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The Role of Lifestyle in Changes in the Menstrual Cycle in Anemic Adolescent Girls

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ABSTRACT

In the life cycle, adolescence is a period where teenagers will experience significant changes, both physically, psychologically and biologically, which can have an impact on aspects of their lives. This period is a transition period from childhood to adulthood, then teenagers begin to experience puberty. Puberty marks the onset of maturity in the reproductive system. This research aims to determine the relationship between knowledge between lifestyle patterns and changes in the menstrual cycle in students accompanied by iron deficiency anemia in young women in Indonesia. This research study is a literature review by drawing on all research in Indonesia regarding the relationship between knowledge of dietary status and changes in the menstrual cycle in adolescent girls. The benefit is to provide new knowledge about conditions that often occur in young women which can be caused by various factors such as nutritional status, healthy lifestyle, diet and changes in the menstrual cycle which decreases the body's resistance and causes the body to be susceptible to health problems. The results of this study show that there is a relationship between diet and lifestyle and the incidence of anemia that occurs in menstrual patterns with the same incidence. Thus, it is concluded that eating patterns and menstrual patterns are related to the incidence of anemia in adolescent girls and paying attention to the incidence of anemia in adolescent girls so as not to interfere with their achievements and hinder their educational goals.

ABSTRAK

Dalam siklus kehidupan masa remaja merupakan satu masa di mana remaja akan mengalami perubahan yang signifikan, baik secara fisik psikologis maupun biologis yang dapat berdampak pada aspek kehidupannya. Masa ini merupakan masa peralihan dari anak-anak hingga dewasa, selanjutnya remaja mulai mengalami pubertas. Pubertas ditandai terjadinya kematangan dalam sistem reproduksi. Penelitian ini bertujuan untuk mengetahui hubungan pengetahuan antara pola hidup dengan perubahannya siklus menstruasi pada siswa yang disertai dengan anemia gizi besi remaja putri di Indonesia. Studi penelitian ini adalah literatur review dengan mengekstrak semua penelitian di Indonesia tentang hubungan pengetahuan status pola makan dengan perubahan siklus menstruasi pada remaja putri. Manfaatnya memberikan pengetahuan baru pada kondisi yang banyak terjadi pada remaja putri yang mana dapat disebabkan oleh berbagai faktor seperti status gizi pola makan pola hidup sehat serta perubahan siklus menstruasi yang mengalami penurunan daya tahan tubuh dan mengakibatkan tubuh mudah terkena masalah kesehatan. Hasil penelitian ini menunjukkan bahwa ada hubungan antara pola makan pola hidup dan kejadian anemia diperoleh pada pola menstruasi dengan kejadian yang sama. Dengan demikian, disimpulkan bahwa pola makan maupun pola menstruasi berhubungan dengan kejadian anemia pada remaja putri dan memperhatikan kejadian anemia pada remaja putri agar tidak mengganggu prestasi dan menghambat tujuan pendidikannya.

PRELIMINARY

Menstruation is the shedding (desquamation) of the uterine wall or endometrium accompanied by bleeding as a result of the fertilization process not occurring (Setiawati, 2015). Menstruation that occurs repeatedly every month will ultimately form a menstrual cycle (Yusiana & Saputri, 2016). A normal menstrual cycle lasts 21-35 days on average. There are several menstrual cycle disorders including polymenorrhea (menstrual cycle <20 days), oligomenorrhea (menstrual cycle >35 days), and amenorrhea (menstrual cycle >3 months) (Pythagoras, 2017).

The World Health Organization states that more than 30% of the world's population suffers from anemia. The percentage in developed countries is 4.3-20% and in developing countries it is 30-48% with iron nutritional anemia. Globally, 43% of children suffer, 38% of pregnant women, 29% of non-pregnant women, and 29% of all women of childbearing age are diagnosed with anemia. In Indonesia, anemia due to iron deficiency (Iron Nutritional Anemia) is a nutritional problem that has not yet been resolved, both in pregnant women and in teenagers. Based on RISKESDAS data in 2018, there was an increase in anemia in pregnant women by 11.8% compared to 2013. 37.1% of pregnant women suffered from anemia in 2013 and in 2018 it was 48.9% (Briawan, 2014). This occurs because of the high prevalence of anemia in adolescent girls, namely 25% and 17% in WUS.

