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Understanding of Nutritional Practices and Dietary Patterns among Adolescents Experiencing Iron Deficiency Anemia

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ABSTRAK

Teenage girls constitute a demographic vulnerable to anemia, a condition crucial for shaping the future generation, characterized by a deficiency in both the quantity and size of red blood cells. This study aims to investigate potential correlations between adolescents' understanding of nutrition, their dietary intake, and the prevalence of anemia among girls at SMAN 6 Garut. This type of research is typically categorized as descriptive correlation, which aims to determine the description of dietary knowledge in patients with iron deficiency anemia at SMUN 6 Garut Regency. the sample size consisted of 20 respondents. Data collection methods are by using questionnaires through direct interviews and the utilization of Easy Touch measuring instruments to assess Hb levels. The findings indicated that the description of knowledge about nutrition in adolescents with iron deficiency anemia in Smun 6 Garut Regency was found to have mostly sufficient knowledge. Most of the adolescents with iron deficiency anemia in SMAN 6 Garut Regency had a bad diet. Parents play a significant role in food selection for their families, while teachers also play a crucial part in monitoring their students' health

Keywords : Nutritional, Iron Deficiency Anemia

Reference : 47 Books, 18 Journals (2005-2023)

INTRODUCTION

Along with the development of a person's lifestyle and activities become irregular. The change in lifestyle is one of the shifts in eating changes. Eating habits themselves are a pattern of behavior related to, the selection of types, frequency of eating a person and food content and portions of food. Currently, the selection of food types in adolescents. The focus has shifted away from being solely based on nutritional requirements and Nutrient composition in it, but rather centered around practicality, to socialize or simply for pleasure (Kantt, Pandelaki, & Lapus, 2018).

A good diet can contain food sources of building blocks, regulating substances and energy substances because all iron is obtained for maintenance and growth and brain development. As well as in sufficient quantities that are in accordance with the needs of a balanced diet in order to achieve and maintain optimal health nutritional status (Almatsier, S. Dkk, 2016).

Optimal growth and development can be achieved with the intake of substances that are balanced and in accordance with the needs of adolescents. The emergence of nutritional problems, in the form of overnutrition and undernutrition, is caused by an imbalance between needs and sufficiency (Sulistioningsih, 2011).

Lifestyle changes that occur in eating patterns are eating irregularly, eating not on time, consuming fast food, spicy food, and smoking (Begum, 2013).

Teenagers tend to skip breakfast by going straight to activities, even though during their growth period, teenagers still need to have breakfast (Sandra Fikawati, 2017). Adolescent girls often have an unhealthy diet, because teenagers want to lose weight drastically by dieting (Arisman, 2019). This is caused by adolescents who have a negative body image. In accordance with the growth and development of adolescents regarding diet with the prevalence of thin, medium fat, and obesity can be seen from the calculation of BMI (body mass index) with categories (<17.0 thin) normal 18.5-25.0 and fat 25.1-27.0. By calculating (BB / TB2) (Merryana Andriani, 2018).

According to statistics from the Indonesian Ministry of Health in 2022, 8.7% of adolescents aged 13-15 years and 8.1% of those aged 16-18 years were reported to have underweight or severely underweight conditions, in contrast, the occurrence of overweight and obesity stands at 16.0% among adolescents aged 13-15 years and 13.5% among those aged 16-18 years, according to data from the Indonesian Ministry of Health in 2022. The nutritional status of adolescents aged 16-18 years with underweight prevalence was 9.1% with the highest prevalence in West Java in the city of Cirebon. The prevalence of fat is 7.6% with the highest prevalence in Depok city (20.8%) (Santosa et al., 2022).

Based on the findings of the study conducted by Trintrin.T Mudjianto et al 2016, eating habits in adolescents in six big cities, one of which is Bandung, namely with the habit of not having breakfast as much as (2.1%), where lunch is at school as much as (4.1%), type of lunch instant noodles (26.1%) meatball noodles (33.6%) fried chiken (9.3%), type of dinner instant noodles as much as (32.2%).

The results of (Pamilasari et al., 2022), namely the diet of adolescents in Lubuk Pakam Junior High School is 44.4% good and 55.5% eating patterns are not good. The amount of good food consumption is 44.4%, the type of consumption is good 71.1%, normal nutritional status with a good diet is 33.3%. The results of research by Ratna Verawati 2015 that as many as 51.7% have an abnormal diet and as many as 48% have a normal diet. This dietary pattern research is based on the Food Frequency Questionnaire (FFG). The findings of this study suggest that a majority of the participants have an abnormal diet. This is due to the activities or activities of adolescents who do not have time to eat regularly and the presence of adolescents who have a negative body image that affects eating patterns, adolescents tend to limit food consumption due to dissatisfaction with their body shape. The results of Kusmaya's research in Sada (2012) The adolescent's perception of their body image plays a pivotal role in shaping their dietary choices and nutritional status. A positive correlation exists between perceived body image and eating frequency; in other words, the more negative one's perception of their body image, adolescent will tend to reduce the frequency of eating.

As per (Wahyudin & Perceka, 2019), The well-being of individuals or communities is impacted by various factors, including both behavioral and non-

behavioral elements. The behavior theory itself Behavior is influenced by three primary elements: predisposing factors, enabling factors, and reinforcing factors, supporting factors that are manifested in the environment, facilities and facilities. Enabling factors are reflected in the attitudes and conduct of authorities who serve as the benchmark for community behavior (Taqiyah & Alis, 2020). Predisposing factors are antecedent factors to the factors influencing behavior serve as the foundation or impetus for individuals. These factors encompass knowledge, attitudes, values, and perceptions regarding the driving force behind an individual's or group's actions (Perceka et al., 2022). Knowledge is an important domain aspect, so that adolescents with good adolescent knowledge will apply a good diet and if adolescent knowledge is lacking then the diet is not good.

Knowledge and attitudes are the most dominant factors in influencing health behavior, mentioned by (Hasan et al., 2020), in psychology for nurses that attitudes are formed from 3 components, namely emotions, perceptions and motivations are interrelated, therefore perceptions and motivations are not studied, facilities or facilities and infrastructure, health workers according to (Wibowo & Widiyanto, 2019), are variables that cannot be changed or called static variables or powerless variables, so they are not studied either (Yusran & Iriyanti, 2022).

