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THE EFFECTIVENESS OF IRON TABLETS, DATE JUICE, AND HONEY ON INCREASING HEMOGLOBIN LEVELS IN ANEMIC ADOLESCENTS AT MTS RAUDHATUL ULUM SAKATIGA IN 2025

Abela Mayunita[1], Riski[2]
[1,2] Abdi Nusantara College of Health Sciences Undergraduate Midwifery Program
kiriski13122002@gmail.com

Abstrak

Purpose of Writing: To determine the effectiveness of administering a combination of Fe tablets, date juice, and honey in increasing hemoglobin levels in female adolescents with anemia at MTs Raudhatul Ulum Sakatiga in 2025. Research Methods: This study used a quasi-experimental design with a pretest-posttest approach without a control group. A sample of 14 anemic female adolescents was selected using a total sampling technique. The intervention was given in the form of a combination of Fe tablets, date juice (250 ml), and honey (15 ml) every day for 4 days. Hemoglobin levels were measured before and after the intervention using a digital Hb device. Data were analyzed using a paired t-test to determine significant changes in hemoglobin levels.Re search Results: The results showed an increase in hemoglobin levels in adolescent girls after intervention with a combination of Fe tablets, date juice, and honey. The average increase in hemoglobin levels was ≥ 1 g/dL with a significance value of $p < 0.05$, indicating that the intervention was effective. Most respondents experienced an increase from mild anemia to normal, and showed increased energy and enthusiasm for learning.Conclu sions and Recommendations: The combination of iron tablets, date juice, and honey has been shown to be effective in increasing hemoglobin levels in adolescent girls with anemia. This intervention also improves compliance due to its preferred taste. Schools, community health centers, and families are recommended to consider this combination therapy as a more natural and acceptable alternative treatment for anemia among adolescents.

***Keywords**: Anemia, Iron Tablets, Date Juice, Honey, Hemoglobin, Adolescent Girls*

✉Corresponding author :
Address : Abdi Nusantara College of Health Sciences Undergraduate Midwifery Program
Email : kiriski13122002 @gmail.com

INTRODUCTION

A. Background

Adolescence is a significant transitional stage from childhood to adulthood. During this phase, individuals experience physical, emotional, and social transformations, as they begin to explore their identity, develop their personality, and establish future life goals.

Anemia remains a major public health challenge worldwide, particularly in low- and middle-income countries. This condition can have serious consequences, such as causing fatigue, hindering cognitive and motor development in children, and increasing the risk of maternal and infant mortality.

Global Anemia Data (WHO, 2023) Women aged 15-49 years: 30.7% suffer from anemia, pregnant women: 35.5% suffer from anemia and children aged 6-59 months 39.8% Anemia remains a significant global public health problem, especially in low- and middle-income countries. This condition can cause fatigue, impaired cognitive and motor development in children, and increase the risk of maternal and infant mortality. Although the latest specific data on the prevalence of anemia in Indonesia is not yet available, anemia remains a major concern in efforts to improve national nutrition. The Indonesian Ministry of Health emphasizes the importance of specific and sensitive nutrition interventions to address this problem. WHO has set a global target to reduce the prevalence of anemia in women of reproductive age by 50% by 2030. However, current trends indicate that the world is not yet on track to achieve this target.

Common Causes of Anemia Iron deficiency is the leading cause of anemia globally. Deficiencies of other nutrients such as vitamin B12 and folic acid. Chronic diseases such as malaria and worm infections. Blood loss due to heavy menstruation or other bleeding.

Prevention and Handling Efforts Iron supplementation Especially for pregnant women and children. Food fortification: Adding iron to staple foods. Improving dietary patterns Consumption of iron-rich foods such as red meat, green vegetables, and nuts. Control of infections Such as malaria and worm infections. Anemia remains a significant global public health problem, especially in low- and middle-income countries. This condition can cause fatigue, impaired cognitive and motor development in children, and increase the risk of maternal and infant mortality. Anemia Data in Indonesia Although the latest specific data on the prevalence of anemia in Indonesia is not yet available, anemia remains a major concern in efforts to improve national nutrition. The Indonesian Ministry of Health emphasizes the importance of specific and sensitive nutrition interventions to address this problem.

The World Health Organization (WHO) has set a global target of reducing the incidence of anemia in women of childbearing age by 50% by 2030. However, current developments indicate that the world is still not on track to achieve this goal.

