

Yoga Practice on Reducing Menstrual Pain Intensity (Dysmenorrhea) in Adolescent Girls: Literature Review

Nuring Dwi Hareni¹, Zainal Abidin¹, Anggia Astuti¹

¹Faculty of Nursing, Universitas Jember, Lumajang Campus, Indonesia

Correspondence should be addressed to:
Anggia Astuti
Anggiastuti.oj26@unej.ac.id

Abstract:

Most women experience severe pain problems during menstruation, usually called dysmenorrhea. Yoga practice can reduce body, mind, and psychic tension, reduce pain, and release endorphins to increase the response of the parasympathetic nerves which causes vasodilation of blood vessels throughout the body and uterus, and increases uterine blood flow thereby reducing the intensity of dysmenorrhea. This study aimed to determine the effect of yoga practice on reducing menstrual pain intensity (dysmenorrhea) in adolescent girls. This study used a literature review design using 3 databases, namely PubMed, Science Direct, and Google Scholar. The results showed that in the study, the exercises used were yoga with a percentage of 100% using yoga practice interventions. Yoga practice was done within 30-60 minutes per session with a period of 1-3 times a week. Menstrual pain in adolescents who were given yoga practice in the journal experienced a decrease in pain intensity with $p = 0.05$. Yoga can stimulate the body to release endorphins and enkephalins, inhibiting pain. Yoga is performed by relaxing the endometrial muscles when contractions and ischemia occur due to increased prostaglandin levels, which will cause vasodilation of blood vessels and cause blood flow to experience spasms and spasms ischemia and then reduce pain. Yoga will change the pattern of pain acceptance towards calming the body and will gradually recover from pain disorders. Yoga practice can be an alternative to reduce the intensity of menstrual pain in adolescent girls.

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INTRODUCTION

Adolescence can be interpreted as the development of a dynamic personal life; adolescence is also closely associated with physical signs and is related to puberty. Puberty is a biological process that leads to reproductive abilities, an important and emphasized part of adolescence (Octavia, 2020; Triyani et al., 2021). Puberty experienced by young women is marked by menstruation or what can be called menstruation. Most women experience intense pain during menstruation, usually called dysmenorrhea (painful menstruation) (Arini et al., 2020; Yulinda et al., 2017).

Menstruation, which can pose a pathological risk, interfere with daily activities, and experience pain of varying nature and levels and intense pain, is called dysmenorrheal (Sari et al., 2018). The muscles of the uterus contract adequately to expel menstrual blood and cause menstrual pain (dysmenorrhea) due to the prostaglandins produced during menstruation. The impacts are physical, psychological, social, and economic discomfort. such as disruption of daily activities and decreased performance, namely, nausea, sometimes accompanied by vomiting and diarrhea (PPNI, 2017).

There are still many women who perceive menstrual pain as normal and will disappear for about 2 days, even though severe pain during menstruation can be a sign and symptom of a disease such as endometriosis which will result in difficulties in conceiving offspring (Rini & Nuryanti, 2020; Salamah, 2019).

Dysmenorrhea must be treated so that worse effects do not occur, such as nausea, vomiting, diarrhea, dizziness, headaches, and sometimes fainting (Arini et al., 2020; Nababan et al., 2021; PPNI, 2017). Yoga therapy is a training that can reduce dysmenorrhea and nourish the body as a whole (PPNI, 2018a; PPNI, 2018b). The body is in a relaxed position, uses physical movements, does not interfere with the direction of blood circulation that comes out, breathes deeply, does not disrupt hormones, and does not spend much energy, and also meditation to relieve dysmenorrhea is a yoga position that is done during menstruation (Ira et al., 2021; Pratama, 2018; Rini & Nuryanti, 2020). Yoga therapy can control the nervous system, which is beneficial for blood circulation throughout the body, reduce body, mind, and psychological tension, increase lung capacity when breathing, reduce pain, reduce abdominal cramps, reduce the fluid that accumulates in the waist, release endorphins to increase response parasympathetic nerves which cause vasodilation of blood vessels throughout the body and also the uterus and increase uterine blood flow thereby reducing the intensity of dysmenorrhea (Lestari & Putri, 2018). This study aimed to determine the effect of yoga practice on reducing menstrual pain intensity (dysmenorrhea) in adolescent girls.

