Volume 12, Issue 1, 2024: 57-69
p-IISN 2354-7642 e-ISSN 2503-1856
Accredited by Directorate General of Higher Education, Research, Technology, Republic of Indonesia No. 35/E/KPT/2019

Jurnal Ners dan Kebidanan Indonesia
(Indonesian Journal of Ners and Midwifery)
DOI: http://dx.org/10.21927/jnki.12(1).57-69
Available online at: http:ejournal.almaata.ac.id/index.php/JNKI

Correlation between antenatal care (ANC) visits and caffeine beverage consumption habits with the incidence of anemia in third trimester pregnant women in Health Centers, Bantul Region

Anggi Widiyanti, Fatimah Fatimah*, Muafiqoh Dwiarini

Departemen of Midwifery, Faculty of Health Science, Universitas Alma Ata
Jalan Brawijaya Street No. 99, Yogyakarta 55183, Indonesia

*Correspondending author: fatimah.fatimah.almaata.ac.id

ABSTRACT

Background: *Anemia in pregnant women can cause morbidity and death for both mother and baby. Efforts made by health workers to reduce the occurrence of anemia by conducting Antenatal Care (ANC) visits, and providing Communication, Information, and Motivation (KIM) and administering Fe tablets. Consumption of Fe tablets is better consumed using plain water because if Fe tablets are taken together with tea and coffee it can inhibit iron absorption.*
Objectives: *Determine the relationship between Antenatal Care (ANC) visits and consumption habits of caffeinated drinks with the incidence of anemia in third trimester pregnant women at the Health Center in Bantul.*
Methods: *This type of research uses quantitative research with a cross sectional approach. Sampling using simple random sampling and quota sampling with the number of respondents 180 pregnant women using predetermined characteristics. The research instrument used a questionnaire on the variable ANC visits and consumption habits of caffeinated drinks and used the KIA handbook on the variable incidence of anemia in pregnant women. The bivariate analysis technique uses the Kendal Tau test.*
Results: *In the ANC visit variable, a p value = 0.029 (p <0.05) was obtained, indicating that there is a relationship between Antenatal Care (ANC) visits and the incidence of anemia in third trimester pregnant women. In the habitual variable of caffeine consumption, the p-value = 0.004 (p <0.05), indicating that there is a relationship between the habit of consuming caffeinated drinks and the incidence of anemia in third trimester pregnant women.*
Conclusions : *There is a relationship between Antenatal Care (ANC) visits and the incidence of anemia and there is a relationship between the habit of consuming caffeinated drinks and the incidence of anemia in third trimester pregnant women at the Health Center in Bantul.*

KEYWORD ***:*** *anemia of pregnant women; antenatal care (ANC); third trimester pregnant women; consumption of caffeine.*

Article Info :
Article submitted on December 10, 2023
Article revised on January 15, 2024
Article received on February 15, 2024

INTRODUCTION

Anemia in pregnancy is a problem that is often encountered in pregnant women throughout the world, including Indonesia. Anemia in pregnant women can cause morbidity and death for mother and baby (1). According to the World Health Organization (WHO), anemia in pregnancy is a condition where the level of red blood cells or hemoglobin is less than 11 g/dL (2). Anemia during pregnancy can be influenced by gestational age. Pregnant women in the first trimester are twice as likely to experience anemia as pregnant women in the second trimester. Meanwhile, pregnant women in the third trimester are three times more likely to experience anemia than in the second trimester (3).

According to the Bantul Health Service, data on pregnant women with anemia in 2022 has the first highest anemia at the Pleret Health Center with a number of 263 and a percentage of 33.8%, the second highest at the Sewon II Health Center with a number of 207 and a percentage of 27.5%, and the third highest at the Community Health Center Piyungan with a total of 165 and a percentage of 18.2% (4).

The Maternal Mortality Rate (MMR) in Bantul Regency from 2020 to 2021 has increased. In 2020 there were 157.6/100,000 live births and in 2021 there were 374.05/100,000 live births. Causes of maternal death include bleeding, hypertension, hypovelemic shock, heart disease, etc. or comorbidities. Meanwhile, the Infant Mortality Rate (IMR) in Bantul Regency from 2020 to 2021 has decreased. In 2020 6.9/1,000 live births and in 2021 5.4/1,000 live births. The causes include low birth weight (LBW), asphyxia and congenital abnormalities (5).

