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Education for Young Women Regarding the Relationship between Knowledge, Attitudes, Nutritional Status and Eating Frequency to Anemia

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Abstract

Anemia due to iron (Fe) deficiency is a major nutritional problem in Asia, including in Indonesia. Reports from various studies in Indonesia show that the prevalence of nutritional anemia in young women is still high, ranging from 20-50%. The purpose of this study was to provide education to young women regarding the relationship between knowledge, attitudes, nutritional status and eating frequency with anemia. This research is an analytic survey type with a cross sectional design. The population in this study were all Fatmawati STIKes female students, totaling 414 people. Samples were taken as many as 126 respondents, the sampling technique with Proportional Random Sampling. Data collection was carried out with primary data using a questionnaire. Data analysis with univariate, bivariate, multivariate. The results of the study showed that 38.9% of respondents experienced anemia. The results of univariate analysis obtained high knowledge (81.0%), positive attitude (50.8%), normal nutritional status (BMI 18.5 - <25.0) of 81.7% and frequency of eating ≥3 times/day (55.6%). The results of the bivariate analysis showed that there were four related variables, namely knowledge (p=0.016; OR=3.333), attitude (p=0.049; OR=2.220), nutritional status (p=0.031; OR=3.022), eating frequency (p=0.000; OR=35,282). The results of the multivariate analysis showed that the factors associated with anemia in female adolescents were eating frequency (p=0.000; OR=38.479) while knowledge was the confounding variable. The dominant factor associated with anemia in female adolescents is eating frequency. Eating frequency is a variable associated with anemia in female adolescents. It is suggested to Fatmawati STIKes students to increase the frequency of regular meals 3 times/day with a balanced nutritional menu that is high in iron (Fe).

Keywords: Eating Frequency, Knowledge, Attitude, Nutritional Status, Anemia

Introduction

Anemia is a nutritional problem with a high prevalence in the world. Anemia due to iron deficiency is the most common nutritional disorder in the world and is an epidemic public health problem. This problem mainly affects women of reproductive age and children in tropical and subtropical regions. Anemia due to iron deficiency affects more than 2 billion

people in the world. In developing countries, there are 370 million women who suffer from anemia due to iron deficiency.

The prevalence of nutritional anemia in the world on average for the general population is 40%, the prevalence in developing countries tends to be three to four times higher than in developed countries. Based on actual survey data globally and the United Nations in 2006, it is known that the prevalence of anemia in non-pregnant women globally is 30.2%.

A survey in the United States stated that 30-40% of women and children of childbearing age had iron deficiency anemia. In India, it shows that out of 113 million young women in India, it is estimated that the prevalence of anemia in young women is 56 percent. According to WHO, around 25-40% of young women in Southeast Asia suffer from mild to severe anemia.

Iron deficiency anemia can be influenced by several factors, namely the lack of consumption of animal food sources as a source of easily absorbed iron (heme iron), while non-heme iron is a high source of iron but is difficult to absorb, so it requires large portions. large enough to meet the needs of iron in a day. It can also be caused by a lack of nutrients that play a role in iron absorption such as protein and vitamin C. Consumption of foods high in fiber, tannins and phytates can inhibit iron absorption.

The impact of anemia on adolescents, among other things, can reduce the body's resistance so that it is susceptible to disease, reduce adolescent activity related to physical work ability and learning achievement and reduce adolescent fitness, thereby inhibiting sports achievement and productivity. In addition, anemia that occurs in young women is a risk for impaired physical and mental functioning, and can increase the risk of disorders during pregnancy.

Previous research in Selected Schools of India showed the prevalence of anemia in young girls was 80%. 48.75% mild anemia, 42.5% moderate anemia and 8.75% severe anemia. Another study in India that supports this research with a relatively high prevalence of anemia is the Premalatha study which showed that the prevalence of anemia was found to be 78.75%.

Based on a preliminary study conducted on September 17 2015 on 10 Fatmawati STIKes students, a hemoglobin (Hb) examination was carried out, it was found that 6 people (60%) suffered from anemia with Hb levels < 12 gr/dl, malnutrition status (BMI < 18, 5) by 40%). Then conducted interviews using a questionnaire to students who suffer from anemia caused by several factors, namely low knowledge (60%), negative attitude (70%), low parental education (< high school), parental income < UMK of 40%, eating frequency is not regularly (< 3 times/day).

The purpose of this study was to provide education to young women regarding the relationship between knowledge, attitudes, nutritional status and eating frequency with anemia.

Method

The type of research used is Analytical Survey, which is a survey or research that tries to explore how and why health phenomena occur. Approach. used is a cross-sectional design, namely research to study the dynamics of the correlation between risk factors and effects, by way of approach, observation, and data collection all at once (point time approach).

