

# Correlation Between Menstrual Duration with The Incidence of Anemia

Esti Novi Andyarini<sup>1</sup>, Irul Hidayati<sup>2</sup>

<sup>1</sup>*Faculty of Psychology and Health, UIN Sunan Ampel Surabaya, Indonesia*

<sup>2</sup>*Faculty of Science and Technology, UIN Sunan Ampel Surabaya, Indonesia*  
*estinoviandyarini@gmail.com*

**Keywords** Menstrual Duration, Incidence of Anemia

**Abstract** Anemia is a situation where the component in the blood i.e. Hemoglobin (Hb) the number is less than normal. It will be a matter of serious health problems if not immediately addressed. The prevalence of anemia occurrences in Indonesia was 26.4% in women of fertile age group. Adolescence is a time of onset of anemia will be vulnerable, especially young women because every month experiencing menstruation. The purpose of this research is to know the existence of a correlation between menstrual duration with anemia. The research method used is crosssectional approach with observational. Sampling by means of accidental side and number of samples 60 respondents. the dependent variable in this study was the incidence of anemia and the independent variable was the longtime menstrual. Results of the study found a significant relationship between the presence of long menstrual periods with anemia in young women with a value of  $P = 0.002$   $P$  value where value ( $< 0.05$ ). Conclusion there is a relation between menstrual duration with anemic young women. Suggestions in this study is to provide health education and outreach to the young women especially college students to pay more attention to the intake of nutrients with an iron content of more especially during menstruation.

## 1 INTRODUCTION

One of the indicators of health problems of adolescent nutrition Nutritional anemia of iron is an event. Anemia of iron nutrition is an issue the world's largest micro nutrient especially in fertile women age group (WUS). The prevalence of anaemia incidence in women in developing countries is 45% and 13% in developed countries. In the United States women who experience anemia as much as 12% of WUS 15-49 years of age and 11% of pregnant women of fertile age. Prevalence of iron deficiency anemia in teenagers in various countries, namely: 82.5% in Bangladesh, 23% in China, 42.2% in the Philippines, and 74.7% in India (Demaeyer, 2003). Iron deficiency anemia in women aged 15-44 years is the third largest health problems according to the analysis of the WHO/World Bank "Global Burden of Disease" and (Department of nutrition and public health, MEDICINE, 2007) (Listiana, 2016).

In Indonesia, the population group of teens is a fairly large population, IE 22.2% of the total

population of Indonesia that is ages 10 – 19 years old (Waryana, 2010). Anemia is one of the important issues that are a priority to be addressed immediately as well as in Indonesia. The prevalence of occurrence anemia in Indonesia namely of 21.7% with a grouping of 5-14 year-old anemia sufferers amounted to 26.4% and in people with anemia aged 15-24 years of 18.4% (Kemenkes RI, 2014). The numbers are quite high in teenagers who this anemia due to adolescence is a period of very rapid growth (growth spurt). During this period, an increase in bone mass and remodeling of bone, soft tissues, organs, and increased the size of the red blood cell mass. The growth that occurs in adolescence this will requires iron in a significant amount. However, according to the data, the nutritional intake of young women could not be fulfilled to the maximum content of iron substance (Arumsari, n.d., p. 2008). Many factors make it less satisfy the needs of iron young women, one of them is because of the desire to maintain the ideal body shape. This right is done with Teen underwent inappropriate diet causing the consumption of

nutrients that are not adekuat. And this is what causes the high degree of anemia in teens (Utami et al., 2015).

Anemia is a situation where the component in the blood i.e. the levels of Hemoglobin (Hb) or red blood cells less than normal amounts. According to the WHO (World Health Organization), limits the levels of Hemoglobin (Hb) young women who experience anemia Hb levels i.e. If less than 12 g/dl. Anemia may cause symptoms of 1.5 l jar that is Weak, tired, lethargic, tired, and quickly Forgotten and may cause the body more vulnerable to getting infected because of a declining body endurance (Basith et al., 2017).

Anemia in young women is also affected by the menstrual pattern. Menstrual pattern is a series of menstrual process consisting of the menstrual cycle, menstrual, and old disiminorea (Caroline et al., 2015). According to Bobak in Sukami and Revelation (2013) uterine bleeding was menstruation periodically that starts about 14 days after ovulation period and periodically occur due to endometrial lining that apart from the uterus.

