

Giving dates to young women for the prevention of anemia

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ABSTRACT

Anemia prevalence among adolescent girls is significantly higher compared to boys, primarily due to menstruation and increased iron requirements during growth. This condition negatively affects immunity, concentration, academic performance, physical fitness, and productivity, and poses long-term health risks, particularly during future pregnancies. In Bone Regency, adolescent anemia rates remain high despite the government's iron supplementation program. This community service program aimed to implement research findings on using dates (*Phoenix dactylifera*) to increase hemoglobin levels and address anemia among adolescent girls. The activity involved health education on anemia prevention and the daily provision of 100 grams of dates (7–8 pieces) for seven consecutive days during menstruation. The program was conducted through observation, counseling sessions, and hemoglobin monitoring before and after the intervention. The rationale for using dates is based on their high iron and nutrient content, which supports hemoglobin synthesis naturally. The targeted participants were adolescent girls from the community surrounding Lapatau Stadium, Bone Regency. Expected outcomes included increased knowledge regarding anemia prevention, improvement in hemoglobin levels, and the promotion of alternative nutritional interventions for anemia management. Monitoring and evaluation were conducted by measuring hemoglobin levels post-intervention to assess effectiveness. The program also aims to disseminate results through a SINTA 5-indexed journal publication, providing evidence-based recommendations for integrating date consumption into adolescent nutrition programs. This initiative highlights the potential of locally acceptable, culturally relevant food-based strategies to complement existing public health interventions in reducing anemia prevalence among teenage girls.

Keywords: Adolescents, Anemia, Hemoglobin, Nutrition.



INTRODUCTION

Anemia is a global public health problem that disproportionately affects adolescent girls. In Indonesia, the prevalence of anemia among teenage girls remains alarmingly high, with rates significantly exceeding those of their male counterparts. According to the Ministry of Health (2023), approximately 23% of adolescent girls suffer from anemia, most commonly iron deficiency anemia, which is often caused by inadequate dietary intake and menstrual blood loss [1]. This condition can have severe consequences for health and well-being, including reduced immunity, impaired concentration, lower academic achievement, diminished physical fitness, and decreased productivity [2] [3].

The implications of anemia in adolescent girls extend beyond immediate health concerns [4]. As future mothers, adolescent girls with chronic anemia face an increased risk of complications during pregnancy, including maternal mortality, preterm birth, and low birth weight in infants [5]. Addressing anemia at an early stage is therefore essential for adolescents' health and the well-being of the next generation [6].

Globally, the World Health Organization (WHO) estimates that anemia affects between 40% and 88% of adolescents in various regions, with developing countries experiencing the highest prevalence. In developing nations, approximately 53.7% of adolescent girls are affected. In Indonesia, data from the Basic Health Research (Riskesdas) survey revealed a sharp increase in anemia prevalence among those aged 15–24 years, rising from 18.4% in 2013 to 32% in 2018. The 2023 Indonesia Health Survey also reported that anemia prevalence for all age groups is 16.2%, with a higher rate among females (18%) than males (14.4%).

In Bone Regency, South Sulawesi, the problem persists at the local level. The District Health Office recorded 717 cases of anemia among adolescent girls in 2023, followed by 143 reported cases in 2024. Such figures highlight the urgent need for effective community-based interventions tailored to the local context [7].

Efforts to combat anemia in Indonesia have included national programs such as distributing iron and folic acid (IFA) tablets to adolescent girls and women of reproductive age [8]. The Ministry of Health mandates the provision of one iron tablet weekly throughout the year, primarily through school-based health programs [9]. While coverage has reached 80.9% in some areas, anemia prevalence remains high, indicating that supplementation alone may be insufficient and that complementary strategies are needed [10].

One promising approach is the use of nutrient-rich local foods as a natural alternative or complement to supplementation [11]. Dates (*Phoenix dactylifera*), a fruit widely consumed in many cultures, are rich in iron, vitamin C, and other micronutrients that support hemoglobin synthesis and improve iron absorption [12]. Research has shown that regular consumption of dates can help increase hemoglobin levels in individuals with iron deficiency. Incorporating date consumption into adolescent girls' diets, especially during menstruation, offers a culturally acceptable, affordable, and accessible strategy to address anemia [13].

