

Effects of Aerobic Program on the Severity of Dysmenorrhea using WaLIDD Score

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Abstract: Dysmenorrhea without any root cause may lead to decreased working ability, decreased work and study concentration and absenteeism. A study conducted thus, aims to find out effects of aerobic program of 30 minute duration on the severity of dysmenorrhea using WaLIDD score questionnaire. An experimental study thus was conducted on 35 female students from the Dewan University who fell into the criteria and who were willing to participate were included in the study. The participants were provided with the aerobic program involving different sets of exercises for the duration of 30 minutes. The severity was tested using WaLIDD score questionnaire prior to implementation of program to select the participants and also to find out the desired severity to include in the study (mild and moderate were included). The aerobic program was implemented and severity was tested after 8th week. The mean age of the participants involved in the study was 21 years old, the WaLIDD score shows that after performing aerobic exercise 13 Participants reported mild dysmenorrhea and 22 participants reported moderate dysmenorrhea that cumulatively showed the reduction of complaints regarding pain (dysmenorrhea) after performing the 30 minutes of aerobic exercise.

This study provides significant results that 30 minutes of aerobic exercise is helpful in reduction of pain intensity having beneficial effects in reducing the severity of dysmenorrhea.

Keywords: Aerobic Exercises, Dysmenorrhea, WaLIDD score

I. INTRODUCTION

Adolescence is a time of rapid physical, emotional, cognitive, and social growth and development. One sign of puberty is the occurrence of menstruation.[1]. It is a crucial indicator of a female reproductive system that it is functioning properly is her menstrual cycle. However, occasionally, this phenomena is accompanied with signs and symptoms that can be problematic for women physically and mentally [2]. Dysmenorrhea, or painful menstruation, is the common pain that can start as early as the first day of period and last for many days. This is just one of several gynecological disorders that affect more than half of women and prevent them from engaging in their usual activities for one to three days each month on the same day. Primary menstrual pain and secondary menstrual pain are the two types of painful menstruation (Dysmenorrhea). While in primary cases the uterine prostaglandin levels are high, which is related with painful

menstruation (Dysmenorrhea), along with emotional or psychological causes [3].

More than 50% of the menstruating females experience pain during menstruation and for 10% of them the pain is so severe that their 1-3 days of each month are disturbed,[4] interfering their daily activities,[5] resulting in absenteeism from school and work. [6]. The International Association for the Study of Pain in the year 2007, evaluated that at each menstrual period, roughly 10% to 15% of females affected with dysmenorrhea were unable to work for 1 to 3 days.[7] Worldwide the rate of dysmenorrhea ranges from 16.8% to 81%.[8] Showing that dysmenorrhea is a common gynecological condition regardless of age and ethnicity.[9]

Primary dysmenorrhea can damage a woman's quality of life and, in severe circumstances, cause disability and the inability to function in the absence of a school or workplace, despite the fact that it is not life-threatening or associated with organ failure [10]. A view on the impact, this condition has on a female's life is that it forces her to use various methods to prevent it. The far reaching accessibility of over-the-counter non-steroidal anti-inflammatory drugs (NSAIDs), it is assumed that females affected are treating themselves satisfactorily unfortunately, this isn't generally the situation. [11]. Besides, using drugs to overcome pain, exercise came out to be an effective way to reduce pain. [12] Aerobics is defined by American College of Sports Medicine as; any activity that utilizes large muscle groups, that may be maintained continuously and is rhythmical in nature. [13] Aerobic exercise has antecedently been related to enhancements in aerobic capability, gains in cardiorespiratory fitness, and enhancements in brief term and long term memory, mood, executive functions, and cognition. [14] Exercise and physical activity have thus gained popularity as effective dysmenorrhea prevention and treatment strategies over the past 30 years [15]. Research analysis has found an inverse relationship between progesterone and prostaglandins. Aerobic, thus, decreases the production of prostaglandins through its impact on progesterone.[16]

Different studies have been conducted to find out effective remedies for the condition using different isometric, stretching and aerobic exercises with different regimes provided evidence of increasing the health quality and decrease the use of medications in the females. [10, 17, 18, 19, 20, 21]. Though less literature is to be seen in Physical therapy in Pakistan.

Menstruation is an important milestone in a female's life and pain during it being considered normal is a misconception, therefore education regarding it could be given at school, college, and

community level. [22] This study, thus, was conducted to determine the effects of aerobic exercise on dysmenorrhea among university students, which can provide awareness in the suffering population related to the condition bringing along a change in attitude to seek treatment, in individuals experiencing the condition. Also, lifestyle modification such as importance of physical activity could be educated to lower the severity or avoid it, eradicating the limitation occurring during the period of pain.