METHOD

The method used to achieve this goal is a literature review. Literature searches were conducted on the PubMed, Science Direct, and Google Scholar electronic databases using the keywords (AND, OR, NOT) used to broaden the search, to make it easier for authors to choose the journal to use. Keywords used: Yoga, Menstrual Pain, with the combination: ((yoga) AND (menstrual pain)). In the initial search, 908 were found (Pubmed n = 26, Science Direct n = 161, Google Scholar n = 86) then filtered from 2018-2021 (Pubmed n = 17, Science Direct n = 98, Google Scholar n = 148), Articles screening was carried out based on full text (n = 106), articles that were not suitable (n = 86) with the reasons: Not suitable based on title and abstract, journal articles obtained (n = 10). After going through the selection and quality assessment process, 10 articles met the requirements, 7 articles used a quick experimental design, 1 article randomized controlled trial, and 2 systematic reviews. The results of the selection of articles can be seen in Figure 1 below.

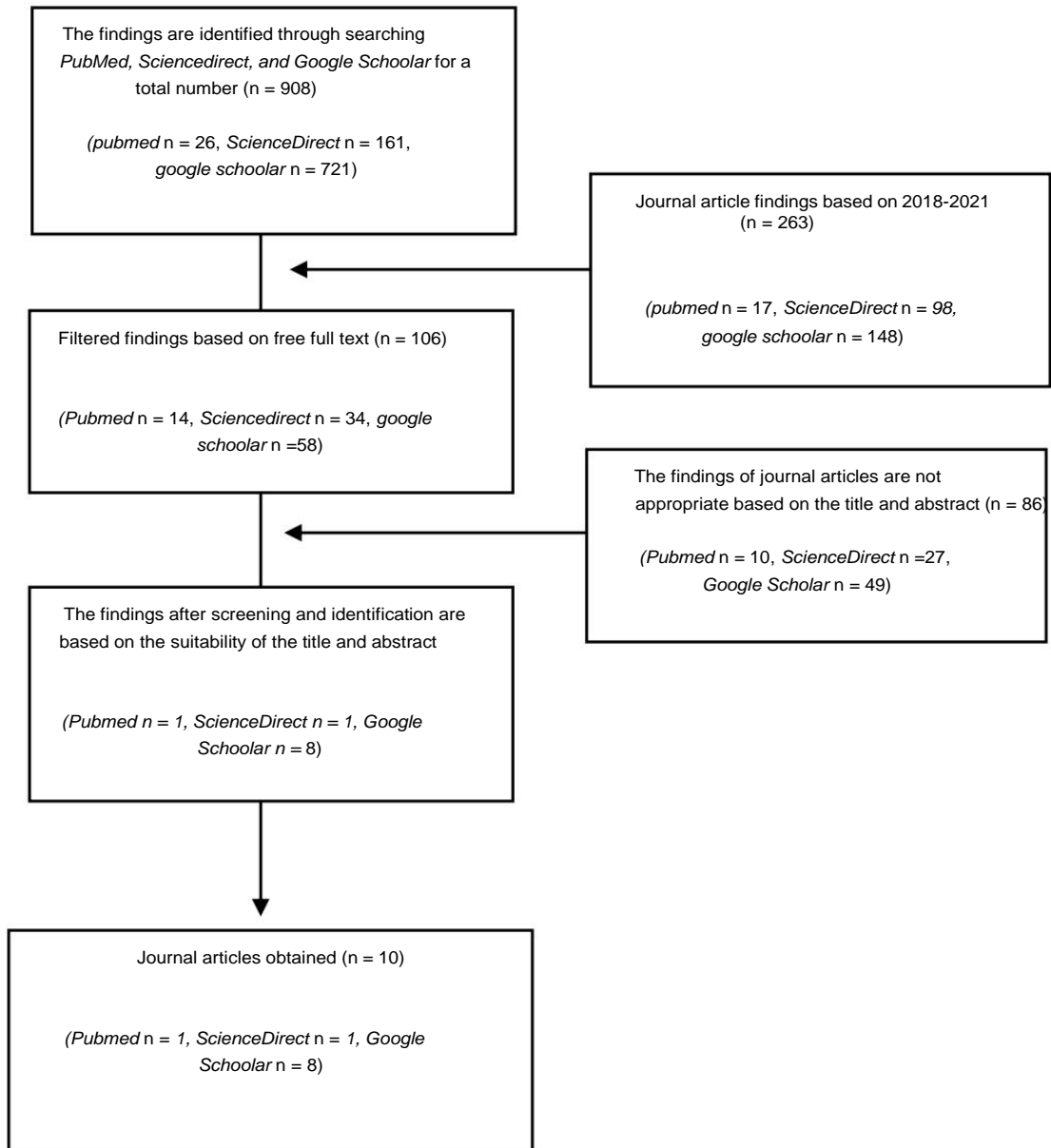


Figure 1. Articles Selection Process

RESULT

Table 1. Characteristics of Participants' Age

Author	Age
(Arini et al., 2020)	17 – 23 years
(Sari et al., 2018)	-
(Syah & Putri, 2019)	12 – 17 years
(Hadianti & Ferina, 2021)	12 – 16 years
(Nababan et al., 2021)	-
(Ira et al., 2021)	19 – 23 years
(McGovern & Cheung, 2018)	13 – 17 years
(Azizah et al., 2022)	-
(Kim, 2019)	11 – 12 years
(Mohebi et al., 2018)	12 – 13 years

Participants in this study were young women from each location, most teenage daughters who experience menstrual pain, namely those aged over 11 years.

