring factors namely the factors of gestational age, maternal age, parity, mother's occupation, chronic energy deficiency or CED status, and education level. Anaemia affects the period of pregnancy, childbirth as well as the infant. Various adverse effects arise due to anaemia in pregnant women. Anaemia prevalence in pregnant women in Yogyakarta city is also high and always becomes the highest two from 2013-2016, especially in Tegalrejo Public Health Center where anaemia prevalence increases although the handling and prevention program of anaemia in pregnant women had been already implemented. The coverage of pregnant women Fe tablet even had increased drastically in 2017. Therefore, some efforts are needed to prevent and overcome the problem. One way to prevent and overcome it is by identifying the factors affecting anaemia prevalence in pregnant women.

2. MATERIALS AND METHOD

This study was a study with analytic observational type with case control research design which was conducted in May 2018 at Tegalrejo Public Health Center, Yogyakarta. The independent variables in this study were gestational age, maternal age, parity, mother's occupation, chronic energy deficiency or CED status and mother's education level, while the dependent variable was anaemia prevalence in pregnant women. Sampling was done using purposive random sampling technique involving 172 pregnant women who were assigned into 2 groups, which are 86 subjects in case group (anaemia) and 86 subjects in the control group (no anaemia). The data was taken from pregnant women's medical records who visited in 2017 with inclusion criteria was that pregnant women who had completed data on medical record (data of pregnant women concerning age of pregnancy, mother age, parity, occupation, chronic energy deficiency or CED status and education level), while the exclusion criteria was that pregnant women suffering from HIV / AIDS, malaria, tuberculosis, chronic kidney disease, gastrointestinal infections, thalassemia, sickle cell anaemia and parasitic disease contained in medical record. This study was analyzed using chi-square test and logistic regression test.

3. RESULTS AND DISCUSSION

Based on univariate test result that had been done (table 1), the result of pregnant women proportion who had anaemia was found more in group of pregnant women with risky maternal age, which was in the 1st and 3rd trimester with 70 pregnant women (81.4%), pregnant women without risky maternal age, aged 20-35 years old with 63 pregnant women (73.3%), pregnant women who had no risk parity (parity <3) were 74

pregnant women (86.0%), unemployed pregnant women, that was as many as 53 pregnant women (61.6%), pregnant women in the category of no chronic energy deficiency or CED (LLA \geq 23.5 cm) that was as many as 59 subjects (68.6%), and pregnant women who had graduated from formal education at higher education level which comprised by 65 subjects (75.6%).

Table 1. Bivariate Test Result

Variable	Case N= 86		Control N= 86		p-value	OR	95% CI	
	n	%	n	%			Lower	upper
Gestational Age								
Risky	70	81.4	56	65.1	0.025*	2.344	1.163	4.725
Not Risky	16	18.6	30	34.9				
Maternal Age								
Risky	23	26.7	11	12.8	0.035*	2.489	1.056	5.200
Not Risky	63	73.3	75	87.2				
Parity								
Risky	12	14.0	3	3.5	0.031*	4.486	1.219	16.518
Not Risky	74	86.0	83	96.5				
Occupation								
Unemployed	53	61.6	47	54.7	0.440	1.333	0.726	2.447
Employed	33	38.4	39	45.3				
Chronic Energy Deficiency Status								
Yes	27	31.4	12	14.0	0.011*	2.822	1.318	6.042
No	59	68.6	74	86.0				
Education Level								
Elementary	21	24.4	14	16.3	0.256	1.662	0.781	3.535
Secondary/Tertiary	65	75.6	72	83.7				
Total	86	100	86	100				

Bivariate analysis used in this study was chi square test. In this study, the determination of chi square magnitude used computer program with result interpretation if p-value (significant value of Chi Square test) was less than 0.05 ($p\text{-value} < 0.05$). Based on table 1, it could be concluded that the results of the analysis with chi-square test for the correlation of several factors with anaemia prevalence in pregnant women in Tegalrejo Public Health Center in 2017 showed that the variable of gestational age ($p\text{-value} = 0.025$), maternal age ($p\text{-value} = 0.035$), parity ($p\text{-value} = 0.031$), and chronic energy deficiency or CED status ($p\text{-value} = 0.011$) had $p\text{-value} < 0.05$. It showed that there was a statistically significant correlation between maternal age, mother's age, parity and maternal chronic energy deficiency or CED status with anaemia prevalence in pregnant women at Tegalrejo Public Health Center in 2017.

