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Original Research Article

THE EFFECT OF PELVIC FLOOR MUSCLE TRAINING IN CONSERVATIVE TREATMENT OF PELVIC ORGAN PROLAPSE

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Abstract: *POP is defined by the relaxation or injury to the muscles and the fascias that form the pelvic floor, and, as a result, female pelvic organs are prolapsed or protruded intravaginally or extravaginally.* ***Objective:*** *The study's primary purpose is to find the effect of pelvic floor muscle training in the conservative treatment of Pelvic organ prolapse (POP).* ***Methods:*** *This prospective observational study was carried out at Ayub Teaching Hospital over six months, from July 1, 2021, to December 31, 2021. A total of 102 women diagnosed with pelvic organ prolapse were included in the study. Participants with confirmed diagnosis of POP and suitable candidates for conservative management with PFMT were included in the study. Women with previous pelvic surgery and severe POP requiring immediate surgical intervention were excluded from the study.* ***Results:*** *Data were collected from 102 patients with a mean age of 48.5 years and a mean BMI of 27.3 kg/m², with 72% having a history of vaginal delivery. At baseline, 60% of participants had Stage II pelvic organ prolapse, and 40% had Stage III. The average pelvic floor muscle strength was 2.1 on the Oxford scale, with most participants (45%) at Grade 2 and a small percentage (5%) at Grade 4 or higher.* ***Conclusion:*** *It is concluded that pelvic floor muscle training (PFMT) is an effective conservative treatment for pelvic organ prolapse (POP), significantly improving muscle strength, reducing prolapse severity, and enhancing the quality of life.*

Keywords: Pelvic Organ Prolapse, Pelvic Floor Muscle Training (PFMT), Conservative Treatment, Muscle Strength, Quality of Life

Introduction

Pelvic organ prolapse (POP) is a prevalent condition that affects a significant proportion of women, especially those who have undergone vaginal childbirth, experienced menopause, or have other risk factors such as obesity, chronic cough, or a history of pelvic surgery. POP is defined by the relaxation or injury to the muscles and the fascias that form the pelvic floor, and, as a result, female pelvic organs are prolapsed or protruded intravaginally or extravaginally. This can occur concerning the bladder (cystocele), the uterus (uterine prolapse), the rectum (rectocele), or the small intestine (enterocele) (1). Thus, POP's influence on women's lives can be dramatic and manifest in physical, psychological, and sexual states. Symptoms that are mostly reported by women who have POP include; heaviness or pressure in the pelvic region, bulge from the vagina which may be seen or felt and is referred to as a prolapse, urges to urinate or leakage of urine, difficulties in passing urine or feces and pain during sexual intercourse. Such symptoms may diminish the quality of life as the person feels embarrassed, withdraws from social events, feels low, and develops into a state of depression (2). What is more, POP tends to persist and may deteriorate. Thus, there is a need to investigate a range of strategies to help decrease the degree of the patient's pain, enhance the quality of their life, and avoid surgical management (3). Historically, the treatment of POP has been both surgical and non-surgical. In some severe cases or when conservative methods are not effective, surgery is suggested. However, there are disadvantages of surgery, for example, complications, a long recovery period, and the possibility of another episode of prolapse (4). For this reason, most women and caregivers prefer to try out other non-invasive methods before having to go under the knife. Of these conservative treatments, pelvic floor muscle training, or PFMT, has been identified as a mainstay of therapy (5).PFMT entails the contraction of the pelvic floor muscles with the view of toning them up to have a better capacity to support the various pelvic organs. Pelvic floor muscles are involved in the muscular integrity of maintaining continence, supporting pelvic organs, and having an input in sexual activities (6). As the abdominal muscles are engaged in POP, women could undertake suitable and frequent workouts to develop the muscles and thereby enhance their strength in providing support to the pelvic organs, thereby relieving the various symptoms of POP. Studies have also proven that PFMT can be utilized to prevent and manage POP (7). For example, numerous researches have shown that women who practice PFMT experience no worsening of prolapse and may even experience improvement of the condition. Also, PFMT has been reported to have benefits extending to other areas of the pelvic floor muscle, including urinary control and sexual function gratification. The fact that the above treatment,

PFMT, is non-invasive, together with its possible gains, would augur well with women who wish to treat POP conservatively (8). The success of PFMT is highly dependent on several factors, which include the degree of the prolapse, the woman's ability to execute the exercises correctly, and her ability to stick to the training schedule (9). Usually, PFMT is prescribed in cases where a professional physiotherapist paves the way in conducting the exercise and helps determine the proper method to undertake. Special attention should also be paid to follow-up and motivation since sticking to PFMT is what's most effective over the long term (10). The study's main objective is to find the effect of pelvic floor muscle training in the conservative treatment of Pelvic organ prolapse (POP).