According to Cunningham 2006, menstruation is experienced young women every month, where young women have a risk of anemia. According to some researchers, it has been learned that the blood volume that came out during a normal menstrual period totaled about 25 ml up to 60 ml. With the concentration of hemoglobin (Hb) normal i.e. 14 grams/dl and the iron concentration of Hb 3.4 mg/Gr. Volume of blood in the This condition has an iron content of about 12 up to 29 mg and reflects the presence of blood in spending equivalent to 0.4 to 1.0 mg iron per day during sklus menstruation occurs. Iron is absorbed from food is usually the amount is fairly limited, so that the presence of iron-spending during menstruation is less noticed by every teenager daughter, due to join the lower reserves of iron that young women are largely already low (Prastika, 2011). Menstrual durationgenerally occurs between 3-5 days followed by the JST a little bit and nothing to 7-8 day Proverawati, 2011).

Adolescents have a high activity especially at the level of the student. Students are busy with lectures, organizations, as well as social events that can affect eating patterns so that it becomes uncontrollable and regular. This has to be one of the causes of vulnerable young women experiencing anemia. The purpose of this research is to know the relationship between menstrual durationwith anemia in young women.

## 2 METHOD

This type of research is observational analytic with cross sectional approach. Using the method of sampling technique probablity accidental sampling. Location of penelian in the Islamic University Sunan Ampel Surabaya Country. The population in this research is the whole Biology Course Student Islamic University Sunan Ampel Surabaya Country school year 2017-2018. The sample in this study as many as 60 respondents with inclusion criteria as follows:

- 3<sup>rd</sup> semester student on Deparment of Biology
- Student who was present when the practical-August 2018
- Coed willing to fill out the questionnaire

The dependent variable in this study were anemic, while the independent variable is the old menstruation. Hemoglobin (Hb) levels in the blood are measured using Hb Sahli. Respondents were categorized based on two groups of anemic and not anemic. Called anemia if Hemoglobin (Hb) levels in the blood of  $12 \text{ gr/dl} <$  and called no anemia if Hemoglobin (Hb) levels in the blood of  $\geq 12 \text{ g/dl}$ . Other data obtained using istrumen questionnaires compiled in structured and must be answered by the respondent. This questionnaire to get data on the General characteristics including age and long menstruation. Long menses are categorized into two groups, normal and abnormal. Normally when a long menstrual  $< 7$  days and outside it categorized is not normal.

The data is then in the analysis of Univariate and bivariat. In this study, an analysis of univariate descriptive data that is analyzed to describe the distribution of the frequency of long menstrual periods and anemia. The results of the analysis described in the form of tabulated frequencies. Further analysis done bivariat to know a relationship between the dependent variable independent variable. In this study using the Chi Square Test using a computer program SPSS 16 for Windows to know of any connection between menstrual durationwith anemia. Where if the P value ( $< 0,05$ ) then there is the signifiance correlation and if the P value ( $> 0,05$ ) then there is no significance correlation.

## 3 RESULTS AND DISCUSSION

### RESULTS

Data on the General characteristics of the respondents will be presented in the form of frequency distribution tables with univariate analysis.

**Univariate Analysis**

Tabel 1 Frequency Distribution Characteristics Of Respondents Based On Age

Age	Frequency	Prosentase (%)
18	2	3.3
19	9	15.0
20	35	58.3
21	9	15.0
22	4	6.7
23	1	1.7
Total	60	100

Based on table 1 above, shows that the number of respondents in this study most of the 20-year-old as much as 35 mahasiswa with 58.3% percentage. A small proportion of respondents 18 years of age as much as 2 percentage of students with 3.3% and as much as a 23 year old college student with 1 percentage of 1.7%.

Tabel 2 Frequency Distribution Characteristics Of Respondents Based On Menstrual Duration

Menstrual Duration	Frequency	Percentage (%)
Normal	27	45
Abnormal	33	55
Total	60	100

Based on table 2, show that most respondents who experienced a menstrual duration is not normal that is more than 7 days as many as 33 students with percentage of 55% and almost half of the total was experiencing long menstrual period a normal i.e. less than 7 today as many as 27 students with the percentage of 45%.