The variable of gestational age had the value of OR = 2.344, which meant that pregnant women with risky pregnancy age (1st and 3rd trimester) had an opportunity 2.344 times to experience anaemia compared to pregnant women who had no risky pregnancy age (2nd trimester). Maternal age variable had the value of OR = 2.489, which meant pregnant women with risky maternal age (<20 years old or > 35 years old) had an opportunity 2.489 times to experience anaemia compared to pregnant women with no risky maternal age (20-35 years old). Pregnant women with risky parity (≥ 3) were 4.486 times more likely to have anaemia than women with norisky parity (<3) (OR = 4.486). The OR value of the chronic energy deficiency or CED status was 2.822 which indicated that women who experienced chronic energy deficiency or CED (LLA <23.5cm) had a chance 2.822 times to experience anaemia compared with women with not KEK (LLA \geq 23.5 cm).

Based on the table, it could be seen that the result of analysis with chi square test for the correlation of occupation factor ($p\text{-value} = 0.440$) and education level ($p\text{-value} = 0.256$) with anaemia prevalence in pregnant women at Tegalrejo Public Health Center in 2017 was statistically not significant because each of these factors had $p\text{-value} > 0.05$.

Table 2. Multivariate Test Result

Variable	B	Exp.(B)	Sig.	95% CI	
				lower	upper
Pregnancy Age	1.004	2.728	0.009	1.282	5.801
Parity	1.780	5.930	0.009	1.552	22.663
Chronic Energy Deficiency or CED Status	1.274	3.575	0.002	1.609	7.944

After the chi-square test, then the logistic regression test was further developed as multivariate chi-square test. In the final analysis of logistic regression test, variables that influenced anaemia prevalence in pregnant women only were included significant variables (p -value<0.25). According to the result of multivariate test³ it was found that anaemia in pregnant mother was significantly influenced by pregnancy age factor with p -value = 0.009, parity with p -value = 0.009, and chronic energy deficiency or CED status with p -value = 0.002 (p -value<0.05). Pregnant women with risky pregnancy age (1st and 3rd trimester) had a chance of 2.728 times to experience anaemia compared to pregnant women with no risky pregnancy age (2nd trimester). Regarding to parity variables, pregnant women with risky parity (parity ≥3) were 5.930 times more likely to have anaemia than pregnant women with no parity risk (parity <3). Regarding to chronic energy deficiency or CED status variable, pregnant¹³ women who experienced chronic energy deficiency or CED (LLA <23.5 cm) had an opportunity 3.575 times more likely to have anaemia than pregnant women who did not have chronic energy deficiency or CED (LLA ≥ 23.5 cm).

Table 1 showed that the correlation of the women's pregnancy age factor with anaemia prevalence in pregnant women was statistically significant (p -value 0.025). According to the³ result of multivariate test, the obtained p -value was 0.009 (<0.05). It revealed that anaemia prevalence in pregnant women in Tegalrejo Public Health Center in 2017 was statistically influenced by pregnancy age factor. Pregnant women with risky pregnancy age (1st and 3rd trimester) had an opportunity of 2.728 times to experience anaemia compared to pregnant women with no risky pregnancy age (2nd trimester). (Exp. (B) = 2.728). The result of the study supported previous study conducted by Tadesse et al (2017) in Dessie City, Ethiopia. The result of the study indicated that there was a correlation between the pregnancy age factor with anaemia prevalence in pregnant women. Pregnant women in the first trimester had 2.07 times greater risk to suffer from anaemia than pregnant women in the second trimester (AOR = 2.07). This was caused by morning sickness and hemodilution at the beginning of this trimester. Similarly, pregnant women in the third trimester had 2.96 times greater risk to have anaemia than pregnant women in the second trimester (AOR = 2.96), which may be due⁴ to nutrients and maternal iron reserves in the trimester was more prominent for fetal development.¹² However, the result of this study differed from a study by of Siteti et al (2014) in Kenya which showed that the risk of anaemia in pregnant women was significantly higher in the second trimester (P = 0.0000). This occurred because the daily requirement of iron and folic acid was greater in the second trimester, so the iron reserve decreased and anaemia occurred.¹⁴

