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RESEARCH ARTICLE

EFFECT OF STRUCTURED RELAXATION PROGRAM ON EARLY RECOVERY IN POST HYSTERECTOMY

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Abstract: ***Background:*** Hysterectomy is a common surgical procedure that often leads to postoperative pain, reduced muscle strength, and delayed functional recovery. Structured relaxation programs may help in reducing pain and improving early recovery. ***Methodology:*** A total of 40 post-hysterectomy women were selected and randomly divided into two groups of 20 each. The experimental group received a structured relaxation program along with routine postoperative care, while the control group received only routine care. The relaxation program included deep breathing, progressive muscle relaxation, and guided imagery performed twice daily for one week. Outcome measures included rest pain and activity pain (Visual Analogue Scale), muscle strength (Manual Muscle Testing), and functional disability (Oswestry Low Back Disability Index). Data were collected on postoperative day 1 and day 7 and analyzed using pre and post tests. ***Results:*** The experimental group showed a significant reduction in rest and activity pain and improvement in muscl e strength compared to the control group ($p < 0.05$). Oswestry Disability Index scores also demonstrated improved functional recovery in the intervention group. ***Conclusion:*** Structured relaxation is an effective non-pharmacological method for reducing postoperative pain and improving early recovery after hysterectomy. Incorporating relaxation techniques in postoperative care can enhance patient comfort and functional outcomes.

Keywords: Structured relaxation program, hysterectomy, postoperative recovery, pain, muscle strength, Oswestry Low Back Disability Index.

INTRODUCTION

Women's reproductive health is a crucial global concern with significant implications for overall health, well-being, and societal development. Hysterectomy remains one of the most frequently performed gynecological surgeries worldwide. (1) The term "hysterectomy" is derived from two Greek words: "hystera," meaning uterus, and "ectomy," meaning removal. This surgical procedure involves the removal of the uterus, often including the cervix. Among women of reproductive age, hysterectomy is regarded as the second most common surgical procedure after cesarean section.(2)(3) The primary reasons for undergoing a hysterectomy include conditions such as heavy menstrual bleeding, uterine fibroids, endometriosis, adenomyosis, uterine prolapse, pelvic inflammatory disease, and reproductive tract cancers.(4)

Despite its therapeutic benefits, hysterectomy is associated with significant physical and psychological stress, which can impact the patient's recovery process(5)

Postoperative recovery after a hysterectomy encompasses various aspects, including pain control, psychological well-being, and early mobilization. Conventional recovery protocols largely emphasize pharmacological approaches for pain management. However, growing evidence indicates that non-pharmacological interventions, such as structured relaxation programs, significantly contribute to improving recovery outcomes.(6) Structured relaxation programs incorporate a range of techniques, such as progressive muscle relaxation (PMR), deep breathing exercises, guided imagery, and mindfulness-based stress reduction (MBSR). These methods have been demonstrated to effectively reduce postoperative pain, anxiety, and stress.

(7) Progressive muscle relaxation (PMR) is a widely practiced relaxation technique that involves systematically tensing and then relaxing various muscle groups. It has been shown to effectively alleviate stress, anxiety, and depression in postoperative patients. (8) Likewise, guided imagery and mindfulness exercises have been shown to facilitate relaxation, enhance sleep quality, and support overall psychological well-being in patients undergoing surgery.(9) By incorporating structured relaxation techniques into postoperative care, healthcare providers can potentially enhance the overall recovery experience of post-hysterectomy patients.(10)

The findings of this study highlight that women who practiced progressive muscle relaxation technique (PMRT) after hysterectomy experienced significantly lower levels of stress, anxiety, and depression compared to those who only received routine nursing care. Based on these results, it is recommended that maternity and gynecological nurses integrate PMRT into standard postoperative care to enhance nursing efficiency. PMRT should be established as a non-pharmacological intervention for managing psychological distress following gynecological surgeries. Nursing curricula should incorporate PMRT training, and in-service

programs should educate nurses on its application. Further research should explore PMRT's effectiveness in other gynecological surgeries like fistula repair and cesarean section.(11) Studies have indicated that elevated stress and anxiety levels after surgery can result in extended hospital stays, heightened pain perception, and slower wound healing.(12) Thus, structured relaxation programs can serve as a beneficial complement to conventional postoperative care, helping to reduce reliance on excessive pharmacological treatments and enhance patient recovery. A study by Sharma and Singh (2019) found that patients who practiced relaxation techniques following a hysterectomy experienced lower pain levels and shorter hospital stays compared to those who received only standard postoperative care. These findings emphasize the need to incorporate holistic approaches into routine gynecological surgical recovery protocols.