Methods

This prospective observational study was conducted at Ayub Teaching Hospital over six months, from July 1, 2021, to December 31, 2021. A total of 102 women diagnosed with pelvic organ prolapse were included in the study. Participants with confirmed diagnosis of POP and suitable candidates for conservative management with PFMT were included in the study. Women with previous pelvic surgery and severe POP requiring immediate surgical intervention were excluded from the study. Upon recruitment, participants underwent an initial assessment by a trained physiotherapist, which included a thorough evaluation of their pelvic floor muscle function and the severity of their prolapse. Demographic details, medication/disease history, pad usage, and further particulars of vaginal prolapse were recorded as background data. They were then recommended to a supervised PFMT program with a suitable regimen for each participant. The PFMT regimen comprises sets of exercises aimed at strengthening the pelvic floor muscles while under the supervision of the physiotherapist. Participants were advised to practice these exercises daily at home, and a record of exercise was also provided to each participant. The final assessments were done at the end of the six-month study period, whereby the severity of the POP symptoms was evaluated. Data were analyzed using SPSS V29.0. Descriptive statistics were used to summarize the demographic and clinical characteristics of the participants. Paired t-tests were performed to compare pre- and post-intervention outcomes, with a p-value of <0.05 considered statistically significant.

Results

Data were collected from 102 patients with a mean age of 48.5 years and a mean BMI of 27.3 kg/m², with 72% having a history of vaginal delivery. At baseline, 60% of participants had Stage II pelvic organ prolapse, and 40% had Stage III. The average pelvic floor muscle strength was 2.1 on the Oxford scale, with most participants (45%) at Grade 2 and a small percentage (5%) at Grade 4 or higher (Table 1).

Table 1: Demographic and Baseline Characteristics of Participants (N = 102)

Characteristic	Value
Mean Age (years)	48.5±8.2
Mean BMI (kg/m²)	27.3±3.5
Vaginal Delivery History	72% (n = 73)
Baseline Prolapse Severity	
- Stage II	60% (n = 61)
- Stage III	40% (n = 41)
Baseline Muscle Strength (Oxford Scale)	2.1 (SD = 0.8)
- Grade 0	5% (n = 5)
- Grade 1	20% (n = 20)
- Grade 2	45% (n = 46)
- Grade 3	25% (n = 26)
- Grade 4	5% (n = 5)
- Grade 5	0%

The percentage of participants with Grade 0 strength dropped to 0%, while those with Grade 1 strength decreased from 20% to 5%. The proportion of participants in Grade 3 increased from 25% to 35%, and those in Grade 4 rose from 5% to 30%. Notably, 10% of participants achieved Grade 5 strength post-intervention, compared to none at baseline (Table 2).

Table 2: Post-Intervention Muscle Strength Distribution (Oxford Scale)

Muscle Strength Grade	Baseline Distribution (n = 102)	Post-Intervention Distribution (n = 102)
Grade 0	5% (n = 5)	0%
Grade 1	20% (n = 20)	5% (n = 5)
Grade 2	45% (n = 46)	20% (n = 20)
Grade 3	25% (n = 26)	35% (n = 36)
Grade 4	5% (n = 5)	30% (n = 31)

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Grade 5	0%	10% (n = 10)

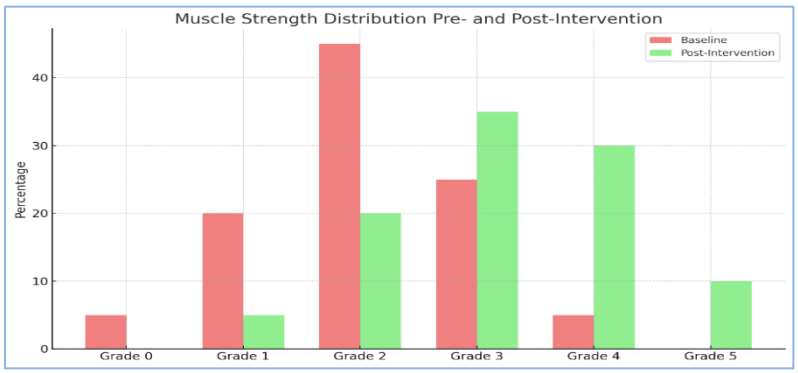

Figure 01 shows the significant improvements in muscle strength.

