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### Health Education on Risk Factors of Primary Dysmenorrhea and Anemia in Adolescent Girls at SMP Negeri 31 Padang

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#### ABSTRACT

Adolescence is a transition period from childhood to adulthood, where in adolescent girls it is marked by menstruation, breast enlargement, hips, and so on. As a result of these changes, adolescent girls are at risk of experiencing nutritional deficiencies in their bodies which can lead to anemia. Anemia is a condition where there is a lack of hemoglobin levels in the body, the impact of which will be seen now and in the future. Dysmenorrhea is also the most common disorder experienced by women, especially adolescents, during the menstrual cycle. Dysmenorrhea can have an impact on daily activities, but many adolescent girls still do not know the factors related to the occurrence of primary dysmenorrhea, so health education is needed. The purpose of this activity was to provide health education about the risk factors for primary dysmenorrhea and anemia in adolescent girls and to conduct Hb level checks. This community service activity was carried out by providing education with slides and videos related to the risk factors for primary dysmenorrhea and anemia in 100 female students at SMP N 31 Padang. Adolescents will complete a knowledge and attitude questionnaire regarding anemia and primary dysmenorrhea before and after the intervention. The results of this activity showed an increase in knowledge and attitudes of adolescent girls regarding the risk factors for primary dysmenorrhea and anemia. The results of Hb examinations in adolescent girls found that 6% of adolescent girls had anemia. It is hoped that this health education can be carried out periodically so that young women can have the right knowledge and a positive attitude in dealing with problems such as dysmenorrhea or anemia.

**Keywords:** adolescence, anemia, education, primary dysmenorrhea

#### INTRODUCTION

Adolescence represents a critical developmental phase transitioning from childhood to adulthood, typically defined as the age range of 10 to 19 years (Rahayu, 2017). According to WHO (2018), during early adolescence (ages 10–15), individuals experience rapid physical, psychological, and social changes, commonly referred to as puberty. For adolescent girls, one of the key markers of puberty is the onset of menarche, signifying reproductive maturity (Proverawati & Misaroh, 2018).

Menstruation, while a normal physiological process, is often accompanied by complaints such as menstrual pain or dysmenorrhea. Dysmenorrhea is one of the most prevalent gynecological conditions among adolescent girls and is characterized by cramping abdominal pain (Idayanti et al., 2018). It can be classified as primary (occurring

in the absence of pelvic pathology) or secondary (associated with identifiable gynecological conditions such as endometriosis or ovarian cysts) (Habibi et al., 2015).

WHO reports indicate that 90% of women experience dysmenorrhea, with 10–16% reporting severe symptoms (Syafriani, 2021). In Southeast Asia, prevalence rates vary: 84.2% in Thailand, 69.4% in Malaysia, and 64.25% in Indonesia, where 54.89% experience primary and 9.36% secondary dysmenorrhea. Among adolescents, primary dysmenorrhea affects 60–75%, with 75% reporting mild to severe pain (Salamah, 2019). Angka kejadian dismenore di Sumatera Barat belum ada ditemukan data pasti. Although regional data for West Sumatra are limited, one study estimated a prevalence of 57.3%, with 12% of affected students missing school due to pain (Putra & Putri, 2014).

Early menarche (<12 years) is a known risk factor for primary dysmenorrhea due to prolonged exposure to prostaglandins and immature reproductive anatomy, which can intensify menstrual pain (Manuaba, 2010; Widjanarko, 2006). Other contributing factors include stress, which increases estrogen and prostaglandin levels, leading to enhanced uterine contractions (Nurma, 2018; Darwis & Syam, 2022), and poor nutritional status—both underweight and overweight conditions can contribute to dysmenorrhea (Syafriani, 2021; Retno & Amalia, 2023).

The other risk factor for primary dysmenorrhea is nutritional status. Low nutritional status (underweight) can be caused by a lack of nutritional intake, especially iron, and every month there is blood loss or menstruation, if menstrual bleeding lasts a long time it can cause a lack of red blood cells or called anemia (Syafriani, 2021). If the nutritional status is overweight, it can also cause dysmenorrhea because there is excessive fat tissue which causes blood vessel hyperplasia and causes pain during menstruation (Retno & Amalia, 2023).

