

Original Article

The Impact of Pre-Treatment Nurse-Led Pelvic Floor Exercises on Radiotherapy-Induced Incontinence in Gynaecological Cancer Patients

Sachini Nethmini Hettiarachchi

Department of Nursing, Faculty of Allied Health Sciences, University of Peradeniya, Peradeniya, Sri Lanka

Weerarathna Vidana Arachchige Sachindra Lochana

Department of Radiography / Radiotherapy, Faculty of Allied Health Sciences, University of Peradeniya, Peradeniya, Sri Lanka

Correspondence: Weerarathna Vidana Arachchige Sachindra Lochana, Department of Radiography / Radiotherapy, Faculty of Allied Health Sciences, University of Peradeniya, Peradeniya, Sri Lanka
Email: lochanasachindra123@gmail.com

Abstract

Background: Radiotherapy-induced incontinence (RII) is a common side effect for women undergoing treatment for gynaecological cancers, impacting their quality of life. Pre-treatment pelvic floor exercises (PFEs) have emerged as a promising, non-invasive approach to prevent or reduce RII.

Objective: This systematic review evaluates the effectiveness of pre-treatment, nurse-led PFEs in reducing RII in gynaecological cancer patients, focusing on incontinence severity, quality of life, and influencing factors.

Methodology: A search of PubMed, Google Scholar, and ScienceDirect identified relevant studies. Only randomized controlled trials, cohort studies, and case-control studies involving nurse-led PFEs were included. Outcomes assessed included incontinence severity, urinary incontinence quality of life, and exercise adherence.

Results: The review included 22 studies, which showed that pre-treatment PFEs significantly improved pelvic floor muscle strength, reduced incontinence severity, and enhanced quality of life. Nurse-led interventions were key to patient engagement and adherence, with factors like exercise timing and frequency affecting outcomes.

Conclusions: Pre-treatment, nurse-led PFEs are effective in reducing RII and improving quality of life in gynaecological cancer patients. These exercises should be incorporated into standard care protocols to proactively manage RII. Future research should focus on long-term effects and digital tools for supporting adherence.

Keywords: Radiotherapy-induced incontinence (RII), Gynaecological cancers, Nurse-led interventions, Pelvic floor exercises (PFEs)

Background

Gynaecological cancers, including cervical, endometrial cancers and ovarian, are common among women worldwide and often require radiotherapy (Sankaranarayanan and Ferlay, 2006). While effective, radiotherapy can result in side effects, with radiotherapy-induced

incontinence (RII) being one of the most common and distressing (Dilalla *et al.*, 2020). RII occurs when radiation damages pelvic structures such as the bladder, urethra, and pelvic floor muscles, leading to urinary incontinence such as stress, urgency, or mixed incontinence (Lindgren, 2020). Studies show that up to 50% of women treated for

gynaecological cancers experience some form of urinary incontinence, significantly impacting their quality of life, emotional well-being, and social interactions (Nakayama *et al.*, 2020). Given the high incidence and significant impact of RII on cancer patients' lives, exploring effective interventions to reduce or prevent its onset is essential. While current treatments mostly focus on symptom management, there is expanding interest in preventative approaches in clinical settings.

Rationale for the Review

Pelvic floor exercises have been viewed as a cost-effective and non-invasive strategy for reducing or preventing RII (Cho and Kim, 2021). These exercises target the pelvic floor muscles responsible for urinary continence and are particularly beneficial for individuals undergoing pelvic radiotherapy. Studies suggest that starting PFEs before radiotherapy, or pre-treatment exercises, may help preserve or improve pelvic floor function, narrowing the risk of incontinence post-treatment (Sacomori *et al.*, 2020).

Nurse-led interventions have proven to be highly effective in delivering PFEs to cancer patients. Nurses engage in a critical role in educating patients on pelvic floor health and contributing to progress support to ensure adherence to exercise regimens. The personalized care and continuous monitoring offered by nurse-led programs enhance patient engagement, compliance, and overall outcomes.