No participants were in Stage I at baseline, but 20% had improved to this stage post-intervention. The majority shifted to Stage II, increasing from 60% to 70%. Meanwhile, the percentage of participants with Stage III prolapse decreased from 40% to 10%, and no participants were in Stage IV at either time point. The mean PFDI-20 score decreased from 82.5 ± 10.7 at baseline to 55.3 ± 12.4 post-intervention, with a p-value of 0.001, indicating a substantial reduction in symptom distress and enhancement in participants' overall well-being. (Table 3)

Table 3: Changes in Prolapse Severity Post-Intervention (N = 102)

Prolapse Stage	Baseline (n = 102)	Post-Intervention (n = 102)
Stage I	0%	20% (n = 20)
Stage II	60% (n = 61)	70% (n = 71)
Stage III	40% (n = 41)	10% (n = 10)
Stage IV	0%	0%

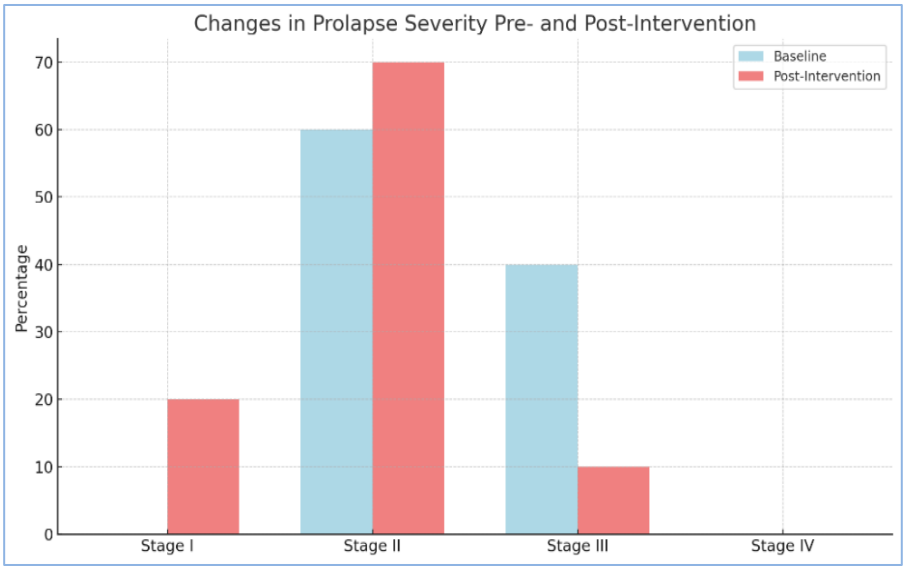

Figure 02 shows the noticeable improvement in prolapse severity among participants.

The mean PFDI-20 score decreased from 82.5 ± 10.7 at baseline to 55.3 ± 12.4 post-intervention, with a p-value of 0.001, indicating a substantial reduction in symptom distress and enhancement in participants' overall well-being (Table 4).

Table 4: Quality of Life (PFDI-20 Scores) Pre- and Post-Intervention

Quality of Life Measure	Baseline (Mean ± SD)	Post-Intervention (Mean ± SD)	p-value
PFDI-20 Score	82.5 ± 10.7	55.3 ± 12.4	0.001