In essence, knowledge comprises a collection of facts and theories that empower individuals to solve the challenges they encounter. Knowledge is obtained both direct experience and the experience of others (Febryani & Susilo, 2021).

The author chose adolescent girls at SMAN 6 Garut because they tend not to pay attention to diet and only eat foods available in the canteen such as seblak, cireng, fried foods, other sweet drinks. Female teenagers dominate the school and tend to pay attention to weight so it is not uncommon for teenagers not to eat staple foods, only eat snack foods to fill up during school hours, as a result these teenagers have a less regular eating frequency and choose to eat fast food, and often the nutritional content is not considered. In SMUN 6 Garut, there are quite a lot of teenagers who do not fulfill their daily needs due to body image perceptions (fear of weight gain). A good diet in adolescents is the Ensuring adequate nutrition involves considering the frequency, quantity, and quality of food intake to support the growth and development of adolescents. As a result of poor diet, in addition to indigestion, they often experience sleepiness, weakness and lack of concentration while studying.

Data that researchers found in Garut Regency related to the number of adolescents suffering from anemia was 871 people and many were scattered in Garut Regency. Based on the results of searching data on the health of school UKS students from several high schools / vocational schools in Garut Regency, it was found that SMAN 6 Garut had the highest incidence of anemia, namely 163 patients in 2021. Interviews were conducted with 10 anemia patients related to signs of anemia, namely frequent fatigue, dizziness, pale eyelids, pale face, and decreased endurance, people who are at risk of suffering from anemia, mostly have poor diet and nutritional knowledge, even 4 of the 10 patients had a very strict and unhealthy diet.

LITERATURE REVIEW

Knowledge

        Knowledge emerges following the perception of a specific object. It constitutes a crucial cognitive domain that shapes an individual's overt behaviors. In the cognitive domain, knowledge is categorized into different levels, with "knowing" representing the lowest tier. Verbs used to assess individuals' understanding of what they have learned include mentioning, describing and stating. Comprehension, or understanding, refers to the capability to accurately explain and interpret information. Application entails the capacity to utilize learned material in practical real-world scenarios. Analysis involves the skill to deconstruct material or objects into their constituent parts while maintaining contextual relevance and interconnectedness. Synthesis denotes the aptitude to assemble or link components into a novel, cohesive structure or form.

Nutrition Knowledge

        Nutritional knowledge encompasses understanding food, nutrients, their sources, safe food consumption, food processing techniques to retain nutrients, and adopting a healthy lifestyle (Resmiati, 2021). An individual's nutritional knowledge level affects their attitudes and behaviors regarding food choices, consequently influencing their nutritional status. Increasing nutritional knowledge can be done with nutrition education programs conducted by the government. Nutrition education programs can influence children's knowledge, attitudes and behavior towards their eating habits

Nutrition

        Nutrition comes from the Arabic ghidza which means food and on the other hand with the human body. Classically, nutrition is only related to the health of the body, which provides energy, builds and maintains body tissues, and regulates life processes in the body.

Adolescent Nutrition

        Adolescence signifies the transitional phase between childhood and adulthood. Special attention needs to be given to adolescent girls so that optimal nutritional and health status can be achieved. The reason is that adolescent girls will become mothers who will give birth to a better next generation (Litaay et al., 2021).

Age limitations of adolescents:
  1) Young adolescence: Age 10 untill 13
  2) Intermediate adolescence: Age 14 untill 16
  3) Last adolescence: Age 17 untill 19

Nutritional Fulfillment of Teenage Girls

        Teenagers need more energy and protein than adults, as well as vitamins and minerals. An adolescent girl needs 2,000 calories per day to maintain body fatness. Vitamins B1, B2, B3 are important for metabolizing carbohydrates into energy, Vitamin B12 and folic acid play vital roles in the production of red blood cells, and vitamin A for tissue growth. In addition, adequate calcium and vitamin D are needed for bone growth. Vitamins A, C and E are important for maintaining new tissues to function

optimally. Importantly, iron in women is needed for the metabolism of red blood cell formation (Baeda & Kep, 2023).

Energy adequacy is needed for daily activities and the body's metabolic processes. A simple way to determine energy adequacy can be seen from the body weight. In adolescent girls aged 10-12 years, the energy requirement is 50- 60 kcal/kg BW/day, while at the age of 13-18 years it is 40-50 kcal/kg BW/day (Limanto et al., 2019).

Nutritional Condition

Nutritional status refers to an individual's state resulting from their dietary intake, Nutritional status mirrors the absorption, utilization, and intake of nutrients from food over an extended period. Direct assessment of nutritional status can be divided into four assessments, namely anthropometric, clinical, biochemical, and biophysical (Ansar, 2020). Data on the nutritional status of the sample was obtained using the Body Mass Index (BMI) which is calculated using anthropometric measurements data, namely body weight and height of female students (Glendinning, 2021).

Nutritional status was then categorized into underweight (BMI < 18.5), normal (BMI 18.5-24.9), risk for obesity (BMI 25.0- 26.9), and obese (BMI > 26.9). The majority of women had clinical malnutrition. Of the 401 women examined, 231 were found to be anemic. BMI was normal and reached menarche before the age of 16. Meanwhile, research shows that adolescent girls with obese nutritional status have irregular menstrual periods which will also result in the anemia status of these adolescents (Zhang et al., 2023).

Anemia in Teenage Girls

In general, adolescent girls consume more plant foods than animal foods, so many suffer from anemia. This is because iron in plant foods is in the form of ferric bonds which must first be broken down into ferrous by gastric juice before being absorbed by the body. Whereas in animal foods iron is already in ferrous form which is more easily absorbed by the body (TRIANANDA et al., 2022). In addition to the above, adolescent girls are more affected by anemia because adolescent girls are more often on a reduced diet with an unbalanced menu so that the body lacks important substances such as iron and menstruation occurs every month which means regular blood loss every month.

