

# Influence of Aerobic Gymnastics against Premenstrual Syndrome in Teenagers in Padang Sidempuan Midwifery: Study Program of North Sumatra, Indonesia

Maida Pardosi<sup>1</sup>, HotmaSauhur Hutagaol<sup>2</sup>, Hanna Sriyanti Saragih<sup>3</sup>

<sup>1,2,3</sup>Polytecnic of Health, North Sumatra, Indonesia

**Abstract:** Introduction: Premenstrual Syndrome (PMS) is a recurring cycle of some physical changes, psychological and behavior that began during the week before menstruation (the luteal phase of the menstrual cycle) and disappeared immediately at the time of menstruation. Symptoms – symptoms are felt every month menjelang. One of the efforts to reduce the symptoms of the syndrome (PMS) or aerobic gymnastics workouts. The purpose of the research was to prove the influence of aerobic gymnastics against premenstrual syndrome in teenagers with customized format Premenstrual Daily Symptom Diary (PDS) before and after done gymnastics. Research methods: This research is quantitative research with a quasi experimental design with pre and post test control group design. The data were analyzed using Mann-Whitney, and test the value of 0.05 was considered meaningful  $p < in$  statistics. Research results: there is a difference between meaningful intervention group ( $28.3 \pm 1.7$ ) and control group ( $32.6 \pm 1.3$ ) on average score SPAF Post Test; the  $p$ -value value = 0.001. On that score there are meaningful differences between PDS intervention group ( $443.4 \pm 16$ ) and control group ( $526.3 \pm 3.2$ ) on average score PDS Post Test; the  $p$ -value value = 0.001. Conclusion: That the aerobic gymnastics to decrease Premenstrual Syndrome (PMS). Recommendations: To make older children need to do aerobic gymnastics in order to cope with the Premenstrual Syndrome (PMS)

**Keywords:** teen, aerobic gymnastics and Premenstrual Syndrome (PMS)

## 1. Introduction

Premenstrual Syndrome (PMS) is a recurring cycle of some physical changes, psychological and behavior that began during the week before menstruation (the luteal phase of the menstrual cycle) and disappeared as soon as the menstruation has begun. Symptoms – symptoms are felt every month 1.

Symptoms of PMS is composed of three parts: emotional, physical and behavioral. Emotional and mood changes are most often occurs at an STD including depression, irritability, crying, hypersensitive and mood swings as easily sad and angry. Physical discomfort including stomach cramps, tiredness, bloating, breast changes and increased weight. Behavior change include food cravings, lack of concentration, withdrawing from the environment, forgetful and decreased motivation 2.

Diagnose PMS criteria according to ACOG is when patients reported at least one of the symptoms of affective and somatic here for 5 days before menstruation. Symptoms – symptoms that appeared in three consecutive menstrual cycles, namely: Affective: depression, anger that explodes – explosive, easily upset, anxiety and social disorder; Somatic: breast pain, flatulence, headache, extremities swell; Symptoms – symptoms also must meet the following criteria: lost in four days after the early onset of menstruation without returning to the 13th day of the menstrual cycle; Arise when not getting therapy hormone, injections of Pharmacology, drug use or alcohol; Cause identification of dysfunction in the appearance of social or economic; Occurred during two cycles of reproduction 3

Based on a retrospective basis community survey estimated at 75-85% of women have experience sedidkitnya one of the premenstruasi syndrome 2. Based on studies conducted lime (2016) obtained results most women experience PMS symptoms ranging from mild to medium level, and this affects the work of the day – today, social life. The more severe PMS symptoms experienced by adolescents decreased the productivity of work. So it can be concluded that there is a positive correlation between PMS symptoms and impaired social 4.

One of the efforts to reduce the symptoms of PMS is to do aerobic exercise or gymnastics. This activity can decrease fatigue and depression. Movement – a movement that is done can increase heart rate and pulmonary functions pulmonary – 1. Harry in Istiqomah explains sports/gymnastics is one of relaxation techniques that can be used to reduce pain and provide a sense of comfort. This is caused when doing sports/gymnastics body will produce endorphin. Endorphin is produced in the brain and spinal nerves. This hormone can serve as a natural sedative, manufactured the brain giving rise to a sense of comfort 5.

MoE and kotsirilos in poornima mention PMS does not require treatment, but some form of alternative healing can be performed. As to the fact that the emotional symptoms of PMS is primarily is mood changes, so treatment is commonly used by health workers is to use relaxation techniques 6. Based on preliminary studies of retrieved results 35% of students experiencing more than two symptoms of premenstrual syndrome and about 5% are unable to carry out the activity due to PMS. Symptoms – symptoms of this form of crying, hypersensitive, stomach cramps, decreased motivation and appetite disorders. So is

impacting against the smoothness of teaching and learning program activities.