This community service program is designed to implement research findings on the benefits of date consumption for increasing hemoglobin levels in adolescent girls. The program will include educational sessions on anemia prevention, monitoring of hemoglobin levels, and the distribution of 100 grams of dates daily for one week to menstruating adolescent girls. Combining health education with practical dietary

interventions aims to reduce anemia prevalence, improve adolescent health outcomes, and contribute to long-term maternal and child health improvements.

METHODS

Approach

This community service activity employed an observational and educational approach, combined with providing date fruit (*Phoenix dactylifera*) to adolescent girls during menstruation as a preventive measure against anemia. The intervention was based on prior research findings regarding the benefits of date fruit in increasing hemoglobin levels.

Work Procedure

The implementation consisted of three main stages:

Preparation Stage

Reviewing and adapting findings from previous research on date fruit and anemia prevention. Preparing materials and equipment, including date fruit, educational leaflets, and a project banner. Coordinating with community partners and arranging the schedule.

Implementation Stage

Delivering a health education session on the importance of maintaining hemoglobin stability before and after menstruation and the impact of anemia on adolescent health. Providing each participant with 7–8 dates (equivalent to ± 100 grams) per day for seven consecutive days, meeting the daily iron requirements for adolescent girls. Encouraging participants to consume the dates consistently during the intervention period.

Evaluation Stage

Monitoring hemoglobin levels in participants before and after the intervention to assess changes. Gathering participant feedback on the acceptability and perceived benefits of the program.

Follow-up Plan

The follow-up plan includes continued collaboration with community partners to sustain anemia prevention efforts through regular health education and promoting iron-rich food consumption among adolescent girls.

Goal

The ultimate goal is to reduce anemia prevalence among adolescent girls by increasing hemoglobin levels through a culturally acceptable, natural dietary intervention..

RESULT

The community service program on “Implementation of Research Findings on the Provision of Dates to Adolescent Girls to Increase Hemoglobin Levels for Anemia Management” was successfully conducted at Stadion Lapatau Bone, involving adolescent girls from the surrounding community. The activities included health education on anemia prevention, distribution of dates (7–8 pieces or approximately 100 grams per day) for seven consecutive days during menstruation, and monitoring hemoglobin levels before and after the intervention.

Following the intervention, participants showed an improvement in hemoglobin levels compared to baseline measurements. Many reported reduced symptoms such as

dizziness, fatigue, and paleness. The educational sessions increased participants' knowledge regarding the importance of iron intake, balanced nutrition, and healthy menstrual management. The community expressed high enthusiasm for the program, and local health cadres indicated willingness to continue promoting date consumption as a complementary measure to existing anemia prevention strategies.

Overall, the program demonstrated that integrating nutritional education with iron-rich foods like dates can serve as an effective and acceptable approach to reducing anemia risk among adolescent girls in the community.



Figure 2. Counseling is essential to maintain hemoglobin levels and the distribution of dates in adolescent girls

DISCUSSION

Implementing date fruit consumption as a nutritional intervention to address anemia among adolescent girls is a novel and community-centered approach that combines scientific evidence with culturally acceptable practices. Anemia, particularly iron-deficiency anemia, remains a prevalent public health concern in Indonesia, especially in adolescent females who are in a period of rapid growth and experience monthly menstrual blood loss. The high prevalence rate in Bone Regency, as reported by the District Health Office, highlights the urgency of addressing this issue through practical, sustainable, and accessible interventions [14].

From a public health perspective, adolescence represents a critical window for intervention to prevent long-term health consequences. Iron deficiency during this stage affects physical growth and cognitive development and impacts future maternal health outcomes [15]. Female adolescents with anemia are more likely to face complications during pregnancy, such as preterm birth, low birth weight, and increased risk of maternal mortality. Therefore, addressing anemia early in this age group contributes to immediate health improvement and long-term generational benefits [16].

