Factors Influencing Nutrition and Blood Supplement Tablet Consumption Among Prospective Brides

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ABSTRACT

Background: Anemia is a condition where the number of red blood cells or the capacity of red blood cells to carry oxygen is not sufficient to meet physiological needs. Factors that influence anemia are nutritional patterns where poor eating habits can cause iron deficiency. Lack of awareness or compliance with the consumption of blood supplement tablets can also predispose someone to anemia. The Health Belief Model (HBM) is a health behavior model that is used to predict behavior. HBM consists of perceived susceptibility, perceived benefits, perceived barriers, perceived severity, perceived self-efficacy and cues to action. The aim of this research is to determine the factors that influence the behavior of consuming nutrition and blood supplement tablets to prevent anemia in bridesmaids in Religious Affairs Office (KUA), Maospati District, Magetan Regency in 2024.

Method: This is an observational analytical quantitative research with a sample of 31 prospective brides and grooms at religious affairs office Maospati in 2024. This research was measured using a health belief model questionnaire by distributing questionnaires to prospective brides and grooms. Data analysis uses primary data which is tested with descriptive analysis, classical assumption tests and linear regression tests. Results: Of the 6 behavioral factors studied include perceived susceptibility, perceived benefits, perceived barriers, perceived severity, perceived self-efficacy and cues to action, which is only perceived self-efficacy with a p-value of 0.000. Conclusion: The factors that influence the behavior of consuming nutrition and blood supplement tablets among prospective brides at the Maospati religious affairs office, only self-efficacy has an influence. Therefore, perceived self-efficacy needs to be prioritized.

Keywords: Anemia; preconception; self-efficacy; health belief model

1. INTRODUCTION

According to the Indonesian Ministry of Health, prospective brides and grooms are couples who are planning to get married. Prospective bride and groom can be referred to as a couple whose relationship has not been established based on religious or government law and the couple is in the process of fulfilling the requirements or completing the data. Preconception service health is service comprehensive consisting of from action prevention biomedicine, behavioral and social for increase preconception health. Preconception health status is health status both parents before happen conception. Even though a woman no planned for pregnancy, pre-pregnancy health is the main priority. This
Anemia is a condition where the number of red blood cells or their ability to carry oxygen is insufficient to meet physiological needs. It is a health problem that causes increasing morbidity and mortality. The amount of blood hemoglobin levels required varies by sex and age group. There are four types of anemia: iron deficiency anemia, megaloblastic anemia, hemolytic anemia, and hypoplastic/aplastic anemia. Common symptoms of anemia include fatigue, weakness, exhaustion, lethargy, and inattention. Anemia can persist for a long time with very low hemoglobin concentrations before symptoms appear.

Factors causing anemia include significant blood loss, inadequate iron absorption, increased physiological demands, malabsorption, poor iron stores, malnutrition, hemoglobinopathy, medications, and other factors. Some of these factors are behavioral, especially related to health behavior and lifestyle. A person’s dietary habits ultimately affect their nutritional status.

Ways to prevent anemia include increasing consumption of nutritious foods, taking iron supplements, and treating diseases that can exacerbate anemia, such as worms, malaria, and tuberculosis.

Brides-to-be are among the vulnerable groups of women who suffer from anemia. Efforts to prevent and treat anemia during the pre-pregnancy period are more effective compared to during pregnancy. Women with anemia are at risk of experiencing miscarriage due to the increased possibility of blood clot formation in the uteroplacental blood vessels, which disrupts blood circulation to the placenta. Anemia also leads to fatigue, weakness, reduced physical performance, and decreased productivity.

Indonesia has taken steps to address the incidence of anemia by distributing iron supplements, prioritizing young women and adult females. Prospective brides are required to undergo examinations at community health centers, which include height measurement and comprehensive laboratory tests. It is hoped that these measures will better prepare prospective brides for pregnancy and contribute to the birth of a healthier generation.

Factors influencing the occurrence of anemia include nutritional patterns, such as inadequate intake of vegetable and animal proteins, green vegetables, and habits like drinking coffee or tea after meals that can hinder iron absorption. Insufficient intake of Vitamin C can also cause anemia. The low level of blood supplement tablet use is not solely due to the implementation of public health center programs related to distributing these tablets. The success of blood supplement tablet delivery programs varies due to various issues such as availability, distribution, and consumer characteristics, which can affect coverage. Age, educational level, occupation, and economic status can also influence the occurrence of anemia, especially among low-income groups who struggle to access nutritious food.