Tabel 3 Frequency Distribution Characteristics Of Respondents Based On The Incidence of Anemia

	Frequency	Percentage (%)
Not having Anemia	20	33.3
Anemia	40	66.7
Total	60	100

Based on table 3 of the incidence of anemia, showed that most respondents are experiencing anemia that is as much as 40 percentage of 66.7% with respondents. While a small percentage of the respondents do not experience anemia that is as much as 20 students with a percentage of 33.3%.

**Analisis Bivariat**

Tabel 6 Chi Square Test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.909 <sup>a</sup>	1	.001
Continuity Correction	9.167	1	.002
Likelihood Ratio	11.214	1	.001
Fisher's Exact Test			
Linear-by-Linear Association	10.727	1	.001
N of Valid Cases <sup>b</sup>	60		

Based on the results of measurement with analytics bivariat between menstrual duration with anemia that is examined by using the Chi Square test in the table above obtained value of  $p = 0.002$  where  $p \text{ calculate} < 0.05$  the mean there is correlation between menstrual duration with the incidence of anemia.

**DISCUSSION**

The General characteristics of the respondents in the panelitian is the student age range with teens between the age of 18 up to 23 years. Most respondents aged 20 years i.e. as many as 35 people with percentage of 58.3%. Teenage is a period which is considered vulnerable in terms of nutrition due to several factors. First, in terms of the increasing needs of nutrition nutritious because of physical growth and development process is very quick. Secondly, the existence of phase changes in lifestyle and eating habits which have impact on demand and consumption of nutrients. Third, a teenager with special nutritional needs, for example in teens with chronic diseases, teenage athletes, as well as teens with strict diet (Utomo, 2013).

Based on the results of research on the table 2 shows that the majority of respondents experiencing long menstrual period is not normal i.e. 33 respondents with the percentage of 55% and most of the other respondents are experiencing long menstrual is normal.

According to the results of the study of Al-Ayes in 2011, women who experience a loss of large amounts of blood, has a risk against iron deficiency anemia incidence. Iron released by women in each menstrual cycle is as much as approximately 42 mg per day. While on the man or woman who is not menstruation will lose as much as 1 mg of iron per day (Prastika, 2011). Abnormal menstrual periods

long i.e. above 8 days and accompanied by a clotted bleeding risk experiencing anemia iron deficiency.

In accordance with the theory of Love (2011), hypermenorrhea is the menstrual bleeding more than normal, or longer than normal (> more than 8 days). This disorder can be caused by conditions in the uterus, myoma uteri as there are with endometrial surface wider than usual and by the presence of kontraktilitas disturbed, endometrial polyps, endometrial disorder waiver at the time of menstruation, and other so on. On release of endometrial disorders usually there was also disruption in endometrial growth, followed by the presence of the disorder's time of menstruation (Nuraeni, 2013).

In theory, the longtime menstrual periods due to physiological factors and psychological factors. Psychological factors are usually related to the emotional level of young women who are still menstruating when labile. While physiologically more to the excessive uterine muscle contractions or it can be said they are very sensitive to these hormones due to the endometrium in hormone-producing prostaglandin secretion phase. Prostaglandins are formed from fatty acids do not saturate the synthesized by all cells in the body (Anurogo, 2011) (02 articles)

From the results of the univariate analysis of characteristics of respondents based on long, more than half of them are experiencing menstruation more than 7 days so that respondents have a greater risk of experiencing the incidence of iron-deficiency anemia than respondents experiencing menstruation more short i.e. less than 7 days.

Based on the results of research on the table 3 shows that the majority of the respondents i.e. anemic as many as 40 of the respondents with the percentage of 66.7% and a small percentage of the respondents i.e. as many as 20 respondents 33.3%--not anemic. This is in line with the research Listiana (2016) with results frequency distribution the incidence of anemia most respondents experienced anemia as much as 155 respondents (60.8%). Research by Weliyati (2010) also showed similar results in anemia incidence frequency distribution, the majority of respondents experienced anemia i.e. as many as 77.1% (Listiana, 2016).

