Jurnal Aisyah: Jurnal Ilmu Kesehatan

Volume 7, Issue 1, March 2022, p. 201–214
ISSN 2502-4825 (print), ISSN 2502-9495 (online)

Independent Anemia Care Monitoring Card Improves Iron Tablets Compliance and Hemoglobin

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ARTICLE INFO

Article history:

Received 11 December 2021
Accepted 21 February 2022
Published 10 March 2022

Keyword:

Pregnant women
Hemoglobin
Monitoring card
Iron tablet compliance

A B S T R A C T

Anemia is still a problem for pregnant women. One of the efforts for its management is compliance with the consumption of blood-added tablets (TTD). The self-monitoring card for anemia care is an easy intervention to help mothers improve adherence to iron tablets consumption. This study aims to determine the comparison of the effectiveness of the use of the Mandiri Monitoring Card "Caring for Anemia on the adherence of pregnant women to take TTD (Mixed-Method Study in Mataram City and Pringsewu Regency). This study uses a mixed-method design with a sequential model approach using quantitative methods (quasi-experimental studies) followed by qualitative (structured interviews). Research subjects in the quantitative method consisted of 30 people each in the intervention group (Mataram City and Pringsewu Regency) and 30 each in the control group (Mataram City and Pringsewu Regency). Qualitative research of five people each for Mataram City and Pringsewu Regency. Data analysis used unpaired T-test as well as transcription and categorization analysis. The results were obtained. The results of the test at the end of the study showed that there was a significant difference between the intervention group and the control group on the adherence to TTD consumption in Mataram City and Pringsewu Regency (P < 0.05). There was no significant difference in hemoglobin levels of pregnant women in the intervention group compared to the control group in both Mataram City and Pringsewu Regency (P-Value > 0.05). In the control group, the increase in hemoglobin levels was more positive in two places. In contrast to the intervention group in Mataram City which showed almost no increase in hemoglobin levels in pregnant women (-0.007±1.08), compared to the intervention group in Pringsewu District (0.37±0.72)). This study shows that the monitoring card prevents pregnant women from experiencing hemodilution at the peak of pregnancy so that their hemoglobin does not decrease.

Kata kunci:

Ibu hamil
Hemoglobin
Kartu pantau
Kepatuhan tablet tambah darah

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DOI: 10.30604/jika.v7i1.892

A B S T R A K

Anemia masih menjadi masalah bagi ibu hamil. Salah satu upaya untuk penatalaksanaanya adalah dengan kepatuhan konsumsi tablet tambah darah (TTD). Kartu pantau mandiri peduli anemia sebuah intervensi yang mudah untuk membantu ibu meningkatkan kepatuhan konsumsi TTD. Penelitian ini bertujuan untuk mengetahui Perbandingan Efektifitas Penggunaan Kartu Pantau Mandiri "Peduli Anemia terhadap kepatuhan ibu hamil minum TTD (Studi Mixed Method di Kota Mataram dan Kabupaten Pringsewu). Penelitian ini menggunakan desain mixed method dengan pendekatan model sequential dengan menggunakan metode quantitative (quasi experimental studies) dilanjutkan qualitative (wawancara terstruktur). Subjek penelitian pada metode kuantitatif terdiri dari masing-masing 30 orang kelompok intervensi (Kota Mataram dan Kabupaten Pringsewu) dan masing masing 30 orang kelompok control (kota mataram

dan Kabupaten Pringsewu). Penelitian Kualitatif masing-masing lima orang untuk Kota Mataram dan Kabupaten Pringsewu. Analsis data menggunakan uji T tidak berpasangan serta analisis transkripsi dan kategorisasi. Hasil penelitian didapatkan. Hasil uji pada akhir penelitian menunjukkan bahwa ada perbedaan bermakna kelompok intervensi dan kelompok control pada kepatuhan konsumsi TTD pada Kota Mataram dan Kabupaten Pringsewu (P < 0,05). Tidak ada perbedaan bermakna kadar hemoglobin ibu hamil pada kelompok intervensi dibanding kelompok control baik di Kota Mataram Maupun Kabupaten Pringsewu (p value > 0,05). Pada kelompok control peningkatan kadar hemoglobinlebih kea rah positif di dua tempat. Berbeda dengan kelompok intervensi di Kota Mataram yang menunjukkan hamper tidak ada peningkatan kadar hemoglobin pada Ibu Hamil (-0,007±1,08), dibandingkan kelompok intervensi Kabupaten Pringsewu (0,37±0,72). Pada studi ini menunjukkan bahwa kartu pantau membuat ibu hamil tidak mengalami hemodilusi di puncak kehamilan sehingga hemoglobin tidak menurun.

INTRODUCTION

Anemia is a serious global health problem worldwide. The prevalence of anemia is mostly experienced by children and pregnant women. WHO estimates that 42% of children under the age of 5 years and 40% of pregnant women worldwide suffer from anemia. (World Health Organization, 2017)

This high incidence of anemia will affect the condition of the baby being born. As a result of a systematic review of database searches, 7243 articles were identified. Then 534 articles were selected for full reading so that 71 articles were found that met the requirements of the systematic review criteria consisting of 54 cohort studies and 17 case-control studies. The results showed the main finding that maternal anemia was a risk factor for low birth weight (OR 1.23). These results were confirmed through a meta-analysis of differences in mean birth weight, which showed that infants of anemic mothers experienced a reduction in birth weight compared with those of nonanemic mothers. The population included in this review consisted of 916,990 pregnant women with a median age of 26 coming from various countries and across all continents. (Figueiredo et al., 2018)

Anemia caused by iron deficiency is the main cause of anemia in pregnant women compared to other nutritional deficiencies. Therefore, nutritional anemia during pregnancy is often identified with iron deficiency anemia. To overcome this, pregnant women during pregnancy check-ups will be given 90 tablets of blood-supplementation (TTD) as a form of prevention and treatment of iron deficiency anemia.

Iron deficiency anemia in the mother can affect the growth and development of the fetus/infant during pregnancy and afterward. The results of Riskesdas 2018 state that in Indonesia 48.9% of pregnant women experience anemia, with a percentage of 84.6% of anemia occurring in the 15-24 year age group. To prevent anemia, every pregnant woman is expected to get a blood-supplementing tablet (TTD) of at least 90 tablets during pregnancy. (Indonesia Health Profile, 2019)

The program of giving Blood Add Tablets (TTD) as an iron supplement for pregnant women has not been optimal. The results of Riskesdas 2018 show that pregnant women in Indonesia who have received blood-supplementing tablets (TTD) amounted to 87.6%, of that number who have received iron tablets 90 tablets amounted to 51%, but pregnant women who have taken TTD 90 tablets are still very low. low that is only 37.7%. The coverage of giving iron tablets to pregnant women in Indonesia in 2019 was 64.0%. This figure has not reached the 2019 Strategic Plan target of 98%. Efforts to increase compliance so that the consumption of iron tablets of at least 90 tablets during pregnancy is very much needed. (Profil Kesehatan Indonesia, 2019)