The causes of anemia in pregnancy are maternal age, chronic energy deficiency (CED), compliance with ANC visits, socio-economics, education and also knowledge (6). Anemia in pregnant women can cause premature birth, abortion, low birth weight (LBW), and also intrauterine growth retardation (IUGR), namely stunted fetal growth. Another consequence of anemia in pregnancy can cause death of the unborn baby (7).

Antenatal Care (ANC) visits during pregnancy aim to provide regular, comprehensive and high-quality Antenatal Care (ANC) services, providing education and health information about nutrition for pregnant women, use of contraceptives, and breast milk to avoid "missed opportunities" during pregnancy to receive regular, comprehensive and quality Antenal Care (ANC) services to detect diseases such as anemia or abnormalities early (8).

Anemia in pregnancy can also be caused by caffeinated drinks such as tea and coffee. In Indonesia, tea and coffee are still widely consumed after mineral water. Caffeinated drinks such as tea and coffee have a delicious aroma and taste so they are widely consumed. Tea and coffee can also cause anemia in pregnancy because they can inhibit iron absorption. Tea contains tannins which contain iron, calcium and aluminum so that food is difficult for the body to absorb and also causes the body's reabsorption process to not be optimal (9).

Government efforts are made by health workers to reduce the occurrence of anemia by conducting Antenatal Care (ANC) visits and providing Communication, Information and Motivation (KIM) (10). Another effort is by giving fe tablets which are given during maternal and child health services (KIA) during Antenatal Care (ANC) visits. Health during pregnancy can be determined during an Antenatal Care (ANC) examination as an effort to overcome anemia in pregnant women by giving iron (fe) tablets which aim to increase hemoglobin (Hb) levels in pregnant women (11).

Based on the background above, researchers are interested in knowing "Correlation between ANC visits and the habit of consuming caffeinated drinks with the incidence of anemia in pregnant women in the third trimester."

MATERIALS AND METHODS

The type of research used in this research is quantitative research using analytical methods. The design used in this research is cross sectional, namely a data collection design in a study conducted at one point in time (12). This research was conducted at the Pleret, Sewon II, and Piyungan Health Centers, Bantul Regency on 7-26 June 2023. The type of sampling in this research used Non Probability Sampling and Probability Sampling with Simple Random Sampling and Quota Sampling techniques with a total of 180 respondents (13) . The criteria for the selected sample were inclusion criteria: third trimester pregnant women who had an ANC visit and had their Hb checked, were willing to be respondents, had no preeclampsia, could read and write, had and carried a KIA book. Meanwhile, the exclusion criteria: not willing to be a respondent and having a blood disorder.

The instrument used to determine ANC visits and consumption habits of caffeinated drinks was primary data in the form of a questionnaire, while the instrument used to determine the incidence of anemia in pregnant women was primary data in the form of the KIA

book. ANC visits and the habit of consuming caffeinated drinks are independent (free) variables, while the incidence of anemia in pregnant women is the dependent (dependent) variable. Ethical clearance from Alma Ata University number KE/AA/V/1011103/EC 2023.The statistical test in this study was the Kendal Tau test, used to test the relationship between ANC visits and the habit of consuming caffeinated drinks with the incidence of anemia in pregnant women.

RESULTS AND DISCUSSION

RESULTS

This study used a sample of 180 pregnant women in the third trimester at the Pleret, Sewon II, and Piyungan Health Centers, Bantul Regency.

