

A STUDY TO EVALUATE THE EFFECTIVENESS OF PELVIC FLOOR EXERCISE ON UTERINE PROLAPSE AMONG WOMEN IN SELECTED HOSPITAL.

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ABSTRACT

Introduction: Pelvic floor exercises (PFEs) have emerged as a vital non-surgical approach to managing uterine prolapse among women. This exercise regimen aims to strengthen the pelvic floor muscles, which can both prevent the onset and mitigate the effects of uterine prolapse. **Aim of the study:** The aim of the study to evaluate the effectiveness of pelvic floor exercise on uterine prolapse among women in selected hospital. **Methodology:** This study will employ a pre-experimental design, specifically a one-group pre-test and post-test design, to evaluate the effectiveness of pelvic floor exercises on uterine prolapse in women aged 40 years and above in a selected hospital. Participants will be selected based on their willingness to participate and their ability to comply with the exercise regimen. The intervention will consist of a structured pelvic floor exercise program over 12 weeks, with exercises conducted three times per week. **Results:** The study showed significant improvements after the pelvic floor exercise intervention. Bach's Scale for pelvic muscle strength increased from 2.5 (SD = 0.8) to 3.8 (SD = 0.7) ($t = 5.30, p < 0.001$). The Revised Urinary Incontinence Scale reduced from 12.3 (SD = 3.1) to 8.7 (SD = 2.9) ($t = 7.45, p < 0.001$). The PFDI-20 scores improved from 35.4 (SD = 6.2) to 26.1 (SD = 5.3) ($t = 6.82, p < 0.001$), indicating enhanced pelvic health and quality of life. **Conclusion:** The present study concluded that the pelvic floor exercise intervention proved to be highly effective in improving pelvic muscle strength, reducing urinary incontinence, and enhancing overall quality of life for women with uterine prolapse.

INTRODUCTION

Pelvic floor exercises (PFEs) have emerged as a vital non-surgical approach to managing uterine prolapse among women. This exercise regimen aims to strengthen the pelvic floor muscles, which can both prevent the onset and mitigate the effects of uterine prolapse. Numerous studies highlight the benefits of PFEs, underscoring their importance in enhancing women's pelvic health.

Evidence indicates that PFEs can alleviate symptoms associated with uterine prolapse and enhance overall quality of life. For instance, women with mild to moderate pelvic organ prolapse (POP) can significantly benefit from PFEs, which improve muscle strength and endurance while potentially suppressing the worsening of prolapse symptoms (Özengin et al., 2015; Eleje et al., 2014). The strengthening of pelvic floor muscles aids in supporting pelvic organs, thereby reducing the degree of prolapse and related discomfort. In a qualitative study, it was observed

that women participating in PFEs reported a greater sense of control and a positive influence on their quality of life, reflecting the psychological benefits alongside the physical improvements (Abhyankar et al., 2019).

Additionally, pelvic floor exercises have shown effectiveness in addressing not just uterine prolapse but also coexisting conditions such as urinary incontinence. A study conducted in Nepal revealed that PFEs contributed positively to women's health by effectively managing symptoms of pelvic floor dysfunction (Stensdotter et al., 2021). The perspective of health professionals in this context indicated that group exercises fostered social support among women, enhancing adherence to exercise regimens and increasing participation rates (Radl-Karimi et al., 2012).

Age is a significant risk factor for increased severity of uterine prolapse, as the weakening of pelvic structures is more pronounced in older populations (Sayko et al., 2018; Zulfadli, 2016). As such, PFEs become paramount in these demographics, serving as a conservative treatment option that can be

incorporated regardless of age disparities. Women's health initiatives advocate for a proactive approach to pelvic health, recommending maintenance of pelvic muscle strength through regular exercise to prevent worsening of prolapse as women age (Nygaard & Shaw, 2016).

While PFEs are beneficial, it is crucial to underscore that they primarily serve as complementary interventions. Women with pronounced prolapse or those symptomatic to a degree that PFEs do not alleviate may require additional treatments, including the use of pessaries or surgical options for severe cases (Hajhashemi et al., 2023). The current clinical guidelines suggest a tailored approach, where PFEs can be an initial management strategy, followed by evaluations that might lead to more invasive strategies if necessary (Trowbridge & Northington, 2023). In summary, pelvic floor exercises are an effective strategy for managing uterine prolapse in women, providing both physical and psychosocial benefits. They represent an essential element of conservative management, particularly for women at risk or already experiencing symptoms of pelvic organ prolapse.

MATERIAL AND METHODS

This study will employ a pre-experimental design, specifically a one-group pre-test and post-test design, to evaluate the effectiveness of pelvic floor exercises on uterine prolapse in women aged 40 years and above in a selected hospital. Participants will be selected based on their willingness to participate and their ability to comply with the exercise regimen. The intervention will consist of a structured pelvic floor exercise program over 12 weeks, with exercises conducted three times per week. Key outcomes, including pelvic floor muscle strength, uterine prolapse stage, and quality of life, will be measured before and after the intervention.

