



## ***RELATIONSHIP BETWEEN DURATION AND REGULARITY OF MENSTRUAL CYCLE WITH PRIMARY DYSMENORRHEA IN ADOLESCENTS***

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### ***Abstract***

**Background:** For women who have experienced menstruation, some common problems can occur such as pain during menstruation or disturbances in the menstrual cycle. The high prevalence of primary dysmenorrhea requires appropriate prevention and treatment efforts by recognizing the risk factors for primary dysmenorrhea, one of which is an abnormal menstrual cycle. Based on the existing literature, this study aims to examine the relationship between the length and regularity of the menstrual cycle with the incidence of primary dysmenorrhea. **Method:** This type of research is quantitative with cross sectional design. The minimum number of samples used is 57 people who are determined by the simple random sampling technique. The data collection instrument in this study was a questionnaire in the form of a Google form. The independent variables in this study were the length and regularity of menstrual cycle and the dependent variable was primary dysmenorrhea. The statistical tests used were Spearman Rank and Exact Fisher's Test with a significance value (P) = 0.05 to determine the level of significance of the research results. **Results:** Based on the results of the Spearman Rank statistical test, a significance value of 0.3 was obtained where the value of Sig.(2-tailed) > 0.05, so it was concluded that there was no relationship between the length of the menstrual cycle and the incidence of primary dysmenorrhea. The results of the Exact Fisher's Test obtained a significance value of 0.034 where the value of Sig.(2-sided) < 0.05, it was concluded that there was a significant relationship between the regularity of the menstrual cycle and the incidence of primary dysmenorrhea. **Conclusion:** There is no relationship between the length of the menstrual cycle and the incidence of primary dysmenorrhea and there is a relationship between the regularity of the menstrual cycle and the incidence of primary dysmenorrhea.

Key words : menstrual cycle, primary dysmenorrhea, adolescents

### **INTRODUCTION**

Menstruation is a physiological phenomenon that occurs periodically and cyclically where several common problems can occur such as irregular menstrual cycles, excessive bleeding and pain during menstruation (Al-Matouq et al., 2019). The menstrual cycle is experienced by women from the first day of menstruation until the arrival of the next menstrual period (Juliana et al., 2019). Women ideally have a menstrual cycle of 21 - 35 days. Disorders





of the menstrual cycle are problems that often occur in women, these disorders can be divided into 3 namely polimenorrhoea menstrual cycle lasting  $< 20$  days, oligomenorrhoea menstrual cycle lasting  $> 35$  days and amenorrhoea menstrual cycle lasting  $> 3$  months. In addition, a common problem that occurs during menstruation, especially adolescents, is primary dysmenorrhoea (Hailemeskel et al., 2016).

Primary dysmenorrhoea is a menstrual pain disorder caused by contraction of the myometrial wall and increased secretion of prostaglandins. Primary dysmenorrhoea often occurs in most women of reproductive age, especially adolescents. The prevalence of dysmenorrhoea itself is still quite high in the world, which is around 50-90% in women of reproductive age (Bezuidenhout et al., 2018). In Indonesia alone, the prevalence of dysmenorrhoea reached 64.25% with 54.89% experiencing primary dysmenorrhoea and 9.36% experiencing secondary dysmenorrhoea (Ratna, 2019). Where primary dysmenorrhoea is around 60-70% of which is experienced by adolescents and the majority of these adolescents experience mild to moderate levels of pain (Larasati and Alatas, 2016).

The effect on women who experience primary dysmenorrhoea is the inhibition of women in carrying out daily activities resulting in decreased productivity, besides that primary dysmenorrhoea can affect pain tolerance and cause sleep disturbances, daytime fatigue and drowsiness (Mau et al., 2020). Dysmenorrhoea with mild degrees of pain only lasts a few moments and can still carry out other activities without any systemic complaints, moderate degrees of pain usually have several systemic complaints that require pain relievers but can still carry out activities, while severe degrees of pain are accompanied by systemic complaints, dizziness, and diarrhoea so that they usually require rest for several days (Kulkarni & Deb, 2019).

