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Effectivness Of Structured Exercise Protocol On Pain And Discomfort In Post-Abortive Females

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Abstract

Background: *This study was designed to assess the attitude of obstetricians and gynecologists towards involving physiotherapists in the management of patients with obstetric and gynecologic conditions. Pain and discomfort are the common problems after the abortion. Structured exercise protocol has emerged as a potential intervention to enhance strength and to reduce pain and discomfort in post abortive females.*

Objective: *This study evaluates the effectiveness of structured exercises protocol on pain and discomfort in post abortive females.*

Methods: *A total of 40 women participants who have recently undergone an abortion within the past 1-2 weeks were included in this interventional study. Participants underwent a structured exercise protocol, including 2 to 3 sessions per week. Pre- and post-treatment assessments were conducted using the Visual Analog Scale (VAS) for pain and perineometer to check pelvic floor muscle strength and pelvic floor dysfunction scale also used.*

Results: *The structured exercise protocol, which included stretching, heat therapy, gentle pelvic movements, breathing exercises, TENS, and massage therapy, led to a significant reduction in both pain and discomfort in post-abortive females. Pain levels, measured by the VAS score, decreased notably from* $X \pm Y$ *to* $Z \pm W$ *(*$p < 0.0001$*), while discomfort also showed a significant reduction, highlighting the effectiveness of the combined approach in alleviating both pain and discomfort.*

Conclusion: *The combination of structured exercises, stretching, heat therapy, gentle pelvic movements, breathing exercises, TENS, and massage therapy proves to be an effective approach in reducing pain and discomfort in post-abortive females. This multi-faceted intervention shows potential in improving overall well-being and recovery. However, additional studies are necessary to refine the treatment protocol and evaluate its long-term effects.*

INTRODUCTION

Gynecological and Obstetrics Promoting health during childbearing is the main goal of the physical therapy specialty known as physiotherapy. In order to provide the best possible care, physical therapy treatments must be integrated with obstetrics and gynecology. Physiotherapists treat a variety of obstetric and gynecological issues as well as preoperative and postoperative phases, pregnancy, labor, and puerperium..[1].

According to recent research, physiotherapy methods like post-operative rehabilitation and pelvic floor rehabilitation facilitate improved healing throughout the post-operative phase..[2].

Non-invasive treatment is preferred to avoid medication in pregnancy, and surgery is not an option. Physiotherapists use several treatments for pregnancy-related lumbopelvic pain, including passive treatments such as mobilization, stretching and heat therapy to reduce pain and discomfort[3]

Transcutaneous electrical nerve stimulation (TENS) has shown to be an effective method for pain relief following surgical abortion. The technique involves the application of electrical impulses through the skin to stimulate sensory nerves, which can help reduce the perception of pain. After surgical abortion, many patients

experience significant postoperative discomfort, and TENS offers an alternative to conventional pharmacological treatments, which may come with side effects or a longer recovery time. TENS can provide targeted pain relief by blocking pain signals and stimulating the production of endorphins, the body's natural painkillers. This non-invasive method not only helps in reducing pain but also allows for more immediate recovery, as patients often spend less time in the recovery ward compared to those receiving intravenous pharmacological treatments. The effectiveness of TENS in managing pain post-abortion has made it a valuable option for those seeking a non-pharmaceutical approach to postoperative care.[4]

Massage to the abdomen after an abortion can help alleviate pain and promote relaxation. It works by increasing blood flow to the area, which can aid in reducing muscle tension and enhancing recovery. Gentle abdominal massage can also stimulate the release of endorphins, the body's natural painkillers, and improve circulation, helping to supply oxygen to tissues and remove toxins. Additionally, abdominal massage can promote relaxation by reducing stress hormones like cortisol and supporting emotional well-being. However, it is important for the massage to be done gently and cautiously, especially in the sensitive post-abortion period, to avoid discomfort or harm.[5]

Physiotherapy during the post-abortive period plays a vital role in supporting physical recovery and restoring functional capacity. After 1 to 3 weeks post-abortion, physiotherapy interventions such as mobility exercises, breathing techniques, and postural care can help reduce residual discomfort, improve posture, and facilitate the gradual return to daily activities. Individuals who engage in physiotherapy at this stage often report better outcomes compared to those receiving standard care, suggesting that physical therapy is a beneficial adjunct in enhancing post-abortive recovery[6]

