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### DESCRIPTION OF STUDENT BEHAVIOR IN PREVENTING ANEMIA AT NURSING FACULTY UNIVERSITY OF PADJADJARAN

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#### ABSTRACT

**Background:** Anemia is still a global health problem that occurs in several developing countries especially in adolescents. Anemia in adolescents is influenced by behavior in preventing anemia that does not pay attention to the adequacy of iron that the body needs. **Purpose:** This study aims to identify the description of student behavior in preventing anemia at Nursing Faculty University of Padjadjaran. **Methods:** The study population was students of the Faculty of Nursing Unpad Garut Campus with a total sampling technique of 291 respondents. The research instrument was an anemia prevention behavior questionnaire with a Likert scale of 18 statements. Data analysis used univariate analysis in the form of percentages and the results of the study consisted of good behavior and poor behavior categories. **Results:** The results showed that 158 respondents (54.3%) had poor behavior in preventing anemia and 133 respondents (45.7%) had good behavior. As many as 18 statements in the anemia prevention behavior questionnaire, it is known that 84.2% of respondents chose the answer never to do the habit of consuming blood added tablets along with papaya / banana. **Conclusion:** Anemia prevention behavior in students of the Faculty of Nursing that is still not good can lead to anemia which will have an impact on student productivity so it is recommended that students increase their nutritional intake and avoid bad behavior that leads to anemia and can check hemoglobin levels to detect earlier if anemia occurs.

**Keywords:** Students; Prevention of Anemia; Behavior

#### BACKGROUND

Anemia is still become global health problem, especially in developing countries which will have an impact on health, social and economic development. Anemia occurs in all human life cycles, but more common in young women, pregnant women, and young children (Siva, Sobha, & Manjula, 2016).

This research also states that 50% of anemia cases include iron deficiency anemia.

The prevalence of anemia globally is 32.9%, and the incidence rate is at a concerning level, in Southeast Asia (57%), Africa (46%), and East Mediterranean (45%). Globally, anemia that occurs in adult woman is 30.2% and adult man is 12.7% (Shamah, Villalpando, & De la Cruz, 2017).

In several countries in Asia, the incidence of iron deficiency anemia among adolescent girls is 56% in India (Siva et al., 2016), 82.5% in Bangladesh, 42.2% in Philippines, and 23% in China (Listiana, 2016). In Indonesia itself, the incidence of iron deficiency anemia is 72.3% (Kaimudin, Lestari, & Afa, 2017) and the incidence rate in adolescent girls is relatively higher at 23.9% than male adolescents, which is 18.4% (Dasar, 2013). Data obtained from the West Java Health Office also shows that the prevalence of anemia in West Java in adolescent girls is around 40.4% (Nurrohmah, Putri, & Herfanda, 2017), and in Garut Regency itself the prevalence of anemia in pregnant women in 2011 was 45.14% and 39.29% in 2014 (Alvia & Novita, 2018).

The main causes of iron deficiency anemia are continuous blood loss, poor intake and absorption of iron nutrients and an increase in Fe (iron) requirements during growth (Jaelani, Simanjuntak, & Yuliantini, 2017). Some of the risk factors for anemia include education, gender, status of residence, breakfast habits, health status and BMI (Body Mass Index) which are in the underweight category (Banowati & Adiyaksa, 2017). Whereas in the research from (Meidayati & Purwati, 2017) the factors that encourage the incidence of anemia in adolescents are due to the menstrual cycle, parental education level, economic level, and the level of knowledge and attitude and behavior of adolescents who are lacking about anemia and how to prevent it such as consuming Fe and vitamin C tablet.

Adolescents are at high risk of anemia because at this time the need for iron will increase due to sexual growth and maturation, the presence of men

strual cycle in adolescent girls, as well as increased lecture, organizational and extracurricular activities that will affect behavior in consuming fast food (ready-made meal) which lack of nutritional content, as well as irregular eating patterns as well as drinking habits that inhibit the absorption of Fe (Afrianingsih & Wahtini, 2016). Research

by (Agustin, 2015) states that the bad behavior of adolescents in doing anemia prevention is indicated by 50% of adolescents leaving one meal every day. The quality of humans with good physical performance must be supported by human behavior in preventing disease, one of which is by consuming good nutrition so it can support work productivity and good work results. On the other hand, poor nutrition due to unbalanced consumption and activity behavior will lead to iron deficiency anemia which will result in decreased immune system so that productivity is low (Ainy, 2019).