This review evaluates the effectiveness of pre-treatment nurse-led pelvic floor exercises (PFEs) in reducing radiotherapy-induced incontinence (RII) in gynaecological cancer patients. It aims to evaluate the impact of PFEs on incontinence severity, their integration into care, and factors influencing success. Additionally, it will identify literature gaps and propose future research directions to guide clinicians in implementing evidence-based interventions to elevate patient quality of life. The review will concern the impact of pre-

treatment PFEs on the incidence and severity of RII in these patients.

Methods: The study selection process will be depicted using a PRISMA flowchart (figure1). Initially, a huge number of studies will be identified through database searches. After screening titles and abstracts for relevance, full-text reviews will be conducted to assess eligibility and determine the number of studies to be included.

Eligibility Criteria: The inclusion criteria will concern studies involving gynaecological cancer patients undergoing pelvic radiotherapy, where the intervention consists of pre-treatment and nurse-led pelvic floor exercises. Eligible studies must also measure urinary incontinence outcomes (severity, incidence, or quality of life) post-intervention. Only randomized controlled trials (RCTs), cohort studies, or case-control studies will be constituted. Exclusion criteria will eliminate studies that do not involve pelvic floor exercises, interventions not nurse-led (e.g., physiotherapist-led or patient-driven exercises without supervision), or studies that lack clear outcome measures for urinary incontinence.

Information Sources and Search Strategy:

Studies will be sourced from major databases, including PubMed, Google Scholar, and ScienceDirect. Search terms such as "Pelvic floor exercises," "Nurse-led interventions," "Radiotherapy-induced incontinence," "Gynaecological cancer," "Urinary incontinence," and "Oncology nursing" will be used, combined with Boolean operators to broaden the search.

Study Selection Process: Records will be retrieved from PubMed (14), Google Scholar (79), and ScienceDirect (143). After removing 22 duplicates and 54 records marked ineligible by automation tools, 160 records will be screened. Of these, 73 will be excluded for not being directly related to the objectives. A total of 87 reports will be sought for retrieval, with 28 reports not retrieved due to lack of full-text availability (22) or abstract uncertainty (6). 59 reports will be assessed for eligibility, with 37 excluded due to irrelevant interventions (16),

irrelevant populations (14), or specificity issues (7). Ultimately, 22 studies will be included in the review, with summarized findings presented in Table 1.

