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Overview of The Effect of Complementary Obstetric Care of Guava Juice and The Application of Logbook to Increase Hb Levels

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ABSTRACT

Anemia in pregnancy is called "potential danger to mother and child" (potential harm to mother and child). According to the World Health Organization (WHO) in 2014 there are 52% of pregnant women experiencing anemia in developing countries, one of which is Indonesia. Prevention of anemia in pregnant women can be done in 2 ways, one of which is by pharmacological therapy by consuming Fe tablets and non-pharmacological therapy with red guava juice and the assistance of the application of pregnancy nutrition logbook. This study uses observational descriptive methods. This study aims to find out the effect of rising HB levels of pregnant women with severe anemia. This study was conducted for 4 months, based on research at each visit with the provision of guava juice and assistance in the application of pregnancy nutrition logbook average and an increase in Hb levels of 0.0925g% with an average increase in Hb levels per day of 0.03 gr%. The limitations of the authors in conducting this study are the cost and time of examination of Hb levels. This study can be beneficial for pregnant women who are severely anemic, students and educational institutions.

Keywords: pregnant, severe anemia, guava juice, pregnancy nutrition logbook

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INTRODUCTION

Maternal and child health is one of the priority national health development goals. Maternal health needs to be considered from the process of pregnancy, childbirth, postpartum and family planning. While the health of children can be monitored through the period of newborns, neonates and toddlers. Maternal and child health indicators can be seen from the maternal mortality rate (MMR) and infant mortality rate (IMR). WHO targets the MMR in 2030 to fall to 70 per 100,000 live births and the infant mortality rate (IMR) to 12 per 1,000 KH[1].

In Bengkulu province in 2019, the absolute number of maternal deaths was 35 people, with details of bleeding as many as 16 people, hypertension in pregnancy 6 people, and blood disorders as many as 3 people. Distribution of maternal deaths in Bengkulu province, namely Central Bengkulu 6 people, North Bengkulu 6 people, Bengkulu city 4 people, Kepahiang 4 people, Muko-muko 4 people, Seluma 4 people, Rejang Lebong 4 people, Kaur 4 people, Lebong 1 people, only southern Bengkulu did not contribute to MMR in Bengkulu province. Meanwhile, the number of neonatal deaths is 196, babies are 263, and toddlers are 297 people [2]

Based on WHO in 2014 the prevalence of anemia in pregnant women ranged on average 14%, in industrialized countries 56% and in developing countries 35% - 75%. Globally, 52% of pregnant women in developing countries are anemic. This figure is greater than the rate of anemia in pregnant women in industrialized countries which is only 20%. The country with the highest prevalence of anemia in pregnant women is India (88%), followed by Africa (50%), the Caribbean (30%). Meanwhile, the prevalence of anemia in pregnant women in Southeast Asia is 48.2%. According to *the enyclopedis of national* , Indonesia is ranked 58th with a prevalence of anemia in pregnant women as much as 44.3%. Anemia is one of the causes of bleeding, bleeding can contribute to the maternal mortality rate (MMR)[3].

Pregnancy is a unique natural condition because pregnant women experience anatomical and physiological changes. One of the physiological changes is hemodynamic changes (blood flow), an increase in plasma volume occurs in a greater proportion when compared to an increase in erythrocytes so that there is a decrease in hemoglobin concentration (Hb) resulting in anemia (Sarwono, 2014). Anemia in pregnancy is a condition in which the mother has a hemoglobin level below 11 g/dl in the 1st and 3rd trimesters or a level < 10.5 g/dl in the 2nd trimester. This limit value and the difference with the condition of non-pregnant women occurs due to hemodilution, especially in the second trimester 2 [4].

