

The Effect of Pelvic Floor Muscles Exercise on Quality of Life in Females with Primary Dysmenorrhea

DR. M. SANDHIYA

*Assistant Professor,
Vels University, School of Physiotherapy,
Rajiv Gandhi Salai, Near Navalur,
Thalambur, OFF (OMR),
Chennai-600130*

DR. PRIYA KUMARI

*Assistant Professor,
Vels University, School of Physiotherapy,
Rajiv Gandhi Salai, Near Navalur,
Thalambur, OFF (OMR),
Chennai-600130*

A. ARULYA

*Internee,
Vels University, School of Physiotherapy,
Rajiv Gandhi Salai, Near Navalur,
Thalambur, OFF (OMR),
Chennai-600130*

DR. P. SENTHIL SELVAM

*Professor and HOD,
Vels University, School of Physiotherapy,
Rajiv Gandhi Salai, Near Navalur,
Thalambur, OFF (OMR),
Chennai-600130*

DR. M. MANOJ ABRAHAM

*Professor and Principal,
K G College of Physiotherapy,
Saravanampatti, Coimbatore-641035*

DR. TUSHAR J PALEKAR

*Professor and Principal,
Dr. D.Y Patil college of Physiotherapy,
Pune-411018*

Abstract

Dysmenorrhoea is the most common gynaecological disorder in women of reproductive age. Menstruation is a periodic and temporary genital bleeding, lasting from menarche to menopause. In addition, it is characteristic of primates and is defined as cyclic uterine pain. The aim of the study is to assess the effect of the pelvic floor muscles exercises on quality of life in females with primary dysmenorrhoea. To evaluate the pelvic floor muscles effectiveness on the lifestyle of primary dysmenorrhoea females. An experimental study was conducted among the females between 18-25 years of age with primary dysmenorrhoea consisted of total 60 subjects is divided into 2 groups. Group A is given pelvic floor muscle strengthening exercises and group B is given another set of stretching exercises. The result of the study showed statistically significant improvement in both the groups (group A and group B) by comparing pre and post-test values. Group A performing pelvic floor exercise along with stretching exercises were found to be more significant in reducing pain and in improving the quality of life among primary dysmenorrhoea females with t -value 5.5806 and p - value less than 0.0001. Both the combined training of the Pelvic floor muscle and the stretching exercises improve the QoL of women with primary dysmenorrhoea.

Keywords: Primary Dysmenorrhoea, Pelvic Floor Muscle Strengthening Exercises, Stretching Exercises, Quality of Life

Introduction

Dysmenorrhoea is chronic, cyclical pelvic pain associated with menstruation. The experience of pain with menstruation is common for 70–91% of teenagers. Menstrual cycle is an integral part of women's fertility period. Although having a minor pain during menstruation is normal, severe pain could not be considered normal. During years of adolescence and youth having severe menstruation pains is the main reason for absence of women from work and school, thus it is important to pay attention to its reasons and solutions for reducing it.

Dysmenorrhoea is the most common gynaecological disorder in women of reproductive age. Menstruation is a periodic and temporary genital bleeding, lasting from menarche to menopause¹. In addition, it is characteristic of primates and is defined as cyclic uterine haemorrhage dependent on endometrial disintegration and exfoliation, which occurs approximately in a normal cycle of 21 to 45 days, with 2 to 6 days of flow and mean blood loss of 20 to 60mL, in general lasting 40 years.

Adolescence is the transitional phase of physical and mental development between childhood and adulthood. Although primary dysmenorrhea is not life threatening and it does not result in impairment, it can affect the women's quality of life, and in severe cases it can result in inability and inefficiency which occurs in the form of absence from school or work. On the other hand, dysmenorrhea could result in mental problems for some women and thus it results in isolation and absence of continuous active presence of these individuals at different levels of the society.

In our country nearly half of the students are girls and women are a considerable part of workforce, and this trend is on the rise. The use of inhibitors of prostaglandin, contraceptives, calcium channel blockers, percutaneous electrical stimulation and massage are some of the common treatments and most of them are expensive and time-consuming and they are often associated with side effects which make some people prevent from using those methods.