The Indonesian government has made efforts to prevent and control anemia which prioritize adolescent girls and women of childbearing age by giving iron tablet (blood booster tablet) to reduce the incidence of anemia (WHO, 2014), but the awareness of adolescents in consuming iron tablet is still lacking. It is shown from the 75 respondents as many as 24 respondents (32%) only who consume iron tablet and as many as 51 respondents (68%) do not consume iron tablet. The behavior of consuming iron tablet is an effort to prevent anemia in order to increase hemoglobin levels (Putri, Muwakidah, & Epid, 2018). According to (Didzun et al., 2019) prevention and control of anemia focuses on women, even though it does not rule out that anemia can also occur in men, where 9% of men in India have the opportunity to experience anemia due to smoking, lack weight gain, and lack of knowledge and this will affect productivity and decrease immunity so it is susceptible for disease.

Based on personal observation, every time a routine blood donor is held at Faculty of Nursing Unpad, Garut Campus, there are always students who cannot donate blood. After obtaining data from the BEM KEMA FKep Unpad Garut Campus, it turns out that in December 2019, 160 student donors were found, but 63 students were not allowed to donate blood because they did not meet the blood donation criteria such as not menstruating, normal blood pressure, not

taking drugs in the long term time of 1 month, and level of Hb (hemoglobin)  $\geq 12.5$  g/dl. Meanwhile, 47 people among those who had not been able to donate blood were due to their low Hb level. In addition, when making observation on the learning process in the 2016 class, there were some students who were not concentrated, which was indicated by students looking sluggish, not excited and sleepy, also many of them who played gadget during the learning process.

Health students generally get information related to anemia and its prevention during class lesson and during talk show at routine blood donation activities. In addition, students have various choices of sources to obtain information and increase knowledge, ranging from books in the library, internet social media, discussion with lecturers, and questions and answers with health workers (Ainy, 2019). This information is an external factor that will trigger adolescents to take measures to prevent anemia, in addition to information there is motivation and awareness in adolescents that will affect adolescent abilities or behavior in doing anemia prevention (Musalazimah, Hasyim, & Muwakhidah, 2018). (Afrianingsih & Wahtini, 2016) also stated that the behavior of adolescents in doing anemia prevention can affect the incidence of anemia.

Given that the incidence of anemia can be influenced by the behavior of adolescents themselves and the impact caused by anemia will reduce the work productivity of human resources in the future, decreased fitness level, and can reduce academic achievement due to decreased concentration during the learning process, the researchers are interested in conducting research regarding "Description of Student Behavior in Preventing Anemia at Faculty of Nursing, Universitas Padjadjaran", and the purpose of this study aims to identify the description of student behavior in preventing anemia at Nursing Faculty University of Padjadjaran

## METHODS

This research design was descriptive quantitative which aimed to describe student behavior in doing anemia prevention at Faculty of Nursing Unpad. This study involved 291 students of the Faculty of Nursing Unpad, Garut Campus. This study used google form in data collection. The research instrument used the Anemia Prevention Behavior Questionnaire from Prof. Mutalazimah (2018) with reliability test result obtained at 0.916, which meant it was feasible to be distributed to respondents. The Anemia Prevention Behavior Questionnaire consisted of 18 statements filled in by female respondents and 16 statements filled in by male respondents. This research had been approved and obtained ethical permission from the chairman of the Research Ethics Commission, Dr. Meita Dharmayanti, dr., Sp.Ak., M.Kes with letter number 554/UN6.KEP/EC/2020 on June 1, 2020. The location of this research at Nursing Faculty University of Padjadjaran Garut Campus, and the time of research was taken in the third week of July 2020. Respondent data was collected then processed and analyzed and presented in form of frequency distribution table and percentage.

## RESULTS

### Student Behavior in Preventing Anemia

Student behavior in preventing anemia at Faculty of Nursing Unpad in the category of anemia prevention behavior was not good enough for 54.3%.

