

## Research Article

## The Effect of Celery Therapy and Abdominal Stretching Exercise on Pain Intensity in Adolescent with Dysmenorrhea at the Soppeng High School

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**Abstract:** Health of Reproduction is a physical, mental and social condition that is not just free from disease or disability but all aspects related to the system reproduction itself both functions and processes. This study aims to determine the effect of celery therapy and abdominal stretching exercise on pain intensity in adolescents with dysmenorrhea in Senior High School of Soppeng Regency High School. This research uses quasi-experiment. 60 samples were selected by consecutive sampling that met the inclusion criteria. Samples are non-randomized pre post-test one group design with the Accidental method sampling. Data collection using NRS (Numeric Rating Scale) measurement tools. Data distribution was not normal with Wilcoxon and Mann Whitney test analysed. Research result shows that the characteristics of respondents in study group for age in both group is 14-15 years with details of intervention and control group as much as 16 (53.3%). Based on grade level, the average respondent is in first grade in intervention and control group also had 16 details (53.3%). Average intensity pain after therapy in the intervention group was 0.27 (SD = 0.450) whereas in the group the average control of pain intensity was 0.57 (SD = 0.504) with a p value ( $p = 0.019$ ) &  $t; 0.05$ . There is a significant difference in pain intensity of intervention and control group after therapy which means the administration of celery therapy and abdominal stretching exercise. Celery therapy and abdominal stretching exercise need to be recommended for therapy to handle primary dysmenorrhea in young women at SMAN 1 Watan Soppeng and SMAN 2 Watan Soppeng can regulate emotional stability to improve pain perception so that tolerance to pain increases.

**Keywords:** celery therapy, abdominal stretching exercise, dysmenorrhea.

### INTRODUCTION

Reproductive health is a physical, mental and social condition which is not only free from disease or disability but all aspects related to the reproductive system itself both its function and process (Glasier *et al.*, 2006). In order to improve reproductive health in adolescents, maternity nursing activities are carried out through comprehensive maternity care for individuals, families and communities both healthy and sick whose activities have an important role in determining the success of health services (Pillitteri, 2003).

The primary dysmenorrhoea in Indonesia is around 54.89% while the rest are adolescents suffering from secondary dysmenorrhoea, while the incidence of dysmenorrhoea in East Java is 64.25% consisting of 54.89% primary dysmenorrhoea and

9.36% secondary dysmenorrhoea. Although considered harmless, dysmenorrhoea can cause discomfort for women who experience it (Atiqah, 2009).

The results of Unsal *et al.*, (2018) concluded that dysmenorrhea is a public health problem that affects quality of life and is reported to cause 28.0% to 89.5% of women to be absent from work. According to Weissman *et al.*, (2004) dysmenorrhea causes absence from work and school, with 13-51% of women having been absent and 5-14% often absent.

The menstrual process that occurs every month is a separate impact for adolescents who experience primary dysmenorrhea, so they must find the right solution to overcome it both

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pharmacologically and non-pharmacologically. Non pharmacological management is safer to use because it does not use drugs so it does not cause side effects. Non-pharmacological methods used to relieve dysmenorrhea include compressing warm baths, massage, distraction, physical exercise or exercise, getting enough sleep, a low-salt diet, and increasing the use of natural diuretics such as celery leaves (Bobak *et al.*, 2005).

Celery has a slightly spicy taste and a distinctive aroma so that it is widely used as a seasoning in various food products (Kolarovic *et al.*, 2010). The distinctive aroma of celery comes from phthalid derivatives which are known to have anti-inflammatory, antitumor and insecticide properties. 74.6- 76.6% of phthalids were found in the leaves, the stem part was 56.8-74.1%, and the root part was 57.7-79.7%.

Celery is one of the herbs that are often used to be processed in food and also as a plant for treatment. Celery leaves contain vitamins A, B1, B2, B6, C, E, K, P, and other minerals such as Fe, Ca, P, Mg, and Zn. The content of vitamin C in celery is effective for strengthening the immune system so that the body becomes resistant to disease (Syahidah and Sulistyaningsih, 2018).

