

# Correlation the Components of Health Belief Model and the Intensity of Blood Tablets Consumption in Pre-Conception Mother

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## Abstract

**Introduction and Objective:** The high number of prevalence of anemia in women of childbearing age has reached 22.7%. Anemia causes complication which increase maternal mortality rate, low birth weight, and stunting. Government efforts to tackle anemia through the blood tablets program have not reduced the prevalence of anemia. The coverage of blood tablets in pre-conception mothers in Tambakrejo Public Health Center is still at a low level with 64.22%. The side effects of blood tablets such as nausea, vomiting, constipation, and black defecation often make the consumers feel uncomfortable. Pre-conception mother perceptions can be figured out by measuring instruments in the form of Health Belief Model (HBM). This study was conducted to analyze the correlation the components of HBM and the intensity of blood tablet in pre-conception mothers.

**Material and Method:** This study used an observational analytic method with a cross-sectional study design. The samples were 37 pre-conception mothers were collected through random sampling technique. The independent variables consisted of perceived susceptibility, severity, threats, benefits, barriers, and self-efficacy. Meanwhile, the dependent variable was the intensity of blood tablets in pre-conception mothers. This study also used questionnaires as an instrument. As for the data analysis, it was done using the Mc-Nemar test.

**Findings:** Most pre-conception mothers have sufficient perceived of susceptibility (62.2%), severity (54.1%), and threats (56.8%) of anemia as well as the benefits, barriers, and self-efficacy to consume blood tablets (54.1%). Besides that, most of the pre-conception mothers (35.1%) have a low intensity in consuming blood tablets. The Mc-Nemar test showed a p-value by  $<0.05$ .

**Conclusion:** There is a correlation the perceived of susceptibility, severity, threats, benefits, barriers, and self-efficacy and the intensity of blood tablets in pre-conception mothers.

**Keywords:** *Health Belief Model, intensity, blood tablets, pre-conception mothers*

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## Introduction

A pre-conception mother is a married woman of fertile age and is planning for a pregnancy.<sup>(1)</sup> Pre-conceptions or periods of pregnancy preparation are efficiently run for at least 2-6 months before pregnancy.<sup>(2)</sup> Women with good pre-conception preparation can reduce the occurrence of maternal and

infant pregnancy complications.<sup>(3)</sup> Nutritional adequacy during the pre-conception period will have an impact on nutritional adequacy during pregnancy and can affect fetal growth during the first 8 weeks of life in the intrauterine phase.<sup>(4)</sup> Anemia is a nutritional problem which is prone to children and women. The prevalence of anemia in Indonesia has not been decreased, anemia is found in women of fertile age has reached 22.7% and will increase in pregnancy by 37.1%.<sup>(5)(6)</sup> Anemia in developing countries can be caused by conditions of blood disorders such as thalassemia, malaria, worm infections, and most often due to iron deficiency and folic acid during the preparation of pregnancy to delivery.<sup>(7)</sup> The Centers Disease Control and Prevention (CDC), recommends all women of childbearing age to consume iron supplements of 60 mg and folic acid of 0.4 mg per day.<sup>(5)</sup> TTD for preconception mothers is consumed once a week for 1-2 months. The Minister of Health Regulation (Permenkes) Number 75 of 2013 concerning Nutritional Adequacy recommended for the Indonesian recommends that the need for Fe(iron) for women in childbearing age is 26 mg per day.<sup>(8)</sup> Oral of TTD may cause side effects on the gastrointestinal tract in some people, such as heartburn, nausea, vomiting, diarrhea, constipation, and black defecation.<sup>(9)</sup> Iron needs for pre-conception are crucial to avoid iron deficiency or anemia which can lead to complications in pregnancy such as miscarriage, Intrauterine Growth Restriction (IUGR), neonatal asphyxia, and postpartum bleeding.<sup>(10)</sup> Folic acid is important to support fetal growth early in pregnancy.<sup>(7)(10)</sup> Adequate consumption of folic acid can reduce the risk of disability in the fetus such as spina bifida.<sup>(11)</sup>