The result of the study indicated that the correlation between maternal ages with anaemia prevalence in pregnant women was statistically⁷ significant. Maternal age variable had the value of OR = 2.489 which meant pregnant women with risky maternal age (<20 years old or > 35 years old) had an opportunity 2.489 times to experience anaemia compared to pregnant women with no risky maternal age (20-35 year old). Suryati et al (2011) stated that the younger and older the maternal¹⁰ age would affect the nutritional needs. Lack of nutritional fulfillment during pregnancy especially at age less than 20 years old and above 35 years old would increase the risk of anaemia.¹⁵ The result of the study supported previous study by Ononge et al (2014) in Mpigi, Uganda which stated that the correlation between maternal age with anaemia prevalence in pregnant women was statistically significant.¹⁶ However, the result of the study did not support Obai et al's¹¹ study indicating that the maternal age correlated with the anaemia in pregnant women.⁶

The result of the study indicated that there was a statistically significant correlation between parity⁴ with anaemia prevalence in pregnant women (p -value 0.031). According to the result of multivariate test, obtained p -value was 0.009 (<0.05). It suggested that anaemia prevalence in pregnant women was statistically affected by the parity factor. Pregnant women with risky parity (parity ≥ 3) were⁸ 5.930 times more likely to have anaemia than women with no risky parity (parity <3). (Exp. (B) = 5.930). The result of the study was in line with a study by Derso et al (2017) which also mentioned that parity was an independent factor of anaemia in pregnant women. Pregnant women with a parity of five or more are 4.20 times more at

risk of anaemia than women who had less than two parity. This was because pregnant women with high-parity could be more susceptible to bleeding and there was a syndrome of nutritional depletion.⁽⁷⁾ Research by Al-Farsi et al (2011) indicated that compared with non-pregnancy circumstances, every pregnancy increased the risk of bleeding at before, during, and after delivery. Higher parity exacerbated the risk of bleeding. On the other hand, a woman with high parity had a large number of children, which meant the high levels of sharing the available food and other family resources that could interfere with pregnant women's food intake.⁽¹⁷⁾ However, this study did not support previous study conducted by Ononge et al (2014) and Anlaku et al (2017) which stated that the correlation between parity and anaemia prevalence in pregnant women was not statistically significant.^(8,16)

The result of the study indicated that the correlation between occupational factor with the anaemia in pregnant women was not statistically significant because the *p-value* was 0.440 (*p-value* \Rightarrow 0.05). The result of the study was consistent with the study by Melku et al (2014) which said that the correlation between mother's occupation and the anaemia in pregnant women was not statistically significant.⁽¹⁸⁾ However, it was in contrast with the other study by Idowu et al (2005) about anaemia in pregnancy in Africa which suggested that unemployed pregnant women were significantly correlated with anaemia prevalence because unemployed pregnant women could not make ANC visits earlier and consumed less nutritious foods.⁽¹⁹⁾

The result of the study also indicated that the correlation between chronic energy deficiency or CED status factor with the anaemia in pregnant women was statistically significant (*p-value* 0.010). In accordance to the result of multivariate test, obtained *p-value* was 0.002 (<0.05). It showed that the anaemia in pregnant women at Tegalrejo Community Health Center in 2017 was influenced by chronic energy deficiency or KEK status factor. Pregnant women who had chronic energy deficiency or CED (LLA <23.5 cm) had an opportunity to be 3.575 times more likely to have anaemia than women who did not have chronic energy deficiency or CED (LLA ≥ 23.5 cm) (Exp. (B) = 3.575). The result of this study supported previous study conducted by Derso et al (2017) who said that anaemia had 4.97 times greater risk to occur in pregnant women who had chronic energy deficiency or CED than the non- CED.⁽⁷⁾ This study also supported the result of study by Alene et al (2014) which stated that pregnant women with LLA <23 cm could increase the risk of anaemia. In contrast, in pregnant women with LLA ≥ 23 had a 59% lower risk for anaemia. It could be explained that, in reality, pregnant women with nutritional deficiencies were more likely to have micronutrient deficiency. Therefore, iron deficiency could be more prone to anaemia.⁽²⁰⁾

The results of this study indicated that the correlation between mother's education level with the anaemia in pregnant women was not statistically significant (*p-value* 0.256). It was in contrast to Siteti et al's (2014) study, which said that education level had statistically significant correlation with the anaemia in pregnant women (*p-value* = 0.0447). The result of study explained that mothers with higher education had significantly lower risk of anaemia. This could be caused by mothers with higher education were more open to new ideas and public health promotion, as well as having healthy lifestyles.⁽¹⁴⁾ Nevertheless, the result of this study supported the result of previous study conducted by Ononge et al (2014) in Mpigi, Uganda, which stated that the correlation between educational level factor and anaemia in pregnant women was not statistically significant (*p-value* = 0.437).⁽¹⁶⁾ This study also corresponded to previous study conducted by Alemu, Tadesse and MelakuUmeta (2011) who said that there was no statistically significant correlation between mother's education level and anaemia in pregnant women.⁽²¹⁾ Another result of study that showed a non-significant correlation between educational level factor and anaemia occurrence was also obtained from study by Getahun et al (2017) with *p-value* 0.999.⁽²²⁾

