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Correlation Between Tea Drinking Habit and Anemia Cases in Teenage Girl in Home Economics Department, Faculty of Engineering, State University of Surabaya

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Abstract
Anemia remains a health problem in Indonesia. Anemia in teenage girls can lead to decreased reproductive health of women as well as inhibition of motor, mental, and intelligence development. The main factor causing anemia is the absorption of iron in the body that is inhibited. One of the foods that can inhibit the absorption of iron is tea. The purpose of this study was to determine the correlation between tea drinking habits and anemia cases in teenage girls in Home Economics Department, Faculty of Engineering, State University of Surabaya. This research used cross-sectional approach. Data were collected by interview using form food frequency and measurement of hemoglobin level using Hemocue. Population research was 655 female students. 28 respondents were taken by proportionate random sampling technique as research sample. Data were analyzed by Fisher Exact test. The results showed that most respondents (57.7%) suffered from anemia and most respondents (57.7%) had tea drinking habits. The results of statistical tests showed that tea drinking habits were correlated with anemia cases in teenage girls p = 0.00 (p <α). Therefore, teenage girls should not consume tea at meal time up to 2 hours after meal.

Keywords*: tea drinking, anemia, teenage girl*

I. INTRODUCTION

Teenagers are an asset of the nation that is expected to be a better future generation. Adolescence is the time of rapid changes in terms of physical growth, cognitive, and psychosocial or behavioral. Teen age is the transition age from childhood to adulthood. Changes occur due to increased muscle mass, increased fat tissue, and hormonal changes (Adriani & Wirjatmadi, 2012). According to Tarwoto (2010), teenagers are defined as the transition period of development from childhood to adulthood, covering aspects of biology, cognitive, and social changes that take place between the ages of 10-19 years.

Teenage boys and teenage girls need more energy, protein, and other nutrients than other age groups in their growth period. Sexual maturation in teenager leads to increased iron requirement. Teenage girls are more susceptible to anemia due to their menstrual cycle every month (Sediaoetama, 2006).

According to data from Depkes RI (2012), Survei Kesehatan Rumah Tangga (Household Health Survey) in 2011 stated that the prevalence of iron deficiency anemia in toddlers is by 40.5%; teenage girls (10-18 years old) by 57.1%; women (19-45 years) by 39.5%; pregnant women by 50.5%; and postpartum women by 45.1%. From all the age groups, teenage girls have the highest risk of anemia.

Iron deficiency anemia in teenage girls in a long term can lead to not being able to fulfill nutritional needs for their selves and the fetus when pregnant. Anemia may increase the frequency of complications, maternal death risk, prematurity, LBW, and prenatal mortality (Sihotang & Febriany, 2012).

In general, the high prevalence of anemia in teenage girls is caused by several factors, such as low intake of iron and other nutrients such as Vitamins A, C, folate, riboflavin, and B_{12}. Iron needs in a day can be fulfill by consuming animal food sources as an easily absorbed source of iron and consuming plant-based sources as a high source of iron but difficult to absorb (Briawan, 2014).

The habit of drinking tea has become a culture for the people of the world, especially in Indonesia. Tea is the most consumed beverage by Indonesian people. The average tea consumption of the world population is 120 mL / day (Septiawan & Sugerta, 2015). However, according to Kartono & Soekatri (2001), tea drinking habits can inhibit the absorption of iron. A study conducted by Setyaningsih (2008) concluded that teenagers who had a tea drinking habits more than a cup for a day had a risk of anemia by 2.023 when compared with girls who consumed less than a cup of tea per day.

Preliminary study results have shown that 29 people (58%) of 50 female students in Home Economics Department, Faculty of Engineering, State University of Surabaya are known to suffer from anemia. Based on this data, researchers conducted a study to analyze the correlation between tea drinking habits with anemia cases in teenage girls in Home Economics Department, Faculty of Engineering, State University of Surabaya.

II. METHODS

This study used cross-sectional study design and conducted in June of 2017. The population of this study were 655 female students in the Home Economics Department, Faculty of Engineering, State University of Surabaya. This research sampling was using proportionate random sampling technique. Sample consist of 28 respondents. Independent variable was tea drinking habits and dependent variable was the anemia cases in teenage girls. Data were collected by interview using form food frequency and measurement of hemoglobin level using Hemocue. The statistical test used is fisher exact test.