II. MATERIAL AND METHODS

A. Design and Participants

An experimental study was conducted on 35 participants (students) from Dewan University. According to the question that effectiveness of aerobic exercise to treat the dysmenorrhea the inclusion criteria were defined as adult group of female was selected, and the condition of dysmenorrhea were assessed or identify by using, Wong bakers pain rating scale, location of pain and WaLIDD (working Ability, location, intensity, days of pain, dysmenorrhea) score Questionnaire.

B. Intervention

Aerobic Exercises Protocol: [24,25]

The following exercises were performed by the participants for duration of 3 minutes of each step (total 10 Steps) total 30 minutes was required with an intensity of 70 – 80% of heart rate maximum to complete the aerobic exercise program.

Marching:

To march in a place, stand straight in one place, then start lifting your feet one by one while pumping your arms back and forth as well for three minutes.

Single step touch:

Start with standing straight. Now lift up your left foot and move to left side off from your starting position with your right foot following and stand. Now lift up your right foot and place it to the right side with left foot following it and stand. Do the same for the left side repeat for 15 times within three minutes.

Step touches front and back:

Stand straight, then place your left foot forward, and then take it back to neutral. Now place your right foot forward then take it back to neutral. Repeat a bit rapidly for 15 times within three minutes.

“V” step:

From the starting position, lift your left foot and place it forward shoulder-width apart, followed by the right foot. Now lift your left foot and place it backward beyond the starting position, followed by the right foot now repeat the steps. Do this step 15 times within three minutes.

Knee lift:

Start with straight standing with your feet shoulder-width apart. Bring your left knee up to the level of your waist level then land slowly, and then lift your right knee up to the waist level and land slowly. Repeat 15 times within three minutes.

Leg curl:

Start off with the standing position, shift your weight on a side (leg) and flex or bend back the other leg. Then get back to standing again. With the same positions perform on the other side. Repeat the step for 15 times within three minutes.

Forward walk and Reach out:

Stand at the starting position move forward by lifting your left foot first followed by right foot, follow the same for one more step forward and outreach your right arm. Step back following the same sequence to get back to the starting point. Follow the same with right foot first. Do this step for 15 times within three minutes.

Lunge side and back:

For Side lunge start with foot slightly wider from shoulder-width and toes pointed forward. Shift your body weight to left side bending the knees till 90-degrees while right leg is straight as shown in the picture. Then return to the starting position and repeat the same on the right side. Repeat the sequence 15 times.

Start the back lunge; attain the starting position as for side lunge. Take a step back placing your right foot back. Lean your body back and lower your body until your left knee is in the position of 90-degrees and weight is on your right knee making it 90-degrees as well. Keep your back straight. Repeat for other side and perform it 15 times within three minutes.

“L” Step:

Starting from standing straight in the starting position, place your left foot forward while keep your right foot in air, and then place it shoulder-width apart on right taking a side step followed by the left foot. Then place your left foot to your left side taking a side step followed by right foot in air then get back to starting position. Take back step Repeat for the right side and complete this step 15 times. Within three minutes.

Jumping jacks:

Stand up straight with arms at side and feet at shoulder-width. Then jump and extend your arms overhead with your feet shoulder-width apart at the same time. Then land back to the starting position after jumping back into it. Repeat this 15 times within three minutes.

(Figures 1-4)

C. Outcome Measures

Wong Baker Pain rating Scale

Working ability, Location, Intensity, Days of Pain, Dysmenorrhea (WaLIDD)

D. Ethical approval

The ethical committee of ISRA Institute of Rehabilitation Sciences has approved this study. All participants gave written informed consent before data collection began.

E. Statistical analysis

This study was based on randomly selected participants to treat the dysmenorrhea condition by aerobic exercise so the data was analyzed by SPSS 21 version using chi square test to search out the effectiveness of aerobic exercise.

