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ASSESSING KNOWLEDGE AND ATTITUDES TOWARDS ANEMIA AMONG ADOLESCENT GIRLS AT PESANTREN NUR AL-IMAN MONCONGLOE, MAROS REGENCY

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Abstract
Anemia, particularly iron deficiency anemia, poses a significant challenge for adolescent girls, adversely affecting their academic performance and overall health. This study investigates the understanding of anemia among adolescent girls at Al Iman Moncongloe Islamic Boarding School, identifying knowledge gaps and attitudes towards the condition. Employing a descriptive methodology, the research involved 58 respondents selected through accidental sampling. Knowledge and attitudes were assessed via a questionnaire, with knowledge categorized as "good" or "not good." The knowledge assessment comprised 10 multiple-choice questions, while attitudes were evaluated through 10 statements rated on a scale from strongly agree to strongly disagree. Results indicated that 66.7% of participants exhibited poor knowledge of anemia, despite 92.6% demonstrating a positive attitude towards it. These findings underscore the necessity for targeted educational initiatives to enhance awareness and promote behavioral changes regarding anemia prevention among adolescent girls.

Introduction

Anemia is a medical condition characterized by a deficiency of red blood cells or hemoglobin in the blood. Hemoglobin is made in red blood cells, so anemia can occur either because red blood cells contain too little hemoglobin or because there are not enough blood cells (1). The World Health Organization (WHO) estimates that anemia affects approximately 1.62 billion individuals globally, representing 24.8% of the population. One group that is vulnerable to anemia is adolescent girls and this is evidenced by the high prevalence of iron deficiency anemia in adolescent girls (2). Iron is crucial for hemoglobin production, as it forms the core of hemoglobin, enabling oxygen transport in the body. Adolescent girls are particularly at risk for iron deficiency due to increased iron needs during puberty, menstrual blood loss, and often inadequate dietary intake. These factors contribute to a higher

prevalence of anemia in this demographic. The World Health Organization (WHO) estimates that approximately 20% of adolescent girls globally are affected by anemia, with higher rates observed in low- and middle-income countries like Indonesia (3). A study in Lamongan District found a prevalence of 13.9% among adolescent girls (4). Another study in Maros Regency, South Sulawesi, reported that the prevalence of anemia was significantly reduced from 25.9% to 17.6% after iron and folic acid supplementation.

According to Tarwoto (2009), anemia in adolescents can have an impact on decreased work productivity or academic ability at school due to lack of passion for learning and concentration. Anemia can also interfere with growth where height and weight become imperfect. In addition, the body's immune system will decrease, making it susceptible to disease. Anemia can also lead to decreased energy production and lactate accumulation in the muscles (5). Based on this, a response is needed from adolescent girls to the problems that will arise as a result of anemia, which of course requires sufficient knowledge of this and a positive attitude in dealing with these problems (6). Unhealthy adolescent behavior resulting in anemia can also be caused by several factors.

The problem of anemia in adolescent girls is caused by a lack of knowledge, attitudes and skills of adolescents due to lack of information delivery, lack of concern of parents, communities and governments for adolescent health and not optimal adolescent health services (7). Many studies highlight that adolescent girls often have poor knowledge about anemia, its causes, and prevention strategies. For instance, a study found that only 10% of participants knew about anemia, and many were unaware of the role of specific nutrients, like iron, in preventing the condition. This lack of understanding can lead to inadequate dietary choices and poor health practices (8). Adolescent girls are future mothers for the nation's successors so their health is important to pay attention to, including iron deficiency anemia. Prevention of anemia in adolescence not only has benefits for the health and cognitive abilities of adolescents but also benefits future generations (9). Based on the background of this problem, the purpose of this study is to see the level of understanding of adolescent girls about the incidence of anemia at the Al Iman Moncongloe Islamic Boarding School.

Materials and Methods

This research uses descriptive methods to assess the level of knowledge adolescent girls have about anemia at Pondok Pesantren Nur Al-Iman in Moncongloe, Maros Regency. The sampling technique of this study was purposive sampling, in this study the respondents taken were 54 respondents. The level of knowledge and attitude of adolescent girls was measured using a questionnaire. Assessment of adolescent girls' knowledge using a questionnaire is categorized as “good” if the score is above 50, while if the respondent's score is below 50 then the score is given as “not good”. This scoring system enables a clear

evaluation of their understanding regarding anemia (10). Assessment of the level of knowledge consists of 10 multiple choice questions, while the assessment of the respondent's attitude towards anemia consists of 10 questions with the options strongly agree, agree, disagree, and strongly disagree.

Data processing and analysis were carried out univariately using the SPSS application to see the description of knowledge and attitudes of adolescent girls about anemia.

Results

The adolescent girls who were respondents in this study were in the age range of 12-17 years old with an average age. A total of 92.6% of the total respondents had experienced menstruation, where their age at the time of their first menstruation varied from 10 to 14 years old. The average age for a girl to experience her first menstruation typically ranges from 12 to 13 years old. However, it can occur anywhere between the ages of 9 and 16. Factors such as genetics, nutrition, and overall health can influence the timing of menarche. As for the menstrual cycle experienced by adolescent girls in the Nur Al-Iman boarding school, 59.3% were in the normal menstrual cycle, namely experiencing regular menstruation every month. Menstrual cycles typically last about 28 days, but can range from 21 to 35 days in adults and from 21 to 45 days in young teens. Menstrual cycles can vary significantly among individuals and can be influenced by factors such as stress, diet, exercise, and health conditions. The respondents who had a normal menstrual period or length of time (3-7 days) were 77.8%.

