

ICASH-A077

FACTORS AFFECTING IRON AND FOLICACID CONSUMPTION AMONG ADOLESCENTS: A LITERATURE REVIEW

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ABSTRACT

Background: *Adolescents who experience anemia in 2018 reach 48.9%. The Indonesian government's program on taking blood tablets is done once a week. Anemia in adolescents in 2013 to 2018 has increased by 11.8%. This study aims to determine factor that related to iron and folic acid supplement consumption.*

Methodology: *Research articles are reviewed from several sources, which is Pubmed, Science Direct, and Google Scholar. The article written by English with key words for compliance with iron tablets and folic acid, side effects and other influencing factors. This article search starts from 2009 to 2019 and related books.*

Results: *Anemia in adolescents is still a problem. Factors that influence the regularity of drinking iron and folic acid supplementation include the side effects caused, how to consume the iron and folic acid supplement correctly without combine with other drinks, socio-cultural factors, and difficulties swallowing tablets.*

Conclusion: *Policies that need to be implemented are health promotion by increasing knowledge about anemia, the importance of iron and folic acid and conducting periodic supervision. This supervision can be done by carrying out the movement of taking iron tablets and folic acid simultaneously at the same time and day that is directly supervised by the school teacher.*

Keywords: anemia of adolescents, iron tablets, folic acid

INTRODUCTION

Adolescence is a period of very rapid growth after childhood. Teenagers experience physical and psychological changes that require large nutrition so that they are prone to anemia [1]. Nutritional anemia is a deficiency of iron in the food consumed daily characterized by a lack of hemoglobin (Hb) levels in the blood below normal [2]. Adolescents who experience anemia can affect physically and mentally such as lack of concentration in doing work or in education, and a threat to mothers in the future for adolescent girls [1]. Adolescents who remain in an anemia state subsequently experience pregnancy, will have a risk of abortion, premature birth, postpartum hemorrhage, and hypoxia [3].

Cases of anemia in the world reach 600 million preschoolers and schools [4]. Anemia in adolescents in Indonesia reaches 12% of teenage boys and 23% of teenage girls. This anemia is caused by iron deficiency (iron deficiency anemia) [5]. Based on the results of Basic Health Research in 2013 anemia in young women reached 37.1% while in 2018 it reached 48.9% [5]. Anemia can be avoided by consuming foods that are high in iron, folic acid vitamin A, vitamin C and zinc as well as giving tablets plus blood. The Indonesian government has a program on the distribution of blood-added tablets for women of childbearing age including teenagers and pregnant women [5]. Tablets added to blood are

tablets containing iron 60 mg and folic acid 0.400 mg to prevent and overcome iron anemia in women of childbearing age and pregnant women. Indonesian people generally consider the heart, fish, meat to have relatively expensive prices and not yet fully can the community reach it [2].

The coverage of tablet supplementation in 2017 for young women reached 29.51%. This achievement is in accordance with the 2017 Strategic Plan target of 20%, but not all coverage of each province is fulfilled. There are some areas that are still lacking in achievement, for example East Kalimantan (2.86%), DKI Jakarta (6.11%), Banten (6.67%), Papua (8.07%), North Sumatra (10.42%), Maluku (11.01%), East Nusa Tenggara (13.42%), North Sulawesi (14.70%), West Kalimantan (15, 84%), and West Java (18.82%) [6]. Young women who have received blood tablets in 2018 amounted to 76.2%. These young women got it from school by 80.9%, but tablet consumption increased blood <52 grains 98.6% while ≥ 52 items only 1.4% [7].

The achievement of giving blood tablets is in line with the Strategic Plan target but anemia in adolescents in 2013 to 2018 has increased by 11.8%. This is still one of the health problems of the Indonesian government, therefore a literature review is needed to get a solution to achieving routine blood-added tablet consumption in adolescents. The benefits of this article to be applied as a form of efforts to reduce the incidence of anemia in adolescents.

METHODS

The aim of this study was to identify the factors that influence consumption of iron tablets and folic acid in adolescents. Search for research articles is reviewed based on electronic databases, PubMed from 2009 to 2019, which are presented in English. The keywords used in the search for articles were folic acid, iron tablets, supplement consumption, anemia in adolescents. The keywords for article search are combined using the Boolean operator (AND) system, obtained as many as 835 research articles. The researcher examined the article by considering abstracts so that 33 articles were obtained. From 33 articles, screening was conducted based on the research method so that 8 articles were obtained.

RESULTS & DISCUSSION

Adolescents who did not adhere to consuming iron tablets and folic acid were caused by several factors. These factors include side effects caused [8, 9], how to consume less correctly [10], socio-cultural factors [11], and difficulty swallowing tablets [9]. In digestion there are iron-blocking beneficial bacteria such as lactobacilli resulting in an increase in enterobacteria, decreased lactobacilli, increased fecal calprotectin concentration. Stool calprotectin has increased which is a sign of inflammation in the intestine [12]. Side effects that arise after consuming these tablets in India include metallic taste, dizziness, nausea, constipation and diarrhea [8]. Side effects on digestive problems that occur in Iran include vomiting and gastric pressure. Other factors are the influence of family and friends, students' reluctance and bad environment [9]. There are about 34.2% of teenagers in India still consuming folic acid tablets along with tea or coffee. Teenagers in India are also not used to consuming meat, green vegetables and oranges once a week [10].