Factors influencing nutritional behavior and blood supplement tablet consumption include health motivation, which plays a crucial role in shaping individual health behaviors. Good health behaviors can prevent diseases and reduce the risk of certain health conditions. Socio-cultural factors, such as beliefs about food taboos rooted in cultural practices, often lead to nutritional problems. These restrictions can prevent individuals from maintaining a balanced nutritional intake. The Health Belief Model (HBM) attempts to explain why people do not engage in disease prevention. It comprises perceived susceptibility, which assesses an individual’s subjective perception of their risk of contracting a disease or the consequences of their health condition. Perceived benefits refer to a person’s belief in the effectiveness of recommended actions to reduce health risks. Perceived barriers indicate obstacles individuals face in completing health procedures. Perceived severity relates to understanding the seriousness of a disease. Perceived self-efficacy is the belief in one’s ability to perform a behavior successfully. Cues to action refer to an individual’s readiness to adopt or execute a health-related action.

The objective of this research is to identify factors influencing nutritional consumption and blood supplement tablet use among prospective brides at the Religious Affairs Office in Maospati Regency in 2024. This study is novel in its specific investigation of how variables from the Health Belief Model influence the behavior of consuming nutrition and blood supplement tablets among prospective brides, whereas previous studies have generally discussed their behaviors and attitudes.
2. METHODS

This research was conducted at the Maospati Regional Religious Affairs Office in Magetan in 2024. The study type is analytic observational with a cross-sectional study design. The study population consisted of prospective brides at the District Religious Affairs Office and Public Health Center in Maospati in 2024. The sample included the entire population, totaling 31 prospective brides and grooms at the Religious Affairs Office in Maospati. The independent variables in this study are perceived susceptibility, perceived benefits, perceived barriers, perceived severity, perceived self-efficacy, and cues to action. The dependent variable is the behavior of consuming nutrition and blood supplement tablets.

Data collection involved primary data collection by distributing Health Belief Model questionnaires to prospective brides. After collecting the data, tabulation and data processing were conducted using SPSS. Data analysis utilized descriptive analysis, classical assumption tests, and linear regression tests to understand the influence of independent variables on the behavior of consuming nutrition and blood supplement tablets.

3. RESULTS

3.1 Description of Factors that Influence Nutrition Consumption Behavior and Blood Supplement Tablet

From Table 1 it can be seen that average value of perceived susceptibility 6.7 (fairly good), perceived severity 7.04 (fairly good), perceived benefits 8.6 (very good), perceived barriers 7.0 (fairly good), perceived self-efficacy 7.5 (fairly good), cues to action 7.3 (quite good) and nutritional consumption behavior and blood supplement tablet 6.79 (fairly good). Meanwhile, the standard deviation value of perceived susceptibility is 2.5, perceived severity 2.2, perceived benefits 1.4, perceived barriers 2.2, perceived self-efficacy 1.5, cues to action 1.5, and nutritional consumption behavior and blood supplement tablet 1.7. The standard deviation for all variables is smaller than the average value. This shows that these variables do not vary.

Table 1. Overview of factors influencing nutritional consumption behavior and blood supplement tablet

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susceptibility</td>
<td>31</td>
<td>0.0</td>
<td>10.0</td>
<td>6.75</td>
<td>2.55</td>
</tr>
<tr>
<td>Severity</td>
<td>31</td>
<td>1.0</td>
<td>10.0</td>
<td>7.04</td>
<td>2.25</td>
</tr>
<tr>
<td>Benefits</td>
<td>31</td>
<td>4.0</td>
<td>10.0</td>
<td>8.67</td>
<td>1.48</td>
</tr>
<tr>
<td>Barriers</td>
<td>31</td>
<td>2.0</td>
<td>10.0</td>
<td>7.00</td>
<td>2.20</td>
</tr>
<tr>
<td>Self Efficacy</td>
<td>31</td>
<td>3.5</td>
<td>10.0</td>
<td>7.50</td>
<td>1.56</td>
</tr>
<tr>
<td>Cues to Action</td>
<td>31</td>
<td>4.0</td>
<td>10.0</td>
<td>7.37</td>
<td>1.51</td>
</tr>
<tr>
<td>Nutrition Consumption Behavior and blood supplement tablet</td>
<td>31</td>
<td>3.0</td>
<td>10.0</td>
<td>6.79</td>
<td>1.73</td>
</tr>
</tbody>
</table>