The population in this study were all Fatmawati STIKes female students, totaling 414 respondents. The sampling

technique in this study used Proportional Random Sampling. The sample size was determined based on the 95% confidence level and 90% power of the test. The sampling formula for different proportions in this study uses the sample size formula

The minimum number of samples required from the calculation of the formula above is 115 respondents, plus 10% of the drop out rate of 11 people so that the total sample is 126 respondents. Proportion sampling technique. Data collection techniques in this study used primary data. The data collection tool (research instrument) used was a questionnaire which was distributed directly to female students of STIKes Fatmawati Level I, II and III. Before the questionnaires were distributed, prior to being investigated, a validity test was carried out first.

Result

1. Univariate analysis

Dependent Variable (Anemia in Young Women)

Table 1. Distribution of Respondents According to the Incidence of Anemia in young women at STIKes Fatmawati

Anemia in Young Women	Amount	Percentage (%)
Anemia	49	38,9
Not Anemia	77	61,1
Total	126	100

The distribution of respondents according to anemia in young women showed that respondents who were not anemic were 22% higher than those who were anemic. Of the 49 respondents who had anemia, 39 (79.6%) had mild anemia and 10 (20.4%) had moderate anemia.

Independent Variable

The independent variables in this study consisted of knowledge which was grouped into low knowledge if the respondent's correct answer score was <75 and high if the respondent's correct answer score was ≥ 75, negative attitude < Median 60 and positive ≥ Median 60, BMI abnormal nutritional status < 18.5 -> 25.0 and normal nutritional status BMI 18.5-25.0, frequency of eating < 3 x/day and ≥ 3 x/day.

Knowledge

Table 2 Distribution of Respondents according to Knowledge at STIKes Fatmawati

Knowledge	Amount	Percentage (%)
Low <75	24	19,0
Height ≥75	102	81,0
Total	126	100

The distribution of respondents according to knowledge of young women showed that respondents with high knowledge (≥75) were 62% higher than respondents with low knowledge (<75).

Attitude

Table 3 Distribution of Respondents by Attitude at STIKes Fatmawati

Attitude	Amount	Percentage (%)
Negative (< Median 60)	62	49,2
Positive (≥Median 60)	64	50,8
Total	126	100

The distribution of respondents according to the attitudes of young women shows that respondents who have a positive attitude are almost the same as respondents who have a negative attitude.

Based on Inquiry

Respondents with low knowledge (< 75) had a proportion of 62.5% experiencing anemia, while respondents with high knowledge (≥75) had a proportion of 33.3% experiencing anemia. The results of the Chi-Square (Continuity Correction) statistical test obtained p value = 0.016, it can be concluded that there is a significant difference in the proportion of anemia in young women between respondents who have low knowledge and respondents who have high knowledge so that there is a relationship between knowledge and

anemia in young women at STIKes Fatmawati.

The results of the analysis also obtained OR = 3.333 (95% CI = 1.324-8.392), meaning that respondents who have low knowledge have the potential to experience anemia 3.3 times compared to respondents who have high knowledge.

The Relationship between Attitudes and Anemia in Young Women at STIKes Fatmawati

Respondents who have a negative attitude (<Median 60) have a proportion of 48.4% experiencing anemia, while respondents who have a positive attitude (≥ Median 60 have a proportion of 29.7% experiencing anemia. The results of the Chi-Square (Continuity Correction) statistical test obtained p value = 0.049, it can be concluded that there is a significant difference in the proportion of anemia in young women between respondents who have a negative attitude and respondents who have a positive attitude so that there is a relationship between attitudes and anemia in young women at STIKes Fatmawati in 2015.

The results of the analysis also obtained OR = 2.220 (95% CI = 1.068-4.616), meaning that respondents who have a negative attitude have the potential to experience anemia 2.2 times compared to respondents who have a positive attitude.

The Relationship between Nutritional Status and Anemia in Young Girls at STIKes Fatmawati

The previous table can be seen that respondents who have abnormal nutritional status (BMI <18.5 - ≥25.0) have a proportion of 60.9% experiencing anemia, while respondents who have normal nutritional status (BMI 18.5 - <25, 0) has a proportion of 34.0%. The results of the Chi-Square (Continuity Correction) statistical test obtained p value = 0.031, it can be concluded that there is a significant difference in the proportion of anemia in young women between respondents who have abnormal nutritional status and respondents who have normal nutritional status so that there is a relationship between nutritional status nutrition with anemia in young women at STIKes Fatmawati in 2015.

The results of the analysis also obtained OR = 3.022 (95% CI = 1.191-7.670), meaning that respondents who have abnormal nutritional status have the potential to experience anemia 3 times compared to respondents who have normal nutritional status.

The Relationship between Eating Frequency and Anemia in Young Women at STIKes Fatmawati

Based on the previous table it can be seen that respondents who ate <3x/day had a proportion of 76.8% experiencing anemia, while respondents who ate frequency ≥ 3x/day had a proportion of 8.6% experiencing anemia.