The impact of anemia on adolescents is a serious public health problem, especially in developing countries like Indonesia. Adolescence is a crucial period in the life cycle because it occurs with accelerated physical growth, cognitive development, and psychosocial changes that require optimal nutritional intake, including iron. When iron requirements are not met, the risk of anemia increases. Anemia in adolescents can cause various negative impacts, both physically, mentally, and socially. Physically, adolescents with anemia often experience symptoms such as fatigue, weakness, paleness, dizziness, and shortness of breath, which directly reduce their capacity for daily activities. In the long term, anemia can also inhibit growth and development, including height and muscle mass.

The cognitive impact is also significant, as oxygen deprivation due to low hemoglobin levels can impair brain function, ultimately leading to decreased concentration, memory, and academic achievement. This is particularly detrimental because during adolescence, learning ability and academic achievement

significantly determine future educational and career prospects. Furthermore, anemia can also weaken the immune system, making adolescents more susceptible to infections and other illnesses.

In adolescent girls, anemia can have more severe long-term impacts and requires special attention. If not treated early, anemia can persist into adulthood and increase the risk of complications during pregnancy, such as premature birth, low birth weight, and an increased risk of maternal death. Therefore, preventing and treating anemia in adolescents is crucial to supporting a healthy, intelligent, and productive generation (WHO, 2023; Indonesian Ministry of Health, 2023).

B. Research Methods

The novelty in this research is related to the effectiveness of giving Fe tablets, date juice and honey to increase hemoglobin levels in anemic teenagers in junior high school. This can be seen from several references in research, including.

C. Problem Formulation

Anemia remains a common health problem among adolescent girls, particularly in junior high schools (MTs). Adolescent girls are more susceptible to anemia due to their monthly menstrual cycle, while their daily iron intake is often insufficient. At one of the junior high schools where this research was conducted, several female students experienced symptoms such as fatigue, drowsiness in class, a pale appearance, and even fainting during physical activities. After hemoglobin levels were checked by school health workers, it was discovered that most of them had mild to moderate anemia. To date, anemia prevention efforts in schools have been carried out through the distribution of iron tablets. However, many female students do not consume them regularly due to complaints of unpleasant taste and side effects such as nausea and constipation. This reduces the effectiveness of the iron tablets. Therefore, alternatives or combinations are needed that can increase the effectiveness of anemia therapy. Dates and honey are known as natural ingredients containing iron, vitamins, and essential minerals that can help increase hemoglobin levels. Their sweet taste, favored by adolescents, can also increase compliance. Therefore, researchers are interested in studying the combination of Fe tablets, date juice, and honey as an intervention in increasing hemoglobin levels in anemic adolescents at MTs.

METHOD

A. Type and Design of research

According to Sugiono (2019), the method applied in this research aims to obtain structured and in-depth data in accordance with the study objectives to investigate a problem formulation, one of which is this research is a type of quantitative research.

This research is a quantitative type with a quasi-experimental design (quasi-experimental design) using a two-group pretest and posttest design without a control group which aims to see the comparison of the effectiveness of giving a combination of Fe tablets, date juice and honey on increasing hemoglobin in anemic female adolescents at MTS Raudhatul Ulum Sakatiga in 2025. There are two groups in this study, namely the intervention group giving a combination of Fe tablets, date juice and honey on increasing hemoglobin levels in anemic female adolescents.

B. Place/Location and time of research

This research was conducted at the MTS Pondok Pesantren Raudathul Ulum Sakatiga in June 2025.

C.Variable

1. Increased hemoglobin levels (dependent variable): in this variable, hemoglobin levels will be measured using easy touch GCHb, the measurement results are recorded on the observation sheet in numerical figures. How to measure Hb levels before intervention Hb levels after intervention The difference in Hb levels in the research scale is a ratio scale.
2. Date and Honey Juice Therapy (independent variable): providing a drink made from a mixture of blended dates and honey to adolescent girls with anemia for 4 days, once a day for 4 days.
3. Administration of iron tablets (independent variable): administration

of iron tablets containing 60mg of iron and 400mcg of folic acid to adolescent girls with anemia for 4 days, once a day.

D. Data collection instruments

Research instruments are tools used by researchers to collect data, in order to facilitate the research process and obtain optimal and complete results (Arikunto 2010). The instruments used in this research :

1. The observation shet used to obatain respondent data, on the observation sheet consists of data on age, class, initial Hb measurement results before the intervention was given a combination of fe tablets, date juice and honey.
2. Slow The research instruments in this study include biological measuring instruments, observation sheets, and other data collection devices used to observe and measure changes in hemoglobin levels as well as side effects or clinical symptoms.