Table 2. Overview of Study Result based on County and Study Design

Author	Country	Study Design
(Arini et al., 2020)	Padang, Indonesia	<i>Quasi-experimental studies</i>
(Sari et al., 2018)	Indonesia	<i>Quasi-experimental studies</i>
(Syah & Putri, 2019)	Indonesia	<i>Quasi-experimental studies</i>
(Hadianti & Ferina, 2021)	Indonesia	<i>Quasi-experimental studies</i>
(Nababan et al., 2021)	Indonesia	<i>Quasi-experimental studies</i>
(Ira et al., 2021)	Medan, Indonesia	<i>Quasi-experimental studies</i>
(McGovern & Cheung, 2018)	Kediri, East Java, Indonesia	<i>Quasi-experimental studies</i>
(Azizah et al., 2022)	American	<i>Quasi-experimental studies</i>
(Kim, 2019)	East Jakarta, Indonesia	<i>Systematic review</i>
(Mohebi et al., 2018)	Kangwon, Korea	<i>Systematic review</i>
(Arini et al., 2020)	Kharamsad, India	<i>Randomized controlled trials</i>

Of the 10 articles reviewed, most research locations were conducted in Indonesia, 7 of which were in Padang, Medan, Kediri, and Jakarta. Besides that, there are also 3 international articles: America, Korea, and India.

Table 3. Length of Yoga Practice

Author	Length of Yoga Practice		
	Minute per session	Session per week	Week
(Arini et al., 2020)	30	2-3	4
(Sari et al., 2018)	60	2	4
(Syah & Putri, 2019)	30	2	4
(Hadianti & Ferina, 2021)	60	2	4
(Nababan et al., 2021)	30	3	2
(Ira et al., 2021)	-	2	4
(McGovern & Cheung, 2018)	30	1	6
(Azizah et al., 2022)	-	-	-
(Kim, 2019)	30	2	4
(Mohebi et al., 2018)	-	3	4

The duration of yoga practice is 30 – 60 minutes per session and is carried out in 2 – 6 weeks, with 1 – 3 sessions per week. In the study (Azizah et al., 2022), it was not explained regarding the duration of the yoga practice. It can be seen that the duration of yoga practice 10 articles show that to do yoga practice per session, which ranges from 30-60 minutes, this duration is by the theory put forward (Arini et al., 2020) says that yoga practice carried out 20-30 minutes once a day regularly is quite effective in reducing the intensity of menstrual pain.

Table 4. Menstrual Pain Scale

Author	Light	Moderate	Severe
(Arini et al., 2020)		√	
(Sari et al., 2018)	√		
(Syah & Putri, 2019)	√		
(Hadianti & Ferina, 2021)	√		
(Nababan et al., 2021)		√	
(Ira et al., 2021)		√	
(McGovern & Cheung, 2018)		√	
(Azizah et al., 2022)	Light	Moderate	Severe
(Kim, 2019)	√		
(Mohebi et al., 2018)		√	
(Arini et al., 2020)		√	

Of the 10 articles reviewed, the pain often felt is mild to moderate. There were 4 articles stating mild pain levels and 6 articles stating moderate pain levels. Based on (Lestari & Putri, 2018), pain is a condition in the form of an unpleasant feeling, is very subjective, and the pain in each person varies in terms or levels.

Table 5. Pain Scale Assessment Instrument

Author	Numeric Rating Scale (NRS)	Visual Analog Scale (VAS)
(Arini et al., 2020)	√	
(Sari et al., 2018)	√	
(Syah & Putri, 2019)	√	
(Hadianti & Ferina, 2021)	√	
(Nababan et al., 2021)	√	
(Ira et al., 2021)	√	
(McGovern & Cheung, 2018)		√
(Azizah et al., 2022)	-	
(Kim, 2019)	√	
(Mohebi et al., 2018)	√	
Percentage	80%	10%

There are two types of instruments used to measure the intensity of menstrual pain, namely, the Numeric Rating Scale (NRS) or pain intensity measurement instrument, because the assessment test can determine the level of pain that a person feels is good or bad (Pakpahan & Sianturi, 2022), and VAS is a measurement seriousness of pain that is more sensitive because the client can recognize each series point rather than being forced to choose one word or one number (Pakpahan & Sianturi, 2022).

