



Case Report

Abdominal stretching to reduce premenstrual syndrome: a case series

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ABSTRACT

Background: cases of premenstrual syndrome (PMS) among teenagers living in Hurun Inn Boarding School at the Pondok Pesantren Darul 'Ulum Jombang are quite a lot. In the 60 teenagers get surveyed, there were 22 (36.67%) people who experienced PMS. It means the problems need acute treatment to overcome.

Case presentation: This case study reports the effectiveness of giving abdominal stretching to ten teenagers who have PMS at the boarding school. The results showed a decrease in the PMS scale from a severe level (70%) to a medium-scale (60%) in the first cycle of menstruation and a mild level (60%) in the second cycle.

Conclusion: Abdominal stretching can reduce PMS symptoms.

INTRODUCTION

Premenstrual syndrome (PMS) is a problem that many women complain about, especially among teenagers. These include physical, emotional, and behavioral issues that appear in a cycle during the final of the luteal phase, and they disappear in a few days at the beginning of menstruation ^{1,2}.

PMS can occur mild to severe. The most severe case called Pre-menstrual Dysphoric Disorder (PMDD) ³. PMS and PMDD can recur in every ovulation cycle until menopause. Their severity and frequency in various symptoms can adversely affect the quality of life, the study, interpersonal relationships, family, social life, and working productivity; they can make an employee absent from work. They also trigger psychological disorders such as irritability and depression and finally affect the costs and expenses of health care ⁴⁻⁷.

The incidence of PMS in the world is quite high. It is 49.7% in Turkey ², 37% in Northern Ethiopia ⁸, 39.5% in Tanan Taiwan ⁹, 51% in Pakistan ¹⁰, 28% in Bangkok ¹¹, and 35.6% in Saudi Arabia ¹². The case is also high in Indonesia. It is 74.3% found in Surabaya ¹³, and 36.9% in Jakarta ¹⁴.

Based on an initial survey on the adolescents in the Hurun Inn Boarding House at the Darul Islamic Boarding School 'Ulum Jombang on October 18, 2018, among 60 teenagers, it was indicated that 22 (36.67%) suffered PMS. They reported that they have tensed breasts, pimply face, appetite changes, cravings for certain foods, pain in the extremities, cramps in the stomach, pain in the back. Psychologically, their mood becomes unstable; they are irritable and anxious, difficult to concentrate, and have a sleep disorder.

The efforts to eliminate or reduce PMS problems include physical activity and music therapy. Over the past 20-30 years, regular exercise and physical activity have been shown to affect levels of steroid hormones in blood circulation for women in their reproductive age¹⁵. Additionally, they can increase endorphin levels, which affect the pain threshold ^{16,17}.

The results of previous studies have shown that aerobics and stretching exercises are effective in reducing dysmenorrhea ¹⁸⁻²⁰. Others have proved that abdominal stretching is also useful in minimizing dysmenorrhoea ^{21,22}. However, the effectiveness of abdominal stretching for PMS has not been clearly indicated. This study aims to

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determine whether abdominal stretching can reduce PMS problems among teenagers.

CASE PRESENTATION

There were 10 cases of PMS in the teenagers aged 12-17 years in the boarding school from March to May 2019. They range from moderate (30%) to severe (70%) cases, as measured by Shortened Premenstrual Assessment Form (SPAF)²³. The symptoms indicated are: 1) the tense, pain, and swelling in breasts; 2) Feeling of helpless by daily routines; 3) depressed feeling; 4) Irritable and temperamental; 5) sad; 6) Muscle and joint pain; 7) uncomfortable, and painful stomach. These symptoms were reported in all cases.

Abdominal stretching is done three times a week for two menstrual cycles with a duration of 30 minutes. It consists of static heating (warming up) for 10 minutes, core training (abdominal stretching) for 12 minutes, and cooling (cooling down) in 8 minutes. Each movement is performed three times²⁴ (Figure 1).