Anemia can be attributed to three key factors: blood loss resulting from bleeding, the breakdown of red blood cells, and inadequate production of red blood cells. The determinants affecting the occurrence of anemia in adolescent girls include: First, nutritional intake in the form of iron (Fe), vitamin C, energy, protein, second, eating and drinking behavior. Consuming tea / coffee (DEWANTI, n.d.). Third, the level of family income. Fourth, the level of knowledge. Fifth, health services. Sixth, iron absorption. Seventh, iron requirement, eighth, history of disease and ninth, iron loss.

Overview of Dietary Knowledge

When consuming food, many do not utilize nutritious food ingredients, this is due in part to Insufficient awareness regarding nutritious food components and

individual understanding. The lower the dietary knowledge, the more calculated the type of food chosen for consumption. Adolescents who do not have enough dietary knowledge, will choose the food that most appeals to the five senses, and not make choices based on the nutritional value of food. Conversely, adolescents who have more nutritional knowledge, use more rational considerations and knowledge about the nutrition of these foods.

METHODS

This study employs a descriptive correlational research methodology, utilizing a descriptive research design approach. The population were all students in grades XI, XII at SMAN 6 Garut Regency totaling 134 students. The sample was selected through systematic random sampling methodology using slovin formula so that a sample of 20 people was obtained.

The variables under investigation in this research comprised of independent factors and dependent variables. Dietary knowledge is the study's variable.

This study employed a sampling technique based on the presence of students at school is sampled by meeting the criteria, namely:

A. Inclusion Criteria:
  1. Low HB value of less than 12-15 g/dL for Women
  2. Iron deficiency anemia according to the medical record of the school health center.
  3. Willing to be a respondent for students and students
  4. Not currently suffering from severe illness

B. Exclusion Criteria:
  1. Not Willing to be a Respondent
  2. Menstruation for Female Students

Data was collected using an instrument in the form of a questionnaire that has provided answers so that respondents only need to choose. The collected data is subsequently processed using a computer for data editing, coding, data entry into the computer and data rechecking. In order to obtain a valid and reliable questionnaire, one shot analyze validity test and the study performed calculations using the Pearson Product Moment correlation formula and assessed reliability through Cronbach's Alpha. Validity and reliability tests were conducted at SMAN 11 Garut.

To view each independent variable's frequency distribution, including univariate analysis. This study uses categorical data to generate percentages and frequency distributions.

The data obtained were then described using the program (SPSS), and then distributed descriptively using a distribution table to conduct a univariate assessment to see the frequency distribution of each variable. This stu dy will be conducted at SMAN 6 Garut Regency This study was conducted in September 2022.

RESULTS

Commented [MOU5]: The study is described as *descriptive correlational*, yet only descriptive (frequency and percentage) analysis was applied. Please clarify whether **any correlation tests (e.g., Pearson, Chi-square)** were performed.
The sample size is only 20 respondents, which **limits generalizability**. This limitation should be explicitly acknowledged.
Inclusion/exclusion criteria are presented, but the **procedure of hemoglobin measurement** (validity and reliability of Easy Touch device) needs to be explained more clearly.

1. Overview of Nutrition Knowledge

Knowledge of the respondent's diet was measured using a questionnaire with multiple choice questions with questions given to respondents as many as 10 questions. The scoring system assigns a score of 3 for correct answers, 2 for close answers, and 1 for incorrect answers. So that the total score obtained if the respondent's answer is correct is 30.

Table 1. Overview of Dietary Knowledge

Variabel	SMAN 06	
Knowledge	f	%
Good	7	35
Enough	12	60
Less	1	5
Amount	20	100

Based on the table above, knowledge about diet in anemic adolescents at SMAN 06 anemic adolescents with sufficient category as many as 12 people (60%).

2. Overview of Knowledge about Diet

Dietary intake is assessed using the Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ). A diet that is categorized as good if the amount of food consumed by individuals is more than 80% of total needs, and the types of food consumed by respondents are more than 5 types, and the frequency of consumption of staple foods 3 times a day. Whereas someone is said to have a poor diet if the amount of food consumed by individuals is less than 80% of total needs, and the types of food consumed by respondents are less than 5 types, and the frequency of consumption of staple foods is less than 3 times a day

Table 2. Overview of the Diet of Anemic Adolescents of SMAN 6 Garut

Variable	SMAN 6		SMAN 10	
Pola Makan	f	%	f	%
Good	9	45	11	55
Not Good	11	55	9	45
Amout	20	100	20	100

Based on the table above, the description of the diet of anemic adolescents at SMAN 06 respondents who had an unfavorable diet was 9 people (45%).

DISCUSSION

Based on the data obtained and analyzed univariate and descriptive test. Descriptive analysis is an analysis carried out to assess the characteristics of data including mean, median, mode, minimum, maximum, and standard deviation which are

then presented in tabular form, then a discussion is carried out by comparing with research that previous researchers have conducted similar studies, who have the same variables.

1. Knowledge about Nutrition

Much of knowledge stems from perception, which arises after individuals have encountered specific objects. This perception is facilitated through the five human senses: sight, hearing, smell, taste, and touch. Primarily, human knowledge is acquired through sight and hearing(Nita, 2018).

Based on the results obtained knowledge about diet in adolescents with anemia at SMAN 06 who have knowledge in the sufficient category as many as 12 people (60%). The findings of this study suggest that respondents from SMAN 06 Garut have sufficient knowledge. Respondents who have sufficient knowledge will have a sufficient concept of nutrition science as well. This is due to the lack of information about nutrition obtained from schools and the surrounding environment. A comprehensive understanding of nutrition in food plays a pivotal role in its utilization and selection of food ingredients properly, the higher the nutritional knowledge, the more the type and quality of the food chosen is consumed.

The same research on the description of adolescent knowledge conducted by (Juariah & Purwaningsih, 2022), obtained the results indicate the average value, standard deviation (SD), mode and median. Based on the results of descriptive statistical calculations for knowledge data, the lowest value is 10 and the highest value is 17, mean 13.78 and standard deviation 1.80.