One of the efforts to increase compliance was carried out by a lecturer in the department of midwifery in 2016 in research on the Competing Grant scheme of the Mataram Ministry of Health Poltekkes entitled "Implementation of the IEC Model with Flip Sheets and Independent Monitoring Card Stickers on Compliance with the Consumption of Blood Supplementing Tablets (TTD) in Anemia in Pregnant Women at Public Health Centers. Mataram City Region in 2016". The results of this study indicate that there is a difference in adherence to iron tablets consumption and Hb levels of pregnant women, higher adherence results were obtained in the group that received the IEC model with flipcharts and self-monitoring card stickers, namely 95.2% compared to the control group who received IEC in the conventional way with a high level of compliance 57.1%. Therefore, it is recommended to use the Flip Sheet and Sticker for the Independent Monitoring Card of TTD for all anemia patients, so that the handling of anemic pregnant women is more efficient and effective. (Kementrian Kesehatan RI, 2018)

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Efforts to provide good Educational Information Communication (IEC) are expected to make pregnant women aware that they have anemia and are moved to change their behavior to become more obedient to taking iron tablets. The self-monitoring card sticker that was given was written with the mother's name and Hb level then pasted in an easily visible place, helping mothers to rememberand encouraging the family to remind them to take iron tablets. The results of this research were continued in 2017 with the title "Modification of the Application of Independent Monitoring Cards for Anemia in Pregnant Women on Compliance with Blood Supplementation Tablets (TTD), Hemoglobin Levels, Baby Weight and Postpartum Bleeding at the Mataram City Health Center. In previous studies, the form made was in the form of an Independent Monitoring Card sticker, but based on the results of evaluation and observation, if it was in the form of a sticker then it could only be affixed at home and could not be taken during pregnancy check-ups to be monitored by the midwife, so it was modified to become an Independent Monitoring Card. This card is made on two sides (back and forth), on the back sheet is added monitoring by husband and health workers in the form of initialing and re-monitoring Hb levels. Also given some important information related to anemia and TTD that mothers can read at home. The results showed that 30 anemic pregnant women were monitored for compliance for 14 days (2 weeks) with the amount of TTD that should be taken as much as 28 tablets with a dose of 2 times a day. The monitoring results show that most of them are compliant with taking iron tablets, namely 29 people (96.7%) and only 1 person who is not compliant (3.3%). (Sundayani & Rumintang, 2020)

This study is in line with the research entitled "Trial of monitoring card for taking blood tablets (Fe) on compliance with consumption of pregnant women" conducted by Edy Waliyo and Shelly Festilia Agusanty in 2015 whose results using a monitoring card for drinking blood tablets can increase consumption of Fe tablets by 23 ,3% when compared to the control group only 6.7%. The results of statistical tests with independent tests showed that there were significant differences in the two groups (p=0.002) (Waliyo & Agusanty, 2016).

As an effort by the government to increase compliance with iron tablets consumption in pregnant women, since 2018, the MCH book on the back page has inserted a control box for drinking iron tablets for pregnant women which provides a place to write down the amount of iron tablets taken by pregnant women during their 9 months of pregnancy. However, based on the results of interviews with puskesmas midwives, the use of this control box is still rarely used and its effectiveness is unknown because no research has been conducted to measure it. Even though data from the Health Office of the Province of NTB shows that the coverage of giving blood-added tablets in the province of NTB still shows that around 5.9% or 6,792 pregnant women do not receive blood-added tablets according to the standard, which is 90 tablets. In all regencies/cities, no one has reached 100% for the provision of 90 tablets of blood added tablets. The coverage of TTD varies in all regencies and cities, the highest is in North Lombok Regency at 100% and the lowest coverage in Sumbawa Regency is only 68.04% (Dikes Provinsi NTB, 2019).

Kondisi masalah anemia di wilayah Kota Mataram ditunjukkan dengan data Dikes Kota Mataram The condition of anemia problems in the Mataram City area is shown by data from the Mataram City Health Office showing that pregnant women with anemia in 2018 amounted to 954 people (9.81%). In 2019 anemic pregnant women in the city of Mataram increased to 1,005 people (10.34%) (Dinas Kesehatan Kota Mataram, 2019).

Research related to compliance that has previously been carried out only takes the area of the city of Mataram, even though according to the 2018 riskesdas data there are differences in the proportion of pregnant women receiving blood supplement tablets (TTD) and the amount obtained if classified based on residence in urban and rural areas, where for the proportion of mothers Pregnant women who get iron blood pressure in rural areas are 74.7% higher than those who live in urban areas, which are 72%. If it is seen according to the proportion of the number of TTD 90 tablets plus blood obtained, in urban areas it is higher, namely 26.5%, while in rural areas it is 20.6%. For NTB, pregnant women who received TTD 90 tablets in urban areas were 13.91, and rural areas 7.37% (Kementrian Kesehatan RI, 2018)

Based on this background, the researcher wanted to conduct research related to compliance in two different locations, namely in Mataram City, NTB Province and Pringsewu Regency, Lampung Province. Pringsewu Regency was chosen because it represents the district and was used as a research location by the Partner Research Team (TPM) in 2015 about the factors of anemia in primigravida pregnant women with a sample of 168 pregnant women, where the results found that the proportion of pregnant women who did not comply with taking Blood Add Tablets and experiencing anemia by 81.9% (Ari et al., 2015).

Sri Hariyani and Darmawati conducted a qualitative study related to compliance with iron tablets consumption in 2019 in Aceh Besar, the result was that 56.8% of pregnant women had poor anemia prevention behavior. Efforts to prevent anemia are in fact strongly influenced by the procedures/habits chosen by the mother in consuming iron tablets. (Hariyani.Sri, 2019)

Another qualitative study was conducted by Titaley CR, et al together with the Micronutrient initiative in 2012 in Purwakarta and Lebak Regencies, the result is that mothers' knowledge about how to deal with anemia is actually quite good, but there are still misunderstandings related to the side effects of TTD, the driving factor for drinking TTD. is the encouragement from the officers and the encouragement from the family of pregnant women (Ismail and E, 2012).

The novelty of the research to be carried out is in terms of research design. This research will be carried out in the form of qualitative and quantitative research, the basis is that previous studies have not obtained a complete picture of the reasons that cause pregnant women not to drink/expend iron tablets of at least 90 tablets during pregnancy, whether due to dislike factors, nausea/ vomiting due to pregnancy, boredom, forgetfulness, side effects (nausea, constipation) or other reasons. The description of the support from families, cadres and related health workers reminded that the consumption of TTD in order to achieve 90 tablets also needs to be explored more deeply. The description of IEC received by the mother regarding the consumption of iron tablets also needs to be evaluated for improvement and input for the iron supplement program that is running according to the conditions in the province of NTB and Lampung. It is hoped that this can be achieved if quantitative research is carried out accompanied by qualitative research. This study aims to determine this background which is the basis for the researcher to conduct a study entitled "Comparison of the Effectiveness of the Use of Independent Monitoring Cards "Caring for Anemia towards the adherence of pregnant women to take TTD (Studi Mixed Method di Kota Mataram dan Kabupaten Pringsewu)".