Dysmenorrhea can affect daily activities, one of which is that women often give reasons for not being able to do activities because they experience menstrual pain during menstruation. The pain felt has a negative impact on quality of life, such as disrupting daily activities and missing classes or lectures. Primary dysmenorrhea also causes disruption to daily productivity, such as not going to school for 1 to 3 days during menstruation (Bernardi et al., 2017).

Anemia is also one of the problems that can be experienced by teenage girls but is often not realized. Anemia is a condition of the body where the hemoglobin (Hb) level in the blood is lower than normal. Hemoglobin is one of the components in red blood cells or erythrocytes that functions to bind oxygen and deliver it to all body tissue cells. Normal Hb levels are determined by the degree and age, ranging from mild, moderate, and severe, and can also be seen based on age group (World Health Organization, 2023).

Global data from WHO indicate that anemia affects 29.9% of women worldwide, with even higher prevalence in children and adolescents. In Indonesia, 31.2% of women of reproductive age are anemic (World Health Organization, 2023), with national surveys indicating a 32% anemia prevalence in girls aged 15–24 (RISKESDAS, 2018).

The impact of anemia on adolescent girls is experiencing fatigue, decreasing the ability and concentration to learn, disrupting the growth and development of the body of adolescent girls, decreasing the physical condition of the body, decreasing the body's resistance. This impact will be carried over until adolescent girls become pregnant so that they are at risk of giving birth to LBW babies, premature babies, growth and development disorders such as stunting, bleeding before and during childbirth (Sediaoetama, 2011).

The impact of anemia that can continue until teenage girls later experience pregnancy causes the need to conduct research and education about anemia again. The causes of anemia are inadequate nutrition by the body, hemolytic anemia where the condition of red blood cells is destroyed or dies faster than their time, and bleeding conditions in the body.

This bleeding condition can be caused by open wounds caused by accidents, so that blood can be lost and can be caused by menstruation (Utami, 2021).

Efforts to overcome these problems require increasing knowledge in early adolescence by providing health education for young women regarding factors related to primary dysmenorrhea and anemia. Health education is a planned behavioral change between individuals, groups and communities that is carried out through a learning process with the aim of achieving improved health (Habibi et al., 2015). Based on research (Desiani et al., 2022), there is an influence of health education on knowledge, perceptions and behavior in dealing with dysmenorrhea in adolescent girls. This study aimed to assess the impact of health education on the knowledge and attitudes of adolescent girls regarding primary dysmenorrhea and anemia, alongside hemoglobin screening to identify undiagnosed cases. This study aimed to assess the impact of health education on the knowledge and attitudes of adolescent girls regarding primary dysmenorrhea and anemia, alongside hemoglobin screening to identify undiagnosed cases.

## METHOD

This community service initiative was conducted at SMP Negeri 31 Padang, involving 100 female students. The activity focused on delivering educational outreach and awareness regarding anemia and primary dysmenorrhea, with the goal of increasing participants' knowledge of these health conditions. The intervention included educational sessions using slide presentations and instructional videos, followed by questionnaires to assess the students' knowledge and attitudes before and after the education. Hemoglobin (Hb) levels were also measured to determine anemia status.

The implementation involved several stages. The initial phase included obtaining official permission and establishing rapport between the community service team from the Faculty of Nursing, Universitas Andalas, and the principal, teachers, and staff of SMP Negeri 31 Padang. This step aimed to foster trust and facilitate effective communication of health information. Educational materials, including slides, videos, and leaflets on anemia and primary dysmenorrhea, were prepared in advance. A questionnaire related to the content was also developed to assess students' knowledge and attitudes.

During the implementation phase, students were gathered in one location. The session began with the administration of a pre-test questionnaire to assess their baseline knowledge and attitudes. This was followed by Hb level testing, with results recorded to identify the prevalence of anemia.

Afterward, educational materials were presented using slides and videos in an interactive manner, accompanied by a Q&A session between the facilitator and participants. A post-test questionnaire was then administered to evaluate changes in knowledge and attitudes. Data analysis was conducted to examine the distribution of knowledge and attitudes before and after the intervention, as well as the distribution of Hb levels among participants.

## RESULTS AND DISCUSSION

The program commenced with the distribution of questionnaires on anemia and primary dysmenorrhea to 100 female students at SMP Negeri 31 Padang. Educational sessions were conducted using slides and videos (Figure 1).



