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Aerobic Exercises: To trim down menstrual distress among adolescent girls

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ABSTRACT

Menstrual distress is a hindrance that curtails the quality of life, especially among the adolescent period where the effects are at its peak which resolves as they ovulate progressively. The purpose is to reduce the menstrual distress among adolescent girls by motivating them to rely on aerobic exercises as a routine practice to cope up with monthly menstrual issues. A quantitative study was conducted with the objectives to assess the effectiveness of aerobic exercises when instructed a week prior to menstrual cycle on the level of menstrual distress among adolescent girls between the age group of 18 and 20 years. Sample size of 60 adolescent girls were selected with 30 each in study and control group by stratified sampling. The study findings revealed that the mean score of menstrual distress after aerobic exercises were (62.63) in posttest 1 (on the 2nd menstrual day) and (40.77) in posttest 2 (on 5th menstrual day) which was lesser than the score before aerobic exercises (84.10). This clearly signifies a decrease in menstrual distress among adolescent girls with dysmenorrhoea, who practices regular aerobic exercises. There was no significant association of menstrual distress and selected demographic variables, but there was an association found between menstrual distress and duration of menstrual flow at the level of ($p < 0.05$).

Keywords: Aerobic exercises, menstrual distress, adolescent girls, dysmenorrhoea.

INTRODUCTION

Adolescence is a phase of changeover from childhood to adulthood. For a girl, adolescence is a blend of physical and psychological preparation to enroll into a safe motherhood. Naturally, menstruation is mentioned to be that significant physiological change that welcomes adolescent girls into her reproductive stage. Taken for granted as an evidence of fertility, menstruation is celebrated as a positive part of reproductive process. It has a negative

part either, when met with certain menstrual irregularities. Even though being a normal physiological process which is an ongoing process throughout half of a woman's life, menstruation is associated with problems of menstrual distress, irregular menstruation, excessive bleeding etc. WHO highlighted that Indian population comprised of about 591.4 million girls. As per the reports from American College of Obstetrics and Gynecology in 2002, it was

estimated that about 5-10 % of girls suffered from severe spasmodic dysmenorrhoea.

Menstrual morbidities ranging high in prevalence among adolescent girls marked a greater impact over their quality of life. It paved a hindrance in their academic performance for achieving better performance and contributing to future economic life, hence such problems must be resolved. Adolescent girls confronted with affective symptoms as well as somatic symptoms which hampered their class performances, restricted social and recreational activities, lead to difficulty to mingle with friends who really lowered their self-esteem and confidence. Dambhare in (2012) identified the menstrual pattern among adolescent girls when conducted a cross sectional study among 1100 adolescent girls in Central India. The result highlighted the need for a menstrual health programme to tackle the menstrual problems among adolescent girls as the author found out about (56.2%) of adolescent girls expressed premenstrual syndrome and dysmenorrhoea and about (13.9%) of them reported absenteeism from schools and colleges.

Dysmenorrhoea being the unique problem of menstruation had become an additional source of distress in adolescent girls. This fact was proved by a study conducted by Omidvar in (2013) in South India among 194 girls of 18-27 years of age on prevalence of menstrual distress and associated factors. The most prevalent menstrual distress included 49.7% had tiredness, 38.3% had backache and 34.5% expressed anger. The prevalence of dysmenorrhoea was found in 78.2% and about 76.6% of adolescent girls reported their working ability were affected.

Even though there are many pharmacological measures to reduce menstrual distress it is also having its own side effects from medicines. Various non-pharmacological measures are available to reduce the psychosomatic problems related to menstrual distress. Aerobic exercises have been effectively notified as a relief measure in conjunction with other non-pharmacological or medical measures to relieve menstrual distress. Aerobic exercises reduces menstrual distress as beta-endorphins are released, which flushed out prostaglandins. Exercise regimen stretches the connective tissues around the pelvis, hip flexors and muscles of inner thighs which promote optimum blood flow preventing ischemia

due to severe uterine contractions. These exercises not only reduce pain, fatigue and depression but also increase body's energy level and enhance mental well being. This was proved by Gaeini (2005), who examined the effects of aerobic exercises on pain intensity with dysmenorrhoea among 45 adolescent girls aged 17-22 years in USA. After a standard home based exercise regimen, the survey showed a significant decrease in pain at $p < 0.001$ and an improved quality of life at $p < 0.01$ respectively. Hence the author concluded that home based exercises provided a significant reduction in pain intensity among adolescent girls with dysmenorrhoea. The researcher when interacted with B.Sc. Nursing students, they expressed that they were having dysmenorrhoea during every menstrual cycle and that affected their regular attendance, concentration and skill in clinical area. So the researcher decided to take up the study to help out the B.Sc. Nursing students to perform aerobic exercises which will help them to cope with menstrual problems and to improve academic performance and quality of life. Aerobic exercises being a boon to trim down the menstrual problems among adolescent girls that enable them for a better coping with monthly menstrual problems. The researcher's personal experiences also showed that adolescent girls need to practice aerobic exercises as a daily routine for tackling their menstrual morbidities.

