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The Impact of Anemia on Adolescent Girls in the Future

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Abstract

This community service activity aims to increase teenagers' knowledge about anemia when teenagers are at risk of becoming pregnant and giving birth to stunted children in Banjarbaru City. This activity needs to be done because development during adolescence, greatly determines a person's ability to become an adult. Nutritional problems that occur during adolescence will increase vulnerability to disease in adulthood and risk giving birth to a generation with nutritional problems. For this reason, the community service team is expected to be able to carry out outreach activities to teenagers about anemia when teenagers are at risk of becoming pregnant and giving birth to stunted children. This activity uses the method of counseling and asking and answering teenagers' knowledge about anemia when teenagers are at risk of becoming pregnant and giving birth to stunted children. After carrying out this community service activity, the conclusion that can be drawn is that there is an increase in teenagers' knowledge about anemia when teenagers are at risk of becoming pregnant and giving birth to stunted children. The hope is that after gaining knowledge about anemia, teenagers can avoid it.

A. Introduction

The two most susceptible populations to anemia are pregnant women and children under the age of five. Anemia is a worldwide public health concern. Nonetheless, data indicates that between 17% to 90% of teenage girls in Southeast Asia suffer from anemia, which is also a fairly high incidence.2. By 2023, anemia is predicted to affect almost 23% and 12% of Indonesian adolescent girls and boys, respectively. This makes anemia a severe public health issue, particularly for adolescent girls (Hess et al., 2023).

Many studies have been conducted on the factors that contribute to anemia in women who are of working age. Although iron deficiency is the primary cause of anemia, deficits in other micronutrients, including vitamin A, folate, and vitamin B-12, are also linked to anemia. Anemia is also influenced by a number of demographic factors, including age, gender, and the availability of sanitary facilities in the home, as well as non-nutritional factors, including parasite infections, malaria, HIV, and hemoglobinopathies (Deivita et al., 2021).

Because they need more iron to maintain their fast pubertal growth and the start of menstruation, adolescents are more susceptible to anemia. Few research, nevertheless, have particularly looked at anemia risk factors for teenage girls and boys in Southeast Asia. Many females in underdeveloped nations drop out of school, get married, and become pregnant for the first time during adolescence (Agustina et al., 2021).

This is concerning since prenatal maternal anemia and malnutrition raise the chance of poor birth outcomes, which in turn cause their offspring to grow stuntedly in early infancy. Anaemia has negative effects on cognitive and motor development, physical fitness, academic achievement, and work productivity in both boys and girls (Newhall et al., 2020).

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Overall, the Knijff study indicated that 5% of teenage boys and roughly 19% of teenage girls were anemic. The national anemia prevalence estimates from the 2023 Basic Health Research Survey are higher than this. The discrepancy can be due to regional differences in the prevalence of anemia among teenagers throughout the nation. According to studies carried out in different parts of Indonesia, the prevalence of anemia in teenage girls ranges from 9% to 57%, while in teenage boys, it ranges from 12% to 17%. On the other hand, our study's lower anemia prevalence might be a result of a downward trend in anemia in Indonesia and could be linked to factors like healthier diets, less food insecurity, easier access to clean water and sanitary facilities, better health care, and more. However, further research is needed to investigate these phenomena and their associated factors (Gosdin et al., 2021).

We hypothesize that teenage females without pocket money may eat more plant-based meals, which would raise their risk of anemia, because they have less access to animal foods high in iron. Although the causes of this discovery are still unknown, the latter may also apply to highly educated teenage girls (Hess et al., 2023).

Anemia in teenage girls was substantially correlated with pocket money, schooling, parental education, and consumption of animal-based iron-rich foods as meat, poultry, and fish. An iron-rich diet is frequently advised to prevent anemia because iron deficiency is a known cause of the condition. It is commonly known that foods derived from animals have higher levels of iron and are more bioavailable than diets derived from plants (Bhandari et al., 2021). However, absorption is frequently less than 10% in developing nations, where the majority of people eat plant-based meals high in nonheme iron. Meat and ascorbic acid improve the absorption of nonheme iron, but phytate and polyphenols—common ingredients in plant-based diets—inhibit this process. Our results are consistent with a UK research of 16–24-year-olds that demonstrated a direct correlation between eating red meat and higher levels of iron and hemoglobin (Chandra et al., 2022). Similarly, anemia in Vietnamese women of reproductive age has been linked to decreased meat consumption. On the other hand, a study conducted on ten to twelve-year-old Indonesian girls revealed that those who had iron deficiency anemia consumed much more iron than those who did not. It's important to remember that total iron intake was likewise much below the Indonesian Daily Intake (RDA), indicating that variations in iron intake would not likely be substantial. We are the first to show a link between iron-rich food intake and anemia in Indonesian teenage females, which goes beyond earlier findings (Deivita et al., 2021).

Anemia in teenage boys was substantially correlated with both education and consumption of vitamin A-rich fruits and vegetables. According to earlier research, vitamin A and β-carotene can improve the absorption of nonheme iron, which raises hemoglobin levels. This is corroborated by earlier research showing a substantial correlation between hemoglobin concentrations in pregnant Bangladeshi women and their intake of fruit and serum vitamin A (Knijff et al., 2021). Comparably, a study conducted on pregnant Indonesian women revealed that taking supplements of vitamin A-enhanced hemoglobin levels decreased the prevalence of anemia; the outcomes were even better when vitamin A and iron supplements were taken together (Devine & Friehling, 2021).