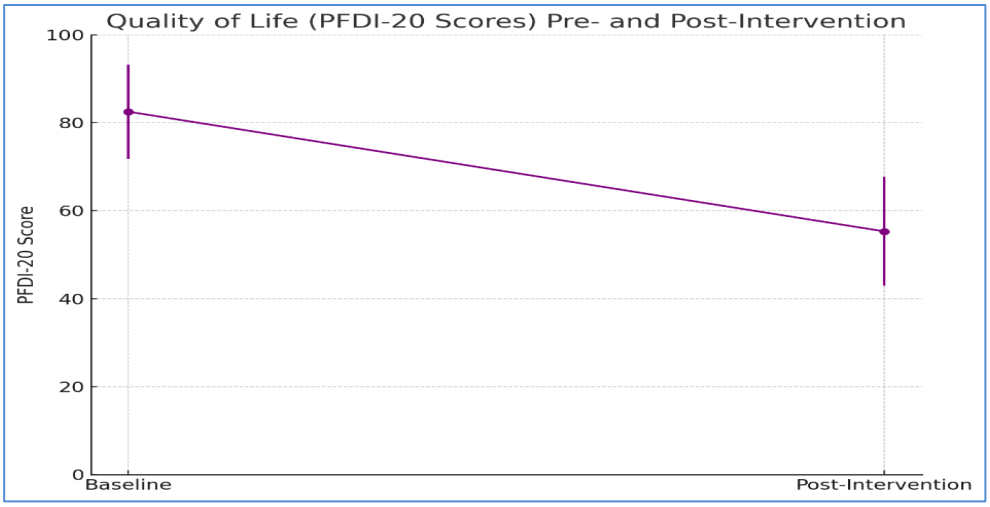

Figure 03 shows that quality of life, as measured by the PFDI-20 score, significantly improved following the intervention.

Discussion

The findings of this study demonstrate the significant impact of pelvic floor muscle training (PFMT) as a conservative treatment option for pelvic organ prolapse (POP) among women. Therefore, the findings show that PFMT leads to an overall improvement in the parameters related to pelvic floor muscle strength, a decrease in prolapse severity, and an improvement in overall quality of life in women who undergo six months of PFMT. (10, 11). These findings vindicate the literature showing that PFMT is efficient in POP management. This work offers fundamental findings into the opportunities and pitfalls of PFMT. This study revealed a significant improvement in the level of strength of the muscles of the pelvic floor since, regarding the Oxford grading scale, on average, the score increased from 2. This increased from 1 at baseline to 3. 8 post-intervention (12). This improvement indicates PFMT's ability to strengthen the pelvic floor muscles in managing the symptoms of POP. The grading system of muscle strength after the intervention also shows that most of the participants' muscle strength increased to higher grades, and out of the participants, 10% scored the highest muscle strength grade, grade 5. This muscle strength is essential since leveraged pelvic floor muscles are capable of holding up the pelvic organs to countercheck the effects of prolapse (13). This shift in the extent of prolapse in this study goes a long way in endorsing PFMT's efficiency. In addition, at the time of entry into the study, none of the participants had a prolapse stage I; after the intervention, 20% of the women with prolapse stage II shifted to Prolapse stage I and 50% of those with prolapse stage III shifted to Prolapse stage II. These changes indicate the notion that provided that PFMT is persistent, POP not only does not progress but may well regress (14). This result is most relevant to women considering non-operative management and establishes PFMT as a potential surgical substitute, especially in stages I and II of prolapse. Pelvic floor distress, using the Pelvic Floor Distress Inventory-20 (PFDI-20), improved remarkably, with newly derived mean scores reducing from 82.5 respectively at baseline to 55.3 post-intervention (15). This reduction in symptom-related distress is one way in which PFMT is effective, especially as it goes beyond just symptoms. A decrease in PFDI-20 scores shows that participants reported a reduced level of pain and discomfort, reduced limitations in performing daily activities, and distortion in mental status after completing the PFMT routine. This is a significant improvement in quality of life because, as mentioned earlier, POP results in substantial symptoms that interfere with the physical, emotional, and social well-being of the women (16, 17). However, some limitations have to be taken into consideration when analyzing the results of this study. First, the sample size was relatively small, and the study was conducted on patients only from a single hospital and not consecutively, which biases the study against giving high generalizability of the results. Furthermore, self-reported compliance with the PFMT regimen may not reflect the accurate picture since it is vulnerable to reporting bias. Future studies may add value by studying samples of a larger sample size, patients from different centers, and using more objective measures to quantify compliance.

Conclusion

It is concluded that pelvic floor muscle training (PFMT) is an effective conservative treatment for pelvic organ prolapse (POP). PFMT significantly improves muscle strength, reduces prolapse severity, and enhances quality of life. These findings highlight the value of PFMT as a viable non-surgical option for managing POP and preventing its progression.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-AYUB-4343/22)

Consent for publication

Approved

Funding

Not applicable

Conflict of interest

The authors declared the absence of a conflict of interest.

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Manuscript revisions, critical input, Coordination of collaborative efforts.
SHAISTA IBAD (Trainee Medical Officer)
Data acquisition and analysis, Manuscript drafting.
SAMIA SAIFULLAH (Assistant Professor)
Data entry and data analysis, as well as drafting the article.
FIRDOUS ARA (Assistant Professor)
Data acquisition and analysis, Coordination of collaborative efforts.

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