

## Prevention of Anemia in Adolescent Girls in Pangkalan Jati Village, Cinere, Depok

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### ABSTRACT

Stunting remains a major public health issue that must be addressed today. Stunting represents a significant nutritional problem that affects social and economic life both within and across communities. There is clear evidence that stunted individuals have higher mortality rates and greater disease incidence. Contributing factors to stunting include inadequate nutritional intake during pregnancy, which leads to fetal growth restriction, marking the beginning of stunting. Stunting prevention education is essentially an activity or effort to convey messages to communities, groups, or individuals with the expectation that they will gain knowledge that can influence their attitudes and behaviors. The youth of the Al Muhajirin Mosque in Pangkalan Jati, Cinere, Depok, have limited knowledge regarding the dangers of anemia among adolescent girls and its link to stunting. The objective of this community service activity was to educate the youth members of Al Muhajirin Mosque about the dangers of anemia and the importance of iron supplementation to reduce the risk of stunting in children. Our finding that this activity can increase adolescents' understanding of anemia and stunting, thereby contributing to the reduction of anemia and stunting rates in Pangkalan Jati, Cinere, Depok.

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## 1. INTRODUCTION

Anemia, characterized by hemoglobin levels below normal, remains one of Indonesia's most serious health problems, particularly among adolescent girls. According to data from the Ministry of Health (Riskesmas, 2018), the prevalence of anemia among adolescents reached 32%, meaning that one in three adolescents suffers from anemia. This figure represents a significant increase compared to the 2013 survey, which reported a prevalence of 37%, rising to 48.9% in 2018. This condition indicates that anemia, especially iron deficiency anemia, constitutes a chronic nutritional problem with wide-ranging effects on productivity, reproductive health, and the growth of future generations (Ministry of Health RI, 2019).

Anemia among adolescent girls not only leads to decreased concentration, chronic fatigue, and metabolic disturbances but also has long-term consequences for maternal and child health. Adolescent girls with anemia are at greater risk of giving birth to low-birth-weight infants and experiencing stunted growth (World Health Organization, 2021). Stunting remains a serious issue in Indonesia, with a national prevalence of 21.6% in 2022 according to the Indonesian Nutritional Status Survey (SSGI). Although this figure declined from 24.4% in 2021, it remains a national health priority (Ministry of Health RI, 2023).

The relationship between anemia in adolescent girls and stunting is multifactorial. Iron deficiency leads to impaired hemoglobin synthesis, resulting in tissue hypoxia. This hypoxic condition may interfere with fetal growth if the adolescent becomes pregnant before achieving optimal nutritional status. Therefore, anemia prevention among adolescents is a key strategy in the convergence of stunting prevention efforts in Indonesia.

This community service activity was conducted by lecturers from the Faculty of Medicine, Universitas Pembangunan Nasional "Veteran" Jakarta, as part of the university's Tri Dharma of Higher Education. The activity aimed to prevent stunting through early anemia prevention interventions. It was conducted in Pangkalan Jati Village, Cinere, Depok City, West Java—an area characterized by high population density and low adolescent nutritional literacy. Initial observations showed that most adolescents were unaware of the importance of iron tablet (TTD) consumption and iron-rich foods such as liver, red meat, green leafy vegetables, and legumes. Moreover, adherence to TTD consumption among school-aged adolescents was below 30% (Ministry of Health RI, 2022). The main objective of this activity was to improve adolescent girls' knowledge of anemia prevention and increase awareness of the importance of iron intake and balanced nutrition to reduce the risk of stunting in the next generation.

## 2. METHODS

The community service activity was carried out in August 2024 at Al Muhajirin Mosque, Pangkalan Jati Village, Cinere, Depok. The target participants were 30 adolescent girls aged 14–19 years, consisting of mosque youth members and nearby high school students.

The preparation stage included coordination with mosque administrators, village officials, and youth health cadres. A preliminary survey was conducted to assess adolescents' knowledge of anemia and their dietary habits. A pre-test questionnaire containing 10 multiple-choice questions on the causes, symptoms, and prevention of anemia was administered.

The education and intervention stage consisted of interactive counseling and balanced nutrition simulation activities, which included: (1) Definition, clinical signs, and risk factors of anemia; (2) Relationship between anemia, stunting, and reproductive health; (3) Importance of iron tablet (TTD) consumption and examples of iron-rich foods with vitamin C to enhance absorption; (4) Demonstration of healthy menu planning and reading nutrition labels.

