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## Research Article

# The Effectiveness of Abdominal Stretching Exercises Using the Cat Stretch Exercise Technique Toward Menstrual Pain Among Young Women in Indonesia

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### Abstract

**Aims:** The high prevalence of dysmenorrhea more than 30% indicates the need to address this issue among adolescents. Severe pain during menstruation will affect psychosocial and physical changes. Some factors contribute to dysmenorrhea. Several non-pharmacological ways are already applied but the effect is still changing. One of the current innovations is abdominal stretching using the cat method. However, the effectiveness of this method is still unknown. This study explores the effectiveness of abdominal stretching exercises among adolescent girls in Indonesia.

**Method:** The study design uses a quasi-experimental approach with one group pre-test and post-test design. Convenience sampling was applied in this study. This study was conducted in one of the senior high schools in Indonesia in one month in 2022. Instruments were used VAS (Visual Analog Scale). Data was analyzed using a Paired Sample T-Test.

**Results:** The total sample is 20 adolescent girls. There is a significant difference in the menstrual pain scale before and after stretching abdominal exercises with  $p = 0.000$ .

**Conclusion:** Abdominal exercise stretching can be applied in providing comprehensive nursing care to adolescents who experience dysmenorrhea. A structured operational procedure must be taken into consideration when applying this intervention.

### Keywords:

**Abdominal, Adolescents, Cat stretch exercise, Dysmenorrhea, Stretching,**

## INTRODUCTION

The worldwide population of female adolescents is over 1.2 billion, constituting 18% of the overall global population. The number of persons aged 10-19 years in Indonesia is around 43.5 million, accounting for approximately 18% of the total population. The substantial adolescent population is anticipated to have a profound influence on development in several aspects such as social, economic,

and demographic dimensions, as emphasized by BKKBN in 2011 (1)

Adolescence is a critical period in human development characterized by the onset of reproductive organ maturation and significant changes in psychosocial development, cognitive advancement, and physical transformations as individuals migrate from childhood to adulthood. According previous research, young women often have worries about physical and biological changes, such as dysmenorrhea

(painful menstruation), coupled with related problems including irritability, restlessness, sleep difficulties, reduced attention, and breast augmentation (2)

Primary dysmenorrhea has a substantial influence on the quality of life for 40-90% of women. Approximately 1 in 13 women experience work or school absenteeism for 1-3 days per month owing to dysmenorrhea (3) Approximately half of women worldwide have dysmenorrhea, a condition characterized by varied degrees of discomfort throughout menstrual cycles. Of these women, 12% report severe pain, 37% report moderate pain, and 49% report mild pain (4). The prevalence of dysmenorrhea in Indonesia is 64.25%, with 54.89% being primary dysmenorrhea and 9.36% being secondary dysmenorrhea. The incidence of dysmenorrhea among adolescents ranges from 43% to 93%, with 74-80% suffering moderate symptoms. The estimated prevalence of endometriosis among teenagers experiencing pelvic pain is 25-38%. This percentage increases to 67% in situations when therapy for menstrual pain is inadequate, as proven by laparoscopy (5)

Several therapeutic options are available for dysmenorrhea, such as taking warm baths, using hot packs, engaging in physical activity, and refraining from smoking. Stretching exercises are non-pharmacological interventions that improve quality of sleep and alleviate pain among patient with Restless Leg Syndrome (RLS) (6). Previous research described that the combination stretching with other therapy reducing menstrual pain or other associated menstruation symptoms (7-9)

Abdominal stretching exercises, developed by health professionals and physiotherapists, have the specific goal of enhancing the strength, endurance, and flexibility of the abdominal muscles, which may lead to a decrease in discomfort. Abdominal stretching activities are effective in treating dysmenorrhea by improving abdominal muscular strength, flexibility, and endurance. Furthermore, respiratory relaxation methods have been shown to be

useful in lowering stress, enhancing lung ventilation, and treating dysmenorrhea (10,11)

Abdominal stretching exercises function as a therapy for lowering pain and inducing relaxation by promoting the release of endorphins. Endorphins are naturally occurring sedatives that are generated in the brain and spinal cord. Teenage females in Indonesia might treat dysmenorrhea by engaging in physical activities, namely abdominal stretching exercises that continue for 10-15 minutes. These exercises seek to improve muscular strength, endurance, and flexibility. The study intends to investigate the effectiveness of abdominal stretching exercises in this context.

## METHODS

### Study design and setting

The study is a prospective research used a quasi-experimental approach with one group pre-test and post-test design. This study was conducted in one of the senior high schools in Indonesia in one month period of April- May 2022.

### Intervention protocol

This research was carried out at least 3 days before menstruation (menstruation) in one abdominal stretching exercise session for  $\pm$  15 minutes.

### Sample

Convenience sampling was applied in this study.

### Instrument

Instruments were used VAS (Visual Analog Scale).

### Data collection

Inform consent was obtained before to all respondents. Data gathered by researcher in one group before and after intervention.

### Data analysis

Data was analyzed using a Paired Sample T-Test. From the results of the data normality test in Table 2, the pre-test skewness value was -0.277 the result was -0.491. These results indicate normal distribution.

## RESULTS

**Table 1. Demographic Characteristics (n=20)**

Variables	Mean $\pm$ SD, n (%)
<b>Age</b>	15.55 $\pm$ 0.48
16	11 (55)
17	9 (45)
<b>Dismenore Time (day)</b>	
First	16 (80)
Second	4 (20)
<b>Menstruation Duration</b>	
Regular	20 (100)

Based on Table 1 the average age is 15.55 with SD 0.48 and 11 (55%) is 16 years old. In this study 16 or 80% of adolescent girl felt dysmenorrhea on the first day of menstruation and all respondents had regular duration.

**Table 2. Bivariate Analysis**

Variables	Mean $\pm$ SD	SE	95%CI	p-value
Before	3.13 $\pm$ 0.95	0.24	2.61-3.64	0.00*
After	1.38 $\pm$ 1.45	0.36	0.60-2.15	

\*p-value significant <0.005

Based on Table 23, the results of the analysis show that the average intensity of menstrual pain experienced by respondents before intervention is 3.13 (95% CI 2.6-3.6), and the average intensity after exercise is 1.38. (95% CI 0.60-2.15). There is a statistically significant difference with a p-value <0.005 indicating there is an effect of intervention.

## DISCUSSION

This study found that abdominal stretching exercises using the cat stretch exercise technique was effective to reduce menstrual pain among young women. This research had a similar result compared to research conducted by (12,13) regarding reducing pain levels during menstruation through abdominal stretching exercises showed that the average pain scale before intervention was 3.18 with a standard deviation of 0.69.

When measuring the pain scale after the intervention, the average pain scale was 1.96 with a standard deviation of 0.33. The

results of research conducted by (14,15) also show that there is an influence of abdominal stretching exercise and warm compresses on reducing menstrual pain (dysmenorrhea). This can be seen based on the mean pre-test score of 3.6 decreased significantly to 2.8 (post-test) in the abdominal stretching exercise intervention and the p-value 0.01.

## CONCLUSION

The study findings indicate a difference in the severity of menstruation pain before and after the implementation of an abdominal stretching exercise intervention using the cat stretch exercise method among young women. This approach may be used to provide nursing care to adolescents who suffer from dysmenorrhea. Healthcare experts may offer information and instruct those who suffer from menstruation discomfort (dysmenorrhea) on this workout. Abdominal exercise stretching may be used to provide holistic nursing care to teenagers suffering from

dysmenorrhea. It is important to consider a well-defined operational process before implementing this intervention.

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