Figure 1. Health education session at SMP Negeri 31 Padang

The majority of participants were aged 13 (58%). Most experienced menarche at age 12 (43%), and 92% reported experiencing primary dysmenorrhea. Only 35% had previously received information about dysmenorrhea (Table 1)

Table 1. Characteristics of participants at SMP N 31 Padang (n=100)

| Characteristics of Participants | f          | %            |
|---------------------------------|------------|--------------|
| <b>Age</b>                      |            |              |
| 12 years                        | 33         | 33.0         |
| 13 years                        | 58         | 58.0         |
| 14 years                        | 9          | 9.0          |
| <b>Total</b>                    | <b>100</b> | <b>100.0</b> |

|                                                |            |              |
|------------------------------------------------|------------|--------------|
| <b>Age of Menarche</b>                         |            |              |
| 9 years                                        | 2          | 2.0          |
| 10 years                                       | 9          | 9.0          |
| 11 years                                       | 39         | 39.0         |
| 12 years                                       | 43         | 43.0         |
| 13 years                                       | 7          | 7.0          |
| <b>Total</b>                                   | <b>100</b> | <b>100.0</b> |
| <b>Primary Dysmenorrhea</b>                    |            |              |
| Yes                                            | 92         | 92.0         |
| No                                             | 8          | 8.0          |
| <b>Total</b>                                   | <b>100</b> | <b>100.0</b> |
| <b>Received Information About Dysmenorrhea</b> |            |              |
| Yes                                            | 35         | 35.0         |
| Never                                          | 65         | 65.0         |
| <b>Total</b>                                   | <b>100</b> | <b>100.0</b> |

Table 2. Knowledge of Primary Dysmenorrhea Before and After the Intervention at SMP Negeri 31 Padang (n=100)

| Knowledge    | Before     |              | After      |              |
|--------------|------------|--------------|------------|--------------|
|              | f          | %            | f          | %            |
| Good         | 3          | 3.0          | 69         | 69.0         |
| Moderate     | 39         | 39.0         | 31         | 31.0         |
| Poor         | 58         | 58.0         | 0          | 0            |
| <b>Total</b> | <b>100</b> | <b>100.0</b> | <b>100</b> | <b>100.0</b> |

These results indicate a significant increase in knowledge following the educational intervention. This is consistent with the findings of (Pani, 2022), who reported significant improvements in student knowledge about dysmenorrhea post-intervention ( $p < 0.05$ ). Health education, as a planned behavioral intervention, plays a crucial role in enhancing health awareness (Habibi et al., 2015). The lecture method used in this program was found effective, particularly when delivered clearly and concisely using simple language supported by visual aids (Notoatmodjo, 2012).

Health education using the lecture method with power point media used in this study is effective in delivering information. The lecture method is carried out orally and is delivered briefly, concisely and clearly by emphasizing important points that need to be known by young women. The lecture is carried out using simple language that is easy for young women to understand. According to (Notoatmodjo, 2012), lecture is a method to convey ideas, concepts, and information verbally. This method directs respondents to be able to use their sense of sight (eyes), sense of hearing (ears) and also sufficient concentration to obtain the information given well. The educational process using simple and easy-to-understand language can cause information to be conveyed well and increase respondents' knowledge.

Table 3. Attitude Before and After Health Education at SMP Negeri 31 Padang (n=100)

| Attitude     | Before     |              | After      |              |
|--------------|------------|--------------|------------|--------------|
|              | f          | %            | f          | %            |
| Positive     | 54         | 54.0         | 86         | 86.0         |
| Negative     | 46         | 46.0         | 14         | 14.0         |
| <b>Total</b> | <b>100</b> | <b>100.0</b> | <b>100</b> | <b>100.0</b> |

Based on table 3, it is obtained that the attitudes of female adolescents before and after being given health education also experienced changes. Before health education, there were 54 female students with positive attitudes (54%), after health education it became 86 female students (86%). Before health education, there were 46 female students with negative attitudes (46%), after health education it decreased to 14 female students (14%). The effect of health education using the lecture method with power point media was due to changes in the attitudes of female adolescents. Attitude is a reaction or response, either positive or negative, to a stimulus or object (Notoatmodjo, 2012). Attitude is influenced by the knowledge component because it can increase awareness, thus creating a positive attitude. If knowledge is lacking, a person's attitude tends to be negative, but if knowledge is good, a person's attitude tends to be positive.