Dysmenorrhoea is derived from a Greek word *meno* (month) and *rheas* (flow) which means difficult menstrual flow^[1]. Dysmenorrhoea is a painful/ cramping sensation in the lower abdomen often accompanied by other biological symptoms including dizziness, fatigue, sweating, backache, headache, nausea, vomiting, and diarrhea all occurring just before or during the menstruation. Adolescence is the transitional phase of physical and mental development between childhood and adulthood. The most striking changes in the adolescent girls are the onset of menarche. Menarche signals the start of women's reproductive life and is determined by environmental and genetic factors. After menarche, common menstrual abnormalities that the female adolescent may encounter include dysmenorrhoea, irregularities in menstrual flow and premenstrual symptoms. 75% of girls experience some problems associated with menstruation^[2]. Dysmenorrhoea is the most common gynaecological disorder in women of reproductive age.^[3] Menstruation is a periodic and temporary genital bleeding, lasting from menarche to menopause¹. In addition, it is characteristic of primates and is defined as cyclic uterine hemorrhage dependent on endometrial disintegration and exfoliation, which occurs approximately in a normal cycle of 21 to 45 days, with 2 to 6 days of flow and mean blood loss of 20 to 60mL, in general lasting 40 years^[4]. About 40% of women complain of dysmenorrhoea among whom 10% are unable to do daily activities between one to three days per month. Dysmenorrhoea may have negative effects on daily activities and function of women in and out of the home and may deteriorate their living. The data on a research on prevalence of primary dysmenorrhoea in different parts of the world from 1981- 2006 showed the increasing prevalence of dysmenorrhoea. The results of studies in different parts of Iran showed the prevalence of primary dysmenorrhoea in female students to be 85.5% in Rafsanjan, 71% in Tehran and 73.2% in Gilan. This prevalence in other parts of the world was 40.7% in Delhi, 14% in Gambia, 73% in the USA, 42.2% in Thailand, 58% in Nigeria and 52.2% in Mexico City.^[6]

Dysmenorrhoea may be categorized into two distinct types: primary and secondary. Primary dysmenorrhoea is defined as painful menses in women with normal pelvic anatomy, usually beginning during adolescence. The onset of primary dysmenorrhoea is usually 6 to 12 months after menarche, which coincides with the occurrence of regular ovulatory cycles. Secondary dysmenorrhoea is menstrual pain associated with underlying pathology, and its onset may be years after menarche. It can be caused by any of a dozen or so disorders such as endometriosis, pelvic inflammatory disease, intra-uterine devices, irregular cycles or infertility problems, ovarian cysts, adenomyosis, uterine myomas or polyps, intra-uterine adhesions, or cervical stenosis^[3].

The aetiology of primary dysmenorrhoea is not precisely understood, but most symptoms can be explained by the action of uterine prostaglandins, 3 particularly PGF₂-alpha. Elevated prostaglandin levels were found in the endometrial fluid of women with dysmenorrhoea and correlated well with the degree of pain. The increase in prostaglandins in the endometrium following the fall in progesterone in the late luteal phase results in increased myometrial tone and excessive uterine contraction. The identified risk factors for dysmenorrhoea include

teenage, nulliparity, heavy menstrual flow, smoking, upper socioeconomic status; attempts to lose weight, physical inactivity, disruption of social networks, depression and anxiety.[10]

In primary dysmenorrhoea pain begins few hours before or after the onset of menstruation and lasts for 24-48 hours. The pain is more in the first day and rarely continues to next day. Incidence of primary dysmenorrhoea was reported to be between 50% and 90% in different Societies [9]. Primary dysmenorrhoea is not life-threatening and does not cause disabilities but it leads to absenteeism and significantly affects the quality of life[11]. Clinical features Dysmenorrhoea or painful menstruation is defined as a severe, painful, cramping sensation Dysmenorrhoea is characterized by crampy pelvic pain beginning shortly before or at the onset of menses in the lower abdomen usually concentrated in the supra pubic area and lasting 1–3 days all occurring just before or during the menses. Pain may radiate to the back of the legs or the lower back. Systemic symptoms of nausea, vomiting, diarrhea, fatigue, mild fever and headache or light headedness are fairly common in the lower abdomen Pain usually develops within hours of the start of the menstruation and peaks as the flow becomes heaviest during the first day or two of the cycle[12]. The action of the respective PFM muscles varies according to the hormonal fluctuations occurring during the menstrual cycle. This alteration in muscular function can be a cause of dysmenorrhea that is experienced by approximately 10-16% females. [16]

Kegel exercise, which consists of repeatedly contracting and relaxing the muscles that form part of the pelvic floor improves its strength. Kegel's exercises are considered a very important component of rehabilitation of the pelvic floor muscles. [9] Studies also show that pelvic floor muscles' training significantly improves the quality of life women, which in turn improves their physical, mental and social functioning.