Table 1. Frequency distribution of characteristics of pregnant women in the third trimester at the Bantul Regional Health Center

Characteristics	Frequency	Percentage %
Mother's Age		
< 20 Years	1	6
20-35 Years	155	86.1
> 35 Years	24	13.3
Parity		
Primigravida	72	40.0
Multigravida	108	60.0
Education		
Elementary school	5	2.8
Junior High School	20	11.1
Senior High School	107	59.4
Bachelor	48	26.7
Total	**180**	**100**

Source: Primary Data, 2023

The characteristics in the table above are for the age characteristics of pregnant women categorized into 3 categories, namely <20 years because reproductive function is not optimal, 20-35 because the woman's reproductive system is healthy and safe for pregnancy, and if >35 years because she is vulnerable to disease and infection during pregnancy. The parity characteristics of pregnant women are categorized into 2 categories, namely primigravida because they are more at risk of experiencing anemia if they do not pay attention to nutritional needs and multigravida because pregnant women have experience of anemia in previous pregnancies. Educational characteristics are categorized into 4 categories, namely elementary school, middle school, high school, bachelor's degree because the higher the level of education, the higher the level of knowledge of pregnant women about anemia in pregnant women.

Table 2. Distribution of antenatal care (ANC) descriptions

Overview of Antenatal Care (ANC)	Frequency	Percentage %
Low	0	0
Currently	8	4.4
Tall	172	95.6
Total	180	100

Source: Primary Data, 2023

The majority of ANC descriptions in the table above are in the high category, while in the medium category there are 8 pregnant women because pregnant women visit ANC in the second trimester or third trimester.

Table 3. Distribution of caffeinated drink consumption habits

Habits of Consuming Caffeinated Drinks	Frequency	Percentage %
Do not consume	15	8.3
Low	5	2.8
Currently	125	69.4
Tall	35	19.4
Total	180	100

Source: Primary Data, 2023

Mother's consumption habits of caffeinated drinks in the table above. The majority of pregnant women consume caffeine in the form of tea, pregnant women whose consumption is high is because pregnant women consume tea to relieve nausea and dizziness in large quantities, then pregnant women whose consumption is low is because pregnant women consume only their husband's tea in the morning in small quantities, whereas There are pregnant women who do not consume caffeine at all because pregnant women have a history of anemia in previous pregnancies, so during the current pregnancy pregnant women are asked not to consume caffeine.

Table 4. Distribution of anemia incidents in pregnant women

Anemia Occurrence	Frequency	Percentage %
Not Anemia	130	72.2
Mild Anemia	48	26.7
Moderate Anemia	2	1.1
Severe Anemia	0	0
Total	180	100

Source: Primary Data, 2023

The majority of the incidence of anemia in pregnant women in the table above is not experiencing anemia, then the mild anemia category is due to pregnant women consuming moderate and high levels of caffeine such as tea, while the moderate anemia category is due to pregnant women having ANC visits in the second and third trimesters and pregnant women consuming caffeine in the high category. The incidence of anemia in pregnant women was taken from pregnant women who had an Hb check every 1-3 months and the majority of pregnant women had the check in the last 1 month or at the time the research was conducted.

Table 6. Cross distribution of the relationship between the ability to consume caffeinated drinks and the incidence of anemia

Overview of ANC	Anemia Occurrence										*P* Value
	Not Anemia		Mild Anemia		Moderate Anemia		Severe Anemia		Total		
	f	%	f	%	f	%	f	%	f	%	
Low	0	0	0	0	0	0	0	0	0	0	
Currently	3	37.5	5	62.5	0	0	0	0	8	100	0.029
Tall	127	73.8	43	25.0	2	1.2	0	0	172	100	
Total	130	72.2	48	26.7	2	1.1	0	0	180	100	

Source: Primary Data, 2023

Cross distribution results in the table with the most drinks consumed moderate caffeine and no anemia because pregnant women consume caffeine such as tea, which is also balanced with consumption of vegetables and fruit, while the lowest category is low caffeine consumption and mild anemia because pregnant women consume caffeine such as tea but do not like consuming vegetables. Tea contains tannins which can inhibit the absorption of iron, if not balanced with foods containing iron it will cause anemia in pregnancy.

DISCUSSION

Based on **Table 1**, it can be seen that the age characteristics of pregnant women in the third trimester at the Pleret, Sewon II, and Piyungan Community Health Centers are mostly those aged 20-35 years, namely 155 (86.1%) of the total number of 180 pregnant women. This is in accordance with the statement by Vevi Gusnidarsih (2020) which shows that age is a risk factor for anemia during pregnancy. The female reproductive system is healthy and safe during pregnancy between the ages of 20 and 35

years. If a pregnant woman is under the age of 20, she is susceptible to anemia. Then, pregnant women over 35 years old are susceptible to anemia because it is related to weakened immunity or body resistance, making them susceptible to disease and infection during pregnancy (14).