Health education is a planned change in behavior between individuals, groups and communities that is carried out through a learning process with the aim of achieving improved health (Habibi et al., 2015). Providing health education requires methods and media in delivering information. An effective method is using the lecture method with power point media. The success of the health education process will increase a person's knowledge, with increased knowledge through the health education provided, it can change a person's attitude towards the positive.

Table 4. Knowledge of Anemia Before and After Education at SMP Negeri 31 Padang (n=100)

| Knowledge of Anemia | Before     |              | After      |              |
|---------------------|------------|--------------|------------|--------------|
|                     | f          | %            | f          | %            |
| Good                | 0          | 0            | 32         | 32.0         |
| Moderate            | 32         | 32.0         | 68         | 68.0         |
| Poor                | 68         | 68.0         | 0          | 0            |
| <b>Total</b>        | <b>100</b> | <b>100.0</b> | <b>100</b> | <b>100.0</b> |

Based on table 4, it can be seen that the knowledge of female students about anemia before health education was in the category of poor 68 students (68%) and moderate 32 students (32%). Meanwhile, after being given health education, the knowledge of female students increased in the good category 32 students (32%) and the moderate category as many as 68 students (68%). This result is in line with the study (Hidayah et al., 2022), which found that the level of knowledge of female adolescents about anemia and nutrition in the pre-test was 52% sufficient knowledge and 48% good knowledge. In the post-test, 9.5% sufficient knowledge and 90.5% good knowledge were obtained.

Table 5. Hemoglobin Examination Results at SMP Negeri 31 Padang (n=100)

| Hemoglobin Examination Results | f          | %            |
|--------------------------------|------------|--------------|
| Anemia                         | 6          | 6.0          |
| Not Anemic                     | 94         | 94.0         |
| <b>Total</b>                   | <b>100</b> | <b>100.0</b> |

One of the other activities in this community service besides education is checking Hb levels in all female students. From table 5 it can be seen that, out of 100 female students who were examined, 6% of the female students had anemia. Among all age groups, adolescents are the age group that requires the highest iron because during this period the body experiences rapid growth and development, especially in female adolescents with physiological changes in the body such as the menstrual cycle also increasing the risk of anemia. Another factor in the occurrence of anemia in adolescents is lack of knowledge about anemia. Anemia in female adolescents is an attribute that causes high maternal

mortality, high incidence of low-birth-weight babies, high prenatal mortality. Therefore, adolescent nutrition is a reflection of the beginning of early childhood malnutrition (Suryani, 2015). This community service activity effectively improved students' knowledge and attitudes toward anemia and primary dysmenorrhea through audiovisual education and Hb screening. Follow-up activities are recommended in other schools to expand the impact of anemia prevention efforts.

## CONCLUSION

The health education program on primary dysmenorrhea and anemia conducted at SMP Negeri 31 Padang served as a promotive measure to address two prevalent health issues among adolescent girls. Without early identification and intervention, these conditions can adversely affect long-term health and school performance. The inclusion of Hb screening provided early detection of anemia, identifying 6% of students as anemic. The educational activities led to measurable improvements in knowledge and attitudes related to the risk factors of primary dysmenorrhea and anemia. It is recommended that schools collaborate with health professionals to conduct regular health education programs to ensure adolescent girls are well-informed and adopt positive attitudes toward managing these conditions.

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## REFERENCES

- Bernardi, M., Lazzeri, L., Perelli, F., Reis, F. M., & Petraglia, F. (2017). Dysmenorrhea and related disorders. *F1000Research*, 6, 1645. <https://doi.org/10.12688/f1000research.11682.1>
- Darwis, A. M., & Syam, R. C. (2022). Penerapan cuti haid bagi pekerja perempuan. Yayasan Insan Cendikia.
- Desiani, N. K., Susanti, N. L. P. D., & Parwati, N. W. M. (2022). Pengaruh Pendidikan Kesehatan Terhadap Pengetahuan, Persepsi dan Perilaku Remaja Putri dalam Upaya Penanganan Dysmenorea. *Jurnal Keperawatan Sumba (JKS)*, 1(1), 15–24. <https://doi.org/10.31965/jks.v1i1.845>
- Habibi, N., Huang, M. S. L., Gan, W. Y., Zulida, R., & Safavi, S. M. (2015). Prevalence of Primary Dysmenorrhea and Factors Associated with Its Intensity Among Undergraduate Students: A Cross-Sectional Study. *Pain Management Nursing*, 16(6), 855–861. <https://doi.org/10.1016/j.pmn.2015.07.001>