METHOD

Participant characteristics and research design

This study uses a mixed method study design (Creswell, 2016) sequential model using quantitative methods (quasi experimental studies) followed by qualitative (structured interviews). Quantitative data using pretest posttest with control groups. This design is to compare the intervention/treatment in the form of the Independent Monitoring Card "Awareness Care" and the Control Card for Drinking TTD in the MCH handbook on the compliance of pregnant women in urban and district areas. The effect of the treatment was seen on the level of adherence to TTD consumption after being given treatment for 3 months and 90 days starting from the initial contact and giving 90 tablets of TTD to each respondent. Pregnant women who were sampled according to the inclusion criteria starting at the first contact during the recruitment period, will be asked to fill out a compliance questionnaire and have their hemoglobin levels checked and then followed for a period of 3 months (90 days). At the end of the period, mothers were asked to fill out a compliance questionnaire and have their Hb checked again. After the quantitative analysis was completed, it was continued to collect qualitative data in the form of in-depth interviews and focus group discussions. The criteria for inclusion in this study were healthy pregnant women in the second and third trimesters of pregnancy from 4 months of age who were willing to be research respondents, could communicate well and did not experience pregnancy complications. While the exclusion criteria were pregnant women who withdrew from the study due to moving residence for a long period of time and during the research process, pregnant women experienced illness which made it impossible for them to continue to be research samples.

Sampling procedures

The quantitative sampling technique uses a simple random sampling technique. simple random sampling with the aim of taking samples of pregnant women in the second and third trimesters of pregnancy starting from 4 months of gestation who came for a check-up at the Mataram City Health Center and Pringsewu District, to be divided into the intervention group and the control group. This research upholds research ethics that have passed the ethical protocol at the Poltekkes Kemenkes Mataram with Number: 219/UN18.F7/ETIK/2021

Procedures for selecting participants, including: The sampling method if a systematic sampling plan was implemented. Percentage of sample approached that participated. Self-selection (either by individuals or units, such as schools or clinics). Settings and locations where data were collected

Agreements and payments made to participants. Institutional review board agreements, ethical standards met, safety monitoring

Sample size, power, and precision

The sample size in this study used an unpaired average analysis test calculation with a comparison of the control group and the intervention group 1:1 (Dahlan, 2013). . The study used a 95% confidence level ($Z\alpha$: 1.65) and a test power of 80% (Z: 0.84). The number of samples from the above formula will be added with the criteria of loss to follow up or drop out with an estimate of 10%. So the number of samples obtained is 60 people for the control group and 60 people for the intervention group with a total sample of 120 people. Loss to follow-up or drop out can occur if the patient no longer comes to visit because he moved or is not willing to continue the study. The sample in this qualitative research design uses a sequential mixed method method by continuing the results from quantitative research. Then from the quantitative sample, each 5 pregnant women were drawn to be interviewed in depth, until the same sentence was found in each participant (saturated data) regarding adherence and increasing HB levels.

Measures and covariates

The activity began with the printing of the Mandiri Monitoring Card "Care for Anemia", the TTD Drinking Control Card in the MCH handbook. The types of data collected in this study are primary data and secondary data. Primary data in the form of respondent's characteristic data, Hemoglobin level observation 1 (pre) and observation 2 (post) and compliance with observation 1 (pre) and observation 2, as well as results from interviews for qualitative data collection.

The materials used in this study were the Mandiri Monitoring Card "Care for Anemia", the Control Card for Drinking Iron in the MCH handbook, the government program of Blood Supplementation Tablets (containing 200 mg Ferrous Sulfate Exsiccated and 0.25 mg Folic Acid). The tool used in this study is a tool to check hemoglobin levels as well as complete blood results, namely the Sysmex Spectro Photometer tool available at the Puskesmas. In compliance, the percentage of adherence scale is based on the number of tablets given compared to the remaining tablets.

Data analysis

After the data was collected, the researchers carried out the processing, editing, coding, tabulating, cleaning and analyzing the data. Unpaired T test or Mann Whitney (if the data distribution is not normal) to analyze differences in adherence and hemoglobin levels in the pre-test and post-test in comparing each group (95% CI, =0.05)

RESULTS

Data were collected through a questionnaire which was conducted twice. The first data collection was carried out in June-July 2021 and the last data collection was carried out on 20-23 November 2021. The data collected was carried out by descriptive and quantitative analysis to analyze the Effectiveness of the Use of the Mandiri Monitoring Card "Caring for Anemia Against Obedience of Pregnant Women Taking TTD (Qualitative and Quantitative Study) In Mataram City and Pringsewu Regency.

Based on table 1, it was found that there was no significant difference (ρ> 0.05) in the two groups; except for age characteristics in Mataram City (ρ<0,000).

Based on table 2, a comparison of adherence to the consumption of blood-added tablets was obtained based on the adherence rate. In the first, second and third months, the intervention group compliance was significantly higher than

the control group in both Mataram City and Bandar Lampung Regency (p value <0.05). The results of the total adherence rate in the intervention group and the control group showed a significant difference (p value <0.05). However, the adherence rate of the intervention group in Mataram City was higher than Pringsewu Regency (93.0 (5.33); 84.1 (4.47)). There was a significant difference in the increase in adherence to blood supplement consumption in the intervention group compared to the control group in Mataram City and Pringsewu Regency (ρ<0.05). These results indicate that the use of the Monitor Card for Blood Add Tablets is effective in increasing the Compliance of Blood Add Tablet Consumption in Mataram City and Pringsewu Regency.

Quantitative Results

Table 1
Characteristics of Research Subjects

Characteristics	Group		
	Control (n=30)	Intervention (n=30)	
Mataram City			
Age (Years)			
x (SD)	25.63 (4.30)	30.90 (5.67)	0.000*
median	25.0	31.0	
Range	19-37	19-40	
Education			
SD/Equivalent	4 (13.3%)	7 (23.3%)	0.721**
Middle School/Equivalent	5 (16.7%)	6 (20.0%)	
High School/Equivalent	15 (50.0%)	12 (40.0%)	
PT/Equivalent	6 (20.0%)	5 (16.7%)	
Income			
More than UMR	19 (63.3%)	21 (70.0%)	0.584**
Less than UMR	11 (36.7%)	9 (30.0%)	
Gravida			
Primigravida	8 (26.7%)	7 (23.3%)	1,000**
multigravida	22 (73.3%)	23 (76.7%)	
Pringsewu District			
Age (Years)			
x (SD)	27.87(6.01)	28.83 (5.96)	0.534*
median	28.0	29.0	
Range	17-40	16-39	
Education			
SD/Equivalent	5 (16.7%)	3 (10.0%)	0.838**
Middle School/Equivalent	12 (40.0%)	14 (46.7%)	
High School/Equivalent	9 (30.0%)	10 (33.3%)	
PT/Equivalent	4 (13.3%)	3 (10.0%)	
Income			
More than UMR	30 (100%)	30 (100%)	-
Less than UMR	0	0	
Gravida			
Primigravida	9 (30.0%)	9 (30.0%)	1,000**
multigravida	21 (70.0%)	21 (70.0%)	

Based on table 3, it was found that the hemoglobin level of pregnant women in the intervention group and the control group before the study was not found to be significantly different in both Mataram City and Pringsewu Regency (*P value > 0.05*). This indicates that the subjects are equivalent and comparable. The test results at the end of the study showed that there was no significant difference in hemoglobin levels of pregnant women in the intervention group compared to the control group in both Mataram City and Pringsewu Regency (P Value > 0.05). In the control group, the increase in hemoglobin levels was more positive in two areas. the place. In contrast to the intervention group in Mataram City which showed almost no increase in hemoglobin levels in pregnant women (-0.007 (1.08)), compared to the intervention group in Pringsewu Regency (0.37(0.72)). There was no significant increase in hemoglobin levels before and after the study in both groups and both sites (P value > 0.05).