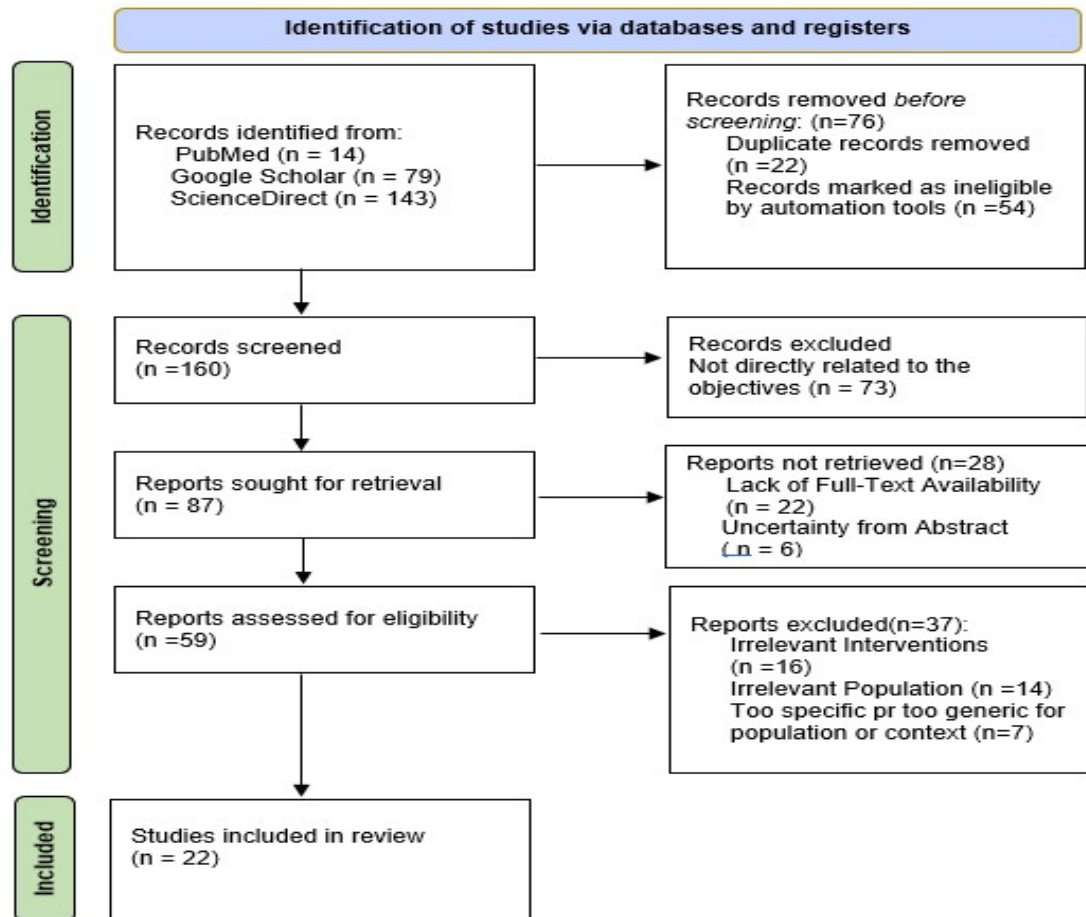


Figure 1 PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

Table 1 Characteristics of Studies

Study	Year	Study Design	Population	Interventions/Focus	Key Findings
Sankaranarayanan & Ferlay (Sankaranarayana n and Ferlay, 2006)	2006	Review	Global population	Burden of gynaecological cancer	Highlights the global prevalence and impact of gynaecological cancers.
Dilalla et al.(Dilalla <i>et al.</i> , 2020)	2020	Review	Cancer survivors	Radiotherapy side effects and survivorship care	Emphasizes integrating survivorship care for radiotherapy side effects.
Lindgren(Lindgre n, 2020)	2020	Dissertation	Female pelvic cancer survivors	Physical activity, incontinence, and pelvic floor training post-radiotherapy	Focuses on post-treatment pelvic floor rehabilitation in female cancer survivors.
Nakayama et al.(Nakayama <i>et al.</i> , 2020)	2020	Cross-sectional survey	Gynaecological cancer patients' post-surgery	Urinary incontinence prevalence and QOL	Found high prevalence of urinary incontinence post-surgery and its impact on quality of life.
Cho & Kim(Cho and Kim, 2021)	2021	Review	General	Pelvic floor muscle exercises for incontinence	Reviews the effectiveness of pelvic floor exercises in managing urinary incontinence.
Sacomori et al.,(Sacomori <i>et al.</i> , 2020)	2020	Pilot Study	Cervical cancer patients	Pre-rehabilitation of pelvic floor before radiotherapy	Pilot study supports pelvic floor training before radiation to improve outcomes.
Jorge & Bustamante-Lopez(Jorge and	2022	Review	General	Pelvic floor anatomy and dysfunction	Overview of pelvic floor structure and dysfunctions, including treatment options.