III. RESULTS

The data was analyzed using SPSS 21.0 in which 35 Participants performed 30 minutes aerobic exercises, the pre and post test results for pain during menstrual cycle using Wong bakers pain rating scale showed that before exercise 2 out of 35 girls had no pain (no Hurt) whereas after exercises 8 out of 35 girls had no pain (no Hurt). 10 out of 35 girls marked 'hurt little bit' on the questionnaire before exercises whereas after the exercises 14 girls out of 35 marked 'hurt little bit'. 10 participants out of 35 marked 'hurt little more' before and after exercise. 7 out of 35 participants marked 'hurts even more' before exercise. 4 participants described 'hurts whole lot' as their pain condition on the questionnaire before exercise while after exercise 5 participants described their pain as 'hurts whole lot'. 2 participants marked 'hurts worst' as their severity of menstrual pain before exercise, however after exercise 1 participant out of 35 marked 'hurts worst'. As shown in Table 1

The scoring with the data collected was carried out and was analyzed to find out the number of participants having 'mild' and 'moderate' dysmenorrhea. Pre intervention, 9 participants were found out to be having 'mild dysmenorrhea' while 26 participants out of 35 having 'moderate dysmenorrhea'. While after 8 weeks, 13 participants out of 35 were having 'mild dysmenorrhea' and 22 out of 35 participants were having 'moderate dysmenorrhea'. (Table 2)

The Pearson Chi-Square the test indicates .000 of p- value. That indicates the stronger evidence in favor of the aerobic exercise among the participants who have complaint of dysmenorrhea. As shown in Table 3

IV. DISCUSSION

For about half a century now, there is no denying that exercise is been known to relief or even cure dysmenorrhea, with many treatment methods becoming prevalent, an uncomplicated treatment as exercises have found special place in the research for researchers, thus researches linking exercises and dysmenorrhea have been increasing.

The present experimental study was conducted to study the effect of aerobic exercises being 30 minutes and its effects on the severity of dysmenorrhea for 8 weeks in terms of reduction in pain intensity, improved frequency of working ability, location of pain and reduced days of pain and severity by WaLLID score questionnaire, and this study showing aerobic exercise being effective in reducing the severity of dysmenorrhea. It is considered that the pain during menstrual cycle is due to prostaglandins which are present in high quantities in menstrual fluid. They are potent vasoconstrictor and thus cause ischemia to the uterus and even reduced progesterone may also cause increased production of prostaglandin, the mediator of pain. Reduced titer of progesterone causes increased myometrial contraction, that gives more strain to ischemic myometrium and intensify pain resulting dysmenorrhea. [26] Exercises act on the lining of the uterus and increases level of circulating endorphins which in turn raise the pain threshold [5].

The result of the present study are consistent with the findings of Sutar A 2016 which concluded that Aerobic exercises can help to reduce pain and improve physical symptoms which has a positive impact on quality of life in dysmenorrheal girls. The present study showed that according to the reading of Wong baker scoring scale the pain intensity is reduced after the intervention of aerobic exercise as compare to the reading of pain intensity before the treatment intervention of aerobic exercise.

In this study the questionnaire used also rule out that which body area is most hurting and according to the result 27 participants indicate abdominal area is most hurting area before the 30 minutes of aerobic exercise. After the treatment intervention 22 participants complaints that the most frequent region is abdominal region with reduced intensity according to Wong baker scale scoring. Other than this 9 participants marked mild dysmenorrhea and 26 patients marked moderate dysmenorrhea but after the treatment intervention 13 participants marked mild dysmenorrhea and 22 participants marked moderate dysmenorrhea that clearly represents the reduced intensity of dysmenorrhea condition. And Pearson chi-square test is applied in the collected data that indicates .000 p-value and its supports the alternate hypothesis in a favor of the beneficial effects of aerobic exercise on the severity of dysmenorrhea.

The idea that exercise might influence menstrual pain is not new; it is now an integral part of many women's normal lives. As it has many health benefits for women who exercise regularly improving their cardiovascular status, increased bone mineral content and improving dysmenorrhea [6,14,32]

V. CONCLUSION

In Conclusion, the impact of aerobic exercise and its benefits are widely supported by previous literature, and analysis of this experimental trial is also in favor of 30 minutes aerobic exercises as it influence the physiological changes to reduce the severity of

Table 1: Pre and Post scores on Wong Baker Pain rating Scale

	Before Treatment Intervention	After Treatment Intervention
No Hurt	2	8
Hurt little bit	10	14
Hurt little more	10	0
Hurts even more	7	7
Hurts whole lot	4	5
Hurts worst	2	1
Total	35	35

Table 2: Pre and Post WaLLID score

	Before Treatment Intervention	After Treatment Intervention
Mild Dysmenorrhea	9	13
Moderate Dysmenorrhea	26	22
Total	35	35

Table 3: Chi-Square Test

	Value	df	Asymp. Sig. (2- sided)
Pearson Chi-Square	55.682	20	.000
	35		

dysmenorrhea condition. But still there is need for more trial by altering the time duration to find out the more specific factors related to dysmenorrhea condition.

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