Post-abortion exercises introduced after 1 to 3 weeks such as deep breathing, the inter-digital technique for chest expansion, TENS , gentle movements , protected huffing, ankle pumps, leg sliding, pelvic rolling, and abdominal massage have been shown to reduce pain, ease the transition back to functional tasks, and decrease reliance on analgesics. These exercises also promote improved circulation, core stability, and pelvic floor strength. As such, post-abortion physiotherapy is considered important in reducing pain scores, enhancing mobility, and supporting emotional and physical recovery following abortion [6]

MATERIALS & METHODOLOGY:

The Ethical Committee and Protocol Committee authorized the research investigation (protocol number - 2024). The research is a interventional study involving 40 participants including post-abortive females from the Karad, Maharashtra, India. This research recorded the pre- and post-treatment values between the same group that lasted for a duration of 6 months. The goal of this study was to find effectiveness of of structured exercises protocol on pain and discomfort in post abortive females.

This study was conducted as per inclusion and exclusion criteria. Participants were briefed on the study's nature, duration, and intervention in their language of choice. The subjects of this study were the post abortive females 1 to 3 weeks after post procedure .Informed consent was taken from the study participants & baseline data was collected. Pre-assessment was done regarding pain, and strength . They were assessed with Visual Analog Scale (VAS) and perineometer. The individuals taking part in the research were assigned to a group, who received a preset structured physiotherapy protocol for 2 to 3 sessions per week for 30 to 45 mins ; duration 6 weeks

Exercise Protocol:-

Structured exercise protocol after post abortive female includes restoring pelvic floor function and avoiding problems are the main goals of post-abortive treatment. The first evaluation looks at posture, abdominal muscles, and pelvic floor strength. Following that, physiotherapists create a treatment plan that calls for two to three weekly sessions, each lasting thirty to forty-five minutes. In order to relieve discomfort, sessions may involve manual therapy, abdominal massage, stretching, strengthening exercises, pelvic floor exercises, and

TENS. Through muscle and nerve stimulation, TENS can aid in pain management and recovery. Physiotherapists also offer advice on how to manage incontinence, engage in safe physical exercise, and keep good posture. To aid with recuperation, emphasis is placed on teaching people about body mechanics and minimizing undue strain

OUTCOME MEASURES:

1.Visual Analog Scale (VAS)[7]

It is a measurement tool that seeks to measure a characteristic that believed to range across a continuum of values and cannot easily be directly measured. VAS is a uni-dimensional measure of pain intensity, which has been extensively used in various adult people.

The Visual Analog Scale is typically a straight line that is 10 cm (or sometimes 100 mm) in length. The scale has two endpoints, each representing the extremes of the experience being measured:

- Left Endpoint (0 or 0%): Represents the absence of the symptom or condition (for instance, "no pain" for pain assessments).
- Right Endpoint (10 or 100%): Represents the worst possible level of the symptom or condition (e.g., "worst pain imaginable" for pain assessments).

2. perineometer:

A perineometer is a device used to measure the strength of pelvic floor muscle contractions. used to know the strength in pelvic floor muscles.

How to used**:**

1. Insert the probe into the vagina or rectum, depending on the type.
2. Ask the patient to squeeze their pelvic muscles (like they're trying to stop urination).
3. Check the reading on the device, usually shown in cmH_2O or mmHg.
4. Repeat the process to monitor progress over time.

3. **Pelvic floor dysfunction scale**:

The Pelvic Floor Dysfunction Scale is a screening tool that helps measure the severity and impact of problems related to the pelvic floor, such as bladder leakage, bowel issues, or organ descent. It's based on self-reported symptoms and is used to help plan treatment.

TREATMENT:

Structured Protocol: 1 to 3 sessions per week 30 to 45 minutes; for 6 weeks duration.

This rehabilitation protocol is designed to help individuals recovery from the pain and discomfort after the abortion procedure , with a focus on relieving pain, discomfort and progressively strengthening the muscles.. During the first week post-abortion, the focus is on gentle recovery, reducing discomfort, and promoting initial healing. Sessions are recommended 2 to 3 times per week, lasting 20 to 30 minutes.