Anemia is a situation where the level of Hemoglobin (Hb) and or erotrosit count is lower than the price normally. Called anemia if Hb 14 gr/dl < and Ht 41% in men < or Hb 12 gr/dl < and Ht < 31% in women (Mansjoer, 2007). According to Proverawati (2011) the cause of anemia is iron amount consumed not as needed. HB has a significant role in the oxygen

circulate throughout the body for consumption and bring back the carbon dioxide back to the lungs breathe exhale out of the body.

Based on the theory of numbers, the size of the incidence of anaemia in this research, could be due to factors of nutritional status of students. Students with all its activities in a lecture to make students less ignore the intake of nutrients consumed. The lack of regard for the fulfillment of the needs of the iron in the dining portion causing iron-deficiency anemia incidence. Besides, it student with customs irregular eating patterns with all activities and organizations and thoughts about the ideal body shape so they do inappropriate diet this is the cause of anemia in young women.

Based on table 4 on the results of this study indicate that by using the Chi Square test is obtained a value of  $p = 0.002$  where  $p$  calculate meaningful  $0.05 < p$  there is a significant relationship between the longtime menstrual with anemic young women. Students with long normal menstruation or less than 7 days tend to have high haemoglobin levels while a student with menstrual duration is not normal that is more than 7 days tend to have lower hemoglobin levels. This is because students who are experiencing long menstrual duration more than 7 days bleed more and longer so that the expenditure of iron in the blood is also the more that led young women experiencing anemia or iron substances shortage.

This is in line with the results of the research of Weliyati (2010), where it is known that there is a relationship between menstrual duration with anemia. The results of the analysis of the obtained values OR = 3.37 which means that young women with a longer menstrual pattern (> 7 days) statistically have an opportunity or risk having anemia 3.37 times greater compared with respondents with more short on her menstruation patterns. Menstruation is the collapse of the endometrial cell network due to cyclic hormonal balance changes influence the reproduction of single (Winkjosastro, 2008 in (Listiana, 2016)).

Menstruation is the collapse of the endometrial cell network because of the influence of changes in hormonal balance in the female reproductive cycle (Winkjosastro, 2008).

Blood loss through menstruation occurs. On average woman produce 27 ml of blood per menstrual cycle of 28 days. 10% of women allegedly lost more than 80 ml of blood per month. The amount of blood comes out a role in the genesis of anemia because women did not have sufficient supplies of Fe and Fe absorbs into the body cannot replace the loss of Fe when menstruation (Department of nutrition and public health MEDICINE, 2007). According to

Winkjosastro, (2008) in women with iron deficiency anemia amount of menstrual blood of more than 80 cc is considered patologic.

In theory, the cause of the iron deficiency anemia is the presence of small repetitive bleeding, for example cancer of the colon or stomach ulcers. Bleeding ulcer at peptikum which may be drangsang by excessive medication such as aspirin and ibuprofen (Proverawati, 2011).

In accordance with research Prastika (2010) obtained an average of long menstrual period is about 6 days (6.67) i.e. with the lowest value and the highest grade 4 days 12 days while the average Haemoglobin levels of teenage schoolgirl was 12.06 gr/dl with the lowest value 9.3 grams/dl and highest rated 13.8 grams/dl. Based on the analysis results obtained by students, bivariat with longtime menstrual low hemoglobin levels have 13.6 grams/dl while the schoolgirl with menstrual durationall 12 days have 9.3 grams/dl hemoglobin.

In this study showed that the percentage of anaemia was higher as many as 28 people (46.7%) on students who are experiencing long menstrual periods are not normal or over 7 days with the old mentruasinya normal or less than 7 days as many as 12 people (i.e. 20%). This shows that the existence of a meaningful relationship between the longtime menstrual with anemia in young women.