4. CONCLUSION

Anaemia in pregnant women was more prevalent in a group of women with risky gestational age, non-risky maternal age, non-risky parity, unemployed mothers, and mothers at the upper / higher education level. Gestational age, maternal age, parity, and chronic energy deficiency or CED status were factors that affected anaemia. Early monitoring and early detection of anaemia risk factors needed to be improved so that they could be diagnosed early and could get immediate treatment, especially in chronic energy

deficiency or CED which was the affective factor of anaemia among pregnant women.

REFERENCE

1. Subarda, Muhammad Hakimi dan SH. Pelayanan Antenatal Care dalam Pengelolaan Anaemia Berhubungan dengan Kepatuhan Ibu Hamil Minum Tablet Besi. [Internet]. 2011. Available from: http://jurnal.pdii.lipi.go.id/admin/jurnal/8111713_1693-900X.pdf
2. Balarajan Y, Ramakrishnan U, Özaltın E, Shankar AH, Subramanian S V. Anaemia in low-income and middle-income countries. *Lancet* [Internet]. 2011;378(9809):2123–35. Available from: [http://dx.doi.org/10.1016/S0140-6736\(10\)62304-5](http://dx.doi.org/10.1016/S0140-6736(10)62304-5)
3. Balitbang Kemenkes RI. Riset Kesehatan Dasar; RISKESDAS. Jakarta: Balitbang Kemenkes RI; 2013.
4. Dinas Kesehatan DIY. Profil Kesehatan DIY. Yogyakarta: Dinkes DIY; 2016.
5. Dinas Kesehatan Kota Yogyakarta. Profil Kesehatan Kota Yogyakarta. Yogyakarta: Dinkes Kota Yogyakarta; 2016.
6. Obai G, Odongo P, Wanyama R. Prevalence of anaemia and associated risk factors among pregnant women attending antenatal care in Gulu and Hoima Regional Hospitals in Uganda : A cross sectional study. *BMC Pregnancy Childbirth* [Internet]. 2016;1–7. Available from: <http://dx.doi.org/10.1186/s12884-016-0865-4>
7. Derso T, Abera Z, Tariku A. Magnitude and associated factors of anaemia among pregnant women in Dera District: a cross-sectional study in northwest Ethiopia. *BMC Res Notes* [Internet]. 2017;10(1):359. Available from: <http://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-017-2690-x>
8. Anlaakuu P, Anto F. Anaemia in pregnancy and associated factors: a cross sectional study of antenatal attendants at the Sunyani Municipal Hospital, Ghana. *BMC Res Notes* [Internet]. 2017;10(1):402. Available from: <http://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-017-2742-2>
9. Chowdhury HA, Ahmed KR, Jebunessa F, Akter J, Hossain S, Shahjahan M. Factors associated with maternal anaemia among pregnant women in Dhaka city. *BMC Womens Health* [Internet]. 2015;15(1):77. Available from: <http://www.biomedcentral.com/1472-6874/15/77>
10. Ari Madi Yanti D, Sulistianingsih A, Keisnawati. Faktor-Faktor Terjadinya Anaemia pada Ibu Primigravida di Wilayah Kerja Puskesmas Pringsewu Lampung. *J Keperawatan* [Internet]. 2015;6(2):79–87. Available from: <http://download.portalgaruda.org/article.php?article=424747&val=278&title=Faktor-Faktor Terjadinya Anaemia Pada Ibu Primigravida Di Wilayah Kerja Puskesmas Pringsewu Lampung>
11. Purwandari A, Lumy F, Polak F. Faktor-Faktor Yang Berhubungan Dengan Kejadian Anaemia. *J Ilm Bidan* ISSN. 2016;4(1):62–8.
12. Ibu A, Dan H, Idwiyani N, Budi T. Mempengaruhinya Diwilayah Puskesmas Kecamatan Kebayoran Lama Jakarta Selatan Tahun 2013. 2013;1–21.
13. Tadesse SE, Seid O, Mariam YG, Fekadu A, Wasihun Y, Endris K, et al. Determinants of anaemia among pregnant mothers attending antenatal care in Dessie town health facilities, northern central Ethiopia, unmatched case-control study. *PLoS One*. 2017;12(3):1–9.
14. Chrispinus Siteti M. Anaemia in Pregnancy: Prevalence and Possible Risk Factors in Kakamega County, Kenya. *Sci J Public Heal* [Internet]. 2014;2(3):216. Available from: <http://www.sciencepublishinggroup.com/journal/paperinfo.aspx?journalid=251&doi=10.11648/j.sjph.20140203.23>
15. Suryati, R dan Anna V. Kesehatan Reproduksi Cet.2. Yogyakarta: Nuha Medika; 2011.
16. Ononge S, Campbell O, Mirembe F. Haemoglobin status and predictors of anaemia among pregnant women in Mpigi, Uganda. *BMC Res Notes* [Internet]. 2014;7(1):712. Available from: <http://bmcresnotes.biomedcentral.com/articles/10.1186/1756-0500-7-712>
17. Al-Farsi YM, Brooks DR, Werler MM, Cabral HJ, Al-Shafei MA, Wallenburg HC. Effect of high parity on occurrence of anaemia in pregnancy: a cohort study. *BMC Pregnancy Childbirth*. 2011;11:7.
18. Melku M, Addis Z, Alem M, Enawgaw B. Prevalence and Predictors of Maternal Anaemia during Pregnancy in Gondar , Northwest Ethiopia : An Institutional Based Cross-Sectional Study. 2014;2014.
19. Idowu OA, Mafiana CF, Dapo S. Anaemia in pregnancy: A survey of pregnant women in Abeokuta, Nigeria. *Afr Health Sci*. 2005;5(4):295–9.
20. Alene KA, Mohamed Dohe A. Prevalence of Anaemia and Associated Factors among Pregnant Women in an Urban Area of Eastern Ethiopia. *Anaemia*. 2015;2014(May 2013).
21. Alemu T, Umeta M. Reproductive and Obstetric Factors Are Key Predictors of Maternal Anaemia during Pregnancy in Ethiopia : Evidence from Demographic and Health Survey (2011). 2015;2015.
22. Getahun W, Belachew T, Wolide AD. Burden and associated factors of anaemia among pregnant women attending antenatal care in southern Ethiopia: cross sectional study. *BMC Res Notes* [Internet]. 2017;10(1):276. Available from: <http://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-017-2605-x>

