ANEMIA STATUS IN HIGH SCHOOL STUDENTS, JAMBI CITY

Ima Maria[1], Wahyu Indah Dewi Aurora,[2] Armaidi Darmawan[3], Erny Kusdiyah, Nuriyah[4]

[1] Medical Faculty,Universitas Pembangunan Nasional "Veteran" Jakarta, Indonesia

[2,34,]Faculty Of Medicine and Health Science, Universitas Jambi, Indonesia

Email: imamaria.md@unja.ac.id

ABSTRACT

Background: *Young Woman are the most vulnerable group to experience anemia due to iron deficiency because of the period of physical growth, reproductive maturation, and cognitive transformation that requires high levels of micro and macro nutrients, including iron. In young women, anemia that lasts a long time will put the mother at risk of death, have the potential to give birth to premature babies, and have the potential to give birth to babies with low body weight, which are risk factors for stunting. This study will examine Hb levels in high school students in Jambi City.*

Methods: *This study is a quantitative study with a cross-sectional design to describe anemia. The research will be conducted in all Jambi City Public High Schools in August-September 2022. The number of samples used in this study was 505. The sampling technique used was simple random sampling at thirteen Public High Schools in Jambi City.*

Results: *The study was conducted on young women in the city of Jambi who occupy high school education. Of the 504 research respondents, 61 people (12.1%) had anemia, 443 people (87.9%) were normal. The median Hb level is 14.6 g/dl with a maximum value of 25.8 g/dl and a minimum value of <7 g/dl. Based on the regular monthly menstruation, 446 people (88.5%) admitted that they had regular menstruation. The number of young women who regularly consume iron tablets is 32 people (6.3%). The habit of consuming tea or coffee with food was 332 people (65.9%) and the habit of consuming soda with food was 171 people (33.9%).*

Conclusion: *High school students in Jambi City still suffer from anemia. Further intervention is needed in giving iron tablets to adolescents and education in preventing anemia.*

Keywords: *Anemia, Young Women*

INTRODUCTION

One of the most common and difficult nutritional problems to overcome is anemia. Anemia is not only found in developing countries, but also occurs in developed countries and has an impact on human health and socio-economic development. Adolescent girls are the most vulnerable group to experience anemia due to iron deficiency because of the period of physical growth, reproductive maturation, and cognitive transformation that requires high levels of micro and macro nutrients, including iron. The highest prevalence of anemia is in the age range of 12 to 15 years, which

is the period of greatest need. In the Southeast Asia region, around > 25% of young women experience anemia, even in some countries the prevalence reaches 50%[1,2]. In Indonesia, the incidence of anemia increases from time to time. Based on Riskesdas data, in 2013 the prevalence of anemia in adolescents was 22.7% and increased in 2018 to 32%[3].

Anemia has a major impact on health, among others, it can cause decreased immunity, poor concentration, decreased learning achievement, and affects fitness and productivity [4,5]. In young women, anemia that lasts a long time will put the mother at risk of death, has the potential to give birth to premature babies, and has the potential to give birth to babies with low body weight, which are risk factors for stunting[6,7]. There have been many studies evaluating the impact of stunting on individual quality as well as development and the country's economy, so the study of anemia in young women is the starting point for tackling the effects of stunting. This study aims to determine the percentage of anemia in young women in Jambi City as a basis for further research.

METHOD

This research is a quantitative study with a cross sectional design to determine the description of anemia. Research will be conducted in all Jambi City Public High Schools in August-September 2022. The target population in this study were teenagers at the State Senior High School (SMAN) level in Jambi City. The number of samples used in this study was 505.

The sampling technique used. The sampling technique was simple random sampling at thirteen public high schools in Jambi City. Each subject that meets the inclusion criteria will be included as a sample. The sample inclusion criteria were adolescents who were currently at the high school level, willing to be participants in this study, and did not suffer from blood clotting disorders (hemophilia). Exclusion criteria from this study were high school adolescents who refused to become.

The examination was carried out by giving the participant a wound on the finger. Previously, antisepsis was carried out on the finger to be pricked. Two drops of blood were taken, which were then examined in the anemia kit. The number shown by the anemia kit is the Hb level of the participants.

This research will be submitted to the Research Ethics Committee of the Faculty of Medicine, Jambi University for ethical approval. Participants will also be given informed consent prior to the examination. The data will be processed using IBM SPSS 25.

