

## Research Article

# Anemia Prevention in Young Women

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**Abstract.** Humans lose iron through feces every day, and young women also lose iron through menstruation every month. Consequently, young women lose 1.3 mg of iron per day, which accelerates the occurrence of anemia, causing problems during pregnancy. This study aimed to investigate the correlation between knowledge, attitude and family support with anemia prevention behavior in young women in Senior High School 1 Bojonegara, Serang in 2021. This research was a descriptive correlation study with a cross-sectional design and it involved 184 respondents selected using a proportional random sampling technique. The data were collected using questionnaires distributed through social media and WhatsApp groups. The results showed that most students had a low level of knowledge (60.9%), a negative attitude (51.6%), a less supportive family (52.7%), and low preventative behavior (55.4%). This study also found no relationship between knowledge ( $p = 0.463$ ) or attitude ( $p = 0.521$ ) and anemia prevention behavior. However, there was a relationship between family support and anemia prevention behavior ( $p < 0.001$ ). Motivation and exposure to information about anemia are necessary to improve anemia prevention behavior.

**Keywords:** anemia prevention behavior, knowledge, attitude, family support

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## 1. Introduction

The primary health problem of young women is a lack of food intake containing iron; this condition triggers the occurrence of anemia and impacts their nutritional status [1]. Their willingness to be slim restricts their food intake. Whereas a human loses iron through the feces every day, and young women get menstruation every month; therefore, iron will be lost 1.3 mg per day, and they will easily suffer from anemia [2]. Anemia is a condition in which the red blood cell or hemoglobin is less than standard in the blood; the hemoglobin level of young women with anemia is usually less than 12.0 grams or 100 ml [1]. Anemia occurs because the hemoglobin content of the erythrocytes is lower than the normal limit of hemoglobin in young women by 12-16 gr/dl, and the normal level of erythrocytes (blood cells) is 3.5 to 4.5 JT/mm<sup>3</sup> [3].

Anemia is caused by a lack of iron; this condition most frequently occurs in developing countries with high and unpredictable spreads of diseases in more than one area [1].

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Anemia is a national health problem in developing and developed countries [4]. World Health Organization reports that global patients with anemia reached 1.32 billion people; the highest continent with anemia cases was Africa for 44.4%, the second was Asia for 25%, and the lowest was North America for 7.6. In 2017, 2.3 billion people worldwide suffered from anemia due to iron deficiency [5].

Patients with anemia in Indonesia were 21.7% [6]. Indonesia has quite a high anemia incidence; in 2018, 32% of young women suffered from anemia [7]. In 2013, the Riskesdas reported that 20% of young women in Banten Province suffer from anemia, and the number increased by 27% in 2018. In 2018, 23% of school-age girls in the Serang District had a blood shortage or anemia [8]. Meanwhile, the population census in 2019 reported that there were 1.5 million young women in Banten.

Young women are at higher risk of anemia that decreases body endurance; thus, they will quickly suffer from health problems [3]. If anemia is not treated immediately, it will disrupt the physical changes, impact intelligence, decline labor productivity, and body endurance, and escalate morbidity and mortality. Anemia occurs due to insufficient iron; thus, the sufferer experiences body weakness, fatigue, lethargy, drowsiness, short breath, pallor, and decreasing appetite [7].

Anemia in young women will cause problems during pregnancy, such as low birth weight babies, asphyxia, infant death, and hemorrhage during childbirth; hemorrhage is the first cause of maternal death in Indonesia [3]. Several factors causing young women to suffer from anemia are parents' education, knowledge of anemia, young women's attitude to anemia, nutrient consumption levels, and menstrual patterns [9]. Meanwhile, the primary factor of anemia is lack of iron intake for the body because sufferers consume food with less iron, animal foods, and vegetable, and apply dietary habits; another supporting factor is a low economic condition that disables the consumption of foods with iron [10].

Lack of knowledge about anemia, its symptoms, impacts, and prevention makes young women consume food with insufficient iron; thus, they cannot meet the required iron intake [9]. The research revealed that knowledge and attitude are significantly associated with anemia in young women. Surprisingly, there are more young women with a negative attitude to anemia than those with a good attitude [11,12].