Table 6. Distribution Before and After Doing Yoga

Author	Before	After	Change
(Arini et al., 2020)	12.50	4.25	8.25
(Sari et al., 2018)	Intervention: 8.59 Control: 8.55	Intervention: 4.35 Control: 8.55	Intervention: 4.24 Control: 8.55
(Syah & Putri, 2019)	5.13	3.33	1.8
(Hadianti & Ferina, 2021)	37.85	30.38	7.47
(Nababan et al., 2021)	-	-	-
(Ira et al., 2021)	2.53	1.46	1.07
(McGovern & Cheung, 2018)	3.52	1.6	1.92
(Azizah et al., 2022)	4.79	3.14	1.65
(Kim, 2019)	13.63	8.44	5.19
(Mohebi et al., 2018)	-	0.973	-

Table 7. Distribution of Statistic Test Result

Author	Types of Statistical Tests	Statistic Test Result
(Arini et al., 2020)	Mann-Whitney U test Wilcoxon	p = 0.002 p = 0.001
(Sari et al., 2018)	Wilcoxon test	p = 0.001 < 0.05 p = 0.492 > 0.05
(Syah & Putri, 2019)	-	p = 0.001 < 0.05
(Hadianti & Ferina, 2021)	-	p = 0.001 (p < 0.05)
(Nababan et al., 2021)	-	p = 0.001 (p < 0.05)
(Ira et al., 2021)	Wilcoxon test	p = 0.001 < 0.05
(McGovern & Cheung, 2018)	Wilcoxon test	p = 0.001 < 0.05
(Azizah et al., 2022)	-	-
(Kim, 2019)	-	p = 0.001 (< 0.05)
(Mohebi et al., 2018)	Paired T-test Independent T-test.	p = 0.001 (p < 0.05) p = 0.001 (p < 0.05)

The overall statistical test results have a p-value <0.05, which means that yoga practice influences the intensity of menstrual pain in adolescents.

DISCUSSION

The intensity of menstrual pain in adolescents aged over 11 years has decreased (Halawa, 2020; Mohebi et al., 2018). Yoga can stimulate the body to release endorphins and enkephalins which can inhibit pain. Yoga is performed by relaxing the endometrial muscles when contractions and ischemia occur because of increased prostaglandin levels which will cause vasodilation of blood vessels which will cause blood flow to experience spasm and ischemia and then reduce pain. Yoga will change the pattern of pain acceptance towards calming the body and will gradually recover from pain disorders (Astuti et al., 2020; Khaimah, 2019). For the duration of yoga practice, the 10 articles show that yoga practice per session ranges from 30-60 minutes, this duration is by the theory put forward by (Arini et al., 2020; Hapsari et al., 2021) which says that yoga practice is carried out 20-60 minutes, once a day regularly is quite effective in reducing the intensity of menstrual pain. After doing yoga exercises to determine the intensity of menstrual pain, measurements can be carried out using the Numeric Rating Scale (NRS) measuring instrument for measuring pain intensity because the assessment test can determine the level of pain that a person feels is good or bad (Pakpahan & Sianturi, 2022; Suparta & Astrina, 2020; Tilong, 2017),

and Visual Analog Scale (VAS) where this instrument is used to measure the level of menstrual pain in young women. In measuring this pain scale, a straight line that represents continuous pain intensity and has a verbal depiction tool at each peak is the VAS (McGovern & Cheung, 2018; Pujiati, 2017a, 2017b). Both instruments proved the test results proved to be effective or influential with the provision that the lower the results obtained, the better the pain intensity value (no disturbance during menstruation). Menstrual pain scale generally felt by young women, namely, mild pain to moderate pain with an average pain scale of 1-6. yoga practice - an average of done in one session, each session a week is done 1-3 times and done at least 2-6 weeks to see the improvement that can occur in reducing the intensity of menstrual pain. Menstrual pain in adolescents who are given yoga practice will experience a decrease in pain intensity to a pain scale of 0-1, in a journal with the result $p = 0.05$.

CONCLUSION

The average yoga practice is done in one session lasting 30 to 60 minutes, each session a week is done 1-3 times a week and is done for at least 2 to 6 weeks to see the improvement that can occur in reducing the intensity of menstrual pain.

Menstrual pain scale is generally felt by young women, namely, mild pain to moderate pain. In terms of scale or level, the feeling of pain felt by each person is different. The conclusion shows that there is an effect before and after the implementation of yoga on dysmenorrhea pain. Yoga practice is expected to be used as an alternative therapy and non-pharmacological treatment to reduce dysmenorrhea this therapy is easy to do and easy to reach for all people because it doesn't cost a lot of money so that the feeling of discomfort because dysmenorrhea does not interfere with learning activities at school or outside school.

CONFLICT OF INTEREST

There is no potential conflict of interest found in this research.

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