No	Name	Hb before	time	Date juice (✓/✗)	Fe tablets (✓/✗)	initials	Side effects	Hb sesudah
1			07.00	✔	✓			
2			07.00	✔	✓			

RESULT

No	Hb category (g/dL)	Anemia Description	Frequency (F)	Percentage (%)
1	≥ 12,0	Not anemic	0	0%
2	11,0 - 11,9	Mild anemia	21	80,0%
3	8,0 – 11,0	Moderate anemia	7	20,0%
4	<8,0	Severe anemia	0	0,0%
amount			28	100%

Based on the research results in table 5.1, it is known that the majority of adolescents are anemic. The data above is based on a sample of 28 female students at MTS Raudathul Ullum. The classification of Hb levels for the most female adolescents who experience anemia is mild anemia, as many as 21 people (80.0%).

No	Nutritional status category (TB/BB)	Number of Anemic Adolescents	Percentage (%)
1	Thin	10	35,7%
2	Normal	13	46,4%
3	Fat / Overweight	5	17,9%
amount		28	100%

Based on the research results in Table 5.4, it is known that the TB/BB classification uses WHO or Ministry of Health standards (BMI or anthropometric curve). Most adolescent girls who experience anemia are in the category with the highest number of 13 people with normal nutritional status (46.4%), followed by the category with the highest number of 13 people with thin nutritional status (35.7%).

DISCUSSION

A. Discussion of research results

The frequency distribution of hemoglobin (Hb) levels in female adolescents at MTs Raudhatul Ulum shows that most of them have below-normal Hb levels. A total of 28 people (100%) experienced anemia, with 21 people (80.0%) having low Hb levels, while those in the normal Hb category, only a small proportion, namely 7 people (20.0%), showed Hb levels approaching optimal.

The problem of low hemoglobin levels in adolescents at Raudhatul Ulum Islamic Junior High School (MTs) Sakatiga is a significant health issue. This condition can affect students' concentration, endurance, and productivity. These data indicate the need for better nutritional interventions and regular education regarding the importance of iron intake and a balanced diet among adolescents at Raudhatul Ulum Islamic Junior High School (MTs) Sakatiga.

The Effectiveness of Increasing Hb Levels in Female Adolescents at MTs Raudhatul Ulum Sakatiga After Consuming Fe Tablets and Date Juice.

The results of the study obtained a p-value of 0.000 ($p \leq 0.05$) where the p-value is smaller than 0.05, which means that statistically there is effectiveness in providing Fe tablets and date juice on increasing Hb levels in female adolescents at MTs Raudhatul Ulum Sakatiga in 2025.

Providing iron tablets and date juice has been shown to play a significant role in increasing hemoglobin (Hb) levels in adolescent girls. The combination of iron supplements and the natural nutritional content of date juice provides the body with the nutrients it needs for optimal red blood cell formation. The involvement of Islamic boarding schools (pesantren), parents, and health workers is essential to ensure continued consumption of iron tablets and a nutritious diet to effectively prevent anemia in adolescent girls (Indriyani, 2024).

The results of the study showed a p value of 0.000 ($p \leq 0.05$), which means there is a significant influence between the age of adolescent girls and the effectiveness of increasing Hb levels after consuming Fe tablets and date juice.

Adolescence, especially in the early to middle stages (12–17 years), is a period of growth that requires higher iron intake. During this period, the body's need for iron increases to support organ development, physical activity, and the onset of the menstrual cycle (Nugraha, 2024).

This study shows a p-value of 0.000 ($p \leq 0.05$), which indicates that there is a significant influence between compliance with consumption of Fe tablets and date juice with the effectiveness of increasing hemoglobin (Hb) levels in adolescent girls.

High compliance with routine and appropriate dosages of iron tablets and date juice is crucial for increasing Hb levels. Adolescents who are consistent in taking iron supplements tend to show faster and more significant increases in Hb than those who are less consistent (Anderson, 2021).

CONCLUSION

The frequency distribution of hemoglobin (Hb) levels in adolescent girls at MTs Raudhatul Ullum Sakatiga in 2025 showed that most respondents had below-normal Hb levels before the intervention. After administering iron tablets, date juice, and honey, there was a significant 85.7% increase in Hb levels in most adolescents.

The results of the study showed that the p value was 0.000 ($p \leq 0.05$) which means that there was a significant effect of giving Fe tablets, date juice, and honey on increasing hemoglobin (Hb) levels by 85.7% in female adolescents at MTs Raudhatul Ullum Sakatiga.

Factors such as age, blood pressure, and adherence to iron tablets, date juice, and honey also influence the effectiveness of increasing Hb levels. Adolescents with active growth, normal blood pressure, and high adherence showed more optimal Hb increases.

Providing a combination of iron tablets, date juice, and honey has proven to be an effective and natural approach to treating anemia in adolescent girls, especially in Islamic boarding school environments that have their own challenges in terms of health monitoring and education.

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