



Nutrient Status, Having Style and Event of Anemia in Teenage Girl in SMAN 1 Kambowa, North Buton Regency

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Abstract. Low iron levels Throughout the world, anemia is a dietary issue, particularly in underdeveloped nations. Young women in Indonesia continue to have a high frequency of anemia. This study sought to determine if the nutritional status and eating habits of teenage girls at SMA Negeri 1 Kambowa, North Buton Regency, were associated with their anemia status. The research design makes use of cross-sectional. 68 students in all satisfied the inclusion and exclusion criteria, hence they were included in the research. A Food Frequency Questionnaire (FFQ) was used to collect dietary data, and a questionnaire was used to collect inter-views and measure body weight and height. Nesco Mu-litcheck was used to assess data on Hb levels. This investigation uses the Chi-Square test methodology to look at the connection between eating patterns, nutritional status, and the prevalence of anemia. Results indicated a significant relationship ($p = 0.000$) between food and nutritional status and anemia occurrence. Young women's anemia incidence is influenced by their food and nutritional status.

Keywords: Anemia, diet, adolescent girls, nutritional status

1. Introduction

Nutrition improvement is an effort to improve health status. Nutrition problem in Indonesia is still a health problem that needs serious attention even though nutrition improvement programs in the community have long been launched. Low hemoglobin levels, which are linked to iron deficiency and anemia, are one dietary issue that is still quite prevalent [1].

Worldwide, iron deficiency anemia is a dietary issue that impacts about 600 million individuals. Estimates of the prevalence of anemia globally are around 51%. That number continued to swell in 1997, moving from 13.4% in Thailand to 85.5% in India [2]. Anemia is more common in developing nations than in developed ones, where it affects 36% of the estimated 3800 million people in population, or about 1400 million people, compared to only 8% of the estimated 1200 million people in

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developed nations [3] In Indonesia, based on data from the Ministry of Health Republic of Indonesia (2006), the prevalence of female iron deficiency anemia is 28% [4] and based on the 2004 Household Health Survey (SKRT), the prevalence of iron deficiency anemia in toddlers 40.5%, pregnant women 50, 5%, postpartum mothers 45.1%, adolescent girls 10-18 years 57.1%, and aged 19-45 years 39.5%. Women, especially young women, are most at risk for anemia among all of these age categories [5].

Anemia from malnutrition and iron deficiency are linked to low hemoglobin levels. The capacity to learn and perform productively are two major factors that are impacted by hemoglobin levels below normal in Human Resources (HR) [6]. Low hemoglobin levels also cause memory and concentration power to be low [7]. Deficiency mainly attacks vulnerable groups such as children, adolescent girls, pregnant and lactating women and low-income workers.

One group in the life cycle that is susceptible to anemia is young women. Young women continue to have an anemic prevalence that falls into the high range. According to Department of Health data from 2005, there were 26.50% of young women and 26.9% of women of childbearing age (WUS) who suffered from anemia.

Factors that influence anemia status in young women are thought to be eating patterns, levels of nutritional knowledge and menstrual patterns. Modern patterns and lifestyles make teens tend to prefer eating outside the home with their groups. Adolescent girls often practice diets in inappropriate ways such as abstinence, limit or reduce the frequency of eating to prevent obesity [2]. Natural blood loss every month (menstrual cycle) is also a factor in the incidence of anemia. If there is too much blood during menstruation, iron deficiency anemia will occur [3]. Age at first menstruation, menstrual cycle and menstrual days length affects the amount of blood lost during menstruation. The negative effects of anemia on adolescents include increased morbidity, decreased physical performance capacity and impaired cognitive function. This in turn has an impact on decreased learning capacity and school performance in adolescents who are anemic [8].

The frequency of anemia in high school students in Makassar is significantly correlated with nutritional status, eating habits, and menstruation patterns, as shown by Syatriani & Ariani (2010) [9]. Another study conducted by Briawan, et al (2011) explained that adolescent girls with nutritional status were less likely to experience anemia, which was 8.32 times greater than adolescent girls with good nutritional status [10].