The Health Belief Models (HBM) is a concept of individual perceptions which able to influence feedback behavior in decision making regarding their health conditions.<sup>(12)</sup> The HBM theory according to Rosenstock consists of several types of perceptual models, including perceived susceptibility, severity, threats, benefits, barriers, and self-efficacy. The concept of HBM theory states that perceived susceptibility and severity of an illness can affect the perceived of threats. This means that when an individual feels that the disease might be prone to her and is a serious illness, the person will tend to perceived threats posed as a health disorder. Perceived of benefits and barriers obtained may influence each other in the prevention and treatment behavior of an illness. Individuals tend to make decisions if the benefits obtained will outweigh the problems. The

benefits of prevention and treatment are more decisive than the possible problems.<sup>(12)(13)</sup> Perceptions of have a direct influence on an individual perceived of self-efficacy. Individuals will perform health behaviors if the individual believes that the effort he or she is doing is useful and believes that they can overcome the problems.<sup>(12)</sup> Factors of individual awareness about the importance of maintaining balanced nutrition and the low nutritional adequacy of the pre-conception period need to be addressed in order to improve the health of the mothers and children. The low consumption of blood tablets is still low due to its side effects that are perceived as barriers by individuals. However, these individuals still have a low awareness of the benefits obtained, which can prevent complications of anemia. Individuals with low awareness also tend to feel that anemia is not a serious disease and can threaten health. This study was conducted to analyze the correlation components of HBM and the intensity of blood tablets consumption in pre-conception mothers.

## Material and Method

This research was conducted in the working area of the Tambakrejo Public Health Center. The design of this study is an observational analytic with cross sectional design. The sampling was done through random sampling technique with the number of samples as many as 37 pre-conception mothers who meet the inclusion criteria, namely married and planning a pregnancy. The sample exclusion criteria were mothers with reproductive organ disorders and contra indications to the consumption of blood tablet. The independent variable consists of perceived of susceptibility, severity, threats, benefits, barriers, and self-efficacy. The dependent variable is the intensity of blood tablets consumption. The instrument for this research is in the form of a questionnaire consisting of 27 parameters. The respondent's perception indicator uses the calculation of T score formula and standard deviation to avoid the bias value. The scale of the perception data is divided into three categories, adequate ( $T\text{-score} > \text{mean} + \text{sd}$ ), sufficient ( $\text{mean} - \text{sd} < T\text{-score} < \text{mean} + \text{sd}$ ), and deficient ( $T\text{-score} < \text{mean} - \text{sd}$ ).<sup>(14)</sup> As for the indicators of the intensity of blood tablet consumption, the researcher used assumptions, namely, high ( $>6$ ), moderate (3-6), and low ( $<3$ ) times over the past two months. The data was analyzed through the Mc-Nemar test in the SPSS program.

**Findings:** Based on the respondents characteristics data, the highest amount of respondents was in the age

category of 20-25 year old category with 15 people (40.5%). The lowest age of respondents was 22 years old and the highest with 44 years old and the average age of respondents was 29 years old with a standard deviation of 1,300. The respondents with senior high school education of 26 (70.3%), while respondents who worked as a private company employees as many as 19 (51.4%).

**Table 1: Correlation of Perceived Threats with Intensity of Blood Tablets Consumption**

Perceived Threats	Intensity Consumption of Blood Tablets					
	High		Moderate		Low	
	N	%	N	%	N	%
Adequate	3	25	0	0	0	0
Sufficient	8	66,7	12	100	1	7,7
Deficient	1	8,3	0	0	12	92,3
Total	12	100	12	100	13	100

Individuals who believe that they are susceptible will perceived anemia as a serious disease, and pose a health threats, which they will tend to try to prevent or treat the illness.<sup>(12)(13)</sup>The results showed that the majority of respondents had low intensity of consumption, most of them were respondents with perceived susceptibility categories with 11 respondents (84.6%), and lower severity degrees with 12 respondents (92.3%).The Mc-Nemar test data analysis on the three components of HBM obtained p values of 0.004, 0.029, and 0.019 or  $p < \alpha$  (0.05) respectively, which means that there is a correlation between the perceived susceptibility and consumption intensity of blood tablets for anemia prevention. Respondents who have perceived of susceptibility, severity, and sufficient threats to anemia should feel that anemia may have a bad impact, thus the individual must increase the intensity of consumption of the blood tablets. However, in this study respondents with perceived of susceptibility, severity, and threats are quite likely to ignore and assume that anemia is not a disease that will cause adverse effects, which made them tends to have weak intensity of consumption. This also happens because according to respondents, they do not feel susceptible to anemia, do not think anemia is a serious disease, and poses a health threat therefore they will not try to prevent or treat it. This research is in line with the research conducted by Aryanti (2018) who stated that perceptions of susceptibility and threats are related to compliance with HIV testing in pregnant women.<sup>(15)</sup>Based on the cross tabulation test analysis, it