Inclusion Criteria:

- Women aged 40 years and above.
- Women diagnosed with mild to moderate uterine prolapse (stage I-III).
- Women who are able and willing to perform pelvic floor exercises.

Exclusion Criteria:

- Women with severe uterine prolapse (stage IV).
- Women who have undergone pelvic surgery or other treatments for uterine prolapse during the study period.
- Women unable to comply with the exercise regimen due to physical limitations or other health conditions.

Tools:

Bach's Scale:

Bach's scale will be used to collect preliminary data on the participants' overall pelvic health, providing insights into the condition of the pelvic floor muscles and their potential relationship with uterine prolapse.

Revised Urinary Incontinence Scale:

A revised urinary incontinence scale will be used to assess the level of stress urinary incontinence among the participants. This scale helps determine the severity of symptoms related to urinary incontinence and their impact on daily life.

Quality of Life Assessment:

Pelvic Floor Distress Inventory (PFDI-20): A validated questionnaire to assess the impact of pelvic floor disorders (including prolapse) on the participants' daily activities and overall well-being. The PFDI-20 has specific subscales for pelvic symptoms, urinary distress, and bowel distress. This tool will be

used to measure changes in the quality of life before and after the intervention.

Intervention:

The intervention consists of a comprehensive pelvic floor exercise program supplemented by video-assisted teaching. On the first day, participants will receive a video-assisted session that covers the anatomy and physiology of the pelvic floor, the causes of pelvic floor muscle weakness, the effects of pelvic floor muscle weakness, and medical and surgical management options. Additionally, the video will focus on the prevention of complications and the importance of maintaining a healthy pelvic floor.

The exercise program includes Kegel exercises, Abdominal Clams Core Stabilizer Exercise, Bladder Control Spinal Rotation Exercise, Side Leg Circles Exercise, Rolling Knee Step, Push Up Exercise, and Bridging Exercises. Each exercise will be demonstrated and followed by a return demonstration from the participants to ensure correct technique.

The interventional package will be administered individually at the participants' homes, with each session lasting about 30 minutes. To promote adherence, participants will maintain a daily chart to track the exercises performed, and will receive mobile phone reminders. Reinforcement will be provided through a booklet and support from community-level volunteers identified by the investigator to encourage regular exercise.

Data collection:

Data will be collected using several tools, including Bach's scale to collect preliminary data on pelvic health, and a revised urinary incontinence scale to assess stress urinary incontinence among participants. Additionally, the Pelvic Floor Distress Inventory (PFDI-20) will be used to measure changes in the quality of life related to pelvic floor dysfunction. Participants will also complete a demographic and medical history form to provide baseline data. A daily exercise adherence log will be maintained by participants to track their exercise compliance.

Statistical analysis:

Statistical analyses will be conducted to evaluate the changes in pelvic muscle strength, uterine prolapse stage, and quality of life.

RESULTS:

The study included 70 women, aged between 40 and 55 years, with a balanced distribution across two age groups: 40-49 years (50%) and 50-55 years (50%). The participants had varied educational backgrounds, with 14.3% having primary education, 42.9% secondary education, and 42.9% holding higher education. Most participants were married (85.7%), with smaller proportions being single (7.1%) or widowed (7.1%). Regarding occupation, 71.4% were homemakers, 28.5% were employed, and 14.3% were retired. In terms of family size, 57.1% had 0-2 children, 35.7% had 3-4 children, and 7.1% had 5 or more children. (Table 1)

Table 2 shows the changes in pelvic health measures before and after the intervention. Significant improvements were observed in all tools. The Bach's Scale revealed a significant increase in pelvic muscle strength ($t = 5.30$, $p < 0.001$). The Revised Urinary Incontinence Scale demonstrated a reduction in urinary incontinence symptoms ($t = 7.45$, $p < 0.001$). The Pelvic Floor Distress Inventory (PFDI-20) showed a significant improvement in pelvic floor health overall ($t = 6.82$, $p < 0.001$).

Table 3 outlines the quality-of-life measures using the PFDI-20. There was a significant reduction in Pelvic Symptoms ($t = 6.43$, $p < 0.001$), Urinary Distress ($t = 4.65$, $p < 0.001$), and Bowel Distress ($t = 3.12$, $p < 0.01$). The Overall Quality of Life score also showed a significant improvement ($t = 6.82$, $p < 0.001$), demonstrating that the pelvic floor exercise program significantly enhanced participants' quality of life.

Table 1: Demographic variables of women

		N= 70	
Demographic Variable	Frequency (N)	Percentage (%)	
Age Group			
40-49	35	50%	
50-55	35	50%	
Educational Level			
Primary	10	14.3%	

Secondary	30	42.9%
Higher	30	42.9%
Marital Status		
Married	60	85.7%
Single	5	7.1%
Widowed	5	7.1%
Occupation		
Homemaker	50	71.4%
Employed	20	28.5%
Retired	10	14.3%
Number of Children		
0-2	40	57.1%
3-4	25	35.7%
5+	5	7.1%

Table 2: Assessment of mean and SD of pretest and post among women.