Adolescence is a transitional period that begins when a child shows signs of puberty and continues with changes from non-sexual to sexual. There are several factors that influence the speed of puberty, including nutrition, genetics, health conditions, social, behavioral and environmental factors. Nutrition is the most powerful factor influencing puberty. Puberty in boys occurs at age 9-14 years, while puberty in girls generally occurs at age 9-12 years. Adolescent girls experience an increased need for iron due to accelerated growth (growth support) and menstruation. Apart from that, young women are usually very concerned about their body shape, so many people consume inadequate food. As a result, young women are more susceptible to health problems, including anemia (Dhaliwal, *et.al.*, 2004).

Anemia is a symptom of an underlying condition, such as loss of blood components, inadequate elements or lack of nutrients required for the formation of red blood cells resulting in a decrease in the oxygen-carrying capacity of the blood. Anemia can be caused by blood loss, diarrhea and mal-absorption, frequent blood donation and inadequate food consumption (Mayasari, *et.al.*, 2020). In addition, certain conditions such as increased needs during the growth period, suffering from chronic diseases (such as tuberculosis) and blood loss due to parasitic infections (malaria and worms) will aggravate the incidence of anemia.

According to Islamy & Farida (2019), anemia will result in stunted growth in children, less muscle cell formation, decreased endurance, reduced performance, and changes in behavior. Signs of anemia in young women include lethargy, weakness, tiredness, tiredness and inattention (5L), frequent complaints of dizziness and dizzy eyes. Further symptoms are that the eyelids, lips, tongue, skin and palms become pale. Meanwhile, other impacts of iron deficiency anemia are low productivity, hampered mental and intelligence development, decreased body immune system, and morbidity.

Iron deficiency (anemia) can cause decreased exercise capacity, immune function, and cognitive performance. Adolescent girls who experience iron deficiency have lower scores on verbal learning and memory (Solehati, *et.al.*, 2018). Anemia among adolescent girls is higher than among adolescent boys. Anemia in adolescents has a negative impact on reducing immunity, concentration, learning achievement, adolescent fitness and productivity. Research conducted by Mau, *et.al.*, (2020) shows that there is a relationship between anemia and a woman's menstrual cycle. An abnormal menstrual cycle can be caused by a woman having or suffering from anemia.

Anemia has a very important influence on the regularity of the menstrual cycle, women who have or suffer from anemia so that the supply of oxygen throughout the body is reduced, follicle stimulating hormone (FSH) and Luteinizing Hormone (LH) produced by the hypothalamus have an effect (Sudoyo, *et.al.*, 2009). Based on this background, the researcher aims to conduct literature review research to determine the relationship between knowledge of nutritional status and menstrual patterns on iron deficiency anemia among female adolescents in Indonesia.

METHOD

This research study is a qualitative method, where the explanations chosen are all research that includes the relationship between nutritional status and menstrual patterns with iron nutritional anemia in

adolescent girls. This type of research was chosen by determining the menstrual cycle system for every young woman who experiences anemia in that cycle. The inclusion criteria were adolescent girls aged 11-19 years. What was studied was the relationship between nutritional status and menstrual patterns and iron deficiency anemia in adolescent girls. The research was carried out in the community environment. The exclusion criteria were factors associated with anemia. Literature or journals are journals obtained from Google Scholar, then extracted/filtered according to topic and inclusion criteria. The journals obtained consisted of the Journal of Public Health (JKM), Journal of Medicine and Health, Journal of Nursing, Journal of Health and Journal of Nutrition.

FINDINGS AND DISCUSSION

There are many factors that cause iron deficiency anemia in adolescent girls, including the increased need for iron during adolescence, lack of iron intake in the food consumed, pregnancy during adolescence, infectious diseases and parasitic infections, socio-economic and nutritional status. The following journals were obtained according to the research topic, namely the relationship between nutritional status and menstrual patterns with iron nutritional anemia in young women.