Qualitative Results

Mataram City

This study used interviews with three people in the control group and two pregnant women in the intervention group. Our control group used the names of mothers "F, G and H" while the intervention group became mothers "I and J". blood supplement tablet compliance.

About blood boost tablet

a) The importance of adding blood tablets

In this qualitative data, all mothers agreed that blood supplement tablets are important for pregnancy in order to increase hemoglobin and maintain pregnancy for both mother and baby. As in the following statement:

"Tablets to increase blood are important, they help pregnancy to increase Hb blood" -Mrs. F

"Yes, it can help pregnancy, because it doesn't have enough Hb. The benefits are good for the baby and the mother" - mother I.

This statement shows that pregnant women are aware of the function of blood-added tablets correctly and their benefits during pregnancy. This means that health education for pregnant women has been effective in increasing knowledge about supplementary blood tablets.

Table 2
Analysis of Differences in Compliance with Blood Add Tablet Consumption Before and After Treatment

Adherence Rate	Group		
	Control (n=30)	Intervention (n=30)	
Mataram City			
First month			
x (SD)	81.9(12.95)	93.3 (6.7)	0.000*
median	80.0	93.0	
Range	50-100	83-100	
Second Month			
x (SD)	80.8 (12.3)	91.60 (7.90)	0.000*
median	80.0	91.50	
Range	57 - 100	73-100	
Third month			0.035*
x (SD)	89.6 (12.42)	95.0 (5.68)	
median	93.0	98.50	
Range	67-100	83-100	
Total			
x (SD)	84.13 (7.87)	93.0 (5.33)	0.000*
median	85.0	94.0	
Range	58-98	82-100	
Delta AR			
x (SD)	7.7 (17.23)	1.70 (6.90)	0.082*
median	13.0	0.0	
Range	-33 to 33	-13 to 17	
Pringsewu District			
First month			
x (SD)	58.63 (5.96)	79.33 (8.72)	0.000*
median	57.0	77.0	
Range	50-67	67-97	
Second Month			
x (SD)	66.20 (10.21)	85.27 (6.51)	0.000*
median	67.0	87.0	
Range	50 - 83	77-97	
Third month			
x (SD)	81.43 (9.36)	88.03 (7.18)	-0.003*
median	81.50	90.0	
Range	67 - 97	77 -100	
Total			0.000*
x (SD)	68.73 (4.73)	84.1 (4.47)	
median	69.0	83.5	
Range	59.0 – 76.0	78.0-92.0	
Delta AR			0.000*
x (SD)	22.8 (10.49)	8.7 (11.50)	
median	20.0	8.5	
Range	3-40	-17 – 27	

Test Description: ***) T Independent Test***

b) The habit of taking tablets to increase blood

The habit of taking blood-added tablets in the control and intervention groups was one mother who drank during the day and was different from the other four respondents who chose the evening. This is in accordance with the statement:

" *Drink right at night before going to bed"* - mother F (control group)

" *It's half past eleven in the afternoon using plain water."* - mother G (control group)

" *Drink time after going to bed at night"* - Mrs. H (control group)

"Drink it before going to bed, Invite Night" -mother I (intervention group)

" *I drink after dinner*" -mother J (intervention group)

Consuming blood-boosting tablets is recommended in a stomach that is not full so that absorption can be maximized. This is what underlies many health workers suggesting before bedtime because the stomach is empty and the risk of nausea disappears because the mother immediately falls asleep so she doesn't feel it. Respondents who consume blood-added tablets after dinner or in the afternoon after eating will cause the risk of absorption of blood-added tablets to be not optimal. This is because the food may contain substances that can inhibit the absorption of iron.

c) Effects felt

The effects experienced by pregnant women generally vary. In fact, no one feels the side effects, but the positive effects are felt. This is in accordance with the statement:

"*it tastes lighter*" -mother F

"It's okay, no complaints." - G .'s mother

" *A bit dizzy, sleep fast, that's what I invite." -H's mother*

" *No headaches, I'm healthy and fresh" - J's mother*

" No complaints after drinking" -mother I

Pregnant women are actually more likely to feel the positive effects of blood-added tablets. This shows that the side effects of blood-added tablets are not always felt by pregnant women. Even pregnant women who feel nauseous can easily cope with sleep. This is a positive impact that education about blood-added tablets is correct and the side effects are not always felt by pregnant women. The existence of these positive findings should be able to increase adherence to the consumption of blood-added tablets.

d) Cause of Non-compliance

Generally, pregnant women in both groups adhered to taking blood-added tablets. The cause of disobedience is due to forgetfulness or laziness. In the intervention group all continued to drink it:

"Sometimes forget, sometimes lazy." - Mrs. H

"I'm still sick, but the important thing is that I don't get dizzy." - Ibu I

The existence of this difference indicates that the presence of a monitoring card that is seen in places that mothers usually visit makes mothers motivated to increase maternal compliance in consuming blood-added tablets.

e) Husband's role

In both groups, it was shown that husbands played a very important role in increasing compliance in consuming blood-added tablets. As in the following statement:

" *Always remind to take the medicine.*" - G .'s mother

" *Sometimes I've been reminded but lazy, if my husband gets angry, I just drink."* - H's mother

" *So my husband reminded me to take medicine so my blood will be good."* – mother I

" " *Every time I drink, he immediately signs*" - Mrs. J

This shows that the husband's support in Mataram City is very good. All respondents received support from their husbands. Husband's support is related to maternal compliance in consuming blood-added tablets

Helpful tool for blood supplement tablet adherence

a) Utilization of where the Monitoring Card is placed

Placement of monitoring cards plays an important role. This can make mothers remember and can be more obedient. As in the following statement:

" *The monitoring card is missing. Often fills up but doesn't fill up again when lost."* -mother G

" *Just this card, Ma'am, it's very important for pregnant women."* - Mrs. F

" *Sometimes to remember, sometimes I forget to tick"* mother " *I put the card next to the medicine." Mother I*

" So that we don't forget, we know that every time we drink, there is a monitoring.. That's my motivation for using this monitoring card." I-mother J

The use of this monitoring card is important as a reminder for pregnant women. However, there are still pregnant women who forget or even lose their monitoring cards. This of course has an effect on compliance that cannot be properly monitored.

b) Monitoring card utilization of compliance enhancement function

The results of the evaluation of the use of the monitoring card in the control group and the intervention group which were placed in the MCH handbook showed that all respondents felt it was helpful to use the monitoring card to improve compliance. In the intervention group, it was shown that the monitoring card could improve adherence to the consumption of blood-added tablets. Mother feels that the use of a monitoring card is important to evaluate the extent to which blood-boosting tablets are taken with recommendations. The following is from his statement:

"It's good that the monitoring card will keep you in mind, so you have to take blood-boosting tablets." - Ibu I

" Since the first time I was given a card with the midwife, Alhamdulillah, my blood is still regular" Mrs. J.