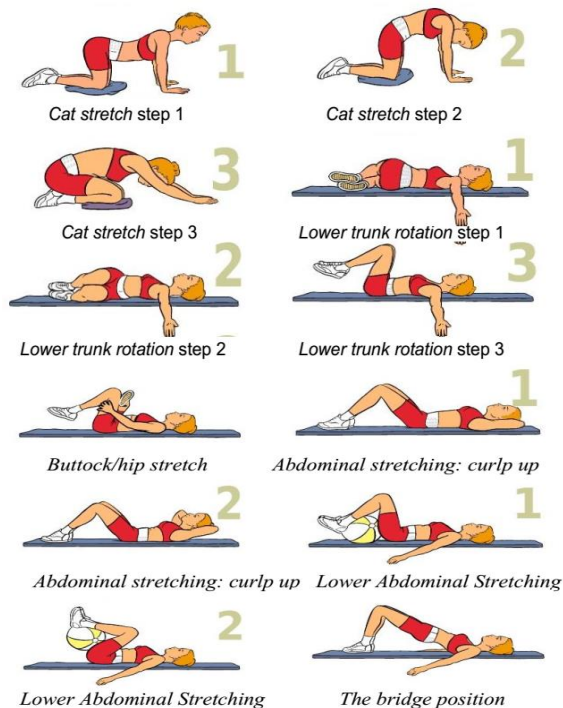


Figure 1. Abdominal stretching exercises²⁴

The PMS scale after the treatment has decreased to a severe level (20%), a medium-range (60%), and a mild range (20%) in the first menstrual cycle. Furthermore, in the second cycle of the menstruation, it decreases to a mild (60%) and moderate (40%) scale, and the severe level is none. Besides, the seven symptoms mentioned above reported to decrease in all cases.

DISCUSSION

The abdominal stretching treatment has been proved to decrease the symptoms and the severity of PMS. This is due to the effects of the exercise. The stretching is a physical exercise/activity that can increase the release of neurotransmitters (endorphins, dopamine, and endogenous opiate peptides). It also reduces the levels of prolactin, estradiol, progesterone, and sympathetic nervous system activity. Besides, it has increased the uterine blood flow, which in turn reduces pain perception²⁵⁻²⁸.

The work of endorphins is to inhibit C fibers in synapses and delta A in the dorsal horn in the spinal cord, and this will activate A-beta sensory fibers, which then block the pain signals in the spinal cord. Thus, pain perception will decrease. The endorphin release during exercise also significantly reduces pain, anxiety, and depression in PMS^{29,30}.

The physical activity can also facilitate blood circulation in the pelvis and increases the metabolism, thereby preventing the accumulation of prostaglandins, which causes uterine contractions, ischemia, and pain^{31,32}. Several studies have shown that stretching exercises are effective in improving abdominal spasm^{18,33,34}.

In this study, there was a decrease in PMS symptoms in the subjects after doing stretching exercises routinely. Theoretically, physical activity can reduce PMS symptoms by balancing brain chemical secretion. The increased endorphin hormones and the decreased flow of adrenal cortisol, prolactin, estradiol, and progesterone can increase the tolerance to pain, and reduce anxiety³⁵⁻³⁷.

The results of previous studies indicate that abdominal stretching and traditional music therapy is given three times in a row when respondents begin to feel pain, in 10-15 minutes, will effectively reduce the intensity of menstrual pain in teenagers²¹. Other studies also show that abdominal stretching interventions can reduce the severity of menstrual pain^{22,38,39}. The result of the present study goes in line with the previous studies which state that regular exercise like yoga can reduce PMS symptoms. The physical function, body pain, general health perception, vitality/energy, social function, and mental health has improved⁴⁰.

CONCLUSIONS AND RECOMMENDATION

Abdominal stretching can reduce PMS symptoms; it can be used as an alternative measure to treat PMS. A further experimental research is required to determine the effectiveness of this exercise to reduce the problems related to PMS.

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