Local socio-cultural factors or festivals include factors that influence adherence to drinking iron and folic acid supplementation in adolescents. Navratri and Teeja are traditions of fasting carried out in India. Some of the myths circulating among young women about the side effects of iron and folic acid supplementation such as iron tablets cause menstrual irregularities. The solution is to provide counseling [11]. Not the whole culture or environment has a negative impact on Indian Tribal Communities. They have their own food diet for the community. This has a positive impact, namely the food they consume is a variety of locally grown vegetables and fruits. Tea is not the usual drink they consume [8]. Socio-cultural factors can be overcome by repeated group counseling. Group counseling has been successful in increasing the consumption of iron and folic acid again. Group counseling can help teachers improve the knowledge of young women about anemia and be sure to comply with the program [11].

Knowledge of this young woman does not fully understand how to consume folic acid tablets, for example, taking it together with coffee or tea [10]. Consumption of coffee can reduce ferritin levels in the blood [13] and this also applies to tea consumption [14]. Nutrition education packages and healthy diets have proven effective in raising awareness and preventing iron deficiency anemia in adolescents with anemia. The nutrition education program along with the supplementation program can be proposed to the government to improve anemia status and prevent a recurrence of iron deficiency among school teens [15]. In school adolescents to increase anemia awareness a health promotion program can be carried out [16]. Knowledge given to adolescents must also include strategies to prevent side effects from iron tablets and folic acid by giving sweets consumed after taking the tablet [8]. Knowledge alone is not enough to influence practice and attitude. Behavioral, physical and socio-economic limitations must also be addressed [17]. Health facilities must improve health services that are friendly to teenagers so that they can use them well [16].

The iron and folic acid supplementation program can involve teachers, principals, village elders, and local leaders [11]. School teachers can provide folic acid, knowledge and practice of habits about nutrition can have an impact on compliance with consuming folic acid with an increase in ferritin levels in the blood [18]. The selection of supervision in the provision of iron and folic acid supplementation is better done by school teachers because it has a positive impact on influencing young women to obedience than others [11]. Impacts or side effects that arise can be anticipated by using candy. Teachers can support the prevention of anemia by taking an active role in distributing worm disease prevention tablets [8]. Students have difficulty swallowing capsules or tablets. Some of them also said they were reluctant to even hate the pill. The solution that can be taken is to replace tablets or pills with syrup and drops. Syrup or drops are believed to be more effective, but have an unpleasant taste, cause staining of the teeth, poor adherence, difficulty in monitoring and risk of overdose on syrup or drop doses [9]. Young women who do not go to school can be monitored by using pills to improve compliance with iron and folic acid supplements [11].

Factors that influence the consumption of iron tablets by adolescent schools in Indonesia consist of perceived threats, perceived benefits, perceived barriers, and self-confidence. The perceived threat has proven to be positively correlated with the intention to consume iron tablets. The perceived benefit factor has a positive correlation with the intention to consume iron tablets because the perceived benefits prove to be a strong predictor for changing adolescent health behavior related to anemia prevention. Barriers to perception have a negative correlation with the intention to consume iron tablets, because the barriers felt by school teens such as the influence of the surrounding environment can reduce the intention to consume iron tablets. The self-confidence factor has a positive correlation with the intention to consume iron tablets. School adolescents' confidence comes from peer support and trusted information [19].

From several factors that have been explained before, there are similarities and differences in the factors that influence consumption of iron tablets and folic acid between Indonesia and other countries. Differences in factors that affect consumption of iron tablets and folic acid in Indonesia, India and Iran are side effects caused [8, 9], how to consume less correctly [10], socio-cultural factors [11], and difficulty swallowing tablets [9], perceived threats, perceived benefits, and self-confidence [19]. While the equality of environmental factors that affect consumption of iron tablets and folic acid in Indonesia, India, and Iran are environmental factors which are adolescent barriers to consuming iron tablets and folic acid.

CONCLUSION

Anemia in adolescents is still a problem. Factors that influence the regularity of drinking iron and folic acid supplementation include side effects caused, how to consume less correctly, socio-cultural factors, difficulty swallowing tablets, perceived threats, perceived benefits, perceived barriers, and self-confidence. The next researcher should use the Randomized Controlled Trial (RCT) method. Policies that need to be implemented by the government are creating cooperation between primary health

services and the school to increase consumption of iron tablets and folic acid by adolescents. The procurement of programs for taking iron tablets and adding blood simultaneously as well as supervision that needs to be improved by direct supervision by school teachers.

CONFLICT OF INTEREST

There is no conflict of interest.

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