## 4 CONCLUSIONS

Based on the results of research conducted by using test Chi Square value obtained =  $\rho$   $\rho$  where 0.002 calculate then there are 0.05 < meaningful relationship between menstrual duration with anemia teen daughter

## REFERENCES

- Amrin, S.H., Indriasari, R., Najamuddin, U., 2014. Hubungan Kebiasaan Sarapan Dan Konsumsi Suplemen Dengan Status Hemoglobin Pada Remaja Putri Di Sman 10 Makassar. Unhas Repos.
- Arumsari, E., n.d. Faktor Risiko Anemia Pada Remaja Putri Peserta Program Pencegahan Dan Penanggulangan Anemia Gizi Besi (Ppagb) Di Kota Bekasi 76.
- Balsi, Y., Karabulut, A., Gürses, D., Ethem Çevüt, İ., 2012. Prevalence and Risk Factors of Anemia among Adolescents in Denizli, Turkey. Iran. J. Pediatr. 22, 77–81.
- Basith, A., Agustina, R., Diani, N., 2017. Faktor-Faktor Yang Berhubungan Dengan Kejadian Anemia Pada Remaja Putri 5, 10.
- Brown, J., Isaacs, J., Krinke, U., Murtaugh, M., Stang, J., Wooldridge, N., 2004. Nutriton Traught the Life Cycle, Second Edition. ed. Thomson Wadsworth, USA.
- Citrakesumasari, 2012. Anemia Gizi dan Pencegahannya. Kalikata, Yogyakarta.
- Izah, S.N., 2011. Faktor-Faktor yang Berhubungan dengan Status Anemia Defisiensi Besi Anak Sekolah Kelas V dan VI di MI Negeri 02 Cempaka Putih Ciputat Timur Tangerang Selatan Tahun 2011 (Skripsi). Universitas Islam Negeri Syarif Hidayatullah, Jakarta.
- Kalsum, U., Halim, R., 2016. Kebiasaan Sarapan Pagi Berhubungan Dengan Kejadian Anemia Pada Remaja Di Sma Negeri 8 Muaro Jambi | Jurnal Penelitian Universitas Jambi: Seri Sains. J. Penelit. Univ. Jambi Seri Sains 18, 09–19.
- Khomsan, 2005. Pangan dan Gizi untuk Kesehatan 2. Departemen Gizi Masyarakat, Fakultas Ekologi Manusia, Institut Pertanian Bogor, Bogor.
- Listiana, A., 2016. Analisis Faktor-Faktor yang Berhubungan Dengan Kejadian Anemia Gizi Besi pada Remaja Putri di SMKN 1 Terbanggi Besar Lampung Tengah. J. Kesehat. 7, 455–469. <https://doi.org/10.26630/jk.v7i3.230>
- McLean, E., Egli, I., Cogswell, M., de Benoist, B., Wojdyla, D., 2007. Worldwide prevalence of anemia in preschool aged children, pregnant women and non-pregnant women of reproductive age | Request PDF. Kraemar K Zimmermann MB Eds Nutr. Anemia Basel Sight LifePress 1–12.
- Permaesih, D., Herman, S., 2005. Faktor-Faktor Yang Mempengaruhi Anemia Pada Remaja. Bul. Penelit. Kesehat. 33. <https://doi.org/10.22435/bpk.v33i4Des.219>.
- Pertiwi, I., Sandjaja, Wiyono, S., 2014. Hubungan Sarapan, Kecukupan Energi dan Protein terhadap Status Gizi Remaja Usia 16-18 Tahun di Provinsi Lampung (Analisa Data Sekunder Riskesdas 2010). Nutr. Diaita J. 6.
- Shariff, S.A., Akbar, N., 2018. Hubungan antara Status Gizi dan Pola Menstruasi dengan Kejadian Anemia pada Mahasiswi Prodi DIII Kebidanan Universitas Muslim Indonesia. J. Window Health 1, 34–39.
- Supariasa, 2014. Penilaian Status Gizi. EGC, Jakarta.
- Suryani, D., Hafiani, R., Junita, R., 2015. Analisis Pola Makan dan Anemia Gizi Besi pada Remaja Putri Kota Bengkulu. J. Kesehat. Masy. Andalas Program Studi S1 Kesehat. Masy. Fak. Kesehat. Masy. Univ. Andalas.





- Utami, B.N., Surjani, Mardiyarningsih, E., 2015. Hubungan Pola Makan dan Pola Menstruasi dengan Kejadian Anemia Remaja Putri. J. Keperawatan Soedirman 10, 67–75.
- Woodruff, B., Duffield, A., 2000. Adolescents: Assessment of Nutritional Status in Emergencyaffected Populations. Bull. World Health Organ.