Anemia in pregnancy is caused by several factors including gravid, age, parity, education level, economic status, gestational distance, adherence to Fe tablet consumption, nutrition and diet. Based on research by [5] that the close relationship between diet and the incidence of anemia is very strong because pregnant women whose diet is not suitable can affect iron absorption, causing anemia in pregnant women. Therefore, it is necessary to provide assistance and supervision of the diet of pregnant women, one of which is by using the *pregnancy nutrition logbook* . *Pregnancy nutrition logbook* is a notebook for pregnant women that contains the daily menu of pregnant women with anemia that are consumed regularly. The aim is to monitor, support the nutrition of pregnant women and increase maternal Hb

levels . How to use the *pregnancy nutrition logbook* is for pregnant women to study the menu in the *logbook,* then the midwife assists in the application of preparing the daily menu for pregnant women with anemia, besides that pregnant women are guided by the midwife to fill out evaluation sheets or diaries listed in the *logbook* . Every week, the midwife evaluates the mother's compliance in applying the diet according to the menu listed in the *logbook ,* after which the midwife and pregnant women discuss the follow-up to the evaluation results[6] .

Anemia in pregnancy is called " *potential danger to mother and child* ". The effects of anemia in pregnancy can be fatal if not treated immediately, including miscarriage, abortion, premature delivery, inhibition of fetal growth and development in the uterus, easy infection, antepartum bleeding, premature rupture of membranes (PROM), during delivery can lead to His disruption, the first stage can cause complications. It lasts a long time, and during the puerperium, uterine subinvolution occurs, causing postpartum hemorrhage, facilitating puerperal infection, and decreasing AS1 production[7].

Prevention of anemia in pregnant women can be done in two ways , one of which is pharmacological therapy by consuming Fe tablets. The dose given to pregnant women is in accordance with WHO provisions, namely 60 mg iron and 0.25 mg folic acid per day[8]. The Ministry of Health has implemented the Iron Nutrition Anemia (AGB) prevention program by distributing iron tablets as much as 1 tablet every day in a row for 90 days of pregnancy[9]. In order to maximize iron absorption, it is recommended to drink Fe tablets by drinking boiled water or juices containing vitamin C such as orange juice, guava juice. While non-pharmacological therapy to treat anemia can consume dragon juice, green beans, dates and red guava juice. Among these foods, red guava juice has been proven to be effective in increasing Hb levels because it contains ascorbic acid 2 times that of oranges, which is about 87 mg/100 grams of red guava. In addition, every 100 grams of red guava also contains 49 calories of calories, 0.9 grams of protein, 0.3 grams of fat, 12.2 grams of carbohydrates, 14 mg calcium, 28 mg phosphorus, 1.1 mg iron, 25 SI vitamin A. , Vitamin B1 0.05 mg and Water 86 grams. Vitamin C contained in guava increases the absorption of iron by the body, so that the body is expected to absorb iron optimally and increase hemoglobin levels in the body[10]. According to Yusnani's research, 2014 guava can treat people with anemia (lack of red blood) because red guava fruit also contains mineral substances that can accelerate the process of forming red blood cell hemoglobin. The high iron content in red guava can stimulate the production of hemoglobin in the blood for people with anemia[8].

Based on research[12]vitamin C contained in guava accelerates the absorption of iron by the body , so that the body is expected to absorb iron optimally and increase Hb levels in the body. Guava juice is consumed for 7 consecutive days and on day 8 the Hb level was measured again. Giving guava juice as much as 250 ml for 7 consecutive days taken before consuming fe tablets and the increase in Hb during consuming fe tablets and guava juice was 2.89 g/dl. According to research[12] giving Fe tablets and guava juice can help increase Hb levels in the body in pregnant women. Guava is a fruit that is very rich in vitamin C.

Based on the results of a survey in the independent midwife practice (PBM) "R" Bengkulu City in the last 1 year, from January-December 2020, it was found that 12 mothers had anemia, 11 of them were mild anemia and 1 person had severe anemia[13].

Based on the above background, the researcher is interested in taking the title of the research on the effect of red guava juice and pregnancy nutrition logbook on the increase in Hb levels of pregnant women with severe anemia. The purpose of this study was to increase the Hb level of pregnant women with severe anemia.