SMA Negeri 1 Kambowa is one of the high schools in North Buton Regency, Kambowa District, with a total of 195 students for 127 students and 68 students. Based on the results of preliminary observational studies on April 22, 2015 at SMA Negeri 1 Kambowa, Bubu Village, Kambowa District, North Buton Regency, out of 10 students there were 7 people or 70% who had below normal hemoglobin levels. With the average Hb test results students showed a value <12 mg / dl, as well as the results of the calculation of BMI / U of 10 students there were 6 people have undernourished status, obtained an average value <-2 elementary school. This shows there are still many students who have anemia and do not understand the correlation between nutritional status, eating patterns, and menstrual patterns experienced. Under these circumstances, the aim of this research is to determine the association between

eating patterns, nutritional status, and the incidence of anemia in teenage girls registered at SMA Negeri 1 Kambowa, Kambowa District, North Buton Regency.

2. Methods and Materials

This kind of study employs a cross-sectional research design methodology and is observational analytical in nature. SMA Negeri 1 Kambowa, Kambowa District, North Buton Regency was the study's location. 68 students from SMA Negeri 1 Kambowa's classes X and XI comprised the total number of samples used in this study. This is because the number of female students does not reach 100 female students. The inclusion criteria in this study were, the age of the respondents 15-18 years, the respondents had menstruated, were willing to become respondents, and the respondents were female students of SMA Negeri 1 Kambowa, Kambowa District, North Buton Regency.

Primary and secondary data were employed in this research. Primary data include Hb levels using the Nesco Multitcheck tool, Body Mass Index (BMI) measurements, dietary data using Food Frequency Questionnaire (FFQ) and interviews using questionnaires. Measurement of hemoglobin levels using the Nesco multicheck tool. A microtoise measuring 0.1 cm was used to determine the kids' height, and a stepping scale measuring 0.1 kg was used to determine the students' body weight. The findings of measuring hemoglobin levels are divided into two categories: normal (Hb level > 12 gr/dL) and anemia (Hb level <12 gr/dL) [2]. Thus the results of measuring food intake based on objective criteria are less (if daily eating frequency is two major meals or fewer) and good (if daily eating frequency is three main meals with two meals in between) [11]. Secondary data was obtained by recording monograph data from SMA Negeri 1 Kambowa, Kambowa District, North Buton Regency. Data were analyzed univariately to see the characteristics of the sample and a bivariate to determine the correlation between samples using the statistical test Chi-Square Statistical Program for Social Science (SPSS) 16.0 for Windows application.

3. Results

3.1 Anemia, nutritional status and diet

Based on Table 1, it illustrates that 68 respondents studied respondents who experienced anemia as many as 35 people (51.5%) and who were not anemic or normal as many as 33 people (48.5%). This is because the respondent is in a menstrual condition and the frequency of eating the respondent every day is less than 3 main meals with 2 times a snack so that the respondent experiences less nutritional status that can affect anemia.

Table 1. Distribution of Anemia Events, Nutrition Status and Eating Patterns in Young Women in Kambowa 1 High School in 2015

Variabel	N	%
Kejadian Anemia		

Anemia	35	51,5
Normal	33	48,5
Status Gizi		
Kurus	35	51,5
Normal	33	48,5
Pola Makan		
Kurang	37	54,4
Baik	31	45,6

The distribution of adolescent nutritional status shows that of the 68 respondents studied by respondents who experienced thin nutritional status as many as 35 people (51.5%) while respondents with non-nutritional status were 33 people (48.5%) (Table 1). This is because the respondent's meal does not match the needs so that the respondent experiences poor nutritional status.