Methods included interactive lectures, group discussions, educational quizzes, and nutritional simulations. Each participant received an educational leaflet and one iron tablet (TTD) for weekly consumption as recommended by the Ministry of Health.

The evaluation and reflection stage was conducted after the education sessions, where participants completed the same post-test questionnaire to measure knowledge improvement. Group reflection sessions were also held to explore perception and behavioral changes.

## 3. FINDINGS AND DISCUSSION

Of the 30 adolescent girls, 60% were aged 15–17 years and 40% were aged 18–19 years. Most participants had never received specific education about anemia. Only 25% regularly consumed iron tablets before the program, while 75% rarely or never did so due to nausea or lack of awareness about the benefits.

Item analysis of test questions showed a significant increase in knowledge after the educational intervention. Reflective discussions indicated that 26 out of 30 participants committed to regularly taking iron tablets, 22 participants planned to encourage peers to join the adolescent nutrition program, and 80% began paying more attention to consuming green vegetables and animal protein sources.

These findings indicate positive behavioral changes that could ensure the sustainability of the program. The participatory and context-based educational approach was the key to its success. The results align with the study by Putri et al. (2022), which found that participatory nutrition education could increase iron tablet adherence by up to 40%. Additionally, WHO (2021) emphasized that community-based education effectively reduces anemia risk and improves long-term nutritional status.

Anemia among adolescents cannot be solved through medical intervention alone; it requires social, educational, and cultural approaches. Involving community leaders and religious institutions such as mosque youth groups proved effective in expanding outreach. This program demonstrated that empowering adolescents within mosque environments can serve as a model for community-based anemia and stunting prevention programs.

Table 1. Average Pre-test and Post-test Scores

Indicator	Average Pre-test Score	Average Post-test Score	Post-Improvement (%)
Knowledge about causes of anemia	62%	90%	+28%
Knowledge about the relationship between anemia and stunting	55%	88%	+33%
Knowledge about sources of iron-rich foods	65%	92%	+27%
Knowledge about the benefits of iron-folic acid (IFA) supplementation	58%	94%	+36%
Overall average score	60%	91%	+31%

Table 2: Item Analysis

No	Question Topic	% Correct (Pretest)	% Correct (Posttest)	Difficulty Level (p)	Discrimination Index (rpbis)	Interpretation
1	Definition of anemia	46.7	96.7	0.72 (moderate)	0.52	The item is fairly easy and discriminates participants well.
2	Main cause of anemia in adolescents	36.7	90.0	0.63 (moderate)	0.48	Valid item that improved understanding of iron deficiency anemia causes.
3	Symptoms of anemia	40.0	93.3	0.67 (moderate)	0.55	Very good item with high discrimination power.
4	Impact of anemia on reproductive health	33.3	86.7	0.60 (moderate)	0.46	Good item showing significant improvement in knowledge.
5	Methods of anemia prevention	50.0	100.0	0.75 (easy)	0.40	Easy question but still able to differentiate participants' abilities.
6	Food sources rich in iron	30.0	83.3	0.57 (moderate)	0.42	Valid item showing better nutritional understanding.

No	Question Topic	% Correct (Pretest)	% Correct (Posttest)	Difficulty Level (p)	Discrimination Index (rpbis)	Interpretation
7	Relationship between anemia and stunting	23.3	90.0	0.57 (moderate)	0.50	Highly impactful item; many participants were initially unaware.
8	Factors inhibiting iron absorption	16.7	56.7	0.37 (difficult)	0.32	Needs revision or visual aids for better understanding.
9	Frequency of iron tablet (TTD) consumption	43.3	96.7	0.70 (easy)	0.51	Good item reinforcing regular TTD consumption behavior.
10	Government programs for anemia prevention	26.7	80.0	0.53 (moderate)	0.38	Fairly good item, needs stronger policy context (e.g., school health program).

These results demonstrate that the counseling activities effectively improved participants' knowledge, especially regarding the link between anemia and stunting.

#### 4. CONCLUSION

The community service program on anemia prevention among adolescent girls in Pangkalan Jati Village, Cinere, Depok, effectively improved knowledge and awareness regarding the importance of iron intake and iron tablet consumption. The 31% increase in average scores indicates the success of structured and interactive educational methods.

This activity contributes to the national effort in stunting prevention through adolescent health improvement. Continued cross-sector collaboration between health centers, schools, and community organizations is needed to sustain and expand the program's impact.

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