The highest parity of pregnant women is multigravida with a total of 108 (60%) pregnant women, while primigravida pregnant women are 72 (40%) pregnant women. This is in accordance with the statement of Aulia Amini et al (2018), which states that the first parity is more at risk of experiencing anemia if they do not pay attention to nutritional needs during pregnancy. In general, the higher the mother's parity, the more experience and knowledge the mother has about anemia (15).

Pregnant women's education was mostly found among high school graduates, namely 107 (59.4%) pregnant women. This is in accordance with the statement of Aulia Amini et al (2018), which states that educational factors can influence a person's anemia status related to the choice of food consumed. A higher level of education influences nutritional knowledge and information more than someone with a lower level of education. On the other hand, the lower the level of education, the lower the way of thinking, so that the ability to absorb information is also weaker (15).

Based on **Table 2**, ANC visits at the Pleret, Sewon II, and Piyungan Community Health Centers show that the highest number of visits by pregnant women in the third trimester who had checked their HB were in the high ANC visit category, namely 172 (95.6%) pregnant women, while the moderate ANC visit category was carried out by 8 (4.4%) pregnant women.

ANC visits are examinations of pregnant women carried out at community health centers to optimize the mental and physical health of pregnant women. Fe tablets are given when pregnant women visit pregnancy checks. Thus, program coverage depends on routine antenatal care visits by pregnant women to obtain sufficient Fe tablets. Low maternal participation in antenatal care visits is associated with low consumption of Fe tablets (16). Pregnancy can be grouped into 3 periods, namely the 1st trimester of pregnancy starting from 0-13 weeks. 2nd trimester pregnancy starts at 14-26 weeks, and 3rd trimester pregnancy starts at 27-40 weeks (17).

Based on **Table 3**, the consumption habits of caffeinated drinks show that the majority of pregnant women consume caffeinated drinks in the medium category, namely 125 (69.4%),

while pregnant women who consume caffeine are in the high category, namely 35 (19.4%), then consume caffeine in The low category was 5 (2.8%) pregnant women, and those who did not consume were 15 (8.3%) pregnant women.

In tea and coffee there are tannin substances which cause disruption in the absorption of blood supplement tablets which aim to improve blood and increase hemoglobin levels, so that they turn into substances that are useless for the body and are simply excreted in the feces. Due to decreased Fe function, pregnant women also receive less iron, which can cause a decrease in hemoglobin levels in pregnant women (18).

Based on **Table 4**, the incidence of anemia in pregnant women at the Pleret, Sewon II and Piyungan Community Health Centers, the majority of pregnant women did not experience anemia, namely 130 (72.2%) pregnant women, while pregnant women who experienced mild anemia were 48 (26.7%) and moderate anemia, namely 2 (1.1%) pregnant women.

Anemia in pregnancy is a condition where there is a lack of red blood cells (hemoglobin). Someone who lacks red blood cells can also be said to have a hemoglobin level <11 gr/dL. Pregnant women who experience anemia during pregnancy will affect their fetus, namely the baby is born with hypoxia or respiratory failure due to reduced blood circulation to the fetus. Blood is a very important element for our body because blood is a carrier of oxygen throughout the body (19). Anemia during pregnancy, especially in the third trimester, can have adverse effects on the fetus, including premature birth, Intrauterine Growth Retardation (IUGR), and Low Birth Weight (LBW) (20).

Based on **Table 5**, cross tabulation of the relationship between habitual consumption of caffeinated drinks and the incidence of anemia in pregnant women with the largest categories being moderate consumption of caffeinated drinks and no anemia, namely 94 (75.2%) pregnant women. The lowest category is consumption of low-caffeinated drinks and mild anemia, namely 1 (20%) pregnant woman. The results of the Kendal Tau test obtained p=0.004 (p<0.05). It can be concluded that there is a significant relationship between the habit of consuming caffeinated drinks and the incidence of anemia in third trimester pregnant women.