3.2 Classic Assumption Test

Normality test

The normality test checks whether the residual values resulting from a regression are normally distributed. The normality test in this research used a p-plot of regression standardized residual. A normal distribution will form a straight diagonal line. If the distribution of residual data is normal, then the line depicting the residual data will follow the diagonal line. Normal data will provide few extreme low and extreme high values and most of them will gather in the middle. If the image forms a straight diagonal line and the dots spread around the diagonal line and follow the direction of the diagonal line. So, it can be said that the residual has been distributed normally. Normality test results based on Figure 1 shows that this data is normally distributed as evidenced by the distribution of lines that follow the diagonal shape.

Multicollinearity test

The multicollinearity test aims to test and find out whether in a regression model a high or perfect correlation is found between the independent variables. It can determine the tolerance value and variance inflation factor (VIF) value. The tolerance value measures the variability of the selected independent variable that cannot be explained by other independent variables.
The normality test results based on Table 2 show that the VIF value Susceptibility was 4.179 (<10.00), Severity was 2.624 (<10.00), Benefits was 1.143 (<10.00), Barriers was 1.763 (<10.00), Self Efficacy was 3.515 (<10.00), Cues to Action is 1.728 (<10.00). The results of the normality test based on Table 4.4 show that the tolerance susceptibility value is 0.239 (>0.10), severity is 0.381 (>0.10), benefits is 0.875 (>0.10), barriers are 0.567 (>0.10), self efficacy of 0.284 (>0.10), cues to action of 0.579 (>0.10). It can be concluded from the results of VIF and tolerance that this means that multicollinearity does not occur.

Table 2. Multicollinearity test

<table>
<thead>
<tr>
<th>Collinearity Statistic</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susceptibility</td>
<td>0.239</td>
<td>4.179</td>
</tr>
<tr>
<td>Severity</td>
<td>0.381</td>
<td>2.624</td>
</tr>
<tr>
<td>Benefits</td>
<td>0.875</td>
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<tr>
<td>Barriers</td>
<td>0.567</td>
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<tr>
<td>Self Efficacy</td>
<td>0.284</td>
<td>3.515</td>
</tr>
<tr>
<td>Cues to Action</td>
<td>0.579</td>
<td>1.728</td>
</tr>
</tbody>
</table>

Heteroscedasticity test

Heteroskedasticity is one of the factors that cause simple linear regression models to be inefficient and inaccurate, and it also disrupts the use of the maximum likelihood method in estimating regression parameters (coefficients). The results of the heteroscedasticity test based on Figure 2 show that there is no clear pattern—neither a wavy nor widening point, then narrowing—thus it can be concluded that heteroscedasticity does not occur in the distribution of this data.

From the results of the assumption tests, the seventh variable is normally distributed, there is no multicollinearity, and there is no heteroscedasticity. Therefore, all seven variables can continue to be tested in the linear regression.

Linear regression test

Results test linear regression based on Table 3 shows that the p-value is perceived susceptibility is 0.595 (>0.05), perceived severity is 0.838 (>0.05), perceived benefits is 0.732 (>0.05), perceived barriers is 0.336 (>0.05), cues to action is 0.216 (>0.05), and perceived self-efficacy is 0.000 (<0.05). It can be concluded that of the 6 variables that have an influence, only self-efficacy has a p-value of 0.000, which meets the requirements, namely it is said to be influential if the significance value is <0.05.