METHOD

This research method is descriptive observational, this research was conducted at PMB "R" Bengkulu City, this research was conducted on 18 December - 8 April 2021, with a research sample of 12 people, 11 people had severe anemia and 1 person had severe anemia.

This study began by giving guava juice at a dose of 250 ml per day or the equivalent of 1 cup of guava juice and checking the logbook to monitor and support the nutritional intake of pregnant women. After giving guava juice and applying the logbook for 1 month, the Hb level will be checked again to see the increase in the Hb level.

RESULTS

Table 1 Increase in Hb levels for 1 Month

Visit	Results	Ascension	Average Hb levels per day	Note Time visit
I	6.6 gr%	-	-	40 days
II	8.2 gr%	1.6 gr%	0.04 gr%	35 days
III	10.2 gr%	2 gr%	0.06 gr%	31 days
IV	11.2 gr%	1 gr%	0.02 gr%	36 days
Average	9.0 gr%	0.925 gr%	0.03 gr%	

Based on the table above, it shows that the Hb level monitoring visits were carried out for 4 examinations in 4 months. Based on the results of the examination at each visit the average increase in Hb levels per day was 0.03 gr% and the average increase in Hb levels for 1 month was 0.0925 gr%.

DISCUSSION

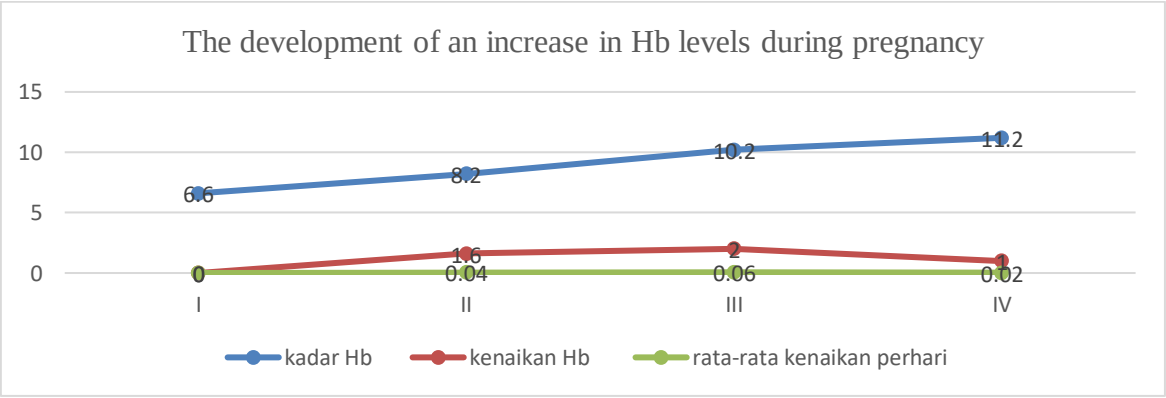
Prevention of anemia in pregnant women can be done in two ways, one of which is pharmacological therapy by consuming Fe tablets. The dose given to pregnant women is in accordance with WHO provisions, namely 60 mg iron and 0.25 mg folic acid per day[8]. The Ministry of Health has implemented the Iron Nutritional Anemia (AGB) prevention program by distributing iron tablets as much as 1 tablet every day in a row for 90 days of pregnancy[9]. In order to maximize iron absorption, it is recommended to drink Fe tablets by drinking boiled water or juices containing vitamin C such as orange juice, guava juice. While non-pharmacological therapy to treat anemia can consume dragon juice, green beans, dates and red guava juice.