This is in line with research by Fraga Batara and Tri Wijayanti (2021) based on the results of research at the Samarinda Trauma Center Health Center in 2020 regarding the relationship between tea consumption and the incidence of anemia in pregnant women

showing that the results of bivariate analysis obtained a value of p = 0.034 with a significance of p < α (0 .05) and it was concluded that there was a relationship between tea consumption and the incidence of anemia in pregnant women at the Trauma Center Health Center. Pregnant women who drink too much tea will have an effect on their pregnancy. Apart from coffee, tea also contains caffeine. Meanwhile, the use of caffeine is not recommended for pregnant women because the caffeine content can cause changes in sleep patterns. Therefore, pregnant women should limit their consumption of tea. The safe limit for consuming caffeine a day is 750 mg/day or the same as one 240 ml cup of tea (23).

Another suitable result to support this research is research by Putri Ayu Yessy Ariescha et al (2020), based on the results of this research it is known that the statistical result of the Chi Square test is p value 0.003. If the p value is less than α = 0.05, then Ho is rejected, which means that the habit of drinking tea after eating has a real effect on anemia in pregnant women at the Tebing Syahbandar Community Health Center in 2020. Anemia in pregnant women is caused by several factors, including pregnancy spacing, nutritional status, disease. pre-existing conditions, bleeding, malnutrition and malabsorption. During pregnancy, mothers must meet their nutritional needs, especially iron. Iron is very important for pregnant women, because during pregnancy the mother's Hb must remain normal according to gestational age. The iron a mother needs comes from the food she eats. Not all iron nutrients enter the mother's body properly. This may be due to malabsorption in the mother's body. One example of a factor inhibiting iron absorption is the mother's consumption of drinks. Drinks that can interfere with iron absorption include tea and coffee (24).

Likewise, research by Oktarina Sri Irian and Ulfah (2019) explained that the results of a cross tabulation between the habit of drinking tea and coffee and the incidence of anemia in pregnant women, the statistical test results showed that chi square (24.219) > chi table (7.38) and p value (0.000) < α (0.05), then Ho is rejected. In other words, there is a relationship between the habit of drinking tea and coffee and the incidence of anemia in pregnant women (18).

In line with the theory, that iron absorption is greatly influenced by the combination of foods absorbed when certain foods are eaten, especially strong tea, which causes an actual inhibitory effect on iron absorption. Excessive levels of tannin compounds from tea and coffee in the blood can prevent iron absorption. When the body lacks iron, the

formation of red blood cells (hemoglobin) decreases, which causes anemia. The inhibitory effect of tannins can be avoided by not drinking tea and coffee after meals, so as not to interfere with iron absorption. Tannins in tea and coffee can reduce iron absorption by up to 80%. Drinking tea or coffee an hour after eating can reduce absorption by up to 85% (18).

CONCLUSION AND RECOMMENDATION

The results of is a relationship between Antenatal Care (ANC) visits and the incidence of anemia in pregnant women as evidenced by the significance value obtained 0.029<0.05 and there is a relationship between the habit of consuming caffeinated drinks and the incidence of anemia in pregnant women as evidenced by the significance value obtained 0.004 <0.05.Suggestions for research sites are expected to provide information related to antenatal care visits and improve service programs for pregnant women by creating classes for pregnant women. It is hoped that health workers will be able to provide education on the correct way to consume fe tablets and education on nutrition that contains iron. Pregnant women are expected to ask more questions about when to return for a pregnancy check. Other researchers are expected to be able to research nutritional status, Upper Arm Circumference (LILA), class of pregnant women, ultrasound examinations carried out 6 times starting from the first trimester, and types of caffeinated drinks such as chocolate, so that this research does not only know about ANC visits and consumption caffeine alone so that the results of this study will be even better.