Literature demonstrates that PFMT, when performed regularly, can improve pelvic floor muscle function. Due to this factor, it is believed that the improved functionality can consequently improve QOL for the primary dysmenorrhea women. During menstruation, as a result of stress and hormonal fluctuations there is a increase in the primary dysmenorrhea pain, there is a need to find out whether the PFM exercises improve the pain during menstrual cycle in nulliparous women and also the effect of PFM exercises on the quality of lives of the women.

Physical exercise has been suggested as a non-medical approach for the management of symptoms. Despite the widespread belief that exercise can reduce dysmenorrhoea, evidence-based studies are limited. Several observational studies reported that physical exercise was associated with a reduced prevalence of dysmenorrhoea, although numerous other studies found no significant association between outcomes. Evidence from controlled trials suggests that exercise can reduce dysmenorrhoea and associated symptoms [13]. Exercise can be defined as an activity that requires physical exertion, especially when performed to develop or maintain fitness. Physical exercise has been suggested as a non-medical approach for the management of symptoms. The idea that various type of active or passive exercise might help in alleviating pain in primary dysmenorrhoeal is not a new issue. It is widely thought that exercise reduces the frequency and/or the severity of dysmenorrhoeal syndrome [11] .

Aim of the Study

The aim of the study is to assess the effect of the pelvic floor muscles exercises on quality of life in females with primary dysmenorrhoea .

Background and Need of the Study

Studies have provided us evidence to various protocols in primary dysmenorrhea, still those studies have proved the lack of satisfaction among the primary dysmenorrhea females, with the further information, quality of the material provided, and availability of the menstrual problems. Further studies are therefore needed to evaluate the association between quality of life and the primary dysmenorrhea females, the functional impact on the quality of life and primary dysmenorrhea females and the effect of pelvic floor muscles.

Methods and Materials

Procedure

All the 60 subjects included in the study were based on the inclusion and exclusion criteria. This study was conducted for two months. The subjects participating in this study were briefed about the nature of the study and intervention. After briefing them about the study, the written consent was taken. Patients were randomly assigned into two groups containing 30 in each group. Group A is given pelvic floor muscle strengthening exercises and group b is given another set of stretching exercises.

Group A

(Transverse abdominis activation with pelvic floor muscle strengthening)

Seated Transverse

Ask the patient to sit comfortably by placing the hand over the lower abdomen. Instruct the patient to imagine navel as 1st floor and pelvic region as 5th floor. Instruct them to contract from 1st floor up to 5th floor. It is repeated for 10 times with 5 sets per day.

Approximation Exercise

Patient in supine lying, Ask them to place the hands across the abdomen and squeeze the rectus abdominis muscle together. While squeezing the muscle ask the patient to breathe in. When the patient breaths out, ask them to lift their head off the plinth. Perform for 25 times.

Pelvic Tilt

Patient is in crook lying position. Ask them to lift the pelvis off the plinth with hands placed by the side. Hold this position for 10 seconds Repeat for 25 times

Heel Drop with Core Activation

Patient in crook lying position. Ask them to tuck in their tummy thereby engaging their transverse abdominis muscle simultaneously instruct to contract pelvic floor muscle Instruct the patient to lift the one leg up and followed by the alternate leg. Perform for 25 times.

Heel Slide with Core Activation

Patient in crook lying position. Instruct the patient to tuck in the tummy to engage the transverse abdominis muscle and also contract the pelvic floor muscles. Ask the patient to slide one leg on the plinth followed by another leg. Perform for 25 times

GROUP B

Pelvic Stretching

Pelvic stretching-exercises are another way to alleviate menstrual pain. The specification of the exercises are as follows Lie on the floor on the back. Slowly raise both the legs into the air. Hold the position for a few seconds. Slowly bring down the legs and then the knees as the patient return to the original resting position. Hold the position for 10 seconds and relax 30 seconds. Repeat 5 times.

The exercises are performed for 10 minutes with warm up and cool down for duration of 10 minutes and for period of 4 weeks

Pelvic Rocking

Pelvic rocking exercise helps to relieve back pain by strengthening your stomach muscles and improving blood flow to the uterus. Get down on your hands and knees. Keep the arms straight. Tilt the hips and tighten the pelvic muscles, hunching your back slightly. Lie on the back with the feet flat on the floor. Tighten the buttocks and the muscles in the lower abdomen. While pressing the small of the back on to the floor. Hold position 10 seconds and relax 30 seconds repeat 5 times.