## 2. Method Research

Quantitative research, quasi experimental design pretest and posttest control group design. Aerobic gymnastics conducted the intervention group and the control group does not do aerobic gymnastics. aerobic gymnastics conducted jointly by the group intervention every afternoon 17.30 Pm – 18.00 pm, for one week. The population of the research was all young women in Midwifery courses PadangSidimpuan who experience premenstrual syndrome (PMS). Large samples using the formula of Sastroasmoro7 i.e. the value of the standard deviation to previous research namely 1.178. The research sample is selected by convenience sampling as many as 32 people remaja16 people into the intervention group and a control group of people become 16., 18 – 22 years old that have more than two PMS symptoms using the observation formats premenstrual Short assessment form (SPAF). have the same menstrual cycle i.e. 25 – 35 days and the same menstrual time so that there are no differences in the two groups. SPAF measurement is carried out using the format:

- 1) Short premenstrual assessment form (SPAF), by Allen, McBride and Pirie (1991) 9. as a basic screening to find out whether the participants are having PMS.
- 2) Daily Premenstrual Symptom Diary (PDSD) by Dickerson (2003) 10. to note the symptoms of PMS symptoms – experienced daily by the intervention group and the control group. analisisMann\_Whitney Test Data for comparing data pre-and post – test – test.

## 3. Results and Discussion

**Table 3.1:** Characteristics of Respondents in the Intervention Group and the Control Group in the Study Programme

Midwifery Padang Sidempuan

No	Characteristics	Mean ± SD Interventions	Mean ± SD Control	Sig
1	Age	19,3 ± 0,8	19,1 ± 0,7	<i>p</i> > 0,05
2	Age time of Menarche	13,2 ± 0,6	13,0 ± 1,1	<i>p</i> > 0,05
3	Score SPAF Pre-Test	32,2 ± 1,4	32,6 ± 1,3	<i>p</i> > 0,05
4	Score PDSD Pre-Test	524,8 ± 3,0	526,3 ± 3,2	<i>p</i> > 0,05

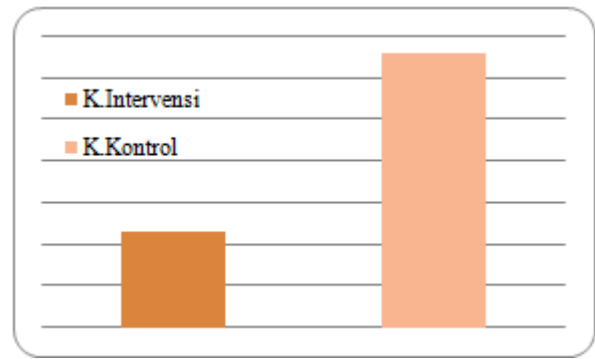
There were no significant differences between the characteristics of the intervention group and the control group.

**Table 3.2:** Influence of aerobic gymnastics toward the MEAN ± SD score SPAF post test in the study programme

Midwifery Padang Sidempuan

No	Score SPAF Post-Test	Mean ± SD	<i>p</i>
1	Intervention Group	28.3 ± 1.7	0.001
2	Control Group	32.6 ± 1.3	

Table 3.2 shows the influence of aerobic gymnastics against score SPAF, there is a difference between meaningful intervention group (28.3 ± 1.7) and control group (32.6 ± 1.3) score SPAF Post Test *p* value value = 0.001.



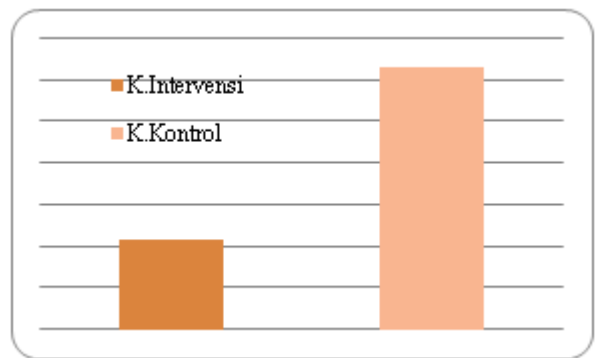
**Figure 1:** Average score SPAF Post test between the intervention group and the control group

**Table 3.3:** The Influence of Aerobic Gymnastics toward the Mean ± SD Score PDSD Post Test in the Study Programme

Midwifery Padang Sidempuan

No	Score PDSD Post-Test	Mean ± SD	<i>p</i>
1	Intervention Group	443,4 ± 16	0.001
2	Control Group	526,3 ± 3,2	

Table 3.3 Shows the influence of aerobic gymnastics against score PDSD, there are meaningful differences between the intervention group (443.4 ± 16) and control group (526.3 ± 3.2) at PDSD Post Test score; the *p*-value value = 0.001.



**Figure 2:** Average score PDSD post test between the intervention group and the control group

The results showed that the aerobic gymnastics have a meaningful influence on the intervention group i.e. decline on the score SPAF and the score PDSD.

Tables 1, 2 and 3 show that the score pre-test of the SPAF and PDSD intervention group is higher than the score post-test, indicating a decrease in symptoms – PMS symptoms after aerobic gymnastics intervention. Score post – test in the intervention group were lower than the control group and the results of data analysis with t-test obtained meaningful results. Based on this it can be concluded that aerobic gymnastics have meaningful influence against a decline in PMS symptoms.