The results of data analysis of adolescent girls' knowledge showed 66.7% of the total respondents had poor knowledge of anemia. Meanwhile, the attitude of adolescent girls towards anemia showed 92.6% showed a positive attitude. Mean score of knowledge and attitude of adolescent girls towards anemia is presented in table below:

Table-1. Mean Score of Knowledge and Attitude of Adolescent Girls towards Anemia

Variabel	n	Skor Minimum	Skor Maksimum	Mean	Standar deviasi
Knowledge	54	0,00	27,00	11,35	7,36
Attitude	54	0,00	50,00	39,54	10,08

DISCUSSION

The results of this study show that adolescents' knowledge of anemia is still low. However, the attitude of adolescent girls towards anemia showed positive results. These results are in line with research conducted by Indriasari et al (2022) in Makassar, where

62% of adolescent girl respondents did not know about anemia but the respondents' attitude towards anemia was predominantly positive at 97.3% (11). The low knowledge of adolescent girls about anemia can be caused by a lack of information in the family, school, and community environment. A descriptive study in Surabaya found that while many adolescent girls had taken iron supplements, their overall knowledge about these supplements and their role in combating anemia was lacking. The study called for enhanced educational efforts to improve compliance with iron supplementation (12). Another survey focusing on the knowledge, attitudes, and practices related to iron deficiency anemia among adolescent girls revealed poor knowledge levels about the condition, underscoring the necessity for targeted health education programs (13).

Research indicates that behavior informed by knowledge tends to be more enduring than behavior lacking a knowledge foundation. This is supported by studies highlighting the importance of educational interventions in promoting lasting behavior change. For instance, systematic reviews of school-based nutrition education programs demonstrate that while knowledge acquisition can initially lead to positive behavior changes, these changes may not persist without ongoing reinforcement and support (14). In this case, when an adolescent has good knowledge about anemia (including understanding, causes / risk factors, the process of occurrence, signs of symptoms and prevention and treatment), it has an influence on the behavior or habits of adolescents in meeting their daily dietary needs (15). Knowledge can enhance motivation. When adolescents understand the implications of anemia on their health, academic performance, and overall well-being, they are more likely to adopt and maintain healthy behaviors. This intrinsic motivation often leads to more enduring changes compared to behaviors adopted without understanding. Research in Karawang Regency highlighted a relationship between knowledge, nutritional adequacy, and dietary habits with the incidence of anemia among adolescent girls. The study indicated that better knowledge about nutrition was associated with healthier eating habits, which in turn can reduce the prevalence of anemia (16). A study focusing on adolescent girls in Islamic boarding schools found that low food intake and poor knowledge about nutrition were prevalent among the participants. This lack of knowledge directly impacted their dietary choices, contributing to a higher prevalence of anemia (17). Another study indicated that knowledge about iron and folic acid supplementation was crucial for compliance with health programs aimed at preventing anemia. Adolescents with better knowledge were more likely to adhere to supplementation guidelines, illustrating how informed individuals are more proactive in managing their health (18). Knowledge not only affects immediate dietary choices but also fosters long-term behavioral changes. When adolescent girls understand the importance of iron intake and the consequences of anemia, they are more likely to maintain healthy eating habits and seek appropriate health care (19).

Therefore, nutrition education is very important in preventing anemia in adolescent girls. Nutrition education can be carried out with a variety of media, both printed media such as healthy millennial cards, booklets, leaflets, posters, comics, flipcharts, electronic media such as motion videos and social media such as Whatsapp and Facebook. These various nutrition education media can be delivered with a number of educational methods such as games, counseling, lectures, Team Game Tournament (TGT). In addition, to optimize the role of nutrition education in preventing anemia in adolescent girls, nutrition education can also be carried out by friends or peer groups and integrated education by involving various parties around adolescent girls such as parents, teachers, dormitory supervisors, and kitchen managers to take part. Educators, health workers, the government and all other parties can use, combine and develop various media and methods of nutrition education to jointly help prevent and reduce the number ofemia in adolescent girls so that a healthier generation can be achieved in Indonesia (20). A study by Lufar (2023) at SMA Al-Mubarok, Serang City, revealed that nutrition education through lectures and animated videos significantly enhanced students' knowledge of balanced nutrition for anemia prevention. The results showed a substantial increase in knowledge scores after the intervention, indicating that engaging educational formats can effectively enhance understanding among adolescents (19). Research has also focused on creative approaches, such as developing a Snakes and Ladders game-based nutrition education media specifically designed for adolescent females. This method received positive validation scores from experts and resulted in an average knowledge score of 88% among participants, showcasing the potential of interactive and fun educational tools to engage adolescents and improve their understanding of anemia (21). The use of podcasts as an educational tool has been shown to effectively increase knowledge and attitudes toward anemia among adolescent girls. A study indicated that the podcast group exhibited significant improvements in both knowledge and attitudes compared to a control group that received traditional flyers, highlighting the effectiveness of audio media in health education (22).

Conclusion

Adolescent girls participated in this study still had poor knowledge of anemia and its prevention. However, their attitudes tended to be predominantly positive. These results indicate the need for educational efforts and other promotive approaches to improve knowledge so as to encourage behavior change among adolescent girls. Addressing anemia in adolescent girls requires a multifaceted approach that includes enhancing knowledge through education, fostering community and parental support, and improving health services. Effective communication and educational strategies are essential to empower adolescents to make informed health choices and mitigate the prevalence of anemia

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