Objectives of the study

1. To assess the effectiveness of aerobic exercises on menstrual distress among adolescent girls with dysmenorrhoea.
2. To associate the menstrual distress with selected background variables of adolescent girls with dysmenorrhoea.

Hypothesis of the study

There is a significant difference in menstrual distress among adolescent girls performing aerobic exercises than those who do not.

MATERIALS AND METHODS

The present study was conducted in Sri Ramachandra University, Faculty of Nursing, Chennai. The research approach adopted for the study was experimental in nature. The research design was

pretest- posttest control group design. The independent variable was aerobic exercises and the dependent variable was menstrual distress. Samples were selected by stratified sampling. In this study, Short Form T of Moo's Menstrual Distress Questionnaire was used. It is a 5 point scale which measures from no experience of distress to severe distress. This scale mainly attributes 6 components such as pain, concentration, behavior change, autonomic reaction, water retention, negative effects. The severity of menstrual distress can be classified according to the scores obtained. 1-31 - no distress, 32-62 - mild distress, 63-93 - moderate distress, 94-124 - strong distress and 125-155 - severe distress respectively.

The content validity was established by three nursing experts respectively. Reliability was established for Moo's Menstrual Distress Questionnaire, correlation coefficient was ($r = 0.8$) obtained by test retest method. The pilot study was conducted from 23/04/2012 to 27/04/2012 at Sri Ramachandra University, Porur, Chennai – 600116. The researcher conducted the pilot study with 10% of the original sample. Accordingly the sample size was 6 and randomly assigned 3 adolescent girls in the study and 3 in the control group. Researcher found it feasible to conduct the study without any marked modifications. Self-introduction and establishment of rapport with the participants were done for data collection. Informed consent was obtained from the participants and explained about the purpose of the study. The aerobic exercise schedule was arranged in the girl's hostel of Sri Ramachandra University for the study group adolescent girls from 5.00 pm to 5.30 pm for a

week prior to their menstrual dates. The level of menstrual distress was assessed by Short Form T of Moo's Menstrual Distress Questionnaire on the 2nd and 5th day of their menstrual cycle.

RESULTS

Findings regarding the menstrual variables showed that, regarding age at menarche, majority of the students 20 (66.7%) in the study group and 19 (63.3%) in the control group attained menarche between the age of 12 and 13 years. Considering the day of menstrual distress during menstruation, most of them 16 (53.3%) in the study group and 23 (76.75) in the control group had on their second day of menstrual cycle. Pertaining to duration of dysmenorrhoea, majority of them 18 (60%) in the study group and 25 (83.3%) in the control group had it within 24-48 hours from the onset. Regarding amount of menstrual flow, mostly 18 (60%) in the study group had normal flow and 15 (50%) in the control group had moderate flow. In relation to the family history of dysmenorrhoea, about 20 (66.7%) in the study group and 15 (50%) in the control group had no family history. Considering difficulty in daily activities, most of the students 16 (53.3%) in the study group and 30 (100%) in the control group experienced difficulty. Highlighting the absenteeism during menstrual cycle, about 12 (40%) in the study group and 15 (50%) in the control group had absenteeism. With respect to the source of information obtained, about 28 (93.3%) in the study group and 16 (53.3%) in the control group obtained information from their friends and relatives.

Table 2 Menstrual variables among adolescent girls (N=60).