REFERENCES

1. Dolang MW. Hubungan Kepatuhan Mengonsumsi Tablet Fe Dan Keteraturan Kunjungan ANC Dengan Kejadian Anemia Pada Ibu Hamil. Jurnal Keperawatan Muhammadiyah [Internet]. 2020;5(1):179–84. Available from: http://journal.um-surabaya.ac.id/index.php/JKM. doi : https://doi.org/10.30651/jkm.v5i1.4189
2. Aji AS, Yusrawati Y, Malik SG, Lipoeto NI. Prevalence of anemia and factors associated with pregnant women in West Sumatra, Indonesia: Findings from VDPM Cohort Study. Jurnal Gizi dan Dietetik Indonesia [Internet]. 2019;7(3):97–106. Available from: https://ejournal.almaata.ac.id/index.php/IJND/article/view/1295. doi : http://dx.doi.org/10.21927/ijnd.2019.7(3).97-106
3. Dewi HP, Mardiana. Faktor Risiko Yang Mempengaruhi Kejadian Anemia Pada Ibu Hamil di Wilayah Kerja Puskesmas Nusawungu II Cilacap. Journal of Nutrition College [Internet]. 2021;10(4):285–96. Available from:

http://ejournal3.undip.ac.id/index.php/jnc/. doi : https://doi.org/10.14710/jnc.v10i4.31642

4. Bantul DK. Data Ibu Hamil Anemia. Dinas Kesehatan Kabupaten Bantul. 2022. p. 1–2.
5. Bantul DK. Profil Kesehatan Bantul 2022. In: Dinas Kesehatan Kabupaten Bantul tahun 2022 [Internet]. 2022. p. 1–79. Available from: https://dinkes.bantulkab.go.id/e-magazine/3/download
6. N.K.Wasaraka Y. Faktor-faktor yang Berhubungan dengan Kejadian Anemia pada Ibu Hamil di Kota Metro. Jurnal Ilmiah Keperawatan Sai Betik [Internet]. 2019;15(1):70–5. Available from: http://jurnal.akpermarthenindey.ac.id/journal/index.php/akper/article/download/12/ 11. doi : https://doi.org/10.26630/jkep.v15i1.1284
7. Hidayanti L, Rahfiludin MZ. Dampak Anemia Defisiensi Besi pada Kehamilan : a Literature Review. Gaster [Internet]. 2020;18(1):50–64. Available from: https://jurnal.aiska-university.ac.id/index.php/gaster/article/view/464 doi : https://doi.org/10.30787/gaster.v18i1.464
8. Anggraini EN, Wijayanti T. Hubungan Frekuensi ANC dengan Kejadian Anemia pada Ibu Hamil di Puskesmas Trauma Center Samarinda. Borneo Studies and Research [Internet]. 2021;2(3):1569–75. Available from: https://journals.umkt.ac.id/index.php/bsr/article/view/1629
9. Nugroho RF, Wardani EM. Habit of Consumption of Tea, Coffee and Fe Tablets With The Incidence of Anemia In Pregnant Women in Sidoarjo. Pancasakti Journal Public Healtc Science and Research [Internet]. 2022;2(1):51–6. Available from: http://journal.unpacti.ac.id/index.php/pjphsr/article/view/321
10. Rokhamah. Hubungan Frekuensi Kunjungan Antenatal Care Dan Dukungan Suami Dalam Mengkonsumsi Tablet Fe Dengan Anemia Ibu Hamil. Jurnal Asuhan Kesehatan [Internet]. 2018;10(2):34–7. Available from: http://ejournal.rajekwesi.ac.id/index.php/jurnal-penelitian-kesehatan/article/download/196/146
11. Wahyuningsih, R AS. Frequency of Antenatal Care Influences Compliance with Fe Tablet Consumption in Pregnant Women at the Sedayu 1 Bantul Community Health Center. Jurnal Ners dan Kebidanan Indonesia [Internet]. 2018;5(Vol 5 (2018): FEBRUARY 2018):9–13. Available from: http://nursingjurnal.respati.ac.id/index.