ACOG recommends decline in PMS symptoms through sports/gymnastics, relaxation techniques, a diet rich in complex carbohydrates and low in sugar, a diet low in fat and salt, and emotional support (Simon, 2013). Sports like aerobic gymnastics should preferably be carried out on a regular basis not only while experiencing symptoms – symptoms of PMS. The time required to carry out aerobic

gymnastics at least 30 minutes every time gymnastics. By implementing a regular aerobic gymnastics then expected to decrease fatigue and depression, increases the heart rate and lung function (ACOG, 2015) 1

Sports can decrease the discomfort in menstruation through increased vasodilatory, and decrease in ischemia, release the endogenous opiate especially beta endorpin and suppress the prostaglandins and shut down the flow of blood from the inside of the stomach that produces the pelvic congestion reduction. It is lowering the pain experienced by young women. Exercise also helps in reducing back pain, decrease pain, increase flexibility, improve body circulation increased mobility in the spinal tissue and bone joints, relaxes uterine muscle tension and maintain a good abdominal tone. Exercise can also lower the stimulation of motoneuron (Renuka, 2015) 12.

While doing sports/gymnastics body will produce endorphin. Endorphin is produced in the brain and spinal nerves. This hormone can serve as a natural sedative, manufactured the brain giving rise to a sense of nyaman5, 12.His research results in Ghanbari with aerobic gymnastics can decrease symptoms of PMS symptoms i.e. decreased – symptoms and cognitive neurovegetatif, electrolyte changes and skin problems 13.The same thing was found by the year 2015 that Sabaei with aerobic gymnastics can reduce symptoms – symptoms of PMS, but no longer do aerobic gymnastics then symptoms – symptoms of PMS will increase kembali14

#### 4. Conclusion

Based on the results of data analysis it can be concluded that aerobic gymnastics to decrease symptoms – symptoms of premenstrual syndrome.

#### References

- [1] ACOG. Premenstrual Syndrome (PMS). American College of Obstetricians and Gynecologist. 2015.
- [2] Association of Reproductive Health Professionals (ARHP). Managing Premenstrual Syndrome. www.arhp.org. 2008.
- [3] ACOG. Premenstrual Syndrome. Practice Bulletin No. 15. Washington, DC: American College of Obstetricians and Gynecologists, 2000.
- [4] Kapur N, Narula PS. Premenstrual Symptoms and Social Disability. 2016. Volume 2, Issue 1. Diakses Mei 2016.
- [5] Istiqomah PA. Efektivitas Senam Dismenore Dalam Mengurangi Dismenore Pada Remaja Putri Di SMU N 5 Semarang. 2009.
- [6] Poornima. The Effects of Classical Music based Chakra Meditation on the Symptoms of Premenstrual Syndrome. The International Journal of Indian Psychology ISSN 2348-5396 (e) | ISSN: 2349-3429 (p) 2015. Volume 2, Issue 3.
- [7] Sastroasmoro S. Dasar-dasar Metodologi penelitian klinis. Jakarta: CV. Sagungseto. 2011.
- [8] Wiryana I, Sari MD. Pengaruh Pemberian Masase Punggung Dan Teknik Relaksasi Nafas Dalam Terhadap Penurunan Intensitas

- Nyeri Pada Pasien Post Appendiktomi Di Zaal C Rs HKBP Balige Tahun 2011, Jurnal Keperawatan HKBP Balige, Vol.1 No.1, Juni 2013 ISSN 2338-369091. 2013.
- [9] Allen SS, McBride CM, Pirie PL. The shortened premenstrual assessment form. J Reprod Med. 1991 Nov; 36 (11):769-72.
- [10] Dickerson LM, Mazyck PJ, Hunter MH. Premenstrual Syndrome. Am Fam Physician 2003 ; 67:1743-52.
- [11] Simon H, Zieve D. Premenstrual Syndrome. A.D.A.M. Inc. American Accreditation Health Care Commission (www.urac.org). 2013.
- [12] Renuka K, Jeyagowri S. Stretching Exercise Therapy and Prima Nursing Perspectives. IOSR Journal of Nursing and Health Science (IOSR-JNHS). May. - Jun. 2015. e-ISSN: 2320 1959,p- ISSN: 2320 1940 Volume 4, Issue 3
- [13] Ghanbari Z, Manshavi FD, Jafarabadi M. The Effects of Three Months Regular Aerobic Exercise On Premenstrual Syndrome. Journal Of Family And Reproductive Health. Dec 2008. Vol 2, No.4.
- [14] Sabaei Y, Sabaei S, Khorshidi D, Ebrahimpour S, Rostami FF. The Association between Premenstrual Syndrome and Physical Activity and Aerobic Power in Female High School Students. Crescent Journal of Medical and Biological Sciences. 2015. Vol. 2, No. 2, 53-58. eISSN: 2148-9696.