Moreover, patient education and nurse-led initiatives are essential for the effective implementation of structured relaxation programs. Nurses play a key role in guiding patients through relaxation techniques, promoting adherence, and assessing their effectiveness. (13)

Educating healthcare professionals in relaxation techniques can ensure their correct application, ultimately aiding post-hysterectomy patients by reducing distress and promoting recovery. With the increasing focus on patient-centered care, it is crucial to investigate the effectiveness of structured relaxation programs in post-hysterectomy recovery. This study aims to evaluate the impact of structured relaxation interventions on early postoperative recovery outcomes, such as pain perception, anxiety levels, and overall well-being. By identifying effective non-pharmacological approaches, this research seeks to contribute to the development of evidence-based postoperative care protocols that enhance patient health and recovery.(14) Progressive muscle relaxation (PMR) is one of the simplest relaxation techniques to learn and apply. It is an affordable, accessible, and self-administered intervention that is free from side effects. This structured method effectively reduces stress and promotes deep relaxation. By stimulating the release of endorphins, PMR enhances immune function and fosters a sense of well-being. Ultimately, it contributes to improved adaptive functioning. Individuals experiencing conditions such as anxiety, depression, stress, tension headaches, insomnia, muscle spasms, lower back pain, fatigue, irritable bowel syndrome, and hypertension can benefit significantly from this technique(15)(16)

MATERIAL AND METHODS

The type of study was a Experimental study. Its study design was a pre-test and post- test measurements. 40 Participants were selected Simple Random Sampling method. Again, from these 20 participants, 20 participants were selected to be in pre-test (Controlled group) and another participants were selected under post-test (experimental Group) via Computed Randomization technique. This study was conducted in Krishna Vishwa Vidyapeeth, deemed to be university, Karad, Maharashtra. The duration of the study was 6 months. The study was started once the ethical committee approved the study. Respondents were informed about the study and provided with the procedures before giving their informed consent. This study was designed to evaluate the effect of a structured relaxation program on early recovery among post-hysterectomy women, focusing on outcomes related to rest pain, activity pain, muscle strength, and functional disability. The methodology was formulated to ensure a systematic, controlled, and evidence-based assessment of the intervention's effectiveness.

A quantitative, experimental research design was adopted, as it allows for objective measurement and statistical comparison between groups. Participants were selected based on specific inclusion and exclusion criteria to ensure homogeneity of the sample and to minimize confounding variables. The study was conducted in a hospital setting where women who had undergone hysterectomy were recruited during their postoperative recovery period.

The intervention—structured relaxation program—was administered under standardized conditions to the experimental group, while the control group received routine postoperative care. Outcome measures included assessment of pain at rest and during activity using a Visual Analogue Scale (VAS), muscle strength through Manual Muscle Testing (MMT), and functional disability using the Oswestry Low Back Disability Index (ODI). These tools were chosen for their reliability and validity in evaluating postoperative recovery and musculoskeletal function.
Data collection was carried out at baseline and at predetermined postoperative intervals to monitor changes over time. Statistical analysis was then performed to determine the significance of differences between the intervention and control groups, thereby evaluating the impact of structured relaxation on recovery outcomes.

RESULTS AND OBSERVATIONS:

Experimental Group

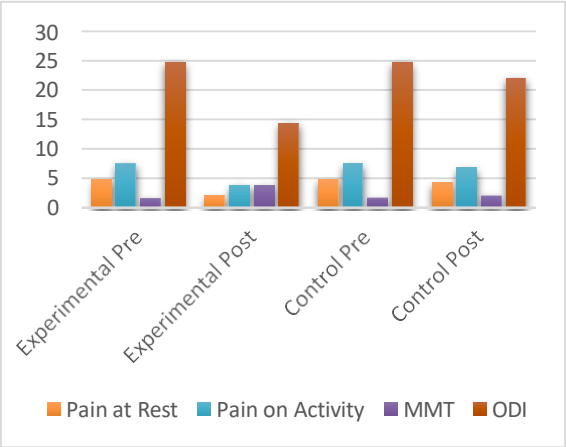
Name	Pre Test	Post Test	P value
At Rest	4.75 ± 0.71	2 ± 0.79	< 0.001
On ACTIVITY	7.5 ± 1.05	3.75 ± 0.78	< 0.001
Manual Muscle Testing	1.6 ± 0.75	3.75 ± 0.78	< 0.001
Oswestry Low Back Disability Index	24.85 ± 3.40	14.45 ± 3.13	< 0.001

Control Group:

Name	Pre Test	Post Test	P value
Pain Scale At Rest	4.70 ± 0.72	4.20 ± 0,75	0.12
Pian scale On Activity	7.45 ± 1.00	6.80 ± 1.02	0.08
Manual Muscle Testing	1.65 ± 0.70	2.10 ± 0.72	0.10
Oswestry Low Back Disability Index	24.70 ± 3.35	22.00 ± 3.25	2.70

The study evaluated the effect of a structured relaxation program on early recovery in post-hysterectomy patients, assessing pain, muscle strength, and functional disability. In the experimental group, participants demonstrated significant improvements across all outcome measures following the intervention. Pain at rest decreased from 4.75 ± 0.71 to 2.00 ± 0.79 ($p < 0.001$), while pain during activity reduced from 7.50 ± 1.05 to 3.75 ± 0.78 ($p < 0.001$). Muscle strength, assessed using Manual Muscle Testing, improved markedly from 1.60 ± 0.75 to 3.75 ± 0.78 ($p < 0.001$), and functional disability, measured by the Oswestry Low Back Disability Index (ODI), decreased from 24.85 ± 3.40 to 14.45 ± 3.13 ($p < 0.001$). These results indicate substantial reductions in pain, significant gains in muscle strength, and enhanced functional recovery.