Listiana (2016) explains the relationship between stress levels and nutritional status with menstrual cycle irregularities in adolescents, with the method used, namely quantitative with descriptive, correlation, the sampling technique used in the research is proportional stratified random sampling. The aim is to determine the relationship between stress and nutritional status and menstrual cycle irregularities in adolescents. Then the results obtained are stress levels, it is known that the majority of respondents who are moderately stressed are 5 respondents, and nutritional status is known that the majority of respondents whose nutritional status is normal are 7 respondents, menstrual cycle irregularity is known that the majority of respondents whose menstrual cycles are irregular regularly among teenagers as many as 10 respondents.

Anemia is a decrease in hemoglobin levels below normal as a result of disorders of iron metabolism which consists of absorption, transport, storage, utilization and expenditure. Hemoglobin is a parameter that is often used to determine the incidence of anemia. A person's hemoglobin level is obtained from measurements using certain methods and in accordance with established standards. 8 Nutritional status is the condition of the body as a result of consumption, absorption and use of nutrients or a physiological condition resulting from the availability of nutrients in the body. 15 In this study, most of the subjects had a nutritional status of very thin 1 person (1.1%), thin 3 people (3.3%), normal 7 people (73.3%), overweight 14 people (15.6%) , and obesity as many as 6 people (6.7%). Several factors trigger nutritional problems in adolescence, such as wrong eating habits, a wrong understanding of nutrition where a slim body becomes the dream of teenagers so that nutritional needs are not met, and excessive preference for certain foods, for example fast food.

The condition of anemia causes the hemoglobin content which carries oxygen to the body's tissues to not meet normal levels, causing various complications including fatigue and stress on the body's organs (Sediaoetama, 2004). Lack of Hb levels in the blood will cause the body to quickly become tired, weak, lethargic and fatigued. This will result in a decrease in study achievement and work productivity. 10 Menstruation experienced by young women normally lasts between 2-7 days each month and can also increase the incidence of anemia. This is because the volume of menstrual blood that comes out on average reaches 33-50 ml or around 7 to 10 teaspoons/day, during this menstrual period women lose 30 mg of iron. The large amount of blood lost will cause menstruating women to experience weakness, lethargy and even lightheadedness, which is one of the signs of iron deficiency anemia. This can be made worse if the menstrual cycle lengthens due to the large volume of blood lost.

Table 1. Information Results from Respondents

Names	Complaints Experienced	Reason
Nisa Syahdila	Feeling anemia during menstruation	He often feels anemia due to improper eating and sleeping patterns. Still often stay up late and eat fast food
Amira Dwi Ananda	Feeling anemia during menstruation	He said that he often felt stressed when doing a lot of school assignments
Dewi Syhaputri	Feeling anemia during	Everyday I never exercise and just stay in my

	menstruation	room playing on my cellphone and eating fast food
Purnama Sari Siregar	Feeling anemia during menstruation	Irregular eating patterns
Maisyah Hawanda	Feeling anemia during menstruation	Excessive stress in every job done
Febriyani	Feeling anemia during menstruation	Inappropriate lifestyle, inappropriate sleeping hours
Diana	Feeling anemia during menstruation	Frequently staying up until morning (3am)
Aiswara	Sometimes you feel anemia during menstruation	Not used to staying up late but still likes to eat fast food
Annisah Zuhra	Sometimes you feel anemia during menstruation	Maintain a proper diet
Zennah Annisa	Never felt pain during menstruation	Maintain your diet, sleep hours, exercise diligently and give yourself self-rewards

Based on five studies, three studies examined the relationship between knowledge of nutritional status and anemia in adolescent girls. The first research was conducted by Amir & Djokosujono (2019) using a survey method using a cross-sectional approach which examined nutritional knowledge, eating patterns and compliance with the consumption of blood supplement tablets with the incidence of anemia in young women. The results of the analysis of the relationship between nutritional knowledge and anemia status in young women showed that respondents who had anemia status in the anemia category had less nutritional knowledge, in addition, respondents who had anemia status in the non-anemic category had less nutritional knowledge.

CONCLUSION

Based on the research description above, it can be concluded that the relationship between nutritional status and menstruation patterns is very related, where low knowledge about anemia influences the occurrence of anemia in adolescents. The results obtained were that out of 10 respondents stated that 80% felt pain during menstruation which was caused by unhealthy eating patterns, sleeping hours and lifestyle. Which has an impact on changes in menstruation in young women who experience it.

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