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Use of Monitoring Cards to Increase Iron Substance and Hemoglobin Levels in Pregnant Women

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ABSTRACT

Background: This study aims to monitor the use of added blood tablets in pregnant women in southern Kalimantan. Giving tablets added to blood is one of the critical efforts in the prevention and prevention of **anemia. Giving blood booster tablets for pregnant women is at least 90 tablets during pregnancy.**

Method: The study was conducted using **the quasi-experimental method with a pre-post test control group design**. The investigation began with the examination of hemoglobin levels **(pre-test) and administration of blood enhancing tablets in three groups — the study sample of 120 pregnant women in 6 health centers in the Banjarmasin city area with a data collection period of 90 days.**

Results: The results of the study averaged 0.2 g/dl Hb level increase; 20.8% of pregnant women obey consume blood-boosting tablets; there is no correlation between determinant factors for compliance with consumption of blood booster tablets; there is the influence of monitoring card for blood booster tablets on adherence (ρ 0.001), there are differences in the 3 groups (ρ0.032), and there is an effect of monitoring cards on the consumption of blood booster tablets (0.009) and there are differences in Ministry of Health card groups with groups without card; there is a card effect on the difference in Hb levels (ρ0,019 on the Ministry of Health card and ρ0,048 on the research design card, there are differences in the impact of monitoring cards on the difference in Hb levels in the 3 groups (ρ0,028), and there are differences in Hb levels in the group the design card of the researcher with the cardless group and there were differences in the increase in HB levels in all three groups (ρ 0.013)pressure

Conclusion: The blood tablet monitoring card affected the compliance of blood booster tablets and elevated **hemoglobin levels**

Keywords: Tablets supplement, Hemoglobin levels, Card monitoring, Tablet blood booster

INTRODUCTION

In general 50% of cases of anemia due to iron deficiency [1]. The Department of Health of Republic **Indonesia has been carrying out various activities handling of anemia since the early 1980s with the primary objective to reduce the prevalence of anemia in pregnant women to distribute tablets blood booster through district health center** [2] **Giving blood booster** tablets as one of the p efforts is an effective way to prevent **anemia because it can avoid and overcome anemia due** to iron deficiency and folic acid. Blood booster tablets **are tablets given to pregnant mothers given daily during** their pregnancy or at least 90 (ninety) tablets with the **composition of each tablet containing at least 60 mg of** elemental iron and folic acid 0.400 mg. The incidence of anemia deficiency in pregnant women is caused by **adherence of pregnant women to taking iron tablets**[3].

Generally, the main reason not to consume blood booster tablets, among others are due to forgetfulness, pills taste unpleasant, side effects, fear of a big baby **and felt no need to** The most dominant factor related to **the adherence of pregnant women to consuming blood booster tablets is the role of health workers, and other related variables are knowledge, family support, and drug availability.**

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The preliminary study of 96 midwives in South Kalimantan with eight closed questions on the questionnaire and one open question showed that 44 people (46.3%) started giving blood-boosting tablets at the initial pregnancy visit, 81 people (85.3%) began giving blood-boosting pills at> 12 weeks of gestation **with an average of 16 weeks' gestation ; 87 people** (91.6%) provided 30 tablets for pregnant women; 92 midwives (96.8%) asked pregnant women whether pregnant women routinely take blood-boosting tablets; only 11 midwives (11.6%) reminded pregnant women **to bring blood booster tablets the remaining pregnancy** revisits, and 88 midwives (91.6%) said they did not have a monitoring card for blood-boosting tablets.

METHOD

The research **design was quasi-experimental with a pre-post test control group design.** The location of the **study was in 6 health community centers in Banjarmasin** City with a sample of 120 pregnant women who fulfilled the inclusion and exclusion criteria divided into 3 groups: 40 pregnant women without monitoring cards for blood-**boosting tablets; 40 pregnant women with blood booster tablet monitoring cards and 40 pregnant women with blood booster tablet design monitoring cards.**

RESULTS

Table 1: Compliance tablet consumption blood booster

Sample Group	Disobedient		Lack of Discipline		Obedient		Total	
	F	%	f	%	f	%	F	%
Without card	16	40,0	15	37,5	9	22,5	40	100
Ministry of Health Card	1	2,5	30	75,0	9	22,5	40	100
Research Card	9	22,5	24	60,0	7	17,5	40	100
Total	26	21,7	69	57,5	25	20,8	120	100

Table 1 shows that obedient pregnant women consume blood-boosting tablets as many as 25 people (20.8%) and **the average amount of consumption of blood booster tablets can be seen in table 2.**

Table 2: Consumption of Blood Add Tablets

The composition of a blood booster tablet	x̄	min	Max	SD
Fe-1 (1st month/30th Blood Pressure Tablet)	24,4	2	30	6,72
Fe-2 (2nd month/30th Blood Pressure Tablet)	25,3	3	30	6,63
Fe-3 (3rd month/30th Blood Pressure Tablet)	24,7	5	30	7,09
Total Fe (90 Blood Enhancing Tablets)	74,4	10	90	17,78

Table 2 shows that there are still pregnant women who do not adhere to consuming blood booster tablets, but there is an increase in the minimum amount of consumption of blood-boosting tablets every month, evenly -rata consumption of 75 tablets for three months of research (category of poor adherence).