Menstrual variables	Study group		Control group	
	n	%	n	%
1. Age at menarche (years)				
a. 11-13	0	6.7	9	3.3
b. 14-16	0	3.3	1	6.7
c. 17-19				(
d. above 20				(
2. Day of menstrual distress				
a. 1 st	0	3.3		6.7
b. 2 nd	6	3.3	3	3.3
c. 3 rd		3.4		(
d. 4 ^{thz}				

3.Duration of dysmenorrhoea (hours)						
a. 24	1	6.7		6.7		
b. 24-48	8	0.0	5	3.3		
c. 48-72		.3				(
d. Beyond 72						(
4.Amount of menstrual flow						
a. Normal	8	0.0	5	3.3		
b. Moderate	1	6.7	3	6.7		
c. Excessive		.3				
5.Family history of dysmenorrhoea						
a. Yes		3.3	5	0		
b. No	0	6.7	5	0		
	0					
6.Difficulty in daily activities						
a. Yes	6	3.3	0	00		
b. No	4	6.7				(
7.Absenteeism during menstrual cycle						
a. Yes	2	0	5	0		
b. No	8	0	5	0		
8.Source of information						
a. Health professionals	8	7		.7		
b. Health magazines		3.3	1	6.7		
c. Internet			6	3		
d. Friends/ relatives				3.3		

The mean menstrual distress score among adolescent girls who were practicing aerobic exercises were (62.63) with standard deviation of 10.56 for post-test 1 and the overall mean of (40.77) with standard

deviation of 5.68 for post-test 2 which was significantly less than the mean menstrual distress score of (84.10) with standard deviation of 14.31 before the exercise regimen, as well as when compared to the control group.

Table 3. Mean menstrual distress score of adolescent girls before and after aerobic exercises.

GROUP	PRETEST		POSTTEST 1		POSTTSEST 2	
	Mean	SD	Mean	SD	Mean	SD
STUDY	4.10	4.31	2.63	0.56	0.77	.68
CONTROL	0.73	2.88	9.37	2.96	1.57	56

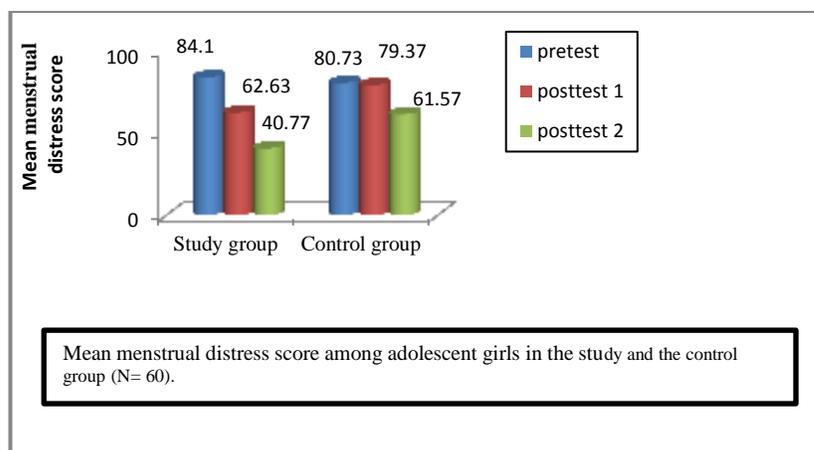


Table 4. Shows the overall mean value of menstrual distress as 84.10 with the standard deviation of 14.31 in the study group and mean with 80.73 and standard deviation of 12.88 in the control group. There was no

significant difference between the study and the control group in the pre-test. This revealed that both the groups experienced same level of menstrual distress in the pre-test.

Table 4. Mean, standard deviation and independent ‘t’ value of menstrual distress between the study and the control group during pre-test (N = 60)

Aspects of menstrual distress	Study group (n=30)		Control group (n=30)		Independent t value & p value
	Mean	SD	Mean	SD	
Pain	17.67	4.27	16.80	3.90	0.81 0.41(NS)
Concentration	14.27	4.34	12.03	4.32	1.99 0.51(NS)
Behaviour change	12.13	3.08	12.10	3.96	0.03 0.97(NS)
Autonomic reaction	8.53	3.12	9.40	3.00	1.09 0.27(NS)
Water retention	4.73	1.74	5.53	3.21	1.19 0.23(NS)
Negative effects	26.70	6.26	24.80	6.68	1.13 0.26(NS)
Total	84.10	14.31	80.73	12.88	0.95 0.34(NS)

Table 5. reveals the overall mean value of menstrual distress as (62.63) with the standard deviation of (10.56) in the study group and (79.37) with the standard deviation of (12.96) in the control group in posttest 1. A significant decrease in the mean score in

some aspects of menstrual distress such as pain, behaviour change, autonomic reaction and negative effects at the level of $p < 0.001$ revealed that aerobic exercises was an effective method on menstrual distress among adolescent girls.