According to Thermacare (2010), abdominal stretching exercise, is a muscle stretching exercise especially on the stomach which is done for 10 minutes. This exercise is specifically designed to increase muscle strength, endurance and flexibility, so that it is expected to reduce menstrual pain. Abdominal stretching exercise is a combination of

six movements of stretch paint, lower trunk rotation, buttock/hip stretch, abdominal strengthening (curl up), lower abdominal strengthening, and bridge position.

**METHODOLOGY**

**Research Design**

This study used a quasy experimental design with the matching only pre-post test control group to see the therapeutic effect through differences between the intervention and control groups. The study was conducted at SMAN 1 Watan Soppeng and SMAN 2 Watan Soppeng.

**Population and Sample**

The population in this study were all students who experienced menstrual pain (primary dysmenorrhea) who attended SMAN 1 Watan Soppeng and SMAN 2 Watan Soppeng. A sample of 60 was selected by consecutive sampling that met the inclusion criteria aged 14-17 years, and was willing to sign an informed consent issued by the Ethics Committee of the Faculty of Public Health, Hasanuddin University.

**Data Analysis**

In the intervention group celery therapy and abdominal stretching exercise were done 3 (three) days before menstruation then post test after the first day of menstruation and in the control group abdominal stretching exercise was done 1 (one) day before menstruation then post test after the first day of menstruation. Data is processed using STATA. to assess the effect of celery therapy and abdominal stretching exercise using a paired t test.

**RESULTS**

**Table 1. Characteristics of respondents in the intervention and control group during pre-test in Soppeng Regency**

Characteristics of Respondents	Intervention of Respondents	Control Respondents
Age		
14-15 years	16 (53,3%)	16 (53,3%)
16-17 years	14 (46,7%)	14 (46, 7%)
Class		
One	16 (53,3%)	16 (53,3%)
Two	14 (46,7%)	14 (46,7%)

Source: primary data, 2019

Based on the results of the study, Table 1 shows that the average age of respondents in both groups was 14-15 years with details of the intervention group and the control group of 16

(53.3%). Based on grade level, the average respondent in the first class in the intervention and control groups also had details of 16 (53.3%).

**Table 2. Distribution of respondents based on pain scores in the intervention and control groups during pre-test and post-test in Soppeng Regency**

Statistical Value	Pain Score	
	Pre Test	Post Test
Intervention Group		
Minimum	0	0
Maximum	1	1
Mean	0,67	0,27
Elementary school	0,479	0,450
Control group		
Minimum	0	0
Maximum	1	1
Mean	0,67	0,57
Elementary school	0,479	0,504

Source: primary data, 2019.

Respondents were given a pre-test and post-test before and after it was done in the intervention and control groups. Table 2 is the result of pre and post test results obtained that in the intervention group, the average respondent experienced moderate pain during the pre test with a score of 0.67 (SD = 0.479). Then at the time of the post test, there was a decrease in the level of pain to mild pain with an

average score of 0.27 (SD = 0.450). In the control group showed that at the pre-test the average respondent experienced moderate pain with a score of 0.67 (SD = 0.479) while at the post-test the level of pain remained moderate but the average score decreased to 0.57 but the standard deviation had increased by 0.504.

**Table 3. Differences in mean pain before and after therapy in the intervention and control groups in Soppeng Regency**

Variable	Group	Measurement	Mean	SD	SE	n	p-value
Pain Score	Intervention	before	0,67	0,479	0,088	30	0,001
		after	0,27	0,450	0,082	30	
	Control	before	0,67	0,479	0,088	30	0,083
		after	0,57	0,504	0,092	30	

Source: primary data, 2019.

Table 3 shows the average value of pain intensity in the intervention group before celery therapy and abdominal stretching three times before menstruation was 0.67 (SD = 0.479) and after therapy was 0.27 (SD = 0.450). While the average pain in the control group before doing abdominal stretching once before menstruation was 0.67 (SD = 0.479) and after therapy it became 0.57 (0.504).