Likewise, the research of (Wulandari & Prihatin, 2022), As per the study findings, it was observed that a higher proportion of respondents exhibited lower levels of knowledge, namely 44 people (53.7%), while the level of knowledge was only 38 people (46.3%). Most respondents' knowledge is lacking, this is due to the lack of information about nutrition obtained from schools and the surrounding environment. From the list of questions given, most respondents answered incorrectly on question 10, namely foods that are sources of protein are, which amounted to 63 people (76.8%).

2. Knowledge about Diet

Based on the results obtained, the picture of the diet of anemic adolescents at SMAN 06 respondents who had an unfavorable diet was 9 people (45%). The description of the diet of anemic adolescents at SMAN 6 seen based on the amount, type and frequency obtained the results of adolescents who consume food ≥ 80% of the needs of 16 people (80%), respondents who consume food types
≥ 5x as many as 15 people (75%) and adolescents who have a frequency of eating 3x as many as 13 people (65%).

Teenagers usually have a diet that tends to be irregular or poor. Whereas it is known that maintaining a healthy and consistent diet contributes to a more robust physical condition, enabling the body to perform its activities effectively. Conversely, if the body lacks certain nutrients, its endurance will also decrease. Adolescents are introduced to modern foods and drinks so that sooner or later it can shift

local/traditional foods. Teenagers currently consume a lot of advertised foods and these foods contain high salt, sugar, fat, calories. One of the modern foods consumed by teenagers is fast food. Fast food is a type of food that is easily packaged, served, and practical. Types of fast food include junk foods (Kusnadi, 2018).

The types of food consumed by respondents at SMAN 06 in carbohydrate sources were white rice (100%), potatoes (100%), biscuits (95%), dry noodles (90%) and wet noodles (90%). The most consumed animal protein sources were chicken eggs (100%), chicken (100%), and tilapia (80%). The most consumed vegetable protein sources were tempeh (95%) and tofu (95%). The vegetables most consumed by respondents were spinach (80%) and kale (80%). The fruits most often consumed by respondents were bananas (90%) and sweet oranges (80%). As for the types of fast food / junk food most consumed by respondents are packaged drinks (95%), batagor (95%), fried foods (95%), packaged snacks (85%) and meatballs (90%).

The types of food consumed by respondents at SMAN 6 in carbohydrate sources were white rice (100%), potatoes (95%), biscuits (90%), white bread (90%), dry noodles (95%) and wet noodles (90%). The most consumed animal protein sources were tilapia (90%), chicken eggs (95%), chicken (95%), and chicken liver (85%). The most consumed vegetable protein sources were tempeh (100%), tofu (100%), and green beans (80%). The most common vegetables consumed by respondents were long beans (80%), mustard greens (80%), spinach (100%), kale (90%) and carrots (85%). Fruits most often consumed by respondents were bananas (95%), papaya (90%), sweet orange (95%) and mango (80%). As for the types of fast food / junk food most consumed by respondents are packaged drinks (95%), batagor (95%), fried foods (85%), chicken noodles (85%), packaged
snacks (80%) and meatballs (90%).

Research conducted by (Savitri, 2023), the overall good diet at Adventist Junior High School is 44.4% and the bad diet is 55.5% so that more education is needed about a good diet for adolescents at Adventist Junior High School Lubuk Pakam. With in-depth education on how to create a good diet, it is hoped that adolescents and parents can practice it together at home and in daily activities, so that a good diet and optimal nutritional status can be realized. Research
conducted by (Tahlil, 2018) from 100 samples of adolescents in Purwosari Village, Laweyan Subdistrict, the data reveals that 37% of adolescents fall into the category of having a good diet and the poor diet category is 63% so that it can be concluded that the high adolescent diet is poor at 63%.

Research conducted by (Tursunaliyevna, 2023) on the diet of adolescent girls at SMAN 51 East Jakarta in 2015 most of the respondents' meal frequency was good, namely (62.7%) and respondents with a meal frequency that was still lacking as much as (37.3%). Most of the respondents' food intake was less, namely (59.7%) because students felt that their intake was sufficient by snacks at school and some students thought they were afraid of gaining weight if they ate the recommended amount. Then the respondents' food intake in the moderate category amounted to (34.3%) and the good one was (6%) only. Most types of food for high school students have a

good type of food, namely (71.6%) and those with a less category are (28,4 %).

CONCLUSIONS AND RECOMMENDATIONS

Based on the research findings and discussion, it can be concluded that the Overview of Knowledge about Nutrition in Adolescents with Iron Deficiency Anemia in Smun 6 Garut Regency mostly has sufficient knowledge and the majority have an unfavorable diet. Researchers' suggestions, students are expected to pay more attention to healthy eating patterns so that their needs and nutrition can be met and not easily influenced by advertisements on social media because adolescence requires balanced nutrition for growth.

FURTHER STUDY

This research still has limitations, so it is necessary to carry out further research related to the topic Understanding of nutritional practices and dietary patterns among adolescents experiencing iron deficiency anemia in order to perfect this research and increase insight for readers.

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Understanding of Nutritional Practices and Dietary Patterns among Adolescents Experiencing Iron Deficiency Anemia

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A R T I C L E I N F O

A B S T R A C T

Teenage girls constitute a demographic vulnerable to anemia, a condition crucial for shaping the future generation, characterized by a deficiency in both the quantity and size of red blood cells. This study aims to investigate potential correlations between adolescents' understanding of nutrition, their dietary intake, and the prevalence of anemia among girls at SMAN 6 Garut. This type of research is typically categorized as descriptive correlation, which aims to determine the description of dietary knowledge in patients with iron deficiency anemia at SMUN 6 Garut Regency. the sample size consisted of 20 respondents. Data collection methods are by using questionnaires through direct interviews and the utilization of Easy Touch measuring instruments to assess Hb levels. The findings indicated that the description of knowledge about nutrition in adolescents with iron deficiency anemia in Smun 6 Garut Regency was found to have mostly sufficient knowledge. Most of the adolescents with iron deficiency anemia in SMAN 6 Garut Regency had a bad diet. Parents play a significant role in food selection for their families, while teachers also play a crucial part in monitoring their students' health

INTRODUCTION

Along with the development of a person's lifestyle and activities become irregular. The change in lifestyle is one of the shifts in eating changes. Eating habits themselves are a pattern of behavior related to, the selection of types, frequency of eating a person and food content and portions of food. Currently, the selection of food types in adolescents. The focus has shifted away from being solely based on nutritional requirements and Nutrient composition in it, but rather centered around practicality, to socialize or simply for pleasure (Kantt, Pandelaki, & Lapus, 2018).