Heat Therapy: Apply heat packs for 10–15 minutes, 2-3 times daily, to relax muscles and alleviate discomfort, particularly in the pelvic and lower abdominal regions.

Gentle Pelvic Movements: Start with gentle pelvic tilts and basic stretches to promote circulation without overexertion.

Breathing Exercises: Introduce diaphragmatic breathing to improve relaxation, reduce stress, and enhance oxygenation, while also supporting emotional healing.

Postural Education: Focus on proper postural alignment to minimize strain on the back and pelvis, with emphasis on avoiding forward flexion and maintaining neutral spine alignment during activities.

Weeks 2–3: Building Flexibility and Core Engagement (Sessions 2-3 times per week, 30–45 minutes) In the second and third weeks, the focus shifts to improving flexibility, starting gentle strengthening, and maintaining emotional well-being. Sessions last 30-45 minutes.

Gentle Stretching: Continue with cat-cow stretches and introduce hip flexor stretches to improve flexibility and reduce muscle tightness.

Pelvic Floor Engagement: Begin gentle pelvic floor muscle training (Kegels) to restore pelvic muscle tone.
Soft Tissue Massage: Light massage of the lower back and abdomen to reduce tension and improve circulation.
Breathing Exercises: Continue diaphragmatic breathing and introduce box breathing to help manage emotional stress and facilitate mental relaxation.
Weeks 4–6: Strengthening and Advanced Recovery (Sessions 2-3 times per week, 45 minutes)
During the final three weeks, the goal is to progress with strengthening exercises and enhance overall physical and emotional recovery.
Strengthening Exercises: Introduce core exercises, including abdominal wall setting and pelvic rolling, to strengthen the abdominal and pelvic muscles.
Dynamic Movements: Continue gentle hip and pelvic stretches, and include leg slides or leg raises to enhance mobility and stability.
TENS (Transcutaneous Electrical Nerve Stimulation): Consider TENS for pain relief if discomfort persists, as it helps manage pain without the side effects of medication.
Breathing and Relaxation: Incorporate more relaxation techniques like 4-7-8 breathing and pursed lip breathing for emotional and physical recovery.
Postural Education: Emphasize proper walking posture, pelvic alignment, and core engagement to avoid strain on the body and support healing.

RESULTS:

For data analysis, the data was entered into an Excel spreadsheet, and statistical analysis was performed using the Instat app. Descriptive statistics were utilized, and paired t-tests were employed to ascertain significant differences between pre- and post-interventional group across (VAS Scale, Perineometer and pelvic floor dysfunction scale) outcome measures.

VAS SCALE	Pre- intervention	Post-intervention	p-value	t-value
	6.8 ± 1.25	3.5 ± 1.00	<0.0001	13.04

Table No.1: Comparison of Mean, SD, P Value & t value of VAS SCALE

Interpretation:

The average score dropped from 6.8 ± 1.25 before therapy to 3.5 ± 1.00 after treatment, indicating a significant decrease in the measured parameter (presumably pain or discomfort) after the intervention.

• Both the t-value of 13.5 and the p-value of <0.0001 indicate that the difference is both statistically significant and substantial, highlighting the efficacy of the intervention.

Perineometer	Pre-intervention	Post-intervention	p-value	t-value
	19.2 ± 2.8	27.4 ± 3.1	< 0.0005	10.672

Table No.2: Comparison of Mean, SD, P Value & t value by perineometer for pelvic floor muscle strength

Interpretation: Comparison of Mean, SD, P Value & t value by perineometer for pelvic floor muscle strength

- The data presented in the table demonstrate a marked improvement in pelvic floor muscle strength following the structured exercise intervention among post-abortive females. The average perineometer reading increased from 19.2 mmHg before the intervention to 27.4 mmHg after, reflecting a significant enhancement in muscle function. The t-test result ($t = 10.672$, $p < 0.0005$) indicates that this change is statistically highly significant.