php/JKRY/article/view/279
12. Machfoedz I. Quantitative and Qualitative Research Methodology. 5th ed. Yogyakarta: Fitramaya; 2020. 1–240 p.
13. Sugiyono, Puspandhani ME. Health Research Methods. 1st ed. Kamasturyani Y, editor. Bandung: CV. Alphabet; 2020. 1–800 p.
14. Gusnidarsih V. Relationship between age and pregnancy interval with the incidence of clinical anemia during pregnancy. Journal Mother and Child Care [Internet]. 2020;5(1):37–42. Available from: https://journal.unisa-bandung.ac.id/index.php/jaia/article/download/155/104/
15. Amini A, Pamungkas CE, Harahap AP. Maternal Age and Parity as Risk Factors that Influence the Incidence of Anemia in Pregnant Women in the Ampenan Community Health Center Work Area. Midwifery Journal [Internet]. 2018;3(2):108–13. Available from: https://journal.ummat.ac.id/index.php/MJ/article/download/506/pdf
16. Rohani A, Wathan FM, Yunola S. Relationship between nutritional status, ANC visits, and consumption of Fe tablets with the incidence of anemia in pregnant women in the third trimester at the Pembina Palembang Health Center in 2022.Jurnal Midpro. 2023; 6(2):18–27. Available from: https://jurnal.umt.ac.id/index.php/imj/article/download/8366/4181
17. Fatimah, Delia AR, Nurdiyanah, Damayanti T. Midwifery Care for Pregnant Women, Berslin, Postpartum, and Kb. 1st ed. Oktora SR, editor. Purbalingga: CV. Eurekka Media Aksara; 2022. 1–183 p.
18. Sri Iriani O, Ulfah U. The Relationship between Tea and Coffee Drinking Habits and the Incidence of Anemia in Pregnant Women in BPM Midwives "E" Ciwangi Village, Balubur Limbangan District, Garut Regency. Jurnal Sehat Masada (Penelitian Kesehatan Dharma Husada Bandung) [Internet]. 2019;13(2):68– 72. Available from: http://ejurnal.stikesdhb.ac.id/index.php/Jsm/article/view/108
19. Masrudin R, Rahmawati NI, Fatimah. Correlation between Maternal Hemoglobin Levels During Pregnancy and Apgar Scores in Newborns at Prambanan Regional Hospital. Jurnal Ners dan Kebidanan Indonesia [Internet]. 2018;(1):0–11. Available from: http://elibrary.almaata.ac.id/1072/4/10. Publication Manuscript.pdf
20. Kusumawardani N, Darmawan E, Damayanti KW, Ahmad NFS. Compliance with consuming iron supplements influences the incidence of anemia in pregnancy. (Indonesian Pharmacy and Natural Medicine

Journal) [Internet]. 2020;4(1):21–33. Available from: https://ejournal.almaata.ac.id/index.php/INPHARNMED/article/download/1376/1 377

22. in third trimester pregnant women in Maron District, Probolinggo. Amerta Nutrition [Internet]. 2019;3(1):46–51. Available from: https://e-journal.unair.ac.id/AMNT/article/download/10446/6968/41963
23. Wirke N, Afrika E, Anggraini H. Relationship between ANC visits, compliance with FE tablet consumption and nutritional status with the incidence of anemia in pregnant women in the third trimester at the Kutaraya Health Center, Kota Kayuagung District, Ogan Komering Ilir Regency. Jurnal Ilmiah Universitas Batanghari Jambi [Internet]. 2022;22(2):798–802. Available from: https://ppjp.ulm.ac.id/journals/index.php/hms/article/download/2782/2199
21. Nurmasari V, Sumarmi S. Relationship between regularity of Anc (Antenatal Care) visits and compliance with Fe tablet consumption with the incidence of anemia
24. Batara F, Wijayanti T. Relationship between tea consumption and the incidence of anemia in pregnant women at the Samarinda Trauma Center Health Center. JournalsUmktAcId [Internet]. 2021;2(3):1711–20. Available from: https://journals.umkt.ac.id/index.php/bsr/article/download/1874/921
25. Ariecha PAY, Monalisa L, Ariani P, Purba TJ, Sari NM. The Influence of the Habit of Drinking Tea After Meals on the Incidence of Anemia in Pregnant Women. Journal Midwifery Kestra [Internet]. 2020;3(1):75–81. Available from: https://ejournal.medistra.ac.id/index.php/JKK/article/view/507/246