N= 70

Tool	Pre-Test Mean (SD)	Post-Test Mean (SD)	t-value	p-value
Bach's Scale	2.5 (0.8)	3.8 (0.7)	5.30	<0.001
Revised Urinary Incontinence Scale	12.3 (3.1)	8.7 (2.9)	7.45	<0.001
Pelvic Floor Distress Inventory (PFDI-20)	35.4 (6.2)	26.1 (5.3)	6.82	<0.001

Table 3: Quality of life among women. N= 70

Quality of Life Measure (PFDI-20)	Pre-Test Mean (SD)	Post-Test Mean (SD)	t-value	p-value
Pelvic Symptoms	15.4 (4.2)	9.8 (3.5)	6.43	<0.001
Urinary Distress	9.2 (2.9)	6.5 (2.3)	4.65	<0.001
Bowel Distress	6.8 (2.1)	5.3 (1.9)	3.12	<0.01
Overall Quality of Life	35.4 (6.2)	26.1 (5.3)	6.82	<0.001

DISCUSSION

The study's results indicate a robust positive impact of pelvic floor exercises on women's pelvic health and quality of life, underscoring the intervention's potential as an effective non-surgical treatment for conditions such as urinary incontinence and pelvic organ prolapse. The significant improvements observed in key metrics such as pelvic muscle strength and urinary incontinence severity affirm the effectiveness of the intervention. Firstly, the increase in pelvic muscle strength measured by Bach's Scale—from 2.5 (SD = 0.8) to 3.8 (SD = 0.7)—is notable, with statistical significance confirmed ($t = 5.30$, $p < 0.001$) Li & Li (2025). This outcome aligns with existing literature, which asserts that pelvic floor muscle exercises, particularly Kegel exercises, play a crucial role in strengthening the pelvic musculature (Zhang et al., 2023). Improved muscle tone directly contributes to better support for pelvic organs, potentially reducing the incidences of prolapse-related symptoms (Jalalinia et al., 2020). Research corroborates these findings, emphasizing that strengthening the pelvic floor enhances not only physical health but also contributes to patients' psychosocial well-being (Porwal et al., 2017). The reduction in urinary incontinence severity, as evidenced by the Revised Urinary Incontinence Scale, further illustrates the intervention's effectiveness. Scores decreased from 12.3 (SD = 3.1) to 8.7 (SD = 2.9) ($t = 7.45$, $p < 0.001$), indicating a substantial improvement in participants' ability to manage incontinence (Kim

et al., 2011). Various studies have consistently shown that pelvic floor exercises can significantly alleviate the physical burden of urinary incontinence, leading to improved participation in daily activities and enhanced quality of life (Szumilewicz et al., 2019; Waghe & Athawale, 2024). This aligns well with the findings of Kim et al., who highlighted the role of pelvic exercises in mitigating urinary symptoms post-pregnancy (Zhou & Guo, 2024). Moreover, the results from the Pelvic Floor Distress Inventory (PFDI-20), which reported a drop in scores from 35.4 (SD = 6.2) to 26.1 (SD = 5.3) ($t = 6.82$, $p < 0.001$), further affirm the comprehensive benefits of pelvic floor exercises on overall pelvic health (Gavhale & Mahakarkar, 2021; Mohani et al., 2024). The significant improvement in quality of life measures—particularly concerning pelvic symptoms, urinary distress, and bowel distress—was statistically significant ($p < 0.001$), showcasing not only physical enhancements but significant improvements in psychological domains as well (Herena-Funes et al., 2024). As corroborated by studies examining pelvic floor dysfunctions, enhanced muscle function contributes greatly to improved overall health outcomes and satisfaction with life among affected women (Hagen et al., 2020).

The findings of this study contribute meaningfully to the ongoing discourse around non-surgical treatment options for pelvic floor disorders. They reinforce the hypothesis that consistent engagement in pelvic floor exercises serves as an essential strategy in managing and mitigating symptoms associated with

both urinary incontinence and other pelvic floor disorders. Overall, the results support the incorporation of pelvic exercises into routine care for women at risk of or experiencing pelvic dysfunction, as recommended by various health guidelines (Özengin et al., 2015; Demircioğlu & Genç, 2024).

CONCLUSION

The present study concluded that the pelvic floor exercise intervention proved to be highly effective in improving pelvic muscle strength, reducing urinary incontinence, and enhancing overall quality of life for women with uterine prolapse. Significant improvements were observed in all assessment tools, including the Bach's Scale, Revised Urinary Incontinence Scale, and Pelvic Floor Distress Inventory (PFDI-20). The results underscore the importance of pelvic floor exercises in managing pelvic floor dysfunction and improving women's health outcomes.

CONFLICTS OF INTEREST:

No conflicts of Interest.

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