The results of the Chi-Square (Continuity Correction) statistical test obtained p = 0.000, so it can be concluded that there is a significant difference in the proportion of anemia in young women between respondents who eat <3 times per day and those who eat <3 times per day so that There is a relationship between eating frequency and anemia in young women at STIKes Fatmawati in 2015.

The results of the analysis also obtained OR = 35.282 (95% CI = 12.450 - 99.989), meaning that respondents who ate <3 times/day had the potential to experience anemia 35.2 times compared to respondents who ate <3x/day.

Multivariate Analysis

The multivariate analysis used in this study is Logistic Regression Analysis. This approach is used to analyze the

independent variables that most contribute to anemia in young women. The stages of multivariate analysis are as follows:

Selection of Candidate Variables

In this stage, a simple logistic analysis is carried out between the independent variables and the dependent variable. If p < 0.25 in the bivariate selection analysis then the variable is included in the multivariate modeling, if the bivariate analysis results in p > 0.25 excluded, but if the variable is considered important, then the variable can be included in the multivariate modeling. The results of selecting multivariate candidates can be seen in table 4 below:

Table 4 Bivariate Selection Analysis of Dependent Variables (Anemia in young women) and Independent Variables for respondents at STIKes Fatmawati

No	Variable	p	Results
1.	Knowledge	0,009	Candidate
2.	Attitude	0,031	Candidate
3.	Nutritional status	0,018	Candidate
4.	Meal frequency	0,000	Candidate

Table 4 above shows that the variables of knowledge, attitudes, nutritional status and eating frequency have p <0.25 so that all of these variables meet the requirements to be candidates in the multivariate.

Multivariate Model I

At the time of multivariate modeling, the selection of variables that could be included in the model was carried out by looking at variables that had P < 0.25 and excluded p > 0.05.

Table 5 Results of Multiple Logistic Regression Multivariate Initial Model Analysis

No	Variable	p	OR	95% CI
1.	Knowledge	0,479	0,629	0,174-2,272
2.	Attitude	0,414	1,533	0,550-4,275
3.	Nutritional status	0,439	1,656	0,462-5,941
4.	Meal Frequency	0,000	36,038	11,593-112,021

The results of the analysis show that three variables have a p-value > 0.05, namely knowledge, attitude and nutritional status. Next is the stage of removing the variables from the modeling. Variables are removed gradually starting from the variable that has the largest p-value and if there is a difference in OR > 10% when the variable is removed then the variable is re-entered into the model, whereas if there is a difference in OR <10% then the variable is removed from the modeling. The analysis is carried out by removing the variable that has the largest p-value which can be seen in the table below:

Issuing Knowledge

Table 6 Multiple Logistic Regression Multivariate Analysis

No	Variable	p	OR	Change OR
1.	Knowledge	-	-	-
2.	Attitude	0,470	1,450	5,4
3.	Nutritional status	0,520	1,514	8,5
4.	Meal frequency	0,000	31,517	12,5

Based on table 6 it can be explained that the variable that was first excluded was the knowledge variable because the knowledge variable had the highest p value among the other variables (p Value > 0.05). After removing the knowledge variable, it turns out that the change in the OR of eating frequency is >10%. Thus the knowledge variable is put back into the model.

Issuing Nutritional Status

Table 7. Multiple Logistic Regression Multivariate Analysis

No	Variable	p	OR	Change OR
1.	Nutritional	-	-	-
2.	status	0,394	1,559	1,6
3.	Attitude	0,000	37,274	3,4
4.	Meal frequency	0,573	0,699	0
	Knowledge			

The second stage of modeling is by removing the nutritional status variable which has the highest p value so that it is removed from the model. After the nutritional status variable was removed

from the model, it turned out that the change in OR <10%. Thus the nutritional status variable was permanently excluded from the model.

Out Attitude

Table 8. Multiple Logistic Regression Multivariate Analysis

No	Variable	p	OR	Change OR
1.	Attitude	-	-	-
2.	Meal frequency	0,000	38,479	6,7
3.	Knowledge	0,664	0,764	0

The third stage of modeling is by removing the attitude variable from the model. After the attitude variable was removed from the model, it turned out that the change in OR <10%. Thus the attitude variable is permanently excluded from the model.

Summary

The results of the analysis by removing one by one the variables with a p value > 0.05, finally one variable was obtained with a p value < 0.05, namely eating frequency. Then the variables with P > 0.05 were excluded so that the final multivariate modeling was obtained. The results of the multivariate analysis showed that the variables associated with anemia in young women at STIKes Fatmawati were eating frequency, while the knowledge variable was a confounding variable. The OR of eating frequency was 38.479, meaning that girls who ate <3 times/day had a 38.4 times chance of becoming anemic compared to girls who ate <3 times/day. Based on the final results of the multivariate analysis, it was found that the most dominant factor related to anemia in female adolescents was eating frequency with OR=38.479.

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