Anemia can be avoided by consuming foods with high iron, folic acid, vitamin A, vitamin C, and blood boost tablets; thus, young women need family supports to prepare food and regard their children's nutrition (Kemenkes, 2018). This statement agrees with previous research discovering a significant relationship between the occurrence of anemia and insufficient family supports in shaping young women's behavior to prevent

anemia [13]. Moreover, young women's behavior of meal patterns changes from regular to irregular patterns; for example, taking a late meal or eating twice a day. The family's economy can also affect young women's food intake because the economy relates to the fulfillment of iron and balanced nutrition for young women [3].

A previous study conducted in SMAN 1 Bojonegara in 2021 obtained that several students did not take the blood boost tablets, did not consume food and drinks containing iron, and still experience fatigue and dizziness. Moreover, the study found that 73% of the students did not understand the knowledge of anemia. A survey of Public Health Office Serang Regency (2018) reported that 16% of female students in SMAN 1 Bojonegara had a below-normal Hb level, while 19% had a below-normal LiLA ( $< 23.5$  cm). Therefore, present study investigated the correlation between knowledge, attitude, family supports with anemia prevention behavior in young women in Senior High School 1 Bojonegara, Serang in 2021.

## 2. Methods

### 2.1. Design

This research was a descriptive correlation study with a cross-sectional design to determine correlations between knowledge, attitude, as well as family supports, and behavior to prevent anemia. The data were collected using a questionnaires. The research was conducted at SMAN 1 Bojonegara Serang, from April to June 2021.

### 2.2. Research Sample

The research population was 338 students of class X and XI at SMAN 1 Bojonegara. The research sample was calculated using the Slovin formula due to unidentified the exact number proportion of population, and the calculation gained 184 respondents. The sample was collected using a proportional random sampling technique by raffling proportionally based on the total of the population in each class. Therefore, this research involved 83 respondents in class X and 101 respondents in class XI.

### 2.3. Questionnaires for Data Collection

The primary data were collected using questionnaires that classified into three categories. Knowledge, attitudes and anemia prevention behavior questionnaires by Desy

Indah Nur Lestari research and Family support questionnaire by Desy Fitri Maulida research. Both questionnaires have been tested for validity and reliability [14,15]

### 1) Knowledge and attitudes about anemia

This questionnaire of knowledge applied multiple choices A, B, C, and D and consisted of ten questions. Each correct answer received a score of 1, while a wrong answer received a score of 0. Meanwhile, the questionnaire of attitude contained 15 statements with four answer choices using the Likert scales. The response of strongly agree (SA) was scored 4, agree (A) was scored 3, disagree (D) was scored 2, and strongly disagree (SD) was scored 1. The range score of knowledge questionnaire were between 0 to 10, meanwhile the range score of attitude questionnaire between from 15 to 60. To determine the cut of point of categories in each variable (knowledge and attitude), data collected from respondents were tested by validity and reliability test. Knowledge divided into two categories, good knowledge (score  $\geq$  mean) and less knowledge (score  $<$  mean), whereas attitude divided into two categories, positive attitude (score  $\geq$  mean), and negative attitude (score  $<$  mean).

### 2) The Questionnaire of Family Supports

The questionnaire of family supports contained seven statements with four answer choices using the Likert scales. The answer of always (A) was scored 4, frequently (F) was scored 3, sometimes (D) was scored 2, and never (N) was scored 1. The family support questionnaire consist of 7 item questions with the range score between from 7 to 28. To determine the cut of point of family support categories, data collected from respondents were tested by validity and reliability test. Family support divided into two categories, high family support (score  $\geq$  mean), and low family support (score  $<$  mean).

### 3) Questionnaires of Anemia Prevention Behavior

The questionnaire of anemia prevention behavior contained ten statements with four answer choices using the Likert scales. The answer of always (A) was scored 4, frequently (F) was scored 3, sometimes (D) was scored 2, and never (N) was scored 1.