The increase was quite significant after the author gave an intervention, namely giving 250 ml of guava juice or the equivalent of 1 cup of red guava juice every day. According to the results of research [14],[15] on the effect of giving red guava juice to the increase in Hb levels of pregnant women, it shows an average increase in Hb levels of 0.09 gr% and research according to research [16] about the effect of giving red guava juice and oranges to the increase in Hb levels of pregnant women with anemia showed an average increase in Hb levels of 0.1 g%. When compared with the results of the observation with the results of the study , guava juice given to Mrs. Y can help increase Hb levels and there is no significant difference between the average increase in Hb levels in Mrs. Y with other researchers in other cases.

Based on research [11] vitamin C contained in guava accelerates the absorption of iron by the body , so that the body is expected to absorb iron optimally and increase Hb levels in the body. Guava juice is consumed for 7 consecutive days and on day 8 the Hb level was measured again. Giving guava juice as much as 250 ml for 7 consecutive days taken before consuming fe tablets and the increase in Hb during consuming fe tablets and guava juice was 2.89 g/dl. According to research [12] giving Fe tablets and guava juice can help increase Hb levels in the body in pregnant women. Guava is a fruit that is very rich in vitamin C.

According to the theory, red guava juice is proven to be effective in increasing Hb levels because it contains ascorbic acid 2 times that of oranges, which is about 87 mg/100 grams of red guava. In addition, every 100 grams of red guava also contains 49 calories of calories, 0.9 grams of protein, 0.3 grams of fat, 12.2 grams of carbohydrates, 14 mg calcium, 28 mg phosphorus, 1.1 mg iron, 25 SI vitamin A. , Vitamin B1 0.05 mg and Water 86 grams. Vitamin C contained in guava increases the absorption of iron by the body, so that the body is expected to absorb iron optimally and increase hemoglobin levels in the body . According to research by[17] , guava can overcome anemia sufferers (lack of red blood) because red guava fruit also contains mineral substances that can accelerate the process of forming red blood cell hemoglobin. The high iron content in red guava can stimulate the production of hemoglobin in the blood for people with anemia [18].

To see the progress of the increase in Hb levels , you can see the following graph:



Graph 1 of increase in Hb levels

Based on the graph above, it can be seen that the maternal Hb level continued to increase from the first observation visit to the IV observation visit, and the average daily Hb level increase was 0.03 gr%. The highest increase in Hb levels occurred on the third visit, which was 2 g% this was because the mother was intensively given care and the mother's motivation to increase the mother's Hb level was very high because she was worried that complications would occur if her Hb level was low. While the lowest increase in Hb levels occurred at the IV visit, this happened because the mother was getting tired of consuming guava juice every day and her Hb levels had also gone up (mild anemia). The author gives guava juice when the mother is not at home so it is entrusted to her child. So the author cannot directly confirm that the mother consumes guava juice, besides that the mother is also likely to be exhausted from selling fish and fruit to help find the cost of preparing for childbirth.

In addition to giving guava juice, the author also gave a *logbook* to the mother . *logbook is a notebook for* pregnant women that aims to monitor and support the nutrition of pregnant women, because the food consumed by pregnant women will affect iron *absorption* the one in the *logbook.* The way to use the *logbook* is for pregnant women to study the menus in the *logbook,* then the midwife accompanies the application for preparing the daily menu for pregnant women with anemia, besides that pregnant women are guided by the midwife to fill out evaluation sheets or daily notes listed in the *logbook* . Every week, the midwife evaluates the mother's compliance in applying the diet according to the menu listed in the *logbook ,* after which the midwife and pregnant women discuss the follow-up to the evaluation results. Nutritional intake during pregnancy is very necessary. This also needs to be supported by monitoring of the nutrition eaten by the mother so that a special record is needed such as a MCH book or *logbook.* Anemia requires foods that contain iron [19].

CONCLUSIONS

There is an effect of giving and consuming guava juice and the application of a *logbook* to the increase in Hb levels of pregnant women with an average increase of 0.0925 gr% and an average increase of 0.03 gr% per day. Suggestions for pregnant women guava juice and the application of a logbook are very effective in increasing Hb levels during pregnancy so that the problem of anemia can be overcome.

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