

Endeavors to foster Healthy Adolescent Free from Anemia: from Nutritional Perspective

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ABSTRACT

Anemia in adolescent girls in Indonesia is one of the health focuses related to its high prevalence and the enormous impact that can be caused, such as productivity problems and even affecting pregnancy and the fetus in the future. Nutrition is one of the causes of this condition and other factors such as nutritional status, blood loss through menstruation, and rapid growth in adolescents. This community service activity aims to provide education about anemia and conduct screening for adolescent girls at the Aisyiyah Orphanage in Medan City. From the examination of 24 participants, it was found that one person had anemia which was followed up with education and administration of iron supplements for 12 weeks. The material presented emphasized the importance of consuming a balanced nutritious diet rich in iron, consuming food sources of vitamin C, and avoiding coffee, tea, and milk when eating. In addition, posters regarding nutrition in anemia were also posted to strengthen adolescents' awareness and motivation in alleviating anemia. This activity has a positive impact on participants because it increases their understanding of anemia so that they can change their health behavior

Keywords: adolescent girls, anemia, iron supplement.

INTRODUCTION

Anemia is one of the health problems in Indonesia that is experienced by all age groups, from toddlers to the elderly. Basic health research 2013 showed that anemia in women aged 15 years was 22.7%, while the prevalence of anemia in pregnant women was 37.1%. The 2001 SKRT data showed that the majority of anemia in adolescent girls (aged 10–19 years) was 30%. Meanwhile, research data in various regions in Indonesia show that the prevalence of anemia in adolescent girls ranges from 32.4 to 61%. (Kemenkes RI, 2018)

Iron deficiency anemia is one of the leading causes of anemia, among others, due to inadequate intake of iron-rich foods, which is only about 25% of the 2013 Recommended Dietary Allowances (RDA). As a source of iron while also experiencing blood loss during menstruation (this condition requires twice as much iron as not menstruating) plus being in a period of growth (catch up growth), which requires adequate balanced nutrition, including iron. The impact of iron deficiency anemia is in the form of decreased concentration, which can affect productivity and achievement and affect the condition of adolescent girls during pregnancy and childbirth later. Adolescent girls who suffer from anemia when they become pregnant are at risk of giving birth to babies with low birth weight (LBW) and stunting. (Basith et al, 2017; Syabariyah et al, 2022; Suryani et al, 2017)

Following WHO recommendations in 2011, efforts to overcome anemia in adolescent girls and women of childbearing age/"wanita usia subur"(WUS) focus on promotion and prevention activities, namely increasing the consumption of iron-rich foods supplementing blood-boosting tablets/"tablet tambah darah" (TTD), and increasing fortification of foodstuffs

with iron and folic acid. Global recommendations recommend for areas with anemia prevalence 40%, giving TTD in adolescent girls and WUS consisting of 30-60 mg elemental iron and given every day for three consecutive months in 1 year (WHO, 2016). Meanwhile, for areas where the prevalence of anemia is 20%, supplementation consists of 60 mg elemental iron and 2800 mcg folic acid. It is given once a week for three months on (given) and three months off (not given) (WHO, 2011). Professional organizations and the private sector are expected to support promotive and preventive activities to reduce the prevalence of anemia in adolescent girls and WUS.

The Aisyiyah Women's Orphanage in Medan has approximately 30 young women (aged 10-19 years). From the visit of the Muhammadiyah Development Partnership Program (PKPM) team to the orphanage, it was found that several young women had poor nutritional status and looked pale. The orphanage has implemented a balanced nutritional diet when asked about food intake. Every meal, there is a complete meal in the form of rice, side dishes, vegetables, and fruit. However, it may not be realized that the habit of drinking tea after eating can inhibit the absorption of nutrients, including iron. Hence, it is crucial to understand these foods to partners, including the impact of anemia on adolescent girls and the introduction of foods rich in iron which increase absorption. Iron is also known that the government program in the form of distributing iron tablets to adolescent girls is not optimal in the orphanage environment, and through this PKPM the team wants to contribute to optimizing the consumption of iron tablets so as to prevent anemia in adolescent girls and create a healthy generation and future healthy mothers. Furthermore, it is hoped that this guidance can build independence in the orphanage environment and become a model for orphanages or other communities to be aware of anemia in adolescent girls.

METHODS

PKPM activities will be held in June 2021 at the Aisyiyah Women's Orphanage in Medan. This program is targeted at 30 young women aged 10-21 years who have menstruated. After obtaining approval from the Research and Community Service Institute (LP2M) Universitas Muhammadiyah Sumatera Utara, the description of the activities carried out, namely checking the nutritional status of adolescent girls, checking hemoglobin for female adolescents, distributing blood-added tablets (TTD), counseling on "Anemia in Adolescents" and "Nutrition in Adolescent Anemia" and the attachment of anemia poster.