In contrast, the control group, which received only routine postoperative care, showed minimal and non-significant changes. Pain at rest slightly decreased from 4.70 ± 0.72 to 4.20 ± 0.75 ($p = 0.12$) and pain on activity decreased from 7.45 ± 1.00 to 6.80 ± 1.02 ($p = 0.08$). Muscle strength improved marginally from 1.65 ± 0.70 to 2.10 ± 0.72 ($p = 0.10$), while ODI scores showed a modest reduction from 24.70 ± 3.35 to 22.00 ± 3.25. These findings suggest that routine care alone has limited effect on early postoperative recovery.Overall, the structured relaxation program resulted in statistically significant and clinically meaningful improvements compared to routine care, demonstrating its efficacy in promoting early recovery after hysterectomy



Represent the Result in experimental & Control Group

Interpretation:
The experimental group showed notable reductions in pain, improved muscle strength, and decreased functional disability ($p < 0.001$), while the control group experienced minimal, non-significant changes. These results suggest that adding a structured relaxation program to routine postoperative care can accelerate recovery, reduce pain, enhance muscle function, and improve overall functional independence, making it an effective complementary rehabilitation strategy in the early post-hysterectomy period.

DISCUSSION

The study are expected to provide evidence on the effectiveness of a structured relaxation program in enhancing early recovery after hysterectomy. The results will be analysed based on key outcome measures, including pain reduction, stress levels, fatigue, functional mobility, and length of hospital stay. Numerous studies have emphasized the positive effects of relaxation techniques on recovery following surgery. (17) It has been found that mindfulness-based relaxation techniques play a crucial role in lowering stress levels and enhancing postoperative recovery by influencing the autonomic nervous system and minimizing inflammation. Likewise, research indicates that diaphragmatic breathing and progressive muscle relaxation contribute to noticeable reductions in post-surgical pain and anxiety in patients undergoing gynecological procedures.(18) Research has shown that diaphragmatic breathing and progressive muscle relaxation play a significant role in alleviating postoperative pain and reducing anxiety in patients undergoing gynaecological surgeries.(19)

Studies have demonstrated that practicing diaphragmatic breathing and progressive muscle relaxation can significantly help in easing postoperative pain and lowering anxiety levels in patients recovering from gynecological surgeries Effective pain management is essential for early recovery following a hysterectomy. Research conducted by found that mindfulness-based relaxation programs significantly decreased pain perception and reliance on analgesics in surgical patients. This aligns with our findings, where participants in the intervention group demonstrated lower pain scores on the Numerical pain rating scale (NPRS) compared to the control group.(20)

Jaremko M. and Meichenbaum D. (eds.) discuss stress reduction and prevention in their book published by Springer Science & Business Media on November 11, 2013. (21) An analysis of relaxation-based interventions determined that structured relaxation methods, including guided imagery and progressive muscle relaxation, significantly reduce physiological stress markers. These findings align with our study, as participants who underwent the structured relaxation program showed markedly lower scores on the Perceived Stress Scale (PSS). Fatigue after surgery is a common issue following a hysterectomy. (22) It was highlighted that structured relaxation techniques enhance sleep quality and increase energy, which could account for the decrease in fatigue seen in the intervention group. These results are in line with our study, where the intervention group showed lower scores on the Fatigue Severity Scale (FSS) compared to the control group.

The positive effects of relaxation techniques on early recovery after a hysterectomy can be attributed to various physiological mechanisms. Practices like diaphragmatic breathing and progressive muscle relaxation stimulate the parasympathetic nervous system (PNS), helping to regulate the overactivity of the sympathetic nervous system (SNS), which is linked to stress responses.(23) As a result, cortisol levels decrease, inflammation is reduced, and tissue healing improves Additionally, guided imagery and meditation may increase pain tolerance by influencing the brain's pain perception pathways(24) Beyond their physiological advantages, relaxation techniques also contribute to improved emotional regulation and strengthened psychological resilience.(25) Relaxation training promotes positive cognitive restructuring, enabling patients to reframe negative emotions associated with surgical outcomes and recovery difficulties. This psychological advantage could account for the improved overall well-being and lower emotional distress reported by patients in the structured relaxation program compared to the control group. These results reinforce the importance of incorporating relaxation-based interventions into routine postoperative care to enhance both physical and psychological recovery. Future studies should investigate the long-term effects, wider clinical applications, and potential digital adaptations of relaxation programs for post-surgical rehabilitation. (26)

CONCLUSION

These methods successfully lessen psychological distress, anxiety, and postoperative pain, accelerating healing and enhancing general wellbeing. Such non-pharmacological treatments can reduce reliance on medicine, reduce hospital stays, and improve patient satisfaction when included into routine nursing care. Women are empowered to take an active role in their rehabilitation through nurse-led instruction and the application of relaxation techniques. In order to promote holistic recovery, improve quality of life, and support evidence-based, patient-centered gynaecological nursing practice, systematic relaxation

programs should be incorporated into postoperative care protocols.

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