



Healthy and Happy Adolescent Girls Movement: Free from Anemia and Preventing Stunting at Darul Falah Putri Marabahan Islamic Boarding School

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ABSTRACT

Adolescent females are at high risk of anemia due to irregular menstrual cycles and inadequate dietary intake, leading to fatigue, reduced cognitive performance, and impaired growth. Boarding school students may have limited access to routine health assessments. The Healthy and Happy Adolescent Girls program was implemented at Darul Falah Putri Boarding School to prevent anemia through health education and comprehensive examinations, including physical assessments, blood pressure measurement, and hemoglobin testing. The intervention aimed not only to evaluate nutritional and anemia status but also to increase awareness of warning signs. The Pre- and post-test analysis showed that 86.9% of participants improved their knowledge about anemia

INTRODUCTION

Anemia remains a significant global public health concern, particularly in developing countries, where it affects approximately 30% of the world's population. The condition most frequently occurs in pregnant women and adolescent females. Clinically, anemia is defined as a hemoglobin (Hb) concentration below the normal threshold (<12 g/dL), which leads to insufficient oxygen delivery to brain and muscle tissues. This physiological impairment is commonly characterized by symptoms such as reduced concentration and fatigue during daily activities (Elvira & Rizqiya, 2022).

Adolescents are especially vulnerable to anemia due to rapid physical growth, developmental changes, and lifestyle or dietary habits. In females, the menstrual cycle represents a major contributing factor, with abnormal menstrual patterns, such as menorrhagia, which further contribute to hemoglobin depletion. Furthermore, restrictive eating behaviors driven by the pursuit of an ideal body image frequently result in inadequate nutrient intake. The adverse consequences of anemia in adolescent girls are multifaceted, including impaired cognitive function, delayed growth and development, compromised immune competence, and an elevated risk of delivering low-birth-weight (LBW) or stunted infants in adulthood (Triana & Saputri, 2024).

Female students in Islamic boarding schools seldom participate in routine health assessments due to their boarding residence. To address this gap, the Academic Program's Community Service Team initiated the Healthy and Happy Adolescent Girls Movement: Free from Anemia and Preventing Stunting at Darul Falah Putri Marabahan Islamic Boarding School. This initiative sought to evaluate students' health status and deliver targeted health education on anemia, with the dual aim of enhancing early recognition of warning signs and fostering long-term health awareness.

METHODOLOGY

In this activity, the implemented methods included delivering educational material on anemia and conducting health examinations for female students, which comprised measuring height, weight, and calculating Body Mass Index (BMI); assessing hemoglobin levels; and measuring blood pressure (mmHg). In addition, free medications were provided. The activities were documented in the form of photographs and videos. The target participants were 130 female students from Darul Falah Putri Marabahan Islamic Boarding School. The activity took place at the mosque (mushola) of Darul Falah Marabahan Islamic Boarding School.

RESULTS AND DISCUSSION

The activities included delivering educational material on anemia, conducting interviews to collect respondents' demographic characteristics and medical history, and performing health examinations comprising hemoglobin (Hb) measurement, blood pressure assessment, Body Mass Index (BMI) calculation, and mid-upper arm circumference (MUAC) measurement. Anemia education sessions for the female students were supported by the use of PowerPoint presentations. Following the presentation, participants were given the opportunity to engage in discussions and ask questions regarding any aspects of the material that were unclear.

In addition, pre-test and post-test assessments were conducted to evaluate changes in participants' knowledge before and after the educational sessions on anemia. The results of the pre-test and post-test are presented as follows:

Table 1. Knowledge Level of Program Participants

No.	Knowledge change	Frequency	Percentage
1	Increased	113	86.9%
2	Unchanged	17	13.1%
Total	—	130	100%

Based on Table 1, the majority of female student participants demonstrated an increase in knowledge regarding anemia (86.9%). The results of the health examinations for the students at Darul Falah Marabahan Islamic Boarding School are presented in Table 2.