Based on the data above, it shows that the use of a monitoring card has a function to increase maternal compliance in consuming blood-added tablets compared to those who do not receive a monitoring card.

The role of midwives in adherence to blood supplement tablets

The results of a study on the role of midwives in blood-added tablet adherence showed that midwives played a role in blood-added tablet adherence in both the control and intervention groups. All indicated that midwives always asked about blood boosting tablets. Here is his statement:

" *Keep reminding.*" - Mother F

"Just a reminder. Given advice for tablets to add blood. I was asked whether the blood booster tablets had run out or not." -G's mother

"Yes, I was given the tablet, told to drink regularly so it's good, so I don't get dizzy. The tablet that adds blood to the staff is given to you." - Ibu I

"The card seen there has been crossed out." J's mother

The statement above shows that midwives have a big role in using monitoring cards and consuming blood-added tablets.

Recommendation

The recommendation for pregnant women is to make it easier to see and don't need a ballpoint pen. In addition, pregnant women do not give more advice

" It *'s better like this, so we still remember every night we tick it, it's not complicated, the color is easy to see."* - Ibu J

"Sometimes there's no pen and it's too lazy to get up and tick, there's no pen either." - Mrs. H

"At night it was looking for a pen, when I wanted to write down it was difficult because the children who were holding it didn't have a pen so they couldn't fill it." - Mrs. G

The existence of this recommendation means that the monitoring card still has the disadvantage of having to provide a ballpoint pen to check it. So it is recommended to provide monitoring tools that are more effective and do not require other *tools* .

Pringsewu Regency

This study used interviews with two people in the control group and three pregnant women in the intervention group. Our control group used the names of mothers "A" and "B" while the intervention group became mothers "C, D and E". midwives in adherence to blood-added tablets.

Respondents' perception of blood-added tablets

a). Terms and Functions of Blood Supplement Tablets in pregnancy

The term blood supplement tablet is not widely known by pregnant women in Pringsewu district. They generally know this from midwives who introduce two supplements in pregnancy, namely calcium tablets and blood-added multivitamins. Respondents were able to distinguish between calcium supplementation and blood supplementation as well as the function and timing of taking it. Some of the terms used by midwives to describe blood-added tablets that are often used are vitamin-added blood, iron tablets and blood-boosting drugs to prevent blood deficiency or anemia.

Respondents' perception of blood supplement tablets themselves are drugs that can increase blood during pregnancy to prevent blood deficiency during pregnancy. Like the following statement:

" *This is a blood-added vitamin from Mrs. The midwife told me to drink it every night, so I don't get anemia* " - Mrs. B

" *I'm taking iron tablets, hopefully tomorrow there won't be a lot of blood when I give birth* " - Ibu D

" *I take the medicine to increase blood so that it doesn't take 5 L," said the midwife* "-mother A

The respondent's statement reinforces that the mother's education about the function of the blood-added tablet itself has been understood.

b). The habit of taking tablets to increase blood

The mother's habit of taking blood-added tablets has been understood from the time she takes her blood-added tablets, which is at night. Even mother C directly compared the two different supplements and different functions.

" *I took these white calcium tablets early in the morning around 8-10 am, the midwife said, don't eat right away, but if you drink it at night, add blood after Isha.* "

The same thing also happened to Mrs. E who explained:

" *Don't put this blood-added pill in your room, ma'am, if you want to sleep, I'll take a* drink *and go to sleep* "

The statement above shows that the respondents already know when to take blood-added tablets and do not take them at the same time with calcium supplements. This shows that the respondent's perception of the blood-supplemented tablet itself is correct in the function of the blood-supplemented tablet to prevent anemia and bleeding during pregnancy.

c). Side effects of blood boosting tablets

Of the five respondents stated that there were no significant side effects from supplementation of blood-added tablets. Pregnant women do not feel the side effects that can interfere with health.

" It's *just normal, there's no nausea* " - Mrs. E

" *I don't feel any side effects, sis, it's just like taking vitamin medicine* " - Mrs. A

Decreased side effects are felt because pregnant women receive supplementation of blood-added tablets from independent practice midwives who generally already use branded multivitamins so that side effects can be suppressed by adding other multivitamins.

There was one respondent who complained about the discomfort from the blood-added tablet in the form of changed feces before consuming the blood-added tablet, however, the respondent was aware of these side effects. As in the statement:

" *His bowel movements have been a bit black since drinking, he added blood, but the midwife said this was normal, so I didn't have a problem* "

Stool that turns black is a common side effect caused by consuming blood-added tablets. This is because blood supplements are not completely absorbed by the intestines, considering that each person's ability to absorb iron is different.

d). Cause of non-compliance

The main cause of non-adherence to taking blood-added tablets in the two groups was generally forgotten and often missed even though they had put blood-added tablets in places that mothers often used. Following are the statements of respondents:

" *Forget it* "-Mother A

"Sometimes when it's late, when you're tired, you want to lie down for a while and you forget" - Mrs. C

"Most of the time I forget, sis, the name is drinking at night, Ms

One respondent stated that he was left behind when he visited outside the district.

" *Usually I remember but once a week at Mamak's house, I forgot to* bring it" - Mrs. D

The problem of mother's non-compliance is forgetting to take or forgetting to carry blood-supplement tablets when traveling. This is the main reason for non-compliance in consuming blood-added tablets.

e). Husband's role in adding blood tablets

The husband's role in adding blood tablets can be by providing support to increase compliance. This can be done by reminding respondents to take blood-added tablets and prepare blood-added tablets. However, out of five respondents, there was only one respondent who regularly received support from her husband. Here's his statement:

" *Never, I drink alone* " - Mrs. A

" *If you take me to the midwife, yes, but when it comes to medicine, my husband doesn't really care* ." - Ibu B

" *Husband sometimes just asks, have you taken medicine yet* ?" -Mrs. C

" *Yes, my bojo is the one who often reminds you, if not, sometimes you* become lax" - Mrs. D

" No *, just drink* alone " - Mrs. E

Based on the statement above, the husband's role is still low in providing support for blood supplement compliance. This is because during a pandemic generally only patients are allowed to enter the examination room to reduce transmission. In addition, the characteristics of Pringsewu Regency, which is still a village, make education to husbands not a priority, including in motivating support for adherence to blood-added tablets.