**Table 1** Student Behavior in Preventing Anemia at Faculty of Nursing Universitas Padjadjaran (n=291)

Category	Frequency (F)	Percentage (%)
Good	133	45,7
Poor	158	54,3
Total	291	100

### Student Behavior in Preventing Anemia Based on Respondent Characteristics

The behavior of student in preventing anemia based on the respondent characteristics could be seen that out of the 291 respondents most of them came from the 2016 class (48.5%),

the respondents were female (77%) and male (33%). Table 4.2 also showed that the student behavior in carrying out anemia prevention at

Faculty of Nursing Unpad obtained poor behavior among male respondents by 70.1%.

**Table 2** Student Behavior in Preventing Anemia at Faculty of Nursing Unpad Based on Respondent Characteristics (n=291)

Characteristic	Anemia Prevention Behavior Category					
	Good		Poor		Total	
	F	%	F	%	F	%
<b>Class</b>						
2019	9	37.5	15	62.5	24	8.2
2018	24	37.5	40	62.5	64	22
2019	33	53.2	29	46.8	62	21.3
2016	67	47.5	74	52.2	141	48.5
<b>Gender</b>						
Male	20	29.9	47	70.1	67	23
Female	133	50.4	111	49.6	224	77
<b>Status of residence</b>						
With parents	104	50	104	50	208	71.5
Boarding house/Rented/Dormitory/With sibling	29	34,9	54	65,1	83	28.5
<b>Menstrual status (female respondents)</b>						
a. Age at first menstruation						
≥ 15						
< 15	12	38.7	19	61.3	31	13.8
b. Length of menstruation						
1 – 2 days	7	46.7	8	53.3	15	6.7
3 – 8 days	101	51.8	94	48.2	193	86.2
> 8 days						
c. Menstrual cycle	5	22.7	17	77.3	22	9.8
< 21 days						
21 – 35 days	9	45	11	55	20	8.9
> 35 days	100	51.5	94	48.5	192	85.7
	4	33.3	8	66.7	12	5.4
<b>Medical History</b>						
a. Have had anemia						
Yes	57	55.9	45	44.1	102	35.1
No	61	42.7	82	57.3	143	49.1
Do not know	15	32.6	31	67.4	46	15.8
b. Family members with anemia						
Yes	41	56.9	31	43.1	72	24.7
No	76	45.8	90	54.2	166	57
Do not know	16	30.2	37	69.8	53	18.2
c. Smoking						
Yes	7	23.3	23	76.7	30	10.3
No	126	48.3	135	51.7	261	89.7

### Six Types of Actions that are Least Never Taken by Student in Preventing Anemia at Faculty of Nursing

Some types of actions that are at least taken by student in preventing anemia could be seen that of the 6 behaviors that had at least

been carried out by respondents, 84.2% of students did not practice consuming iron tablet together with papaya or banana to reduce the fishy smell in Fe tablet.

**Table 3** Six Types of Actions that are Least Never Taken by Student in Preventing Anemia at Faculty of Nursing Unpad Based on the Parameter on the Questionnaire (n=291)

Parameter	Do not taken	
	F	%
To deal with the fishy smell of the blood booster tablet, I take them along with papaya and banana	245	84.2
Before menstruation I took a blood booster tablet (filled by female respondents)	166	74.1
During menstruation I always take blood booster tablet (filled by female respondents)	163	72.8
I take blood booster tablet along with vitamin C or oranges	142	48.8
I take anthelmintic 1-2 times a year	114	39.2
I check my blood pressure and hemoglobin level regularly at least once every one or three months	35	12

## DISCUSSION

### Student Behavior in Preventing Anemia at Faculty of Nursing Unpad

The result showed that 158 of 291 students of the Faculty of Nursing Unpad (54.3%) were in the poor category. Poor behavior was shown by not consuming blood booster tablet, rarely checking blood pressure and hemoglobin level, rarely eating foods that contain lots of iron such as meat, fish, chicken, green vegetable and rarely consuming fruit that help in iron absorption such as orange, tomato and papaya. Lack of motivation and low awareness of adolescents will affect the ability or behavior of these adolescents in doing anemia prevention and will also be low so poor anemia prevention behavior has the potential for anemia (Mutalazimah et al., 2018).