III. RESULTS

The frequency distribution of respondents based on tea drinking habits and the anemia cases can be seen in Table 1.

Tabel 1. Distribution of Respondents Frequency Based on Tea Drinking Habits and Anemia Cases at Home Economics Department, Faculty of Engineering, State University of Surabaya

Variable	Frequecy	Percentage
Tea Drinking Habits		
• Yes	15	53.57
• No	13	46.43
Anemia Cases		
• Anemia sufferers	15	53.57
• Not anemia sufferers	13	46.43

Table 1 shows that 53.57% of teenage girls had tea drinking habits, while 46.43% of teenage girls did not possess the habit of drinking tea. In addition, Table 1 also shows that 53.57% of teenage girls suffered from anemia, while 46.43% of adolescent girls did not suffer from anemia.

The correlation between tea drinking habits and the anemia cases in Home Economics Department, Faculty of Engineering, State University of Surabaya can be seen in Table 2.

Table 2. Relationship between Tea Drinking Habits and Anemia Cases at Home Economics Department, Faculty of Engineering, State University of Surabaya

Tea Drinking Habits	Anemia Cases				Total	
	Anemia Sufferers		Not Anemia Sufferers			
	f	%	f	%	f	%
Yes	13	86,70	2	13,30	15	100
No	2	15,38	11	84,62	13	100
Total	15	53,57	13	46,43	28	100

p value = 0,000

Table 2 shows that 86.70% respondents were suffer from anemia and have a habit of drinking tea. 15,38% respondents suffer from anemia, but did not have tea drinking habit. The result of statistical test showed that there was a correlation between tea drinking habit and anemia cases in teenage girls (p-value = 0.000).

IV. DISCUSSION

The result showed that there was a correlation between tea drinking habit and anemia cases in teenage girls at Home Economics Department, Faculty of Engineering, State University of Surabaya (p = 0.000). This result is in line with research conducted by Besral, et al. (2007) which showed that 49% of respondents with tea drinking habits every day were more at risk of anemia. Research conducted by Setiyarno, et al. (2012) also supports the results of this research. Setiyamo research's results indicated that there was a correlation between tea consumption

with hemoglobin levels in the citizens of Jenawi, Karanganyar District. Residents who have a habit of drinking tea as much as 73.2% and who experienced anemia as much as 45.1%.

Iron absorption in the body is influenced by several factors that consist of the lack of nutrient intake such as vitamin C, vitamin A, zinc and folic acid and the presence of iron absorption inhibitors. Consumption of tea and iron simultaneously can interrupt the formation of red blood cells (Soehardi, 2004). This happens because tea contains tannins which are polyphenol compounds that inhibit the absorption of iron.

Tannin content in tea is as much as 20-30 grams per 100 grams (Danang, 2013). Tannins contained in tea can reduce iron absorption by up to 80%. Tannins bind mineral Fe (iron) so that the absorption of iron and the formation of red blood cells become inhibited. Tannin contained in tea not only binds Fe minerals, but also binds Ca and Zn minerals (Bangun et al, 2013).

The habit of drinking tea has become a culture for the people in the world, especially in Indonesia. Tea is the most consumed beverage by the people of Indonesia. The average tea consumption of the world population is 120mL / day (Septiawan & Sugerta, 2015). Tea has several benefits for the body, such as can reduce the risk of cardiovascular disease (Hertog, 1997).

Research on the benefits of tea has been done, but inappropriate way to consuming tea will have a bad impact. Tea drinking habit in less than 2 hours after eating has at risk of anemia almost twice as much (Akhmadi, 2003). If the body is less iron, then we should not drink tea at meal time up to 2 hours after meal. The body that has iron deficiency resulted in the formation of hemoglobin is hampered causing anemia (Danang, 2013). Changes in good tea habits can be done by reducing the frequency of drinking tea in a week. Drinking tea should not done at the same time with meal time up to 2-3 hours after meal.

V. CONCLUSION

Tea drinking habits correlated with the anemia cases in teenage girls in Home Economics Department, Faculty of Engineering, State University of Surabaya.

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