Blood Added Tablet Compliance Aids

The aids for adherence to blood-added tablets used in this study were the monitoring card made by the researcher and the monitoring card inserted in the Maternal and Child Health book.

a) Utilization of where the Monitoring Card is placed

The placement of monitoring cards in the intervention group itself is different so that compliance is different for each respondent. This was expressed in the question of where the monitoring cards were used in the intervention group:

" *I put it in the room on the bedside table* " - mother C

" *near the refrigerator, next to the medicine* " - Mrs. D

" *Beside the TV, near the drug* "-Em's mother

Place this monitoring card according to the midwife's instructions that pregnant women are advised to put the monitoring card in a place that is easily accessible and often seen by the mother so that the mother can always be reminded about the monitoring card, so that she can take medication.

This different placement is also not an influence as long as pregnant women can be motivated to take blood-added tablets more regularly. However, different places can affect the memory and compliance of pregnant women in consuming blood-added tablets.

In the control group itself, who received the blood-added tablet filling sheet in the MCH handbook, it actually made it difficult for the control group because they had to open the book first and then fill out the "tick" in the MCH book. There were also respondents who from the start had just attached it to the kitchen wall to make it easier so that its function was like a monitoring card in the intervention group. Here's his statement:

" *Yes, it's complicated, sis, I didn't open the book first, but come on, I'm so diligent in reading KIA books. But yes, that's the result that sometimes you are lazy and keep forgetting* " – *Ibu* A.

" *At first I didn't put it in the book, then I had to look for the book, I'm afraid I'll forget it, so I don't just stick it in the kitchen, I understand that moms are lazy* " - Ibu B

This shows that the addition of the monitoring sheet for blood-added tablets in the MCH handbook should have parts that are easy to tear, such as on the monitoring card, so that mothers can easily monitor their consumption of blood-added tablets.

b) Monitoring card utilization of compliance enhancement function

The same thing in Mataram City, in Pringsewu Regency also the results of the evaluation of the use of the monitoring

card in the control group and the intervention group which were placed in the MCH handbook showed that all respondents felt it was helpful to use the monitoring card to improve compliance. In the intervention group, it was shown that the monitoring card could improve adherence to the consumption of blood-added tablets. Mother feels that the use of a monitoring card is important to evaluate the extent to which blood-boosting tablets are taken with recommendations. The following is from his statement:

" This is good *, Ms.*

" *Yes, it's useful, I'm so diligent. It 's a shame if you ask the midwife, the card still has holes in it* " - Mrs E

Based on the data above, it shows that the use of a monitoring card has a function to increase maternal compliance in consuming blood-added tablets compared to those who do not receive a monitoring card.

The role of midwives in adherence to blood supplement tablets.

The results of a study on the role of midwives in blood-added tablet adherence showed that midwives played a role in blood-added tablet adherence in both the control and intervention groups. All indicated that midwives always asked about blood boosting tablets. Here is his statement:

" *Every time the midwife is asked how much medicine is left? Sometimes if I still have leftovers, I will fill it in* " - Mrs. A (control group)

" *You ask, ma'am, sometimes you are asked if the control card doesn't have holes, right? You have to be tight so that the baby is healthy* " - mother D (intervention group)

The results above indicate that midwives play a major role in increasing compliance with blood supplement consumption. This increase in compliance has a good impact on pregnant women to prevent anemia

Respondents Recommendation

The results of the interviews showed that respondents were satisfied with the control card but each respondent gave different recommendations on the results of the interview. Here's his statement:

" *If I mention it in the KIA book, it's complicated, sometimes I forget too, it's better if you can remind us like that. In fact, I use my cellphone alarm at night . If it's a recommendation, it's better to use a cellphone alarm* "- Ibu A

" *What's the recommendation? The important thing is to be biased so that you immediately remember it. Sometimes when it's late at night, I forget* "-mother B
" *If it's a recommendation, you don't need to use the pen, sometimes the pen is lost for children's toys"* - Mrs. C

" *The recommendation is that you can take it everywhere* " mother -D

Recommendations from pregnant women in both groups imply that the next monitoring card device is a portable one, can immediately remind like a cellphone alarm and does not require writing instruments to use. This is a recommendation for further research to develop a monitoring tool for blood-added tablets using electronic media that is easy to carry.

DISCUSSION

Characteristics of Research Subjects

In fact, in Indonesia there are still many pregnant women with poor nutritional status, such as suffering from anemia. This is due to insufficient food intake before pregnancy for the mother and fetus. In addition, the workload of pregnant women is usually the same or heavier than before pregnancy. As a result, the baby does not get the nutrients needed so that it interferes with the growth and development of the fetus, especially iron intake.

In Indonesia, the prevalence of anemia in pregnant women in 2013 showed 37.1% and increased in 2018 to 48.9% (Kemenkes RI., 2018). Even though the prevalence of anemia in Mataram City and Pringsewu Regency is lower than the National, however, cases of recovery from anemic pregnant women are still not widely discussed.

In this study it was found that there was no significant difference in age, education, income and gravida ($\rho > 0.05$) in the two groups; except for the age characteristics in Mataram City where the age of the control group was younger than the age of the intervention group (25.63 (4.30); 30.90 (5.67); <0.000). In this study, we compared the control and intervention groups but did not compare the characteristic data in Mataram City and Pringsewu District. Based on characteristic data, it shows that age, education, income and gravida groups are assessed as characteristic data for the occurrence of anemia.

Age and gravida indicate the function of the body in dealing with pregnancy. The risk of anemia is also higher in pregnant women with high parity (Kavak & Kavak, 2017). This is because the mother does not have sufficient iron reserves to undergo a subsequent pregnancy because a minimum of 300 mg of iron reserves is required before pregnancy. Therefore it is necessary to explain the importance of maintaining the number of pregnancies (Imai, 2020).

In this study, income did not differ between the intervention group and the control group. The country's economy can affect education, opinion, culture and behavior. Income affects people's purchasing power. (Alflah et al., 2017). Mothers whose daily diet is not diverse will be at risk of anemia in terms of the quality and quantity of food. Inadequate nutrition and absorption that is not optimal is what makes the number of erythrocytes decrease and causes anemia (Goldenberg et al., 2018).

Lack of food intake during pregnancy requires supplementation of blood and folic acid tablets to meet the needs during pregnancy in order to prevent anemia. The government has set guidelines for giving blood-added tablets to improve the compliance of pregnant women. (Ministry of Health, 2015) However, it is still necessary to evaluate the success of blood-added tablet compliance with an increase in hemoglobin levels.

Differences in Compliance with Blood Add Tablet Consumption in the Treatment Group and the Control Group

In this study, a comparison of adherence to the consumption of blood-added tablets was obtained based on the *adherence rate.* In the first, second and third months, the intervention group compliance was significantly higher than the control group in both Mataram City and Bandar Lampung Regency (p value <0.05). The results of the total *adherence rate* in the intervention group and the control group showed a significant difference (p value <0.05). However, the *adherence rate* of the intervention group in Mataram City was higher than Pringsewu Regency (93.0 (5.33); 84.1 (4.47)). There was a significant difference in the increase in adherence to blood supplement consumption in the intervention group compared to the control group in Mataram City and Pringsewu Regency (ρ<0.05). These results indicate that the use of the Monitor Card for Blood Add Tablets is effective in increasing the Compliance of Blood Add Tablet Consumption in Mataram City and Pringsewu Regency.