Kegel Exercise

Squeeze the pelvic muscle for 10 seconds and relax it for 10 seconds stop after 3 repetitions. Repeat this exercise three times in a day.

Flutter Exercise

Squeeze the pelvic muscles and relax it as quickly as possible for 10 contractions. It is recommended 3 times a day

Subtle Exercise

First exercise, except that with the imagination that the person is sucking and holding tampon in the vagina for 10 seconds and release the contraction. Relax for 10 seconds. 10 repetitions.

Mosher Exercises

For dysmenorrhea it is performed in various positions ,In crook lying - breathing; while standing , rising toes deep knee bending breathing ; and breathing in crook lying with knees on chest .

Data Analysis

Table 1: Comparing Group A and B McGill Mean Values

McGILL	MEAN		SD		p-VALUE	t- VALUE
	PRE	POST	PRE	POST		
Group A	39.90	55.73	8.51	4.98	0.0001	8.7998
Group B	59.13	48.80	9.68	9.70	0.0001	4.1308

Table 2: Comparing Group A and B Mean Values of PFDI

PFDI	MEAN		S.D		p-VALUE	t-VALUE
	Pre Test	Post Test	Pre Test	Post Test		
Group A	55.30	41.47	9.29	9.90	0.0001	5.5806
Group B	59.80	48.77	6.59	6.71	0.0001	6.3969

Table 3: Comparing Mean Values Group A and B of SF 36

SF 36	MEAN		SD		P VALUE	T VALUE
	PRE	POST	PRE	POST		
Group A	60	89.50	7.29	6.60	0.0001	16.4335
Group B	60.67	72.97	7.67	7.91	0.0001	6.1170

Result

The result of the study showed statistically significant improvement in both the groups (group A and group B) by comparing pre and post-test values. Group A performing pelvic floor exercise along with stretching exercises were found to be more significant in reducing pain and in improving the quality of life among primary dysmenorrhea females with t -value 5.5806 and p - value less than 0.001.

Discussion

The present study was conducted to find the effect of pelvic floor muscles exercises in the quality of life of young female suffering from primary dysmenorrhea. Stretching exercises are effective in reducing pain in young females with primary dysmenorrhea. The experimental group which has been given with the pelvic floor muscle exercise and the stretching exercises shows tremendous increase in the quality of the life among the female adults those who suffer from primary dysmenorrhea.

The results revealed that, there was a significant decrease in McGill pain questionnaire and PFDI values post treatment in group (A) (EXPERIMENTAL GROUP) compared with that pre treatment values, while there was no significant difference between pre and post treatment values in McGill pain questionnaire and PFDI in group (B) (control group). when comparing both groups there was a significant decrease in the post treatment values of VAS and in the mean values of McGill pain questionnaire and PFDI of group (A) compared with that of group (B)

Both the combined training of the Pelvic Floor Exercises and the stretching improve the QoL of women with primary dysmenorrhea more effective .Kegel exercise and stretching exercise result in reducing the severity and duration of pain of primary dysmenorrhea. Pelvic floor exercises have a significant effect in reducing pain in nulliparous females of 18-25 years. Pelvic floor exercises have also been effective in improving the quality of life of the females with primary dysmenorrhea.

Both the combined training of the Pelvic floor muscle and the stretching exercises improve the QoL of women with primary dysmenorrhea. Nonetheless, the combined exercise protocol given to the group A is more effective. Core muscles strengthening exercises is considered as an effective modality in reducing pelvic pain .Stretching Exercises are effective in reducing pain in young females with primary dysmenorrhea. The effect of Kegel exercises on reducing severity and duration of menstrual pain is more than the stretching exercises as per the result .Stretching exercises help increase the blood circulation, and this has an important role in reducing muscle pain and enhancing the recovery process. Kegel exercises result in increased blood flow to the rectal area and thus it reduces the pain. Kegel exercises are relaxation and non-invasive techniques that reduce the drug use and increase the patient's satisfaction. Thus, since Kegel exercises are effective, secure and inexpensive, teaching these trainings could help manage and control the pains of primary dysmenorrhea.

Limitations of the Study

Smaller sample size. The duration of the study is considerably minimal. No long-term follow-up of the subjects. This study was done only between the age group of 18–25 years.

Recommendations of the Study

- Different age group can be selected as the group category,
- Sample size can be increased and the study can be done in large population
- In future study long term follow up can be done,
- Including much more questionnaire is advised for further research study

Conclusions

The study concluded that group A shows significant effect in improving quality of life in females with primary dysmenorrhea.

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