The results of research conducted by (Al - Matouq et al., 2019) showed that there was a significant relationship between the regularity of the menstrual cycle and the incidence of primary dysmenorrhoea. The high prevalence of primary dysmenorrhoea requires appropriate treatment and prevention efforts, one of which is by recognising the causes or risk factors of primary dysmenorrhoea, one of which is disruption of the menstrual cycle. Limited investigation related to risk factors of primary dysmenorrhoea affects the accuracy of providing health management so that reproductive disorders that occur are not addressed and cause a decrease in productivity (Dayalan et al., 2017). This study aims to analyse the relationship between the length and regularity of the menstrual cycle with the incidence of primary dysmenorrhoea.

## METHOD

This study used an analytical observational design with a cross sectional design where variable measurements were taken at one time. The population in this study were all undergraduate midwifery students of Universitas Airlangga semester 2, 4 and 6 with a total of 188 students. Sampling was done by random sampling technique where the minimum number of samples was obtained as many as 57 people. The independent variable in this study is the menstrual cycle and the dependent variable in this study is primary dysmenorrhoea.

The instrument for data collection used in this study was a questionnaire in the form of a Google Form to minimise direct interaction between researchers and the subjects studied during the COVID-19 pandemic. The questionnaire used in this study has passed the validity and reliability tests. The data that has been collected will be subjected to Spearman Rank and Exact Fisher's Test statistical tests. The research design and ethical considerations have been reviewed and approved by the Health Research Ethics Commission of the Faculty of Medicine, Universitas Airlangga number 223/EC/KEPK/FKUA/2021.

## RESULT AND DISCUSSION

**Table 1.** Frequency distribution of menstrual cycle length

Menstrual Cycle	Frequency(n)	Percentage (%)
< 21 days	7	12,3
21 – 35 days	35	61,4
> 35 days	15	26,3
Total	57	100

Based on table 1. It is known that most respondents have a menstrual cycle length of 21 - 35 days as many as 35 respondents (61.4%) while 15 respondents (26.3%) have an elongated menstrual cycle which is > 35 days (oligomenorrhoea) and 7 respondents (12.3%) have a cycle < 21 days (polymenorrhoea). The range of menstrual cycles in each person can be different. Abnormal menstrual cycles can be caused by hormonal imbalances that can affect the ovulation process (Juliana et al., 2019).

**Table 2.** Frequency distribution of menstrual cycle regularity

Menstrual Cycle	Frequency(n)	Percentage (%)
normal	34	59,65
abnormal	23	40,35
Total	57	100

Based on table 2. It is known that most respondents have regularity of the menstrual cycle as many as 34 respondents (59.65%) and respondents who have irregular cycles are 23 respondents (40.35%).

**Table 3.** Frequency distribution of primary dysmenorrhoea

Primary dysmenorrhoea	Frequency(n)	Percentage (%)
Terjadi	50	87,72
Tidak terjadi	7	12,28
Total	57	100

Based on table 3. It is known that almost all respondents, namely 50 people (87.72%) experienced primary dysmenorrhoea and only 7 respondents (12.28%) did not experience primary dysmenorrhoea.

**Table 4.** Relationship between menstrual cycle length and incidence of primary dysmenorrhoea

Menstrual Cycle	Primary dysmenorrhoea				Total		Sig (2-tailed)	Koef. Korelasi
	happened		Not happened					
	N	%	N	%	N	%		
< 21 days	5	8,8	2	3,5	7	12,3	0,3	0,131
21 – 35 days	30	52,6	5	8,8	35	61,4		
> 35 days	15	26,3	0	0	15	26,3		
Total	50	87,72	7	12,28	57	100		

Based on table 4. Most respondents had a normal menstrual cycle length of 21 - 35 days and experienced primary dysmenorrhoea as many as 30 people (52.6%) and respondents who had a menstrual cycle length of > 35 days (oligomenorrhoea) and experienced primary dysmenorrhoea as many as 15 people (26.3%). The results of the study with the Spearman Rank statistical test obtained a significance value of 0.3 and a correlation coefficient of 0.131, where the Sig. (2-tailed) value > 0.05 so it can be concluded that there is no significant relationship between the length of the menstrual cycle and the incidence of primary dysmenorrhoea and the correlation coefficient value = 0.131 indicates the strength of the weak relationship between the length of the menstrual cycle and the incidence of primary dysmenorrhoea.