According to the Ministry of Health of the Republic of Indonesia, adherence to taking Fe tablets is pregnant women who consume Fe tablets every day and the number of Fe tablets taken is at least 90 tablets in a row during pregnancy (Kemenkes RI, 2015). The need for maternal iron is increasing which is not enough just from food but must be met with supplementation of blood-added tablets (Beaton, 2000). Unfortunately, maternal compliance in consuming blood-supplementing tablets (TTD) is not as good as expected, namely pregnant women who consume blood-supplementing tablets only 38% (Kemenkes RI., 2018). The benefits of using a monitoring card for taking blood-added tablets can motivate pregnant women to spend the given TTD, and this card is also a medium of communication, information and education during pregnancy.

One of the efforts to increase compliance with TTD consumption is to provide a blood tablet monitoring card. The benefits of using a monitoring card for taking blood-added tablets can motivate pregnant women to spend the given TTD, and this card is also a medium of communication, information and education during pregnancy.

In this study, both groups received cards to monitor the administration of blood-added tablets. In the intervention group, they received a card that could be placed in a place that the mother often used. In the control group, the control card was inserted in the MCH book. However, the function is the same. In addition, the results from a qualitative study show that health workers and families are very supportive of increasing adherence to the consumption of blood-added tablets in pregnant women.

This study is different from the previous one which stated that the availability of control cards was not significantly related to the compliance with the consumption of blood-added tablets in adolescent girls (p > 0.05). This is because the more influential factors are father's education, parents' income, attitudes, family support, peer support, UKS teacher support, health worker support, and access to information.

Supported by Ismawati's research, (2018) which states that there is no significant difference in adherence after being treated using a control card between the intervention group and the control group. Although the sample was aware of the impact that would be obtained if there was a lack of iron during pregnancy, the lack of willingness to take iron tablets on a regular basis was the cause of non-compliance.

The role of health workers is very important in providing health information. Rantucci in Neswita et al (2015) states that counseling should aim to educate patients so that patient knowledge about drugs will increase and this will affect the level of adherence. Through counseling, incorrect assumptions and patient behavior can be corrected/corrected.

According to research by Aditianti, Permanasari and Julianti, (2015) stated that the role of a companion to take blood-added tablets can significantly increase the compliance of pregnant women in consuming blood-added tablets. This is because the companion always motivates and reminds him to overcome his anemia.

According to researchers, the placement of control cards can affect compliance. Pregnant women who often see the anemia care monitoring card will automatically remember to take blood-boosting tablets compared to pregnant women who keep the control card in the MCH book. This causes the intervention group to have higher adherence to this study. In this study, the recommendation from research subjects is that in the future the monitoring system for adding blood tablets uses more electronic programs for monitoring so that mothers are more easily reminded. This shows that pregnant women already understand technology as a reminder and are more effective than the manual system which still allows forgetting.

Differences in the increase in hemoglobin levels in the treatment group and the control group

In this study, the compliance of pregnant women in the intervention group in consuming blood-added tablets has increased. Hemoglobin levels in Pringsewu Regency in the intervention group also increased by (0.37(0.72)) gr/dl. However, there was no increase in hemoglobin levels in the intervention group in Mataram City (-0.007 (1.08)) gr/dl. The results in the two groups also showed that there was no significant difference in the increase in hemoglobin levels in the two groups (p value > 0.05).

The reason for not increasing hemoglobin levels in the blood of pregnant women in the intervention group in Mataram City was because in the third month of administration the average gestational age was 30 weeks. This shows that physiologically there is a peak of hemodilution. This causes an increase in blood volume by 45%. With a comparison of an increase in the amount of plasma volume by 50%, while the increase in the number of erythrocytes by 35%. This causes the hemoglobin level of pregnant women to be lower than before pregnancy (GF GN Cunningham, KJ Leveno, LC Gilstrap, 2016).

Basically the condition of adding blood to pregnant women aims to prepare for delivery in the event of bleeding during delivery. However, due to an unbalanced increase in plasma and erythrocyte counts, pregnant women have lower hemoglobin levels than non-pregnant women. The addition of blood volume and fetal development will cause the need for this nutrient to increase from the end of the first trimester to its peak at 30 weeks of gestation (Bencaiova & Breymann, 2014; Smita et al., 2009).

Iron supplementation that is consumed regularly can reduce the risk of anemia during pregnancy (Anasari and Wiwit, 2012). However, TTD can cause unpleasant side effects such as nausea, constipation, diarrhea, black stools. These side effects can affect the adherence to the consumption of TTD. In addition, improper drinking

methods can cause absorption of TTD to be not optimal (WHO, 2012).

Iron-rich intake does not guarantee the availability of iron in the body because the amount of iron absorbed is very dependent on the type of iron and food ingredients that can inhibit and increase iron absorption (Kalaivani, 2009). Iron is divided into two types, namely heme iron and non-heme iron. The two types of iron have different bioavailability. Heme iron has animal-derived factors that facilitate absorption in the body. Heme iron absorption covers 20-30%. The protein content in heme iron makes the absorption process tend to be stable and not disturbed by reinforcing factors or inhibitor factors. But unfortunately the amount of heme iron in nature is only 5%, besides that generally heme iron is generally more expensive which makes people with low incomes (Rolfes et al., 2016) .

According to research by Shubham *et al.* , (2020) in addition to the intervention of iron-fortifying drugs, there is an effective strategy to reduce anemia, namely by fortifying food. Food fortification is a promising strategy to reduce the prevalence of anemia. Food combinations should be designed taking into account their synergistic effect with iron for effective absorption and bioavailability. However, the economy, safety issues and acceptance of iron-fortified foods remain obstacles that must be addressed.

In the opinion of the researcher, the high adherence to the consumption of blood-added tablets that is not accompanied by an increase in hemoglobin can be caused by the correct food intake. Pregnant women with more or less economy tend to consume non-heme iron which is more affordable but has low absorption. This also affects protein intake and this causes the absorption of iron to be not optimal in Mataram City because there are still a third of research subjects who have income less than the UMR>.

LIMITATION OF THE STUDY

The weakness in this study is that the researchers did not identify the respondent's knowledge about the correct food in iron absorption and saw the daily food intake which plays an important role in increasing hemoglobin. Suggestions for further research, namely the application of new food processing techniques with food fortification can result in the emergence of new approaches to overcome iron deficiency and anemia.

CONCLUSIONS AND SUGGESTIONS

The use of the Blood Add Tablet Monitor card is effective in increasing the Compliance of Blood Adding Tablet Consumption in Mataram City and Pringsewu Regency. It can be concluded that the Blood Supplement Tablet Monitoring Card is effective in preventing the decrease in hemoglobin in hemodilution peaks in pregnant women in Mataram City and Pringsewu Regency. It is recommended to develop an efficient blood tablet monitoring method that can easily remind and based on technology so that it is easier for mothers to fulfill their compliance. It is recommended to develop a method that can be integrated with knowledge and food intake so that the practice of giving blood-added tablets does not experience obstacles due to inadequate food intake to overcome anemia.