Anemia is reduced level of Hb in the blood, Hb functions to carry oxygen throughout the body. If the Hb is reduced, the body tissues will lack oxygen which causes the body become weak, tired, and sluggish so productivity, concentration and learning achievement decreased, and the long term effect on women is that they will not be able to fulfill nutrients in themselves and the fetus they contain (Meidayati & Purwati, 2017). Anemia can be prevented by increasing iron intake, eating food that rich in vitamin C that can absorb iron, avoiding drink that can inhibit iron absorption such as tea, coffee and carbonated drink, examining and checking Hb level, and seeking information about anemia and its prevention (Nisa, 2015).

Preventive behavior and lifestyle changes related to anemia are necessary, because several studies have shown that good nutrition has been shown to reduce the prevalence of anemia in European, North American and Japanese countries (Ghaderi et al., 2017).

Based on research conducted by (Singh, Honnakamble, & Rajoura, 2019) in Delhi, India, the practice/behavior related to anemia in adolescents is still unsatisfactory and tends to be lacking. This research is also in line with research by (Nisa, 2015) yang menjelaskan bahwa rata-rata remaja (55,1%) which explains that the average teenager (55.1%) has negative behavior in doing anemia prevention.

The result showed that most of the students at Faculty of Nursing Unpad had bad behavior, this was probably due to the students doing activities that were too excessive/dense but also not balanced by resting behavior and good eating pattern, lack of Fe content in food, and not taking blood booster tablet. The result of the study were also found that 45.7% had good behavior, this showed that some of students were able to implement anemia prevention behavior by eating food that contain iron every day, not drinking drinks that inhibit iron absorption, doing get enough sleeping habits and exercise.

### Student Behavior in Preventing Anemia at Faculty of Nursing Unpad Based on Respondent Characteristics

The result showed that male students had poor behavior in preventing anemia than female students. It does not rule out that men can experience anemia, which is 12.7% globally of anemia is in adult men (Shamah et al., 2017) and 18.4% of the prevalence of anemia in male adolescents in Indonesia in 2013 (Riset Dasar Kesehatan, 2013). Research by (Didzun et al., 2019) in India explained that men aged 20 - 34 years have the possibility to experience anemia (9%), but it can be predicted that the contributing factors are lack of knowledge, smoking habits and underweight (thin). In adolescence, activity increases so it affects adolescent habits in carrying out anemia prevention behavior such as eating nutritious food, exercising regularly, sleeping in sufficient time (Anggraeni, 2017). This study is in line with research by (Wijaya, Agustini, & Tisna, 2014) that the percentage is still high where men are lacking in maintaining their health, including preventing anemia. Based on the results of this study, it was found that the bad behavior of students in doing anemia prevention at Faculty of Nursing Unpad was greater for male students than female students, this probably happened because male respondents paid less attention to the behavior of consuming foods that rich in Fe, drinking absorption-inhibiting drinks such as tea, coffee, or carbonated drink, and usually paying less attention to sleep time. In addition, it was found that 30 out of 67 men had smoking habits and 76.7% had poor behavior in doing anemia prevention.

Based on menstrual status, it was found that 55% of menstrual cycle < 21 days had poor behavior in doing anemia prevention. Meanwhile, for menstrual duration > 8 days, 77.3% had poor behavior in doing anemia prevention. (Yunarsih & Antono, 2017) explained that abnormal menstrual patterns are one of the determinants of anemia, namely the relationship between the length of menstruation and Hb level, and (Farinendya, Muniroh, & Buanasita, 2019) states that short menstrual cycles (< 21 days) can also cause more blood loss. This happens because of the short and long menstrual cycle resulting in

more blood coming out during menstruation so that more Hb is lost in the blood. This research is also supported in table 4.3 showed that the behavior of consumption of iron tablet before menstruation as many as 166 respondents (74.1%) had poor behavior and consumption behavior during menstruation as many as 163 respondents (72.8%) also had poor behavior.