A good diet can contain food sources of building blocks, regulating substances and energy substances because all iron is obtained for maintenance and growth and brain development. As well as in sufficient quantities that are in accordance with the needs of a balanced diet in order to achieve and maintain optimal health nutritional status (Almatsier, S. Dkk, 2016).

Optimal growth and development can be achieved with the intake of substances that are balanced and in accordance with the needs of adolescents. The emergence of nutritional problems, in the form of overnutrition and undernutrition, is caused by an imbalance between needs and sufficiency (Sulistioningsih, 2011). Lifestyle changes that occur in eating patterns are eating irregularly, eating not on time, consuming fast food, spicy food, and smoking (Begum, 2013).

Teenagers tend to skip breakfast by going straight to activities, even though during their growth period, teenagers still need to have breakfast (Sandra Fikawati, 2017). Adolescent girls often have an unhealthy diet, because teenagers want to lose weight drastically by dieting (Arisman, 2019). This is caused by adolescents who have a negative body image. In accordance with the growth and development of adolescents regarding diet with the prevalence of thin, medium fat, and obesity can be seen from the calculation of BMI (body mass index) with categories (<17.0 thin) normal 18.5-25.0 and fat 25.1-27.0. By calculating (BB / TB2) (Merryana Andriani, 2018).

According to statistics from the Indonesian Ministry of Health in 2022, 8.7% of adolescents aged 13-15 years and 8.1% of those aged 16-18 years were reported to have underweight or severely underweight conditions, in contrast, the occurrence of overweight and obesity stands at 16.0% among adolescents aged 13-15 years and 13.5% among those aged 16-18 years, according to data from the Indonesian Ministry of Health in 2022. The nutritional status of adolescents aged 16-18 years with underweight prevalence was 9.1% with the highest prevalence in West Java in the city of Cirebon. The prevalence of fat is 7.6% with the highest prevalence in Depok city (20.8%) (Santosa et al., 2022).

Based on the findings of the study conducted by Trintrin.T Mudjianto et al 2016, eating habits in adolescents in six big cities, one of which is Bandung, namely with the habit of not having breakfast as much as (2.1%), where lunch is at school as much as (4.1%), type of lunch instant noodles (26.1%) meatball noodles (33.6%) fried chiken (9.3%), type of dinner instant noodles as much as (32.2%).

The results of (Pamilasari et al., 2022), namely the diet of adolescents in Lubuk Pakam Junior High School is 44.4% good and 55.5% eating patterns are not good. The amount of good food consumption is 44.4%, the type of consumption is good 71.1%, normal nutritional status with a good diet is 33.3%. The results of research by Ratna Verawati 2015 that as many as 51.7% have an abnormal diet and as many as 48% have a normal diet. This dietary pattern research is based on the Food Frequency Questionnaire (FFG). The findings of this study suggest that a majority of the participants have an abnormal diet. This is due to the activities or activities of adolescents who do not have time to eat regularly and the presence of adolescents who have a negative body image that affects eating patterns, adolescents tend to limit food consumption due to dissatisfaction with their body shape. The results of Kusmaya's research in Sada (2012) The adolescent's perception of their body image plays a pivotal role in shaping their dietary choices and nutritional status. A positive correlation exists between perceived body image and eating frequency; in other words, the more negative one's perception of their body image, adolescent will tend to reduce the frequency of eating.

As per (Wahyudin & Perceka, 2019), The well-being of individuals or communities is impacted by various factors, including both behavioral and non-behavioral elements. The behavior theory itself Behavior is influenced by three primary elements: predisposing factors, enabling factors, and reinforcing factors, supporting factors that are manifested in the environment, facilities and facilities. Enabling factors are reflected in the attitudes and conduct of authorities who serve as the benchmark for community behavior (Taqiyah & Alis, 2020). Predisposing factors are antecedent factors to the factors influencing behavior serve as the foundation or impetus for individuals. These factors encompass knowledge, attitudes, values, and perceptions regarding the driving force behind an individual's or group's actions (Perceka et al., 2022). Knowledge is an important domain aspect, so that adolescents with good adolescent knowledge will apply a good diet and if adolescent knowledge is lacking then the diet is not good.

Knowledge and attitudes are the most dominant factors in influencing health behavior, mentioned by (Hasan et al., 2020), in psychology for nurses that attitudes are formed from 3 components, namely emotions, perceptions and motivations are interrelated, therefore perceptions and motivations are not studied, facilities or facilities and infrastructure, health workers according to (Wibowo & Widiyanto, 2019), are variables that cannot be changed or called static variables or powerless variables, so they are not studied either (Yusran & Iriyanti, 2022).

In essence, knowledge comprises a collection of facts and theories that empower individuals to solve the challenges they encounter. Knowledge is obtained both direct experience and the experience of others (Febryani & Susilo, 2021).

The author chose adolescent girls at SMAN 6 Garut because they tend not to pay attention to diet and only eat foods available in the canteen such as seblak, cireng, fried foods, other sweet drinks. Female teenagers dominate the school

and tend to pay attention to weight so it is not uncommon for teenagers not to eat staple foods, only eat snack foods to fill up during school hours, as a result these teenagers have a less regular eating frequency and choose to eat fast food, and often the nutritional content is not considered. In SMUN 6 Garut, there are quite a lot of teenagers who do not fulfill their daily needs due to body image perceptions (fear of weight gain). A good diet in adolescents is the Ensuring adequate nutrition involves considering the frequency, quantity, and quality of food intake to support the growth and development of adolescents. As a result of poor diet, in addition to indigestion, they often experience sleepiness, weakness and lack of concentration while studying.