Acknowledgment

The authors thank the entire team that has supported the research, the Institute of Health Polytechnic of the Ministry of Health of Mataram and the University of Muhammadiyah Pringsewu.

ETHICAL CONSIDERATIONS

Conflict of Interest Statement

The author declares that there is no potential Conflict of Interest in this study

REFERENCES

Aditianti, A., Permanasari, Y., & Julianti, E. D. (2015). FAMILY AND CADRE SUPPORTS INCREASED IRON PILS COMPLIANCE IN ANEMIC PREGNANT WOMEN. *Penelitian Gizi Dan Makanan (The Journal of Nutrition and Food Research)*, *38*(1). https://doi.org/10.22435/pgm.v38i1.4424.71-78

Alflah, Y. M., Wahdan, I. H., Hasab, A. A., & Tayel, D. I. (2017). Prevalence and Determinants of Anemia in Pregnancy, Sana′a, Yemen. *International Journal of Public Health Science (IJPHS)*, *6*(3), 213. https://doi.org/10.11591/ijphs.v6i3.7931

anasari dan wiwit. (2012). Relationship Compliance With Pregnant Women Consuming Fe Tablets With The Event Of Anemia In Pageraji Village, Cilongok District, Banyumas Regency. *Jurnal Ilmiah Kebidanan*, *3*(2), 41–53.

Ari, D., Yanti, M., & Sulistianingsih, A. (2015). Factors Occurrence of Anemia in Primigravida Mothers in the Work Area of Pringsewu Health Center Lampung. *Jurnal Keperawatan*, *6*, 79–87.

Beaton, G. H. (2000). Iron needs during pregnancy : do we need to rethink our targets ? *Am J Clin Nutr*, *72*, 265S–71S.

Bencaiova, G., & Breymann, C. (2014). Mild anemia and pregnancy outcome in a swiss collective. *Journal of Pregnancy*, *2014*, 1–7. https://doi.org/10.1155/2014/307535

Creswell, J. (2016). *Research Design Pendekatan Kualitatif, Kuantitatif dan Mixed*. Pustaka Pelajar.

Dahlan. (2013). *Sample Size and Sampling Method*. Salemba Medika.

Dinas Kesehatan Kota Mataram. (2019). *PWS KIA Mataram City Health Office*.

Figueiredo, A. C. M. G., Id, Isaac S. Gomes-Filho, P. P. S. P., Mata, F. A. F. Da, Lyrio, A. O., Souza, E. S., Cruz, S. S., & Pereira, M. G. (2018). Maternal Anemia and Low Birth Weight : A Systematic Review and Meta-Analysis. *Jurnal Nutrients*, *Nutrients*(601), 1–17. https://doi.org/10.3390/nu10050601

GF GN Cunningham, KJ Leveno, LC Gilstrap, K. W. (2016). *Obstetri William*. EGC.

Goldenberg, R. L., McClure, E. M., & Saleem, S. (2018). Improving pregnancy outcomes in low- and middle-income countries. *Reproductive Health*, *15*(Suppl 1). https://doi.org/10.1186/s12978-018-0524-5

Hariyani.Sri, D. (2019). Prevention of Anemia in Pregnant Women at the Kuta Baro Health Center, Aceh Besar. *JIM FKEP*, *IV*(1), 122–127.

Imai, K. (2020). Parity-based assessment of anemia and iron deficiency in pregnant women. *Taiwanese Journal of Obstetrics and Gynecology*, *59*(6), 838–841.

Ismail, T. C., RU, W., D, D., RA, S., R, D., & E, S. A. K. (n.d.). *Perceptions of Pregnant and Postpartum Mothers About Anemia and Consumption of Blood-Adding Tablets During Pregnancy: A Qualitative Study in Purwakarta and Lebak Regencies*.

Ismawati, K. (2018). The Effect of Giving Control Cards on Increasing Knowledge and Compliance with Blood-Adding Tablets Consumption of Pregnant Women in the Work Area of Atari Jaya Public Health Center, Konawe Selatan Regency. *Politeknik Kesehatan Kendari*.

Kalaivani, K. (2009). Prevalence & consequences of anaemia in pregnancy. *Indian Journal of Medical Research*, *130*(5), 627–633. https://doi.org/10.17511/ijmrr.2014.i04.05

Kavak, E. Ç., & Kavak, S. B. (2017). The association between anemia prevalence, maternal age and parity in term pregnancies in our city. *Perinatal Journal*, *25*(1), 6–10. https://doi.org/10.2399/prn.17.0251002

Kemenkes, R. (2015). *Pedoman Pemberian Tablet Tablet Tambah Darah*. Kemenkes RI.

Kemenkes RI. (2018). *Riset Kesehatan Dasar*.

Kementrian Kesehatan RI, B. L. K. (2018). Laporan_Nasional_RKD2018_FINAL.pdf. In *Badan Penelitian dan Pengembangan Kesehatan* (p. 198).

NTB, D. K. P. (2018). *Profil Kesehatan Provinsi NTB tahun 2018*.

Rolfes, S., Pinna, K., & Whitney, E. (2016). *Understanding Normal and Clincial Nutrition*. Thomson Wadsworth.

Rumintang, Baiq Iin; Sundayani, Lina; Halimatusyaadiah, S. (2019). Implementation of the IEC Model with Flip Sheets and Independent Monitoring Card Stickers on Compliance with Blood Supplementary Tablet Consumption (Ttd) in Anemia of Pregnant Women at Public Health Centers in Mataram City in 2016. *Jurnal Bina Media Ilmiah*, *13*(12), 1839–1846.

Shubham, K., Anukiruthika, T., Dutta, S., Kashyap, A. ., Moses, J. A., & Anandharamakrishnan, C. (2020). Iron deficiency anemia: A comprehensive review on iron absorption, bioavailability and emerging food fortification approaches. *Trends in Food Science & Technology*, *99*(May), 58–75.

Smita, S., Sukhija, S., Renu, T., & Pd, S. (2009). *Pregnancy induced iron deficiency and the evaluation and comparison of the efficacy and safety of ferrous fumarate and carbonyl iron in its treatment - PERFECT trial*. *59*(6), 552–562.

Sundayani, L., & Rumintang, B. I. (2020). *The Effect of Self Coastal Cards on Adherence to Iron Tablet Consumption , Hemoglobin Level , Weight of A Baby , Among Anemia in Pregnancy*. *2*(4), 2–4.

Waliyo, E., & Agusanty, S. F. (2016). Trial of Monitoring Card for Drinking Blood-Adding Tablets (Fe) Against Consumption Compliance of Pregnant Women. *Jurusan Gizi, Poltekkes Kemenkes Pontianak, Jl. 28 Oktober Siantan Hulu Pontianak*, *II*(1), 84–88.

WHO. (2012). Guideline : Daily iron and folic acid supplementation in pregnant women. *World Health Organization*, *46*, 323–329.

World Health Organization. (2017). *Prevalence of Anaemia in Women of Reproductive Age (%)*. 99.

 ISSN 2502-4825 (print), ISSN 2502-9495 (online)