Wilcoxon test results showed a significant difference between the average pain intensity before and after treatment in the intervention group ( $p = 0.001 < 0.05$ ). So it can be concluded that the administration of celery therapy and abdominal stretching exercise three times before menstruation can significantly reduce the intensity of dysmenorrhea pain.

**Table 4. Difference in mean pain after therapy in the intervention and control groups in Soppeng Regency**

Variable	Group	Mean	SD	SE	n	p value
Pain Score	Intervensi	0,27	0,450	0,082	30	0,019
	Kontrol	0,57	0,504	0,092	30	

Source: primary data, 2019.

Table 4 shows that the average pain intensity after therapy in the intervention group was 0.27 (SD = 0.450) while in the control group the average pain intensity was 0.57 (SD = 0.504). Further analysis with the Mann-Whitney test showed that there were significant differences in the average pain intensity of the intervention group and the control group ( $p = 0.019 < 0.05$ ). In other words, giving therapy three times before menstruation is more effective in reducing pain intensity than if given only once.

**DISCUSSION**

This study used a Quasi Experimental design with the matching only pre-posttest control group design conducted on 60 respondents. The results of research conducted that celery therapy and abdominal stretching exercise proved effective in reducing the intensity of pain in adolescents with dysmenorrhea.

Based on the results of an analysis conducted by Ria Arisandi *et al.*, (2016), pharmacologically it was found that almost all parts of the plant have medicinal properties. Celery roots

are efficacious as a diuretic, menstrual decay and schomacic.

Non-pharmacological therapy that is often used for traditional medicine by the community is celery (*Apium graveolens* L). Celery (*Apium graveolens* L) contains terpenoids and flavonoids. Where flavonoids have activities as anti-atherosclerosis, anti-inflammatory, antioxidant and anti-hypertension and have antirheumatic effects, sedatives, mild diuretics and antiseptics in the urinary tract (Gross., 2004).

Another opinion says the cause of primary dysmenorrhea is due to the contraction of uterine muscle (myometrium) that is too strong when removing menstrual blood (decay of the endometrial lining uteri; blood clots (stolsel); epithelial and stromal cells from the uterine and vaginal walls; and fluid and mucus from the walls uterus; vagina and vulva), causing muscle tension during contractions and painful menstruation (Polat *et al.*., 2009).

According to French (2005), lifestyle modification to overcome dysmenorrhea, which is a low-fat diet, exercise, and stop smoking, and can also be given supplements, Japanese-style herbal medicine, acupuncture, acupressure, surgical therapy, Transcutaneous Electrical Nerve Stimulation, and horizon therapy.

Research conducted by Jhamb *et al.*, (2008), physical exercise has a significant relationship with the occurrence of decreased levels of muscle fatigue. Exercise will reduce muscle fatigue, especially in the lower abdomen, so that the intensity of pain can decrease. Adolescents who experience dysmenorrhea with muscle cramps, especially in the lower abdomen that are cyclic due to the existence of strong and long contractions in the uterine wall, causing muscle fatigue and physical inactivity so exercise is needed to eliminate these muscle cramps. However, the results of this study are not supported by Blakey (2009), which states that dysmenorrhea with exercise is not related. This study also explains that smaller studies (<500 respondents) are more likely to produce positive relationships.

## CONCLUSION

Based on the results of research and hypotheses it can be concluded that there is a significant difference between the intensity of pain in the intervention group and the control group after therapy which means that the administration of celery therapy and abdominal stretching exercise three times before menstruation is more effective in reducing pain than if only abdominal stretching exercise is given as

much as one time. Efforts to control primary dysmenorrhea in adolescent girls to perform celery therapy and abdominal stretching exercise at least three days before menstruation as a treatment for dysmenorrhea and regulate emotional stability to improve pain perception so that tolerance to pain increases.

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