The anemia prevention behavior questionnaire consist of 10 item questions with the range score between from 10 to 40. To determine the cut of point of anemia prevention behavior categories, data collected from respondents were tested by validity and reliability test. Anemia prevention behavior divided into two categories, good anemia prevention behavior (score  $\geq$  mean), and less anemia prevention behavior (score  $<$  mean).

TABLE 1: Determinant frequency distributions of anemia prevention behavior of young women (n=184)

Variables	Frequency	Percentage (%)
<b>Anemia prevention behavior</b>		
Less	102	55.4
Good	82	44.6
<b>Knowledge</b>		
Less	112	60.9
Good	72	39.1
<b>Attitude</b>		
Negative	95	51.6
Positive	89	48.4
<b>Family supports</b>		
Less supportive	97	52.7
High Supportive	87	47.3

The questionnaires were adapted from previous research and had been validated. The validity test revealed that the questionnaires of knowledge, attitude, behavior prevention, and family supports were valid. The questionnaires were distributed to the respondents using social media, namely a WhatsApp group.

## 2.4. Data Analysis

The research data were processed using a bivariate analysis to determine the relationship between independent and dependent variables, prove a significant relationship between the variables, and answer the hypotheses. The statistical test employed a chi-square with the following test decisions. If a  $\rho$  value is  $\leq \alpha$  (0.05),  $H_0$  is rejected. This result indicates a difference or a meaningful relationship. When the  $\rho$  value is  $\geq \alpha$  (0.05),  $H_0$  is rejected. This result means the absence of a difference or a meaningful relationship.

## 3. Results

The investigation of 184 respondents obtained the following data.

Table 1 shows that more than half of the total respondent had low anemia prevention behavior (55.4%), less of knowledge (60.9%), and a more negative attitude to the anemia incidence (51.6%). Moreover, their family did not support the anemia prevention behavior (52.7%).

TABLE 2: The determinant of anemia prevention behavior of female high school students (n=184)

	Prevention behavior			
	Not good	Good	Total	P values
<b>Knowledge</b>				
Less	65 (58.0%)	47 (42.0%)	112 (100.0%)	0.463
Good	37 (51.4%)	35 (48.6%)	72 (100.0%)	
<b>Attitude</b>				
Negative	50 (52.6%)	45 (47.4%)	95 (100.0%)	0.521
Positive	52 (58.4%)	37 (39.7%)	89 (100.0%)	
<b>Family supports</b>				
Less supportive	78 (80.4%)	19 (19.6%)	97 (100.0%)	0.000
High Supportive	24 (27.6%)	63 (72.4%)	87 (100.0%)	

Table 2 showed that family support significantly influences the occurrence of anemia prevention behavior of female high school students. Less supportive family leads to a higher occurrence of anemia prevention behavior than high supportive family.

## 4. Discussion

### 4.1. Anemia prevention behavior of young women

Young women experience anemia due to blood deficiency caused by a lack of iron, regular nutrient intake, and irregular meal patterns. Young women's activities and diet have changed from regular to irregular meal patterns, for example, taking late meals and eating twice a day [3].

Behavior refers to human activities. It is a person's responses or reactions to the outside stimulations [16]. Essentially, human behavior comprises of various acts or activities. This research revealed that most students had insignificant anemia prevention behavior. The poor anemia prevention behavior indicates that the respondents did not have any supply of blood boost tablets, but drink tea, coffee, or milk while eating. The risk of anemia in female high school students increased along with their bad behavior of not taking Fe tablets, consuming unbalanced nutritional food, and limiting food intakes. A study by Mularsih discovered that bad behavior encouraged the occurrence of anemia in adolescent girls [17]. Moreover, a lack of understanding or knowledge about anemia is significantly associated with anemia prevention behavior. Thus, it is necessary to do counseling on how to prevent anemia in young women. Consequently, they can avoid bad behavior triggering anemia.