JURNAL 22

ORIGINALITY REPORT

17%

SIMILARITY INDEX

14%

INTERNET SOURCES

8%

PUBLICATIONS

3%

STUDENT PAPERS

PRIMARY SOURCES

1	download.atlantis-press.com Internet Source	8%
2	aicosh.uin-suka.ac.id Internet Source	1%
3	eprints.poltekkesjogja.ac.id Internet Source	1%
4	"1st Annual Conference of Midwifery", Walter de Gruyter GmbH, 2020 Publication	1%
5	Submitted to Universitas Indonesia Student Paper	1%
6	bm Cresnotes.biomedcentral.com Internet Source	1%
7	www.neliti.com Internet Source	<1%
8	ejournal.almaata.ac.id Internet Source	<1%
9	Siska Ariska, Dewi Marfuah. "The Description of	

Problems Correlated to Pregnancy", KnE Life Sciences, 2019

Publication

<1%

10

Siti Fithrotul Umami, Titiiek Idayanti. "RELATIONSHIP BETWEEN PREGNANT WOMEN'S HIGH-RISK AGE WITH THE PRETERM OF LABOR IN BIDAN PRAKTIK MANDIRI (BPM) BIDAN NANIK SUWATI, AMD. KEB, PUNGGING VILLAGE, MOJOSARI SUB-DISTRICT, MOJOKERTO DISTRICT", Nurse and Health: Jurnal Keperawatan, 2019

Publication

<1%

11

garuda.ristekbrin.go.id

Internet Source

<1%

12

Submitted to Kabarak University

Student Paper

<1%

13

Melese Sinaga Teshome, Desalech H Meskel, Beyene Wondafrash. "

Determinants of Anemia Among Pregnant Women Attending Antenatal Care Clinic at Public Health Facilities in Kacha Birra District, Southern Ethiopia

", Journal of Multidisciplinary Healthcare, 2020

Publication

<1%

14

media.neliti.com

Internet Source

<1%

Exclude quotes On

Exclude bibliography On

Exclude matches < 10 words