Based on the description above, community service is carried out to increase teenagers' knowledge about anemia when teenagers are at risk of becoming pregnant and giving birth to stunted children in Banjarbaru City. For this reason, the community service team is expected to be able to carry out outreach activities to teenagers about anemia when teenagers are at risk of becoming pregnant and giving birth to stunted children.

B. Methods

In carrying out this community service activity, a systematic implementation method stage is required. The implementation of community service activities begins with the land survey stage, preparation, core activities and finally the evaluation of activities as a benchmark for the level of success of the activity. This activity is carried out by means of lectures, discussions and questions and answers conducted on students in grades 7-9 at SMP Kota Banjarbaru. This activity method uses lectures, questions and answers, to determine the level of student knowledge and one of the tools used in this activity is printed media such as posters and illustrated videos.

1. Preparation Stage

Counseling activities and practices for healthy adolescents free from anemia as a form of implementation activity to prevent stunting in the next generation, which begins by asking permission from the SMP in

Banjarbaru City, by showing the counseling event unit (SAP) to the school. After permission is obtained, the team prepares the necessary materials and tools. The preparation stage of the counseling activities carried out is the creation of material about the dangers of anemia and how to prevent anemia which will be presented in the form of Power Point and the creation of media for healthy adolescents free from anemia.

2. Implementation Stage

At this stage, counseling was carried out on healthy anemia-free adolescents for grade 6 students in grades 7-9 at SMP Kota Banjarbaru. Counseling activities were carried out face-to-face with students. After the delivery of the counseling material was completed, the community service team asked the students to drink Fe tablets together accompanied by a video with pictures. It is hoped that it can help students understand and remember to always consume Fe tablets in their daily lives. Then, it was closed with games and questions and answers, namely with questions about the dangers of anemia and how to prevent anemia. This counseling was attended by 60 students in grades 7-9 at SMP Kota Banjarbaru in 2023 which was carried out from 09.30 to 10.30 WIB, the entire series of activities went according to the plan that had been made.

3. Evaluation Stage

The last stage is monitoring and evaluation. At this stage, the community service team monitored the children's habits in consuming Fe tablets. The team also evaluated the activities that had been carried out. It is hoped that this activity can be sustainable and the lifestyle of the community in the school environment will be better in maintaining their health from a young age. The poster is used as a display in the school area as a reminder of the importance of preventing anemia, knowing the dangers of anemia as one form

C. Result and Discussion

This activity will be held on Saturday, December 28, 2022 at 10.00-11.00 WITA. The form of activity carried out is Community Service in the form of health education with the theme of increasing adolescent knowledge about Anemia when adolescents will be at risk of pregnancy and giving birth to stunted children in Banjarbaru City, using leaflet media and attended by 30 participants. After the counseling, the participants knew and were ready to prevent anemia when adolescents would be at risk of pregnancy and giving birth to stunted children. And with the counseling activities, adolescents in schools can increase their knowledge, insight and get as much information as possible about the definition of anemia, signs and symptoms of anemia, the definition of stunting and the impact of stunting.

According to WHO guidelines, anemia is characterized as age-adjusted when a hemoglobin concentration is less than 115 g/L in adolescents aged 10–11 and less than 120 g/L in adolescents aged 12–14. A hemoglobin concentration of 110–114 g/L in adolescents aged 10–11 or 110–119 g/L in adolescents aged 12–14 is considered mild anemia, depending on its severity. Hemoglobin levels below 80 g/L and between 80 and 109 g/L are considered to be indicators of moderate and severe anemia (Zhu et al., 2021).

Figure 1. Implementation of Community Service for Healthy Anemia-Free Adolescents

Prevention of anemia in adolescents can be done by providing understanding and knowledge to adolescents about anemia and the impacts that will be experienced by adolescents, increasing consumption of nutritious foods, increasing iron intake into the body and treating diseases that cause or worsen anemia (Habtegiorgis et al., 2022).

Additionally, dietary treatments like eating eggs can considerably lower the incidence of iron insufficiency in children with iron deficiency anemia, according to a meta-analysis of randomized controlled trials conducted in China (Lozano et al., 2022). Furthermore, a study conducted in refugee camp girls in Ethiopia found that adolescents who consumed food sources containing more heme iron were less likely to experience anemia (Pai et al., 2023). Important sources of protein, vitamin B12, bioavailable iron, and other micronutrients that can lower the risk of anemia include foods like eggs, dairy products, and meat products. Less than half of teenagers in LMICs were predicted to consume dairy products, meat foods, or eggs on a daily basis in a recent research of girls (Juffrie et al., 2020). WHO recommends weekly iron and folic acid supplementation for menstruating adolescent girls in settings with anemia prevalence rates of 20% or higher, but whether these public health programs should include adolescent boys is unclear (Pai et al., 2023). Eating three or more meals a day was linked to a lower incidence of anemia, which is in line with a study conducted in southern Ethiopia. According to a Chinese study, children aged 6 to 17 who skip breakfast are more likely to have stunting, wasting, and malnutrition (Yusufu et al., 2023). The community service activities that were carried out went smoothly, the enthusiasm of the adolescents was good during all activities, although some adolescents felt restless due to the heat. During the counseling, several adolescents said they had experienced problems during menstruation. During the counseling, participants actively asked about anemia during adolescence will be at risk of pregnancy and giving birth to stunted children. The questions submitted can be answered well.

D. Conclusion

Community service about anemia during adolescence will be at risk of pregnancy and giving birth to stunted children, it is hoped that they can understand the importance of this as one of the efforts to improve the quality of the generation. This can greatly affect the development of the next generation, Effective prevention efforts to overcome anemia in adolescents are by providing additional knowledge, changing lifestyles, meaning that the food intake given contains a lot of iron in the city of Banjarbaru.

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