Table 3. Linear Regression Test

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>t</th>
<th>Nilai P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Perceived susceptibility</td>
<td>0.539</td>
<td>0.595</td>
</tr>
<tr>
<td>2.</td>
<td>Perceived severity</td>
<td>0.206</td>
<td>0.838</td>
</tr>
<tr>
<td>3.</td>
<td>Perceived benefits</td>
<td>-0.347</td>
<td>0.732</td>
</tr>
<tr>
<td>4.</td>
<td>Perceived barriers</td>
<td>0.983</td>
<td>0.336</td>
</tr>
<tr>
<td>5.</td>
<td>Perceived self-efficacy</td>
<td>5.688</td>
<td>0.000</td>
</tr>
<tr>
<td>6.</td>
<td>Cues to action</td>
<td>1.270</td>
<td>0.216</td>
</tr>
</tbody>
</table>
4. DISCUSSION

The prospective bride has implemented government regulation by carrying put preventive test at the health center, so this is very helpful and has a positive impact on the health of the mother and child. Preconception heath is also part of the overall health of men and woman during their reproductive period. The goal is to reduce risk and encourage a healthy lifestyle to support a healthy pregnancy. At the fact data analysis stage, the average value of nutritional consumption behavior and blood supplement tablet ranges number 7. This means that the prospective bride and groom in the Maospati area are quite good in behave consumption nutrition and blood supplement tablet. Some prospective brides and grooms in the Maospati area have adopted the consumption of vegetables, fruit, animal protein and blood supplement tablets. This is in accordance with the theory of Susanti et al. In 2023, consuming animal protein such as meat, dark green leafy vegetables, fruit which is rich in vitamin C, and regular consumption of iron can prevent anemia.6

The conclusion of the value obtained from the results of data analysis is 7, which is sufficient good in behavior and have not yet fully achieved the maximum number is 10. Behavior according to Manuntung (2019) is an individual’s actions and reactions to the environment. This means that new behavior is formed when something necessary causes a response called a stimulus. Therefore, a stimulus always causes certain behavior. One of the things that influences the prospective bride and groom not to behave is by behaving in a closed manner. According to Nugroho in 2021, closed behavior consists of knowledge and attitudes, while open behavior is practice or action. In behaving, individuals cannot act without being based on knowledge and attitudes. According to Hanim in 2022, behavior is a conditional condition that implementation will occur after attitude is formed, while attitude will be formed after knowledge occurs.

According to the author, there are several prospective brides and grooms who have closed behavior, where the individual has knowledge about nutritional consumption and blood supplement tablet but in real life the individual does not apply the knowledge gained. According to Susanti in 2019, implementation that was not carried out could be due to unknown factors inhibiting iron absorption, for example habit drink coffee and tea after eat can bother absorption substance iron. Pattern eating less good for example lack of vegetable protein intake and animal, vegetable greens, vitamin C and low levels of blood supplement tablet consumption.

From the results of descriptive data analysis of perceived susceptibility, it can be concluded that it is quite good in terms of nutritional consumption behavior and blood supplement tablet. This indicates that the prospective bride and groom are behaving because they feel vulnerable to anemia if they do not consume blood supplement tablet and have a less nutritious diet. This is in accordance with Winarti’s 2021 theory that perceived susceptibility is an individual’s view of the susceptibility of a disease if exposed to the risk of that disease. From the results of descriptive data analysis of perceived severity, it can be concluded that behavior in nutritional consumption and blood supplement tablet is quite good. The prospective bride and groom feel that if they suffer from anemia, the prospective bride and groom feel they have a serious risk. So in accordance with the Winarti theory in 2021, the higher the knowledge about the severity of a disease, the higher the awareness of preventing anemia by consuming blood supplement tablet and good nutrition.

From the results of descriptive data analysis of perceived barriers, it can be concluded that it is quite good in terms of nutritional consumption behavior and blood supplement tablet. Prospective brides and grooms felt that they did not feel there were any obstacles to consuming foods to prevent anemia and consuming blood supplement tablet. According to Katmini, in 2023, if the prospective bride and groom can convince themselves that there are no obstacles to consuming nutrition and blood supplement tablet, then it is very likely that the prospective bride and groom will be able to carry out this behavior. From the results of descriptive data analysis of perceived benefits, the prospective bride and groom’s behavior in consuming nutrition and blood supplement tablet is very good. This means that the bride-to-be understands the benefits if the bride-to-be consumes anemia-preventing nutrition and blood supplement tablet so the bride-to-be can be free from anemia. According to Katmini, in 2023 the benefits felt will be positive so that successful actions will also get positive results.

From the results of the analysis of descriptive cues to action data, it can be concluded that behavior in
nutritional consumption and blood supplement tablet is quite good. Prospective brides and grooms have motivating factors, namely family, health workers and the surrounding community so that they are encouraged to carry out a behavior of consuming nutrition to prevent anemia and consuming blood supplement tablet. According to Katmini, in 2023, something can influence someone's behavior or actions.