Table 3: Differences Influence Card Compliance Monitoring of the blood booster tablets Consumption

Group	N	Mean Rank	Kruskal-Wallis Test	
			Statistically Count	ρ
Without card	40	52,58	6,874	0,032
Ministry of Health Card	40	70,39		
Research Card	40	58,54		

Table 3 shows the results of different test Kruskal-Wallis ρ 0.032 (<α 0.05) there were differences in the **level of adherence to consuming blood enhancing tablets** in all three groups. The researcher conducted a further analysis to find out which group had the most influence **on adherence to the consumption of blood improving tablets by anova test and use of blood booster tablets** with a ratio scale. The results showed ANOVA different test results ρ 0.009 (<α 0.05) there were differences in the **number of consumption of blood booster tablets in the 3 groups and the results of the post hoc test** on the Tukey test there was a significant difference in compliance with the consumption of blood-boosting tablets in groups **without tablet monitoring cards blood booster with a blood booster tablet monitoring card group.**

Cards on Difference in Hemoglobin Levels

ANOVA Test	F count 3,672	ρ 0,028
Tukey Test: **Without card**	• Ministry of Health Card • Research Card	Mean Difference -0,5425 -0,6175*
Tukey Test: Ministry of Health Card	• **No Card** • Research Card	**0,5425** -0,0750
Tukey Test: Research Card	• **No Card** • Ministry of Health Card	**0,6175*** **0,0750**

Information *) significant difference in mean on α 0.05

Table 4 shows the results of the different test ANOVA ρ 0.028 (<α 0.05). The difference in hemoglobin level differences in the three groups and the results of the post hoc test on the Tukey test there were significant differences in hemoglobin level differences in the group **without the blood card enhancing tablet monitoring card with the blood booster tablet monitoring group** designed by the researcher (0.6175). In ANOVA test the difference in hemoglobin level did not pay attention to whether there was a decrease (-), fixed or increased (+), so the researcher conducted a Kruskal-Wallis difference test by changing the scale of variable data difference **in hemoglobin levels which initially the ratio became** ordinal (declining code 1; fixed code 2; and increased code 3). The results of the different test Kruskal-Wallis ρ 0.013 (<α 0.05) there were differences in the difference **in hemoglobin levels in the three groups.**

DISCUSSION

WHO recommendations the composition of blood booster tablets containing 30-60 mg of elemental iron **and folic acid 0.4 mg** [4]. **Blood booster tablets are tablets given every day during their pregnancy or at least 90** tablets. At least contain iron equivalent to 60 mg of elemental iron (in the form of ferrous sulfate, Ferro fumarate or Ferro gluconate) and folic acid 0.4 mg 3. The **blood booster tablets distributed by the Banjarmasin city health service to the health center are each membrane coated tablet containing Ferro sulfate exiccus 200mg** (equivalent to feelement 60mg) and folic acid 0.25mg [5].

The reason stated by the respondents not consuming 90 blood-boosting tablets in this study was due to forgetfulness and side effects of blood-boosting tablets in the form of nausea and dizziness. This is in line with **previous research that many or at least consumption** of blood-boosting tablets is determined by complaints of nausea and dizziness from blood boosting tablets [6] — **other factors that cause low levels of adherence to the use of blood booster tablets due to forgetfulness and the** effectiveness of blood-boosting tablets, namely nausea and dizziness. Non-compliance occurs because pregnant **women feel nauseous due to the taste and smell of tablets, besides the blood booster tablets are taken every day cause boredom so that pregnant women forget and are lazy to consume it.**

Giving leaflets or counseling improves adherence of pregnant women with anemia to consume blood-boosting tablets and pregnant women in the leaflet group **consume more protein every day than pregnant women in the counseling group. Based on this, at the beginning of the study, all respondents were given counseling about** blood-boosting tablets and were provided with leaflets about blood-boosting tablets [7].

The resu ltsof chi-square test in the three groups showed a value of ρ 0.001 (<α 0.05) which meant that there was an effect of monitoring cards on compliance with the consumption of blood booster tablets. The use of monitoring cards to drink blood-boosting tablets in the treatment group made respondents' motivation arise which encouraged someone to do positive. It can be seen in that there are differences in compliance with fe1, fe2, and fe3 in the three groups. In groups without cards there was a decrease in accordance with fe1 to fe2, which was 37.5% to 30% and fe3 32.5%; the Ministry of Health card group increased the respect of fe1 to fe2 which was 52.5% to 60%, but experienced a decrease in fe3 of 35%; while the research card group continued to increase compliance of fe1 to fe2 and fe3 namely 27.5%, 37.5%, and 60%.