The steps taken can be divided into three stages: First, the initial analysis, namely the analysis of the situation and conditions in the community as the basis for selecting programs and activities to be carried out. Second, preparation includes licensing, collection of program targets, and socialization of activities (time and technical activities). Third, the implementation is adjusted to the schedule of events (opening, introductions, remarks, nutritional status checks including weight and height checks then the results are plotted onto the CDC-WHO growth curve, haemoglobin examination using the Easytouch GlucoHb tool, presentation of educational materials on anemia in Adolescents (definition of anemia in adolescents, causes of anemia, its symptoms, its effects, and prevention of anemia in adolescents) and Nutrition in Adolescent Anemia (foods that cause anemia and prevent anemia (rich in iron and increase its absorption) anemia, including explaining the findings of measuring nutritional status and hemoglobin, as a complement to Islamic Kemuhammadiyah material also explained about the meaning of halal and tayyib food and the importance of maintaining health in Islam), the distribution of iron tablets for young women was 12 tablets per person to be consumed for 12 weeks (1 time per week) and supervised by 2 drinking supervisors medicine, discussion session (question and answer), closing, and delivery of activity souvenirs and posters. Fourth, the implementation and evaluation of activities as illustrated in the question and answer discussion session, the end of the TTD tablets distributed for 12 weeks, and improvements in the nutritional status and hemoglobin of the participants.

RESULT AND DISCUSSION

Community service activities in the form of efforts to foster Healthy Adolescent Free from Anemia from a nutritional perspective have been carried out smoothly according to the planned schedule. The number of participants in the activity became 24 people because 6 participants did not attend because they did not want to be examined.

The initial analysis that has been carried out shows that the knowledge of the community or partners is still minimal about anemia in adolescents and the role of nutrition in anemia. From a physical examination at a glance, it was found that some teenagers looked pale and had poor nutritional status. In addition, it was found that the distribution of iron tablets in partner areas was not optimal. The program for giving blood supplements to young women is regulated by the PERMENKES RI No. 88 of 2014 concerning the standard of iron tablets for women of childbearing age and pregnant women and the Circular letter (SE) of the Ministry of Health of the Republic of Indonesia No. HK.03.03/V/0595/2016 concerning Administration of blood-added tablets to adolescent girls and women of childbearing age. This TTD is usually given to the junior high school (SMP)/equivalent and senior high school (SMA)/equivalent children. (Amir dan Djokosujono, 2019)

At the preparatory stage, socialization of activities has been carried out to the Aisyiyah Orphanage in Medan City, which contains an explanation of the objectives, flow of activities, technical activities, schedules, and requirements for target participants service activities. Some of the requirements that must be met are the age range of teenagers, namely from the age of 10-21 years (Diananda, 2019). In addition, it is required to have experienced menstruation because menstruation is one of the risk factors for increasing the incidence of anemia in adolescent girls (Kumalasari et al., 2019; Syabariyah et al, 2022). Based on these requirements, there were 30 young female participants.

In its implementation, there was an opening by the Muhammadiyah Development Partnership Program Team (PKPM) UMSU and an introduction by dr. Ratih Yulistika Utami, M.MedEd. After that, all participants were called one by one to check their nutritional status in the form of weighing and measuring height (figure 1) and checking hemoglobin (figure 2)



Figure 1. Examination of nutritional status



Figure 2. Hemoglobin examination

Examination of the nutritional status of adolescents using the 2000 CDC curve and declared malnutrition if the weight for height <70%, underweight if the weight for height 70-90%, normal if the weight for height >90%, excess if the weight for height >110% and obese if the weight for height >120% (Puspita et al. 2020). One person was malnourished, nine people had normal nutritional status, and 14 people were overweight/obese. From these results, it can be concluded that more than 50% of female partners are overweight. This condition can also be a risk factor for micronutrient deficiencies, including iron, leading to anemia. The overweight is related to dietary problems and chronic low-grade inflammation conditions in obese people (Hendarto et al., 2018; Dienny et al., 2019). Being overweight and even obese, which is often found in adolescents, is closely related to short stature or stunting, so it requires special attention to deal with these problems again.

Hemoglobin examination found one teenager had anemia. The criteria for determining anemia is if the hemoglobin in adolescents is below 12 mg/dl (WHO, 2016)

The main activity in education about Anemia in adolescents was delivered by Dr. Huwainan Nisa Nasution, M.Kes, Sp.PD, and Nutrition in Adolescent Anemia by dr. Eka Febriyanti, M.Gizi (picture 3). This education explains the causes of anemia in adolescents, which is a compilation of the increased needs due to growth plus blood loss through menstruation that adolescents begin to experience. The main principle of preventing and dealing with this problem are: first, eat a balanced nutritious diet (with portions referring to my plate); second, consume iron-rich foods, both animal and vegetables; third, increase the consumption of vitamin C as an enhancer of iron absorption; and fourth, avoid foods that can inhibit the absorption of iron, such as coffee, milk, tea and foods containing phytate. If someone wants to consume these foods should be separated about 1 hour from mealtime either before or after eating. (Abdulsalam and Daniel, 2016; Fitriany and Saputri, 2018)



Figure 3. Counseling/education on anemia

The moderator again directed the discussion activity. During the discussion session, there were at least four questions regarding the symptoms of apoplexy, whether it is related to anemia, whether white blood cells are affected by anemia, and the benefits of white blood cells. The resource person and the team answered all questions.