## 4.2. Young women's knowledge of anemia

Knowledge is the result of knowing and occurs after people sense a particular object. Sensing occurs through five senses: touch, sight, hearing, smell, and taste; most of the human's knowledge is acquired through the eyes and ears [16]. Knowledge essentially consists of several facts and theories that allow a person to solve problems faced. Such knowledge is obtained from direct experience or through others' experience. The history of human life on earth shows that humans have attempted to collect facts. These facts are then compiled and concluded into multiple theories. Humans apply these theories to understand natural and social phenomena. The theories are developing their quality and quantity along with the development of human culture [16].

This study discovered that most students had inadequate knowledge of anemia. The analysis denoted that the respondents less understood the definition of anemia (25.5%), the impact of anemia (51.1%), and strategies to prevent anemia in young women (49.5%). The analysis of the variable relationships explained that the respondents with poor knowledge about anemia showed more negative anemia prevention behavior than those with excellent prevention behavior. The results described no relationship between knowledge about anemia and anemia prevention behavior. This result disagrees with previous studies before, who discovered a relationship between knowledge and anemia prevention behavior. The theory postulates that knowledge will encourage good behavior [10,17]. Knowledge is the result of knowing after someone observes and understands a matter; knowledge will stimulate an individual ability to analyze and apply the results of observation and understanding in their behavior [16].

Students can improve their knowledge using various efforts, such as continuously gaining information from printed media (newspapers, magazines, or books), the internet, classmates, or teachers. A peer group has a pivotal role for female high school students because it is a perfect medium to transfer information. Therefore, the students can improve their knowledge of anemia prevention in a peer group. A peer group's supports are also significantly associated with compliance with taking the Fe tablets [18].

## 4.3. Anemia prevention behavior of young women

The formed attitudes will become intact and positive. However, this formation requires the involvement of knowledge, thoughts, beliefs, and emotions. If someone has heard of anemia, this information will lead her to think and attempt to prevent from getting

anemia [16]. Attitude is a person's closed reactions or responses to a stimulus or object. Moreover, it is a person's predisposition to act.

This research revealed that most students still had a negative attitude to anemia. The respondents with a negative attitude to anemia showed more negative anemia prevention behavior than those with a positive attitude to anemia. The test analysis showed no relationship between attitudes to anemia and anemia prevention behavior. This result agrees with research before, who discovered a relationship between attitude and anemia prevention behavior in young women but is in line with previous research that shows the, who proved no relationship between attitude and anemia prevention behavior [10,11]. The formation of a person's behavior is not only influenced by attitude but also other factors that encourage this formation, such as knowledge, education, family supports, peer support, and information exposure [19]. As described earlier, the attitude is a predisposition to act. A bad attitude can be directed to a good attitude by continuous counseling; thus, attitude changes can last longer and encourage someone to behave better. A study before deployed that respondents who received training tended to have a more positive attitude [20].

#### 4.4. Family supports

Comprehensive training on health education and anemia results in more improved family supports because the training explains the benefits and advantages of anemia prevention for young women; such a condition will encourage the family to provide information on anemia prevention for young women [13]. Family supports comprise of an attitude and action to accept family members by providing informational, judgmental, instrumental, and emotional supports. Family supports become an interpersonal relationship, consisting of attitudes, actions, and acceptance of a family member. As a result, she feels of being cared for. People with a supportive social environment generally have more prominent conditions than those without a supportive social environment because family supports can reduce or prevent the effects of their mental health.

This study discovered that most students had a family that did not support anemia prevention behavior. The family can provide support to prevent anemia by encouraging the young women to take blood boost tablets, buying and providing the tablets. This finding concluded that the respondents with a not supportive family did not have a more significant anemia prevention behavior than those with a supportive family. The statistical test found a significant connection between family supports and anemia prevention behavior. This finding is in line with previous research, who also discovered



a relationship between family support and anemia prevention behavior in young women [18].

## 5. Conclusion

This study summarizes that most students had poor anemia prevention behavior, and family support was associated with this behavior.

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## 8. Conflict of Interest

The authors have no conflict of interest to declare.

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