Table 1's distribution of teenage eating patterns reveals that, out of the 68 respondents surveyed, 37 individuals (54.4%) have a diet that is not very good, and 31 individuals (45.6%) have a diet that is good. This is because the frequency of respondents' meals every day is less than 3 main meals with 2 meals

3.2 Correlation of Nutritional Status and Eating Pattern with the Occurrence of Anemia

Table 2. Analysis Correlation of Nutritional Status and Eating Patterns with Anemia Status in Young Women in Kambowa 1 High School in 2015

	Anemia Status				Number		Chi-Square value
	Anemia		Normal				
	n	%	n	%	N	%	pValue
Nutritional status							
Thin	29	42.6	6	8.8	35	51.5	0,000
Normal	6	8.8	27	39.7	33	48.5	
Eating patterns							
Less	27	39.7	10	14.7	37	54.4	0,000
Good	8	11.8	23	33.8	31	45.6	

The analysis showed that nutritional status and eating patterns had a significant correlation with anemia status with each p-value of 0,000. Table 2 shows that 33 respondents (48.5%) had good nutritional status but experienced anemia as many as 6 people (8.8%) and those who did not have anemia or were normal as many as 27 people (39.7%). The correlation between diet and anemia showed that respondents (45.6%) had good eating patterns but experienced anemia as many as 8 people (11.8%) and who did not experience anemia or were normal as many as 23 people (33.8%).

4. Discussion

4.1 Correlation between nutritional status and the incidence of anemia

Chemical bonds known as nutrients are essential for the body to perform its many tasks, including energy production, tissue growth and maintenance, and life-cycle regulation. The findings demonstrated a substantial ($p = 0.000$) relationship between anemia and nutritional status. This is in line with Sediaoetama's (2012) assertion that an individual's capacity to recuperate and maintain good health are both influenced by their nutritional state. Food intake may be evaluated using both quantitative and qualitative data to determine the community's nutritional state [12]. The state of low iron stores in the body is also associated with teenage females' thin nutritional status [13].

This is also in line with a study by Sumarna (2009), which discovered that the incidence of anemia in adolescent girls in SMP Negeri 1 Gurung, Gurung District, Wonosobo Regency, is significantly correlated with their nutritional status, with the reduction in anemia incidence being proportionate to the girls' greater nutritional status.

There are 33 people (48.5%) who have good nutritional status but there are 6 people (8.8%) who have anemia. This is because respondents are menstruating. This will affect the amount of blood lost during menstruation. Menstrual conditions greatly affect the storage status of Fe in the body [14].

4.2 Correlation between diet and anemia

The arrangement of food kinds and quantities ingested by an individual or group of individuals at a specific period is known as their eating pattern or pattern of food intake. Diet is a collection of data that describes the kinds and quantities of food that an individual consumes on a daily basis and is typical for a certain population [15].

The findings demonstrated a strong relationship between eating habits and anemia status ($p = 0.000$). This is also consistent with study by Mardika (2009), who found that schoolgirl eating habits significantly affect the prevalence of anemia among female students at SMA Negeri 1 Malang, Malang Regency. There are 31 people (45.6%) who have a good diet but there are 8 people (11.8%) who have anemia this is because they are having menstruation and have a nutritional status because the frequency of eating every day is less than 3 main meals with less than 2 times the food as much as the type of food containing animal protein and fruits that can help the absorption of hemoglobin.

Inadequate dietary patterns indicate that iron intake from food consumed is inadequate. Foods that contain a lot of iron or Fe are foods derived from animals. Besides containing a lot of Fe, Fe uptake of food from 20% - 30%. However, in Indonesia also still consume foods that can interfere with the absorption of Fe (such as coffee or tea) simultaneously with food at mealtimes. The consumption can inhibit iron absorption by up to 80%. This has become one of the causes of anemia [16]. According to Almatier (2011), all nutrients are necessary for brain development, body growth, and work productivity and should be consumed in sufficient amounts

based on needs. This means that a healthy diet includes food sources of energy, building materials, and regulating substances [8].

5. Conclusion

The occurrence of anemia in teenage females is influenced by their eating habits and nutritional state. With the right daily diet, balanced and the selection of the right foods, can maintain optimal nutritional and health status especially to minimize the incidence of anemia. Research ideas for the future that might look at the factors linked to the prevalence of anemia in teenage females.

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