The choice of date fruit as a nutritional intervention is supported by its nutrient composition. Dates are a rich source of iron, folate, vitamin C, and other micronutrients essential for hemoglobin synthesis. Moreover, their high carbohydrate and calorie content can help improve overall energy levels, counteracting one of the most debilitating symptoms of anemia, fatigue. Beyond their nutritional value, dates have cultural and religious significance in Indonesia, making them more acceptable and easier to integrate into dietary habits than synthetic supplements [17].

While iron supplementation through tablet tambah darah (TTD) programs has been the standard intervention in Indonesia, compliance and acceptance remain challenging. Many adolescent girls report gastrointestinal discomfort, nausea, or disinterest in taking tablets regularly. Integrating a natural food-based intervention like dates could complement existing strategies by providing an enjoyable, side-effect-free alternative or

adjunct to pharmacological supplementation. This aligns with the growing global emphasis on food-based approaches to combat micronutrient deficiencies, often yielding better compliance rates.

The results of implementing date fruit consumption in this community-based service are expected to show improvement in hemoglobin levels among adolescent girls. Similar studies in other developing countries have reported positive changes in hematological parameters after consistent date fruit intake [18]. This is likely due to both the bioavailability of iron in dates and the synergistic effect of accompanying nutrients. Additionally, the intervention incorporates health education on anemia prevention, further empowering participants with knowledge and self-efficacy to maintain healthy practices [19].

However, several contextual factors must be considered in interpreting the potential outcomes of this initiative. First, while dates contain iron, the absorption rate is influenced by the presence of enhancers such as vitamin C and inhibitors like phytates found in other foods. Educating participants on optimal dietary combinations, such as consuming dates and fruits rich in vitamin C, may enhance effectiveness. Second, socioeconomic factors and access to nutrient-rich foods outside the intervention period can affect the sustainability of hemoglobin improvements. Continued community engagement and follow-up are crucial to maintaining gains [20].

This intervention also demonstrates the value of collaborative, interdisciplinary approaches in public health. The involvement of midwifery, nursing, and public health professionals ensures that the program addresses the biomedical aspects of anemia and the behavioral, cultural, and social dimensions. Moreover, the engagement of university students fosters experiential learning and builds capacity for future healthcare professionals to contribute meaningfully to community health initiatives [21].

In terms of sustainability, there is potential to integrate this intervention into broader school-based health programs. Collaborating with local schools, health centers, and community organizations could ensure regular access to iron-rich foods, including dates, and reinforce health education messages throughout the year. Compared to medical treatments for advanced anemia, the relatively low cost of dates makes this an economically viable option for local governments and NGOs seeking to invest in preventive health. Nevertheless, some limitations must be acknowledged. Seasonal variations in date availability and price could impact the scalability of this intervention. Additionally, individual variability in response to dietary iron intake due to genetic factors, baseline nutritional status, or concurrent health conditions means that not all participants may experience the same benefit. Therefore, this strategy should be viewed as complementary to, rather than a replacement for, existing iron supplementation programs.

Community service project on date fruit consumption for anemia prevention among adolescent girls in Bone Regency holds significant promise as a culturally relevant, nutritionally beneficial, and practically feasible intervention. By addressing the immediate needs and underlying causes of anemia, this initiative can contribute to improved adolescent health, enhanced school performance, and better maternal outcomes. Scaling up such interventions, coupled with continued education and multi-sector collaboration, could be pivotal in reducing anemia prevalence and improving the quality of life for adolescent girls across Indonesia.

CONCLUSIONS

The community service program on implementing date fruit consumption among adolescent girls to increase hemoglobin levels has demonstrated its potential as an effective, natural, and culturally acceptable intervention for anemia prevention. Through health education, monitoring of hemoglobin levels, and the daily provision of 100 grams of date fruit during menstruation, participants gained improved knowledge and awareness about anemia, its risks, and practical prevention strategies. This activity provided a nutritional alternative rich in iron and empowered adolescent girls to adopt healthier dietary habits that support their growth, academic performance, and overall well-being. The collaboration between lecturers, students, and the community ensured active participation and strengthened local capacity in addressing adolescent anemia.

Integrating nutrition-based interventions, such as date fruit consumption, into adolescent health programs can significantly reduce anemia prevalence, improve quality of life, and support long-term maternal and child health outcomes in the community..

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