is found that the respondent felt that they are susceptible and threatened by anemia, thus they will tend to try to prevent or threats it by taking blood tablets during the pre-conception period. Although, this study is inversely proportional to the research conducted by Annisa (2017) who found that there was no correlation between perceived susceptibility and threats with the intention of young women to take blood tablets.<sup>(16)</sup>This happens because the young women are reluctant to discuss anemia, which made them tend not to know that anemia is prone to women and should be avoided to prevent complications.

**Table 2: Correlation of Perceived Benefits with Intensity of Blood Tablets Consumption**

Perceived Benefits	Intensity Consumption of Blood Tablets					
	High		Moderate		Low	
	N	%	N	%	N	%
Adequate	4	33,3	0	0	0	0
Sufficient	8	66,7	11	91,7	0	0
Deficient	0	0	1	8,3	13	100
Total	12	100	12	100	13	100

**Table 3: Correlation of Perceived Barriers with Intensity of Blood Tablets Consumption**

Perceived Barriers	Intensity Consumption of Blood Tablets					
	High		Moderate		Low	
	N	%	N	%	N	%
Adequate	0	0	0	0	12	92,3
Sufficient	8	66,7	11	91,7	1	7,7
Deficient	4	33,3	1	8,3	0	0
Total	12	100	12	100	13	100

**Table 4: Correlation of Perceived Self Efficacy with Intensity of Blood Tablets Consumption**

Perceived Self Efficacy	Intensity Consumption of Blood Tablets					
	High		Moderate		Low	
	N	%	N	%	N	%
Adequate	4	33,3	0	0	0	0
Sufficient	8	66,7	11	91,7	0	0
Deficient	0	0	1	8,3	13	100
Total	12	100	12	100	13	100

A person will take into account the susceptibility and degree of risk of an illness, then the person will consider the benefits and barriers that will be received so as to affect the self-efficacy to attempt health behaviors.<sup>(13)(17)</sup>

Based on the results of the data analysis with the McNemar test which obtained p value in the perceived barriers of 0.007, the benefits and self-efficacy with 0.011 or  $<\alpha$  (0.05) respectively, which means there is a correlation between perceived benefits, barriers, and self-efficacy, with the intensity of blood tablets consumption in pre-conception mothers to prevent anemia. Most pre-conception mothers who claim to receive good benefit or have good perceived of benefits have assessed various risks of anemia. But the results of these considerations may vary according to the information and the process of managing the information which leads to perception that will be applied as health behavior. Respondents who have perceptions of sufficient benefits in consuming the blood tablets should be able to consider these benefits to increase their intensity of consumption. But in this study, the respondents with perceived of benefits were quite likely to still consider their barriers in consuming the blood tablets, therefore they tended to have low intensity of consumption. This also happened because according to the respondents, they felt that the barriers which they experienced were greater, thus they refuse to prevent or treat them. These findings are in line with the research conducted by Afifah (2018) which stated that there is a correlation between the perceived of benefits, barriers, and self-efficacy with efforts to prevent TB disease in adolescents.<sup>(18)</sup> On the other hand, Hendrastuti's research (2018) says there is no relationship between perceived of benefits, barriers, and self-efficacy perceived by mothers towards basic immunization status in their children.<sup>(19)</sup> This happens due to the respondents still consider negative obstacles or impacts caused by prevention and treatment efforts. Based on the HBM theory, although the benefits of action are more decisive than the barriers, if these barriers are massive, they will certainly hinder and inhibit the health behavior.<sup>(20)</sup>

### Conclusion

The Health Belief Model consists of six interrelated components. The perceived of susceptibility and severity can affect perceptions of threats. While the perception of benefits and barriers tends to be a consideration for decision making. The perceived of susceptibility, severity, threats, benefits, and constraints that may affect perceived of self-efficacy. This study shows that there is a correlation between perceived of susceptibility, severity, threats, benefits, barriers, and self-efficacy with the intensity of blood tablets consumption in preconception mothers.

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