Table 2. Distribution and Frequency of Nutritional Status (BMI)

No.	Nutritional status	Frequency	Percentage
1	Underweight	1	0.8%
2	Normal	110	84.6%
3	Overweight	12	9.2%
4	Obese	7	5.4%
Total	—	130	100%

Table 2 shows that most participants had a good (normal) nutritional status. Adolescent girls often experience nutritional problems due to inadequate nutrient intake (Ernawati et al., 2023). Malnutrition can lead to severe malnutrition, Chronic Energy Deficiency (CED), protein-energy deficiency, and anemia (Muthmainnah et al., 2021).

Table 3. Distribution and Frequency of Mid-Upper Arm Circumference (MUAC) Measurements

No.	Category	Frequency	Percentage
1	Normal	115	88.5%
2	Abnormal	15	11.5%
Total		130	100%

The majority of participants (88.5%) had a normal MUAC (≥ 23.5 cm), while 11.5% were classified as having CED (< 23.5 cm). MUAC reflects the condition of muscle tissue and subcutaneous fat (Kristiana et al., 2023). In women of reproductive age, MUAC measurements can be used to identify groups at risk of CED. CED is also associated with anemia, as women with CED tend to have an iron deficiency, which may contribute to anemia (Muthmainnah et al., 2021).

Table 4. Distribution and Frequency of Blood Pressure Measurements

No.	Category	Frequency	Percentage
1	Normal	121	93.1%
2	Pre-hypertension	7	5.4%
3	Stage 1 hypertension	1	0.8%
4	Low blood pressure	1	0.8%
Total		130	100%

Blood pressure was measured using a Blood Pressure Monitor (Code Faal-8). Measurements were conducted in a comfortable setting with participants seated. The results show that most participants (93.1%) had normal blood pressure. Hypertension can be caused by factors such as obesity, genetics, high sodium diet, age, low physical activity, and excessive alcohol consumption (Isfaizah & Widyaningsih, 2021).

Table 5. Distribution and Frequency of Hemoglobin (Hb) Levels

No.	Category	Frequency	Percentage
1	Normal	96	73.8%
2	Abnormal (Anemia)	34	26.2%
Total		130	100%

Based on the data, most participants had normal hemoglobin levels (73.8%), while 26.2% were classified as anemic. Anemia is defined as Hb < 12 g/dl, while normal is Hb ≥ 12 g/dl. In general, anemia is caused by insufficient iron intake, which leads to the body's inability to produce healthy red blood cells optimally. Iron metabolism is also influenced by other nutrients such as protein and vitamins (Alfiah & Nunung, 2023).

From this community service activity, it can be concluded that most female students at Pondok Pesantren Darul Falah Marabahan have good nutritional status. However, some were found to have overnutrition, obesity, anemia, CED, and pre-hypertension. Therefore, adopting a healthy lifestyle is essential, including consuming nutritious foods, increasing the intake of fruits and green vegetables, engaging in regular physical activity, and routinely taking Iron and folic acid tablets (IFA) as an effort to prevent anemia.



Figure 1. Anemia Education Session



Figure 2. Measurement of Height, Weight, and MUAC



Figure 3. Blood Pressure Measurement



Figure 4. Hemoglobin Level Examination



Figure 5. Health Consultation with the Community Service Team Doctor



Figure 6. Distribution of Medicin

CONCLUSION AND RECOMMENDATION

The health education and examination activities were successfully implemented in accordance with the plan developed by the community service team. This program represented an integrated community service initiative between lecturers and students, conducted by the Undergraduate Program in Medicine for its partner village. The female students actively participated in the activities, and support from the school leadership and teaching staff facilitated the administrative approval process. The event received a highly positive response, as evidenced by the large number of participants who attended the health examinations.

The results of this community service program show that most female students at Pondok Pesantren Darul Falah Marabahan had a good nutritional status, normal MUAC, normal blood pressure, and normal hemoglobin levels. However, a number of students were identified with overweight, obesity, anemia, chronic energy deficiency (CED), and pre-hypertension.

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