Data that researchers found in Garut Regency related to the number of adolescents suffering from anemia was 871 people and many were scattered in Garut Regency. Based on the results of searching data on the health of school UKS students from several high schools / vocational schools in Garut Regency, it was found that SMAN 6 Garut had the highest incidence of anemia, namely 163 patients in 2021. Interviews were conducted with 10 anemia patients related to signs of anemia, namely frequent fatigue, dizziness, pale eyelids, pale face, and decreased endurance, people who are at risk of suffering from anemia, mostly have poor diet and nutritional knowledge, even 4 of the 10 patients had a very strict and unhealthy diet.

LITERATURE REVIEW
Knowledge

Knowledge emerges following the perception of a specific object. It constitutes a crucial cognitive domain that shapes an individual's overt behaviors. In the cognitive domain, knowledge is categorized into different levels, with "knowing" representing the lowest tier. Verbs used to assess individuals' understanding of what they have learned include mentioning, describing and stating. Comprehension, or understanding, refers to the capability to accurately explain and interpret information. Application entails the capacity to utilize learned material in practical real-world scenarios. Analysis involves the skill to deconstruct material or objects into their constituent parts while maintaining contextual relevance and interconnectedness. Synthesis denotes the aptitude to assemble or link components into a novel, cohesive structure or form.

Nutrition Knowledge

Nutritional knowledge encompasses understanding food, nutrients, their sources, safe food consumption, food processing techniques to retain nutrients, and adopting a healthy lifestyle (Resmiati, 2021). An individual's nutritional knowledge level affects their attitudes and behaviors regarding food choices, consequently influencing their nutritional status. Increasing nutritional knowledge can be done with nutrition education programs conducted by the government. Nutrition education programs can influence children's knowledge, attitudes and behavior towards their eating habits.

Nutrition

Nutrition comes from the Arabic ghidza which means food and on the other hand with the human body. Classically, nutrition is only related to the health of the body, which provides energy, builds and maintains body tissues, and regulates life processes in the body.

Adolescent Nutrition

Adolescence signifies the transitional phase between childhood and adulthood. Special attention needs to be given to adolescent girls so that optimal nutritional and health status can be achieved. The reason is that adolescent girls will become mothers who will give birth to a better next generation (Litaay et al., 2021).

Age limitations of adolescents:

1) Young adolescence: Age 10 untill 13
2) Intermediate adolescence: Age 14 untill 16
3) Last adolescence: Age 17 untill 19

Nutritional Fulfillment of Teenage Girls

Teenagers need more energy and protein than adults, as well as vitamins and minerals. An adolescent girl needs 2,000 calories per day to maintain body fatness. Vitamins B1, B2, B3 are important for metabolizing carbohydrates into energy, Vitamin B12 and folic acid play vital roles in the production of red blood cells, and vitamin A for tissue growth. In addition, adequate calcium and vitamin D are needed for bone growth. Vitamins A, C and E are important for maintaining new tissues to function optimally. Importantly, iron in women is needed for the metabolism of red blood cell formation (Baeda & Kep, 2023).

Energy adequacy is needed for daily activities and the body's metabolic processes. A simple way to determine energy adequacy can be seen from the body weight. In adolescent girls aged 10-12 years, the energy requirement is 50-60 kcal/kg BW/day, while at the age of 13-18 years it is 40-50 kcal/kg BW/day (Limanto et al., 2019).

Nutritional Condition

Nutritional status refers to an individual's state resulting from their dietary intake, Nutritional status mirrors the absorption, utilization, and intake of nutrients from food over an extended period. Direct assessment of nutritional status can be divided into four assessments, namely anthropometric, clinical, biochemical, and biophysical (Ansar, 2020). Data on the nutritional status of the sample was obtained using the Body Mass Index (BMI) which is calculated using anthropometric measurements data, namely body weight and height of female students (Glendinning, 2021).

Nutritional status was then categorized into underweight (BMI < 18.5), normal (BMI 18.5-24.9), risk for obesity (BMI 25.0- 26.9), and obese (BMI > 26.9).

The majority of women had clinical malnutrition. Of the 401 women examined, 231 were found to be anemic. BMI was normal and reached menarche before the age of 16. Meanwhile, research shows that adolescent girls with obese nutritional status have irregular menstrual periods which will also result in the anemia status of these adolescents (Zhang et al., 2023).

Anemia in Teenage Girls

In general, adolescent girls consume more plant foods than animal foods, so many suffer from anemia. This is because iron in plant foods is in the form of ferric bonds which must first be broken down into ferrous by gastric juice before being absorbed by the body. Whereas in animal foods iron is already in ferrous form which is more easily absorbed by the body (TRIANANDA et al., 2022). In addition to the above, adolescent girls are more affected by anemia because adolescent girls are more often on a reduced diet with an unbalanced menu so that the body lacks important substances such as iron and menstruation occurs every month which means regular blood loss every month.

Anemia can be attributed to three key factors: blood loss resulting from bleeding, the breakdown of red blood cells, and inadequate production of red blood cells. The determinants affecting the occurrence of anemia in adolescent girls include: First, nutritional intake in the form of iron (Fe), vitamin C, energy, protein, second, eating and drinking behavior. Consuming tea / coffee (DEWANTI, n.d.). Third, the level of family income. Fourth, the level of knowledge. Fifth, health services. Sixth, iron absorption. Seventh, iron requirement, eighth, history of disease and ninth, iron loss.

Overview of Dietary Knowledge

When consuming food, many do not utilize nutritious food ingredients, this is due in part to Insufficient awareness regarding nutritious food components and individual understanding. The lower the dietary knowledge, the more calculated the type of food chosen for consumption. Adolescents who do not have enough dietary knowledge, will choose the food that most appeals to the five senses, and not make choices based on the nutritional value of food. Conversely, adolescents who have more nutritional knowledge, use more rational considerations and knowledge about the nutrition of these foods.

METHODS

This study employs a descriptive correlational research methodology, utilizing a descriptive research design approach. The population were all students in grades XI, XII at SMAN 6 Garut Regency totaling 134 students. The sample was selected through systematic random sampling methodology using slovin formula so that a sample of 20 people was obtained.