The results of the regression value that influence prospective brides and grooms in the Maospati area are only self-efficacy. Self Efficacy according to Katmini, et al in 2023 is the belief that someone will succeed in carrying out a behavior. Self-efficacy can be said to be a feeling of self-confidence to make health behavior changes (21). This means that high self-efficacy will reduce fear or failure or doubt as well as increase problem solving and create a high sense of enthusiasm in carrying out a task. With high self-efficacy, especially prospective brides and grooms, they will be less likely to experience stress. Therefore, self-efficacy must be prioritized without ignoring other variables in the religious affairs office Maospati area.

According to Hasibuan, problem prioritization in 2021 is an effort to determine how important the problem is and whether the problem can be resolved. Due to limited resources available, it is impossible for all problems to be resolved, so problem prioritization must be determined. Especially if there is a connection between one problem and another problem, so that not everything needs to be resolved (23). Self-efficacy needs to be prioritized because in reality in the religious affairs office Maospati area only self-efficacy influences candidate behavior bride. There is a need for government programs to build self-confidence in other prospective brides and grooms so that they can behave in consuming nutrition and blood supplement tablet to prevent anemia. Currently the government has a program that provides blood supplement tablet for young women who are prepared to have sufficient hemoglobin levels to get married later.

At the data analysis stage the average value of nutritional consumption behavior and blood supplement tablet is in the range number 7.5. This means that there are enough prospective brides and grooms in the Maospati area Good in behavior consumption nutrition and blood supplement tablet. Candidate Some brides and grooms at religious affairs office Maospati have the belief of consuming fruit, vegetables, vegetable protein and blood supplement tablet. This is in accordance with the theory of Sasanti, et al. In 2023, consuming animal protein such as meat, dark green leafy vegetables, fruit which is rich in vitamin C, and regular consumption of iron can prevent anemia. The conclusion value obtained from the results of data analysis is 7.5, which is sufficient Good in behavior and have not achieved maximum number namely number 10. According to Bandura in research by Rosmelinda, et al in 2022, there are three dimensions of self-efficacy, namely: 1) Level refers to the level of difficulty of an individual's beliefs and tasks regarding their ability to carry out those tasks; 2) Generality of individual beliefs about their ability to perform tasks in various situations; 3) Strength relates to a person's strength in carrying out the task. The greater the sense of self-efficacy, the greater the individual's perseverance in carrying out tasks.

According to Widyarini in 2013, self-efficacy can be built by displaying the results of success in avoiding anemia, so that it can increase self-efficacy in someone with motivation. Verbal persuasion is very useful for convincing someone that he has abilities. Individuals who are directed with suggestions, advice and guidance can increase their self-confidence. Persuasion can be carried out by respected people or people who are trusted so that the individual has the desire to carry out the task.

According to the research report by Nasichah, et al in 2023, self-efficacy influences the compliance of young women in consuming blood supplement tablets, in line with the results of this study that self-efficacy is proven to influence the behavior of consuming nutrition and blood supplement tablets among prospective brides and grooms at KUA Maospati in 2024.

5. CONCLUSION

In terms of nutritional and blood supplement tablet consumption behavior, prospective brides and grooms at KUA Maospati show a fairly good picture of perceived susceptibility, very good perceived benefits, good, perceived barriers quite good, perceived severity/Seriousness quite good, perceived self-efficacy pretty good, cues to action are quite good and behavioral variables consumption nutrition and blood supplement tablet is quite good.

Of the 6 variables researched at the district religious affairs office Maospati on 2024, The factor proven to be a determinant of the behavior of
consuming nutrition and blood supplement tablets for prospective brides and grooms at religious affairs office Maospati is perceived self-efficacy.

The limitation of this research is the limited research sample because it only examines the period February- March 2024 (1 month), this results in only small sample being studied which mean the research results cannot be generalized to a larger population. The research findings are only relevant to the sample studied and may not apply to a wider context. It hoped that the future researchers can develop this research using the same method or other method by adding the factors of age, occupation, culture, income and education to better understand the factor influencing consumption behavior of nutrition and blood supplement tablets.

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Conflict of Interest
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REFERENCES

17. Manutung A. Terapi Perilaku Kognitif Pada Pasien Hipertensi. 2019;

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