The results of this study are in line with research (Kural et al., 2015) where most female respondents have normal menstrual cycle length characteristics of 21 - 35 days so that the results of the study found no relationship between the length of the menstrual cycle and the incidence of primary dysmenorrhoea. Most of the respondents with normal menstrual cycle

length still experienced pain during menstruation, this could be due to the fact that menstrual pain can be influenced by other risk factors for primary dysmenorrhoea such as lifestyle, exposure to cigarette smoke, or emotional disturbances. The number of respondents who experienced oligomenorrhoea menstrual cycle disorder was the second highest at 26.3% of the total respondents.

**Table 5.** The relationship between menstrual cycle patterns and the incidence of primary dysmenorrhoea

Menstrual cycle pattern	Primary dysmenorrhoea				Total		Sig. (2-sided)
	happened		Not happened		N	%	
	N	%	N	%			
regular	27	47,37	7	12,28	34	59,65	0,034
irregular	23	40,35	0	0	23	40,35	
Total	50	87,72	7	12,28	57	100	

Based on table 5. Most respondents had a regular menstrual cycle and experienced primary dysmenorrhoea, namely 27 respondents (47.37%) and respondents who had an irregular menstrual cycle, namely 23 respondents (40.35%) all experienced primary dysmenorrhoea. The results of statistical tests with Exact Fisher's Test obtained a significance value of 0.034 where the value of Sig. (2-sided) > 0.05 so it can be concluded that there is a significant relationship between menstrual cycle patterns and the incidence of primary dysmenorrhoea.

The results of this study are in line with the results of research conducted by (Al - Matouq et al., 2019) where respondents with irregular menstrual cycles will be more at risk of experiencing primary dysmenorrhoea. Irregular menstrual cycles can be caused by several factors, one of which is psychological factors, namely stress (Mau et al., 2020). Women who experience stress will cause an increase in prostaglandin production which is a mediator of pain in primary dysmenorrhoea. In a study conducted by (Z. Hu et al., 2020) found an association between irregular menstrual cycles and the incidence of primary dysmenorrhoea, the etiological mechanism of this relationship remains unexplained but this could be related to the efficiency of ovum work, increased uterine activity during menstruation or increased prostaglandin production. Prostaglandins have a very important role in the menstrual process, where during menstruation there will be a decrease in progesterone followed by increased production of prostaglandins, prostaglandins will cause endometrial vasoconstriction resulting in pain during menstruation (Bernardi et al., 2017).

The results of this study are also in line with the results of research (Wardani et al., 2021) where the occurrence of menstrual pattern disorders is related to ovarian dysfunction



associated with anovulation and luteal phase disorders so that based on the results of the study, women who have irregular menstrual cycles have a 14.8 times risk of primary dysmenorrhoea. Irregular menstrual cycles can be caused by several risk factors such as unhealthy lifestyles, so to prevent irregular menstrual cycles, it is necessary to carry out health promotion related to healthy lifestyles such as maintaining nutritional intake, doing light activities, getting enough rest to maintain psychological conditions by avoiding stress (Wardani et al., 2021).

## CONCLUSION

The majority of midwifery students at Universitas Airlangga experience menstrual pain or primary dysmenorrhoea. The results of statistical analysis between the length of the menstrual cycle and the incidence of primary dysmenorrhoea showed no relationship between the two variables, while the results of statistical analysis between the regularity of the menstrual cycle and the incidence of primary dysmenorrhoea showed a significant relationship.

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