Table no 3: Comparison of Pelvic Floor Dysfunction Pre- and Post-Intervention

Measure	Pre-Intervention	Post-Intervention	p-value	t-value
Urinary Incontinence	6.2 ± 1.1	2.4 ± 0.8	< 0.0001	12.34
Pelvic Pressure	7.1 ± 1.3	3.0 ± 1.1	< 0.0001	13.45
Sexual Dysfunction	5.5 ± 1.2	2.2 ± 0.7	< 0.0001	14.50
Pelvic Organ Prolapse	5.2 ± 1.0	2.7 ± 1.0	< 0.0001	10.85
Overall PFDS Score	24.0 ± 4.6	10.3 ± 2.7	< 0.0001	15.20

Interpretation:

The results of the study show that the structured exercise protocol had a significant positive effect on pelvic floor health in post-abortive females. Key findings include:

- Urinary incontinence improved from 6.2 ± 1.1 to 2.4 ± 0.8, with a p-value of < 0.0001 and a t-value of 12.34, indicating a substantial reduction in symptoms.
- Pelvic pressure decreased from 7.1 ± 1.3 to 3.0 ± 1.1, with a p-value of < 0.0001 and a t-value of 13.45, reflecting a meaningful improvement.
- Sexual dysfunction improved from 5.5 ± 1.2 to 2.2 ± 0.7, with a p-value of < 0.0001 and a t-value of 14.50, indicating a significant reduction in discomfort.
- Pelvic organ prolapse improved from 5.2 ± 1.0 to 2.7 ± 1.0, with a p-value of < 0.0001 and a t-value of 10.85, showing notable symptom reduction.
- The overall PFDS score decreased from 24.0 ± 4.6 to 10.3 ± 2.7, with a p-value of < 0.0001 and a t-value of 15.20, reflecting a significant overall improvement in pelvic floor dysfunction.

these results demonstrate that the structured exercise protocol significantly improved pelvic floor strength and reduced discomfort across various aspects of pelvic floor dysfunction, with significant improvement .

DISCUSSION :

The results of this study demonstrate that a structured exercise program is highly effective in alleviating pain and improving pelvic floor function in females following abortion. A significant reduction in pain levels was observed, with VAS scores dropping from 6.8 ± 1.25 to 3.5 ± 1.00 ($p < 0.0001$), alongside a notable increase in pelvic floor strength, as measured by the perineometer, from 19.2 ± 2.8 to 27.4 ± 3.1 ($p < 0.0005$). Improvements were also seen in pelvic floor dysfunction symptoms, with participants reporting relief from issues such as pelvic pressure, urinary urgency, and discomfort during routine activities. The intervention,

which included stretching, strengthening exercises, breathing techniques, TENS therapy, hot pack application, and gentle movement, proved beneficial both physically and psychologically. [7]
These components likely worked synergistically to enhance circulation, ease muscle tension, promote relaxation, and restore pelvic stability. The study supports the inclusion of targeted physiotherapy as a valuable part of post-abortion care to promote recovery and improve the overall well-being of women during the rehabilitation period.[7]
As a non-pharmacological, cost-effective intervention, the structured exercise program offers a promising alternative to medications or surgical options, especially in settings with limited access to healthcare. However, challenges in maintaining consistent participation indicate a need for more flexible, home-based exercise programs or digital support systems. Finally, by giving women more control over their recovery, this approach can enhance empowerment and improve emotional well-being, suggesting the importance of integrating exercise into post-abortion care within a multidisciplinary framework that addresses both physical and psychological aspects of recovery.[8]

CONCLUSION:

the results of this study strongly indicate that a structured exercise program effectively reduces pain and improves pelvic floor function in post-abortive females. Significant improvements in pain levels, as shown by the VAS scores, and enhanced pelvic floor strength, measured by the perineometer, highlight the effectiveness of this intervention in aiding physical recovery. Additionally, the reduction in pelvic floor dysfunction symptoms further supports the beneficial role of exercise in post-abortion rehabilitation. The combination of stretching, strengthening exercises, TENS therapy, breathing techniques, and gentle movements proved to be a holistic and non-invasive approach to recovery. These findings emphasize the importance of integrating structured exercise into post-abortion care, as it not only provides physical relief but also promotes emotional well-being and empowerment during the recovery process. Future research with longer follow-up periods and more flexible, home-based protocols could provide further insights into the long-term benefits and accessibility of exercise-based rehabilitation.

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