Table 5. Mean, standard deviation and independent ‘t’ value of menstrual distress between the study and the control group during post-test 1 (N = 60)

Aspects of menstrual distress	Study group (n=30)		Control group (n=30)		Independent t value & p value
	Mean	SD	Mean	SD	
Pain	21.13	8.48	16.17	3.93	3.14 0.003***
Concentration	11.00	4.54	11.83	4.13	0.74 0.833(NS)
Behaviour change	8.70	2.90	11.90	4.00	3.54 0.001***
Autonomic reaction	6.87	2.31	9.47	3.22	3.58 0.001***
Water retention	4.00	1.83	5.17	2.89	1.86 0.068(NS)
Negative effects	18.90	5.02	24.83	6.71	3.87 0.000***
Total	62.63	10.56	79.37	12.96	5.48 0.000***

***p < 0.001, NS - Not Significant.

Table 6. depicts that the overall mean was (40.77) with the standard deviation of (5.68) in study group and (61.57) with the standard deviation of (8.56) in the control group in post-test 2. There was a significant decrease in the mean score in aspects of

menstrual distress such as pain, concentration, behaviour change, autonomic reaction and negative effects at the level of $p < .001$ which revealed that aerobic exercises were highly effective on menstrual distress among adolescent girls.

Table 6. Mean, standard deviation and independent ‘t’ value of menstrual distress between the study and the control group during post-test 2 (N = 60)

Aspects of menstrual distress	Study group (n=30)		Control group (n=30)		Independent t value & p value
	Mean	SD	Mean	SD	
Pain	8.83	2.35	13.27	2.82	6.60 0.000***
Concentration	6.47	1.59	9.40	3.20	5.09 0.000***
Behaviour change	5.07	1.70	9.10	3.20	6.08 0.000***
Autonomic reaction	4.43	0.89	7.70	2.62	6.44 0.000***
Water retention	3.23	0.43	4.13	2.11	2.28 0.02(NS)
Negative effects	12.73	2.46	18.57	4.91	5.81 0.000***
Total	40.77	5.68	61.57	8.56	11.07 0.000***

***p < 0.001, NS - Not Significant.

There was an association found between menstrual distress and menstrual variables at the level of $p < 0.05$ in study group during pre-test as well as post-test, but there was no association of selected background with menstrual distress.

DISCUSSION

Menstruation being a natural phenomenon, is often associated with some degree of suffering and embarrassment. Menstrual distress is an increasing

problem among adolescents which hamper their activities of daily living. Hence measures need to be instituted to ensure better coping and improve their quality of life. The American College of Obstetrics and Gynaecology (2004), reported that more than half of menstruating adolescents experience various menstrual problems each month. Reducing menstrual distress can be brought out through various measures. One natural way to tackle menstrual discomfort to exercise, which certainly has got menstrual health benefits.

The present study findings suggests that the effect of aerobic exercises on menstrual distress among adolescent girls is significantly positive and cost effective which was clearly evident from the mean menstrual distress score which drastically reduced after the aerobic exercises in the study group. The study findings were supported by a study done by the American College Of Obstetrics and Gynaecology (2004), which found that aerobic exercise is one natural way to relieve menstrual discomfort like backache, muscle spasms and abdominal cramps. It also reduced generalized anxiety, depressive episodes and improved concentration and increased sense of control over moods.

The association of selected background variables with menstrual distress revealed that there was an association between menstrual distress and menstrual variables in the aspect of duration of dysmenorrhoea at the level of $p < 0.05$ in study group during pre-test as well as post-test. From the statistical analysis, it was found that aerobic exercises were found to be effective in reduction of menstrual distress and helped the adolescent girls to maintain balance in

their physical and psychological status and thus the stated hypothesis being accepted.

This study tested the utility of goal attainment theory based on the assumption that aerobic exercises have a positive impact on reducing menstrual distress. Aerobic exercises been practised by adolescent girls had an improved quality of life and general well-being and alleviates menstrual distress to a greater extent. The result of the study justifies the theory of goal attainment.

On the basis of findings of the present study, it concluded that aerobic exercises were significantly effective in decreasing the menstrual distress among adolescent girls. This research also puts forward ideas of holistic nursing practice. Nurses play a vital role in providing health information to her patients. So midwives can provide health education for adolescent girls to realise the natural physiology of menstrual cycle and incorporate natural measures to reduce the menstrual morbidities and for better coping. Community midwives can organise cost effective programmes with aerobic exercises for adolescent girls. The nursing research in the field of menstrual morbidities and its treatment with aerobic exercises or any complementary or alternative therapies would help among various age groups with a long term goal. Based on the findings the study recommends the practice of routine aerobic exercises to reduce the menstrual distress and to enhance the wellbeing and academic performance of adolescent girls. It also recommended that the study can be replicated on larger sample size with extended period of time to validate and generalise the findings.

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