RESULT

The research was conducted on young women in the city of Jambi who

occupy high school education. Of the 504 research respondents, 61 people (12.1%) had anemia, 443 people (87.9%) were normal. The median Hb level is 14.6 g/dl with a maximum value of 25.8 g/dl and a minimum value of <7 g/dl. Based on the regular monthly menstruation, 446 people (88.5%) admitted that they had regular menstruation. The number of young women who regularly consume iron tablets is 32 people (6.3%). The habit of consuming tea or coffee with food was 332 people (65.9%) and the habit of consuming soda with food was 171 people (33.9%).

Table 1. Univariat Analysis

Variabel	*Description (n = 504)*
Hemoglobin Levels	*14,6 (<7 - 25,8)*
Anemia	*61 (12,1%)*
Normal	*443 (87,9%)*
Regular Menstrual	
Yes	*446 (88,5%)*
No	*58 (11,5%)*
Consume iron tablets	
Yes	*32 (6,3%)*
No	*472 (93,7%)*
Habit of consuming tea/coffee with food	
Yes	*332 (65,9%)*
No	*172 (34,1%)*
The habit of consuming soda with food	
Yes	*171 (33,9%)*
No	*333 (66,1%)*

DISCUSSION

The highest cause of anemia in most of the population is due to iron deficiency.[8,9] Based on WHO guidelines, adolescents are classified as anemic if their hemoglobin level is less than 12 mg/dl. UNICEF and WHO report that there are 2.5 cases of iron deficiency for every case of anemia.[10] Before the clinical stage of iron deficiency appears, functional impact has usually occurred. Iron deficiency anemia (ADB) in adolescence is a major health problem. Studies show that the incidence of anemia in adolescents tends to increase with age and corresponds to the highest growth spurt during adolescence. Globally, about one third of the population is affected by anemia and its epidemiology varies according to population age, sex, socio-cultural context, and geographic region.[11] Women of reproductive age (PUR) are physiologically more susceptible to anemia due to persistent menstrual blood loss, childbirth and recurrent pregnancies.

In this study, there were still high school students in Jambi City who suffered from anemia (12%). These results indicate that the main focus on preventing anemia in high school students must continue, such as giving iron tablets, education on foods high in

iron, etc. The global prevalence of anemia shows that 39% of PUR and 46% of pregnant women aged 15-49 years experience anemia in 2016[12]. The prevalence of anemia varies by geographic region. Sub-Saharan Africa (SSA) and South Asia have the highest prevalence of anemia in all age groups[13]. Likewise, at the country level, anemia among PUR is a moderate to severe public health problem (20% or greater as defined by WHO) in most developing countries[14].

The determinants and distribution of the prevalence of anemia in a population include a complex interaction of political, ecological, social, and biological factors[15]. In most countries, anemia varies based on socioeconomic factors such as education, household wealth status, occupation, and place of residence[14,16]. A correlation analysis conducted by Balarajan et al. (2011) report that the risk of anemia among women living in the lowest wealth quintile, without education, also differs between urban and rural settings. Likewise, previous studies have highlighted possible causes of anemia among women including malnutrition, repeated childbearing, pregnancy and lactation, inadequate food intake during pregnancy, inadequate water hygiene and sanitation status, rural living, and parasitic infections.[17,18] Although several causes are associated with anemia, iron deficiency anemia is the most common type of anemia worldwide which is usually caused by inadequate intake of iron-rich foods in a regular diet and excessive loss of red blood cells or a combination of both.[11] Various studies conducted from developing countries report a high prevalence of iron deficiency anemia in pregnant women.[19] In low- and middle-income countries (LMICs), the causes of anemia can be broadly classified into three broad groups: malnutrition, infectious diseases, and genetic hemoglobin disorders. The condition of anemia in the mother has several adverse health consequences, such as an increased risk of miscarriage, stillbirth, premature birth, and low birth weight.[7,20] Approximately 20% of maternal deaths are caused by anemia and are also considered as an additional risk factor for 50% of all maternal deaths.[21] To prevent anemia among PUR, pregnant women, and young children, different approaches at the population and individual levels have been applied.[22] For example, micronutrient supplementation among adolescent girls and pregnant women, food fortification, providing nutrition education, counselling, and iron-rich food-based diet plans for at-risk populations are strategies used to increase the variety and quality of food[23].

CONCLUSION

There are still high school students in Jambi City who suffer from anemia. Further intervention is needed in giving iron tablets to adolescents and education in preventing anemia.

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