The variables under investigation in this research comprised of independent factors and dependent variables. Dietary knowledge is the study's variable.

This study employed a sampling technique based on the presence of students at school is sampled by meeting the criteria, namely:

A. Inclusion Criteria:
  1. Low HB value of less than 12-15 g/dL for Women
  2. Iron deficiency anemia according to the medical record of the school health center.
  3. Willing to be a respondent for students and students
  4. Not currently suffering from severe illness

B. Exclusion Criteria:
  1. Not Willing to be a Respondent

2. Menstruation for Female Students

Data was collected using an instrument in the form of a questionnaire that has provided answers so that respondents only need to choose. The collected data is subsequently processed using a computer for data editing, coding, data entry into the computer and data rechecking. In order to obtain a valid and reliable questionnaire, one shot analyze validity test and the study performed calculations using the Pearson Product Moment correlation formula and assessed reliability through Cronbach's Alpha. Validity and reliability tests were conducted at SMAN 11 Garut.

To view each independent variable's frequency distribution, including univariate analysis. This study uses categorical data to generate percentages and frequency distributions.

The data obtained were then described using the program (SPSS), and then distributed descriptively using a distribution table to conduct a univariate assessment to see the frequency distribution of each variable. This stu dy will be conducted at SMAN 6 Garut Regency This study was conducted in September 2022.

RESULTS

1. Overview of Nutrition Knowledge

Knowledge of the respondent's diet was measured using a questionnaire with multiple choice questions with questions given to respondents as many as 10 questions. The scoring system assigns a score of 3 for correct answers, 2 for close answers, and 1 for incorrect answers. So that the total score obtained if the respondent's answer is correct is 30.

Table 1. Overview of Dietary Knowledge

Variabel	SMAN 06	
Knowledge	f	%
Good	7	35
Enough	12	60
Less	1	5
Amount	20	100

Based on the table above, knowledge about diet in anemic adolescents at SMAN 06 anemic adolescents with sufficient category as many as 12 people (60%).

2. Overview of Knowledge about Diet

Dietary intake is assessed using the Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ). A diet that is categorized as good if the amount of food consumed by individuals is more than 80% of total needs, and the types of food consumed by respondents are more than 5 types, and the frequency of consumption of staple foods 3 times a day. Whereas someone is said to have a poor diet if the amount of food consumed by individuals is less than 80% of total needs, and the types of food consumed by respondents are less than 5 types, and the frequency of consumption of staple foods is less than 3 times a day.

Table 2. Overview of the Diet of Anemic Adolescents of SMAN 6 Garut

Variable	SMAN 6		SMAN 10	
Pola Makan	f	%	f	%
Good	9	45	11	55
Not Good	11	55	9	45
Amout	20	100	20	100

Based on the table above, the description of the diet of anemic adolescents at SMAN 06 respondents who had an unfavorable diet was 9 people (45%).

DISCUSSION

Based on the data obtained and analyzed univariate and descriptive test. Descriptive analysis is an analysis carried out to assess the characteristics of data including mean, median, mode, minimum, maximum, and standard deviation which are then presented in tabular form, then a discussion is carried out by comparing with research that previous researchers have conducted similar studies, who have the same variables.

1. Knowledge about Nutrition

Much of knowledge stems from perception, which arises after individuals have encountered specific objects. This perception is facilitated through the five human senses: sight, hearing, smell, taste, and touch. Primarily, human knowledge is acquired through sight and hearing(Nita, 2018).

Based on the results obtained knowledge about diet in adolescents with anemia at SMAN 06 who have knowledge in the sufficient category as many as 12 people (60%). The findings of this study suggest that respondents from SMAN 06 Garut have sufficient knowledge. Respondents who have sufficient knowledge will have a sufficient concept of nutrition science as well. This is due to the lack of information about nutrition obtained from schools and the surrounding environment. A comprehensive understanding of nutrition in food plays a pivotal role in its utilization and selection of food ingredients properly, the higher the nutritional knowledge, the more the type and quality of the food chosen is consumed.

The same research on the description of adolescent knowledge conducted by (Juariah & Purwaningsih, 2022), obtained the results indicate the average value, standard deviation (SD), mode and median. Based on the results of descriptive statistical calculations for knowledge data, the lowest value is 10 and the highest value is 17, mean 13.78 and standard deviation 1.80.

Likewise, the research of (Wulandari & Prihatin, 2022), As per the study findings, it was observed that a higher proportion of respondents exhibited lower levels of knowledge, namely 44 people (53.7%), while the level of knowledge was only 38 people (46.3%). Most respondents' knowledge is lacking, this is due to the lack of information about nutrition obtained from schools and the surrounding environment. From the list of questions given, most respondents answered incorrectly on question 10, namely foods that are sources of protein are, which amounted to 63 people (76.8%).

2. Knowledge about Diet

Based on the results obtained, the picture of the diet of anemic adolescents at SMAN 06 respondents who had an unfavorable diet was 9 people (45%). The description of the diet of anemic adolescents at SMAN 6 seen based on the amount, type and frequency obtained the results of adolescents who consume food ≥ 80% of the needs of 16 people (80%), respondents who consume food types ≥ 5x as many as 15 people (75%) and adolescents who have a frequency of eating 3x as many as 13 people (65%).

Teenagers usually have a diet that tends to be irregular or poor. Whereas it is known that maintaining a healthy and consistent diet contributes to a more robust physical condition, enabling the body to perform its activities effectively. Conversely, if the body lacks certain nutrients, its endurance will also decrease. Adolescents are introduced to modern foods and drinks so that sooner or later it can shift local/traditional foods. Teenagers currently consume a lot of advertised foods and these foods contain high salt, sugar, fat, calories. One of the modern foods consumed by teenagers is fast food. Fast food is a type of food that is easily packaged, served, and practical. Types of fast food include junk foods (Kusnadi, 2018).