- Hidayah, N., Imaningsih, A. N., Damayanti, E., Fitria, N. W., Ramadhani, M. P., Merisdiansyah, W. E., & Vasthia, G. R. (2022). Pengaruh Edukasi Terhadap Tingkat Pengetahuan Remaja Perempuan Tentang Anemia dan Gizi di Desa Jipurapah. 8(4).
- Huda, A. I., Ningtyias, F. W., & . S. (2020). Hubungan Antara Status Gizi, Usia Menarche dengan Kejadian Dysmenorrhea Primer pada Remaja Putri di SMPN 3 Jember. *Pustaka Kesehatan*, 8(2), 123. <https://doi.org/10.19184/pk.v8i2.12007>
- Idayanti, T., Su'idah, H., Mustikasari, S., Mardiana, H. R., Virgia, V., & Haryanto, D. K. (2018). Influence of Dysmenorrhea Gymnastic on Menstrual Pain to Pain to 8th Grade Students of SMPN 2 Sooko District Mojokerto
- Manuaba. (2010). Buku ajar penuntun kuliah ginekologi. Trans Info Media.
- Notoatmodjo. (2012). Promosi Kesehatan dan Perilaku Kesehatan. PT Rineka Cipta.
- Nurma, D. A. (2018). Hubungan stres dengan kejadian dismenore primer pada mahasiswa strata-1 fakultas kesehatan masyarakat universitas sriwijaya tahun 2018.
- Pani, W. (2022). The Effect of Counseling on Knowledge and Attitudes of Young Women About Dysmenorrhea at MTSN Model Palu: Pengaruh Penyuluhan Terhadap Pengetahuan dan Sikap Remaja Putri Tentang Dismenore di MTSN Model Palu. *Napande: Jurnal Bidan*, 1(2), 85–92. <https://doi.org/10.33860/njb.v1i2.1527>
- Proverawati, A., & Misaroh, S. (2018). Menarche menstruasi pertama penuh makna. *Nuha Medika*.
- Putra, Y., & Putri, R. B. (2014). Pengaruh Terapi Musik Mozart terhadap Penurunan Derajat Nyeri Menstruasi pada Remaja Putri di MAN Padang Japang Tahun 2014. *Jurnal Kesehatan*, 5(1). <https://doi.org/10.35730/jk.v5i1.222>
- Rahayu. (2017). Buku ajar kesehatan reproduksi remaja dan lansia. Airlangga University Press.
- Salamah, U. (2019). Hubungan Pengetahuan dan Sikap Remaja Putri terhadap Perilaku Penanganan Dismenore. *Jurnal Ilmiah Kebidanan Indonesia*, 9(03), 123–127. <https://doi.org/10.33221/jiki.v9i03.382>
- Sediaoetama. (2011). Ilmu Gizi. Dian Rakyat.
- Suryani, D. (2015). Analisis Pola Makan dan Anemia Gizi Besi pada Remaja Putri Kota Bengkulu. *Jurnal Kesehatan Masyarakat Andalas*, 10.
- Syafriani, S. (2021). Hubungan Status Gizi dan Umur Menarche dengan Kejadian Dismenore pada Remaja Putri di SMAN 2 Bangkinang Kota 2020 H. *Jurnal Ners*, 5(1), 32–37. <https://doi.org/10.31004/jn.v5i1.1676>
- Utami, A. (2021). Anemia pada Remaja Putri. Universitas Diponegoro.
- Widjanarko, B. (2006). Dismenore tinjauan terapi pada dismenore primer. (Vol. 5). Majalah Kedokteran Damianus.
- World Health Organization. (2023). Anaemia. <https://www.who.int/news-room/fact-sheets/detail/anaemia#:~:text=During%20pregnancy%2C%20anaemia%20has%20been,%2C%20families%2C%20communities%20and%20countries.>