Non-compliance occurs because the blood booster tablets are taken common cause boredom so that pregnant women forget and are lazy to consume it. The monitoring card for blood booster tablets as a medium used by pregnant women is important to remember so as not to forget to take blood booster tablets. Media is everything that can be used to channel messages or information so that it stimulates one's thoughts, feelings, attention and interests to do the process.

There was a significant difference in the adherence to the consumption of blood booster tablets in the group without the monitoring card for blood-boosting tablets with the monitoring group for blood booster. The monitoring card issued by the Ministry of Health was developed in the implementation of the program for giving and monitoring the quality of blood booster tablets for pregnant women in the area of community-based health and nutrition programs in 11 provinces in Indonesia, one of which is West Kalimantan province. The blood booster tablet monitoring card by the Ministry of Health can contribute to the level of adherence to taking 30 tablets of blood-boosting tablets by 39.1%. In addition, the message on the card provides information and knowledge to the respondent, namely due to lack of blood or iron nutritional anemia can cause 1) tired, lethargic and tired quickly; 2) decreased body resistance; 3) bleeding before and or during delivery; and 4) of miscarriage, premature and low birth weight11.

An increase in the average hemoglobin level of 0.2g/dl. Hemoglobin (Hb) is an oxygen-carrying compound in red blood cells [8]. Hb is composed of multiple globins and heme proteins. One molecule Hb consists of four globin molecule and four heme, so that each Huk molecule has four iron atoms. The structure of this Hb molecule that can bind oxygen and iron must bein an induced form(Fe^{2} or Ferro) In adults the blood volume in the body is around 5 liters. Each red blood cell contains 280 million molecules Hb. Every second the body must produce 2.5 million red blood cells [9].

In pregnancy, the need for oxygen is higher so that it triggers an increase in erythropoietin. As a result, plasma volume increases and red blood cells increase. Increased plasma volume is higher than the rise in erythrocytes resulting in a decrease in Hb concentration due to hemodilution. [10] Plasma volume expansion which causes physiological anemia in pregnancy. Changes in Hb concentration are consistent with increasing gestational age. In the first trimester the level of Hb appeared to decrease and the lowest frequency in the second trimester and the third trimester there was a slight increase in Hb concentration, so the threshold level of Hb in the 1st and 3rd trimesters was 11g/dl and II trimester 10.5g/dl [10].

The results of the examination of Hb levels in the three groups were recorded by enumerators in the research instruments (interview guidelines) and books for pregnant women, but in the group of cards the blood booster tablets of the researchers listed Hb levels, so that respondents felt motivated to increase Hb levels both through tablet consumption blood booster or eat foods that contain iron.

The results of the ANOVA different test ρ 0.028 (<α 0.05) and the results of the various test Kruskal-Wallis ρ 0.013 (<α 0.05) there were differences in the difference in hemoglobin levels in the three groups. The results of the post hoc test on theTu keY test showed si gn ifica nt differences in hemoglobin level differences in the group without the monitoring card for blood booster tablets with the blood booster tablet monitoring card group designed by the researcher (0.6175).

Monitoring card for blood booster tablets is an influential print media and becomes a motivating or motivating factor. Motivation is defined as an internal condition that arouses us to act, encourages us to achieve specific goals, and keeps us interested in certain activities. Understanding the motivation is something that supports someone to do, complete, stop and so on, an action to achieve sp eci ficdesi red g oal sof themoti va tion[12].

CONCLUSIONS

There were differences in adherence to the consumption of blood booster tablets in all 3 groups (the results of the test Kruskal Wallis $\rho 0.032 < \alpha 0.05$) and the different effects of the ANOVA test (ρ 0.009 $< \alpha$ 0.05) and there were differences in the consumption of blood-boosting tablets in the group monitoring card forMinistry of Health blood booster tablets with groups without monitor in gcard s(test tukey 12,000 *).

There is a difference in the effect of blood booster tablet monitoring card on the difference in Hb levels in the 3 groups (ANOVA test ρ 0.028 $< \alpha$ 0.05) and there is a difference in Hb level difference in the group blood booster tablet monitoring group design researcher with the group without monitoring card and the test results of Kruskal Wallis $0013 \rho < \alpha 0.05$ in dica ti ng no di ffe rence in Hb rate margin improvement in all 3 groups.

Ethical Clearance: Ethical clearance was obtained from The Ministry of Health Polytechnic Banjarmasin, **Indonesia. We also wish to thank all the participants who contributed to this study.**

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