Based on the results of the history of anemia, it showed that respondents who had experienced anemia had poor behavior in doing anemia prevention (44.1%). In the study from (Caturiyantiningtiyas, 2015) explained that anemia was more common in respondents who had poor behavior (78.8%) due to lack of consuming food that rich in iron. However, in this study it was also found that 67.4% of respondents who did not know that they had experienced anemia or not had poor behavior. Perhaps this was because the individual did not know about anemia prevention behavior or did not have signs and symptoms of anemia, so they ignored it. Meanwhile, in the study by (Caturiyantiningtiyas, 2015) said that poor behavior in doing anemia prevention has 0.80 times greater risk of anemia.

#### **Six Types of Actions that are Least Never Taken by Student in Preventing Anemia at Faculty of Nursing Unpad**

Based on the type of action that had never been carried out, the highest number was 84.2% of students chose the answer never to consume iron tablet together with papaya or banana to overcome the fishy smell of iron tablet, and 48.8% of students also chose the answer never to take blood booster tablet along with Vitamin C or orange. Research by (Luftbis & Ratnasari, 2020) states that bananas contain water-soluble Vitamin B6 which is needed to make nucleic acid and hemoglobin in red blood cells, this research also showed that there was an increase in Hb level after giving banana. Meanwhile, papaya contains vitamin C which can increase Fe absorption by four times (Masthalina, 2015). Research by (Ersila & Dwi Prafitri, 2016) also explained that there was an increase in Hb level by giving Fe

tablet plus papaya greater than the Hb level given Fe tablet alone. Other sources of vitamin C can also be obtained from kiwifruit, orange, and tomato which will help maximize iron absorption (Fadila & Kurniawati, 2018). In this case, students may not normally consume iron tablet with fruit or also do not know about fruit containing vitamin C which will help accelerate the absorption of iron.

Based on the action of female students, 74.1% of female students chose never to consume iron tablet before menstruation, and 72.8% of female students also chose the answer of never consuming iron tablet during menstruation. Giving iron supplement is important effort in preventing and overcoming anemia due to iron deficiency (WHO, 2014). This research is in line with research by (Anggraeni, 2017) that very few female respondents regularly consume iron tablet as many as 96.2%. Based on the results of this study, female students did not have the habit of consuming iron tablet before and during menstruation. This means that most students do not do this habit. This may be due to laziness, bad taste and fishy smell in Fe tablet, as well as the effects it causes such as nausea, constipation and black stools (Yuniarti, Rusmilawaty, & Tunggal, 2015). In addition, at the tertiary level, an iron supplement program is rarely carried out so that students need to buy the Fe tablet themselves.

Based on the action of students who had never consumed anthelmintic 1-2 times per year, as many as 39.2% of respondents answered never. According to worm can affect the absorption and increase of Fe loss from the body. In the study by (Aderoba et al., 2015) also stated that 95% of worm infestations in pregnant women can significantly increase the risk of anemia. Based on the result of the study, it showed that students at Faculty of Nursing Unpad, Garut Campus, did not have the habit of consuming anthelmintic.

Based on the action of checking blood pressure and hemoglobin level regularly at least once or every three months, it was found

that 12% of students chose the answer never. Research by (Kocaoz, Cirpan, & Degirmencioglu, 2019) explains that anemia prevention can be done by diagnosing anemia which is determined by measuring the concentration of Hb in the blood regularly so if something happens it will be easier for follow-up. This study is in line with research by (Nisa, 2015) that almost half of the research subjects (44.9%) did not visit health services and did not carry out examinations. At Faculty of Nursing Unpad, Garut Campus, blood donors are always held every 3 months. It is better for students to use this to check their hemoglobin level. However, in reality there are still many students who did not participate in blood donation.

## CONCLUSION

Based on the result of the univariate analysis conducted by researchers regarding the behavior of students in preventing anemia at Faculty of Nursing, Universitas Padjadjaran, they had poor behavior in doing anemia prevention. The incidence of anemia in adolescents can be influenced by poor behavior in doing anemia prevention, so it is necessary to make efforts to improve student behavior in doing anemia prevention. The recommendations for further researcher are expected to conduct experimental research such as providing education based on the HBM (Health Believe Model) on anemia prevention behaviour to improve the behavior in preventing anemia in the Faculty of Nursing, Padjadjaran University.

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