The types of food consumed by respondents at SMAN 06 in carbohydrate sources were white rice (100%), potatoes (100%), biscuits (95%), dry noodles (90%) and wet noodles (90%). The most consumed animal protein sources were chicken eggs (100%), chicken (100%), and tilapia (80%). The most consumed vegetable protein sources were tempeh (95%) and tofu (95%). The vegetables most consumed by respondents were spinach (80%) and kale (80%). The fruits most often consumed by respondents were bananas (90%) and sweet oranges (80%). As for the types of fast food / junk food most consumed by respondents are packaged drinks (95%), batagor (95%), fried foods (95%), packaged snacks (85%) and meatballs (90%).

The types of food consumed by respondents at SMAN 6 in carbohydrate sources were white rice (100%), potatoes (95%), biscuits (90%), white bread (90%), dry noodles (95%) and wet noodles (90%). The most consumed animal protein sources were tilapia (90%), chicken eggs (95%), chicken (95%), and chicken liver (85%). The most consumed vegetable protein sources were tempeh (100%), tofu (100%), and green beans (80%). The most common vegetables consumed by respondents were long beans (80%), mustard greens (80%), spinach (100%), kale (90%) and carrots (85%). Fruits most often consumed by respondents were bananas (95%), papaya (90%), sweet orange (95%) and mango (80%). As for the types of fast food / junk food most consumed by respondents are packaged drinks (95%), batagor (95%), fried foods (85%), chicken noodles (85%), packaged snacks (80%) and meatballs (90%).

Research conducted by (Savitri, 2023), the overall good diet at Adventist Junior High School is 44.4% and the bad diet is 55.5% so that more education is needed about a good diet for adolescents at Adventist Junior High School Lubuk Pakam. With in-depth education on how to create a good diet, it is hoped that adolescents and parents can practice it together at home and in daily activities, so that a good diet and optimal nutritional status can be realized. Research

conducted by (Tahlil, 2018) from 100 samples of adolescents in Purwosari Village, Laweyan Subdistrict, the data reveals that 37% of adolescents fall into the category of having a good diet and the poor diet category is 63% so that it can be concluded that the high adolescent diet is poor at 63%.

Research conducted by (Tursunaliyevna, 2023) on the diet of adolescent girls at SMAN 51 East Jakarta in 2015 most of the respondents' meal frequency was good, namely (62.7%) and respondents with a meal frequency that was still lacking as much as (37.3%). Most of the respondents' food intake was less, namely (59.7%) because students felt that their intake was sufficient by snacks at school and some students thought they were afraid of gaining weight if they ate the recommended amount. Then the respondents' food intake in the moderate category amounted to (34.3%) and the good one was (6%) only. Most types of food for high school students have a good type of food, namely (71.6%) and those with a less category are (28,4 %).

CONCLUSIONS AND RECOMMENDATIONS

Based on the research findings and discussion, it can be concluded that the Overview of Knowledge about Nutrition in Adolescents with Iron Deficiency Anemia in Smun 6 Garut Regency mostly has sufficient knowledge and the majority have an unfavorable diet. Researchers' suggestions, students are expected to pay more attention to healthy eating patterns so that their needs and nutrition can be met and not easily influenced by advertisements on social media because adolescence requires balanced nutrition for growth.

FURTHER STUDY

This research still has limitations, so it is necessary to carry out further research related to the topic Understanding of nutritional practices and dietary patterns among adolescents experiencing iron deficiency anemia in order to perfect this research and increase insight for readers.

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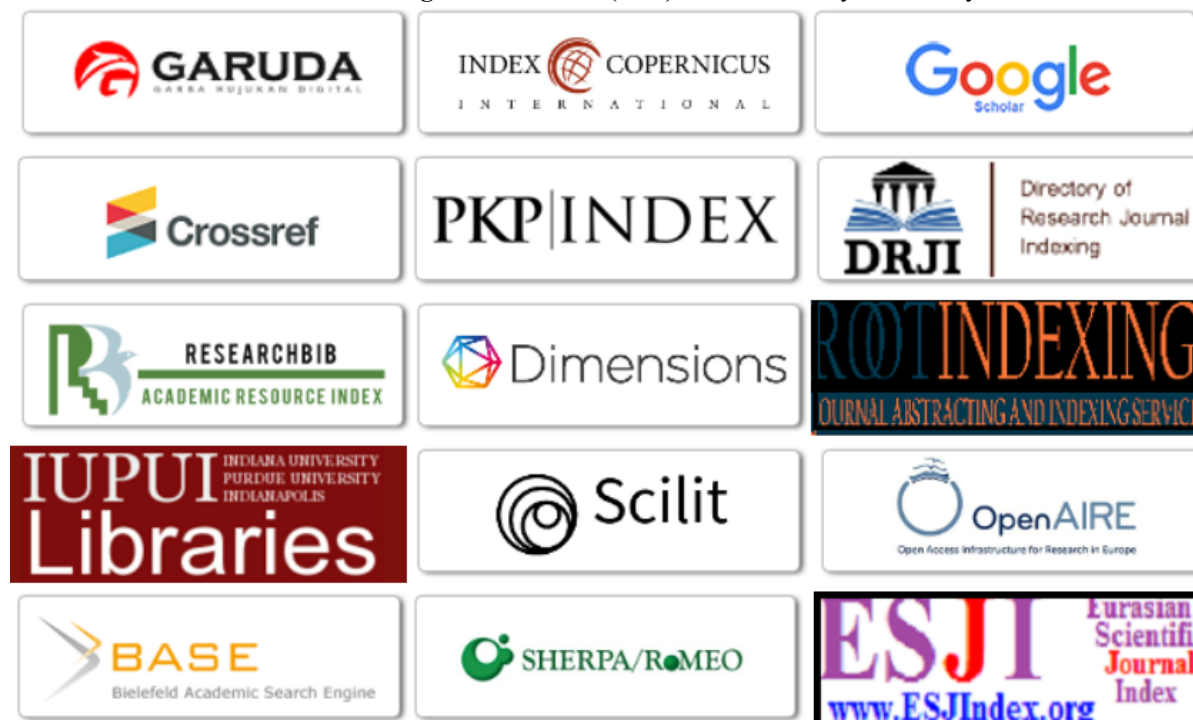Editor in Chief
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