The activity was closed at 15.45 as scheduled. A group photo was taken, and posters were installed after completing the activities (figure 4). For the poster installation, a place that is often exposed to young women is chosen so that they are often seen and can influence the mindset of teenagers regarding anemia and nutrition so that they can change their health behavior (Nasution, 2021). As documentation, the team made a video of the activity, uploaded it to YouTube, and published print media in the InfoMu newspaper, SuaraAktual, and the UMSU website.



Figure 4. Anemia poster installation

CONCLUSION AND RECOMMENDATION

This PKPM/community service activity had a very positive impact on the participants regarding increasing their knowledge of anemia in adolescents and the role of nutrition in it, as well as being able to detect anemia which was followed up with the distribution of TTD as an effort to treat and prevent it. Participants are expected to be able to change health behavior to avoid anemia and its complications and can become agents to disseminate reliable health information in their environment

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REFERENCES

- Abdulsalam, M. and Daniel, A. (2016). Diagnosis, pengobatan dan pencegahan anemia defisiensi besi. *Sari Pediatri*, 4(2), pp.74-7.
- Amir, N. and Djokosujono, K. (2019). Faktor-faktor yang berhubungan dengan konsumsi tablet tambah darah (TTD) pada remaja putri di Indonesia: Literatur review. *Jurnal Kedokteran Dan Kesehatan*, 15(2), pp.119-129.
- Basith, A., Agustina, R. and Diani, N. (2017). Faktor-faktor yang berhubungan dengan kejadian anemia pada remaja putri. *Dunia Keperawatan: Jurnal Keperawatan dan Kesehatan*, 5(1), pp.1-10.

- Diananda, A. (2019). Psikologi remaja dan permasalahannya. *ISTIGHNA: Jurnal Pendidikan dan Pemikiran Islam*, 1(1), pp.116-133.
- Dieny, F.F., Widyastuti, N., Fitranti, D.Y., Nissa, C., Tsani, A.F.A. and Jauharany, F.F. (2019). DEFISIENSI BESI PADA WANITA USIA SUBUR PRANIKAH OBESITAS. *Media Gizi Mikro Indonesia*, 10(2), pp.101-110.
- Fitriany, J. and Saputri, A.I. (2018). Anemia defisiensi besi. *AVERROUS: Jurnal Kedokteran dan Kesehatan Malikussaleh*, 4(2), pp.1-14.
- Hendarto, A., Febriyanto, R. and Kaban, R.K. (2018). Defisiensi besi dan anemia defisiensi besi pada anak remaja obes. *Sari Pediatri*, 20(1), pp.1-6.
- Kemendes RI. (2018). Pedoman pencegahan dan penanggulangan anemia pada remaja putri dan wanita usia subur (WUS)
- Kumalasari, D., Kameliawati, F., Mukhlis, H. and Kristanti, D.A., (2019). Pola Menstruasi dengan kejadian anemia pada remaja. *Wellness And Healthy Magazine*, 1(2), pp.187-192.
- Puspita, G., Susyanto, B.E. and Aprilia, S., (2020). Sosialisasi Persepsi Remaja Tentang Body Image, Pola Aktivitas Fisik Dan Pengukuran Antropometri. In *Prosiding Seminar Nasional Program Pengabdian Masyarakat*.
- Suryani, D., Hafiani, R. and Junita, R., (2017). Analisis pola makan dan anemia gizi besi pada remaja putri Kota Bengkulu. *Jurnal Kesehatan Masyarakat Andalas*, 10(1), pp.11-18.
- Syabariyah, S., Anesti, R. ., Nurhaliza, A. ., Puspika Sari, W. ., & Rahmanilah, R. . (2022). Health Education Mentoring on Sadar Seimbang Nutrisi (SSN) and The Dangers of Anemia through Student Empowerment Movements with Examination of Hematology (Hemoglobin Hematocrit) in Vocational High School and Junior High School AsSyarief Garut for Mountainous Area Community . *ABDIMAS: Jurnal Pengabdian Masyarakat*, 4(2), 606-611
- WHO. 2011. Guideline: Intermittent Iron and Folic Acid Supplementation in Menstruating Women. Geneva: World Health Organization.
- WHO. (2011). Prevention of Iron Deficiency Anaemia in Adolescent: Role of Weekly Iron and Folic Acid Supplementation. Geneva: World Health Organization.
- WHO. (2016). Guideline: Daily Iron Supplementation in Adult Women and Adolescent Girls. Geneva: World Health Organization