Bustamante-Lopez, 2022)					
Quaghebeur et al.(Quaghebeur <i>et al.</i> , 2021)	2021	Review	General	Pelvic-floor function and treatment	Discusses pelvic floor dysfunction and treatment modalities in gynaecological care.
Ramirez & Frumovitz(Ramirez and Frumovitz, 2024)	2024	Book Chapter	Medical professionals	Principles of gynaecologic oncology surgery	Includes principles related to pelvic floor function in gynaecologic cancer surgery.
Marci et al.(Marci <i>et al.</i> , 2018)	2018	Review	General	Radiations and female fertility	Discusses the effects of radiation therapy on female fertility.
Rodas & García-Perdomo(Rodas and García-Perdomo, 2018)	2018	Review	General	Pelvic floor rehabilitation post-surgery	Focus on Kegel exercises and other rehabilitative strategies for pelvic floor dysfunction.
Sacomori et al.(Sacomori <i>et al.</i> , 2024)	2024	Book Chapter	Cancer patients	Pelvic floor physiotherapy in cancer care	Explores pelvic floor physiotherapy in the continuum of care for various cancers.
Silver & Baima(Silver and Baima, 2013)	2013	Review	Cancer patients	Cancer prehabilitation	Discusses the role of prehabilitation in reducing cancer treatment-related morbidities.
Yang et al.(Yang <i>et al.</i> , 2012)	2012	RCT	Gynecologic cancer survivors	Pelvic floor muscle training	Found that pelvic floor exercises improved pelvic floor dysfunction in cancer survivors.

Berzuk(Berzuk, 2007)	2007	Review	Nurses	Educating about pelvic floor health	Focuses on the role of nurses in spreading awareness of pelvic floor health.
Li et al.(Li <i>et al.</i> , 2016)	2016	RCT	Cervical cancer patients	Home-based, nurse-led health program	Found that home-based interventions improve recovery in cervical cancer patients.
Brennen et al.(Brennen <i>et al.</i> , 2020)	2020	Systematic Review	Gynaecological cancer patients	Pelvic floor interventions post-treatment	Reviews the effectiveness of pelvic floor muscle interventions post-cancer treatment.
Jagdish & Daptadar(Jagdish and Daptadar, 2024)	2024	Study	Cervical cancer patients	Pelvic floor muscle strengthening exercises	Evaluates the effectiveness of pelvic floor exercises on urinary incontinence in cervical cancer patients.
Percival et al.(Percival, Nordin and Fotopoulou, 2020)	2020	Guidelines	Medical professionals	Cervical cancer practice recommendations	Provides guidelines on managing cervical cancer, including pelvic floor health.
Araya-Castro et al.(Araya-Castro <i>et al.</i> , 2022)	2022	Qualitative Study	Gynaecological cancer patients	Barriers and facilitators for pelvic floor exercise adherence	Explores challenges and supports for adherence to pelvic floor exercises in gynaecological cancer patients.
Watts(Watts, 2024)	2024	Review	Occupational therapists	Pelvic health in healthcare systems	Reviews challenges faced by occupational therapists working in pelvic health across healthcare systems.

Coughenour et al.(Coughenour, Alkameys and Sharma, 2024)	2024	Case Report	Gynaecological cancer patient	Rehabilitation of pelvic floor dysfunction post-radiotherapy	Case study highlights successful rehabilitation of pelvic floor dysfunction after rare cancer treatment.
--	------	-------------	-------------------------------	--	--

Results

The Physiology of Pelvic Floor Muscles and Incontinence

Anatomy and Function of the Pelvic Floor

The pelvic floor comprises connective tissues and muscles that support the uterus, rectum, and bladder. Key muscles, including the pubococcygeus, iliococcygeus, and coccygeus, aid to maintain urinary continence by contracting to

close the urethra and prevent urine leakage. They also aid in bowel control and sexual function (Jorge and Bustamante-Lopez, 2022). Damage or Weakening to these muscles can lead to incontinence, such as stress, urgency, or mixed incontinence. (Quaghebeur *et al.*, 2021). In gynaecological cancer patients, pelvic floor function is crucial for managing radiotherapy side effects, as radiation can damage these muscles, impairing their ability to maintain continence (Lindgren, 2020).

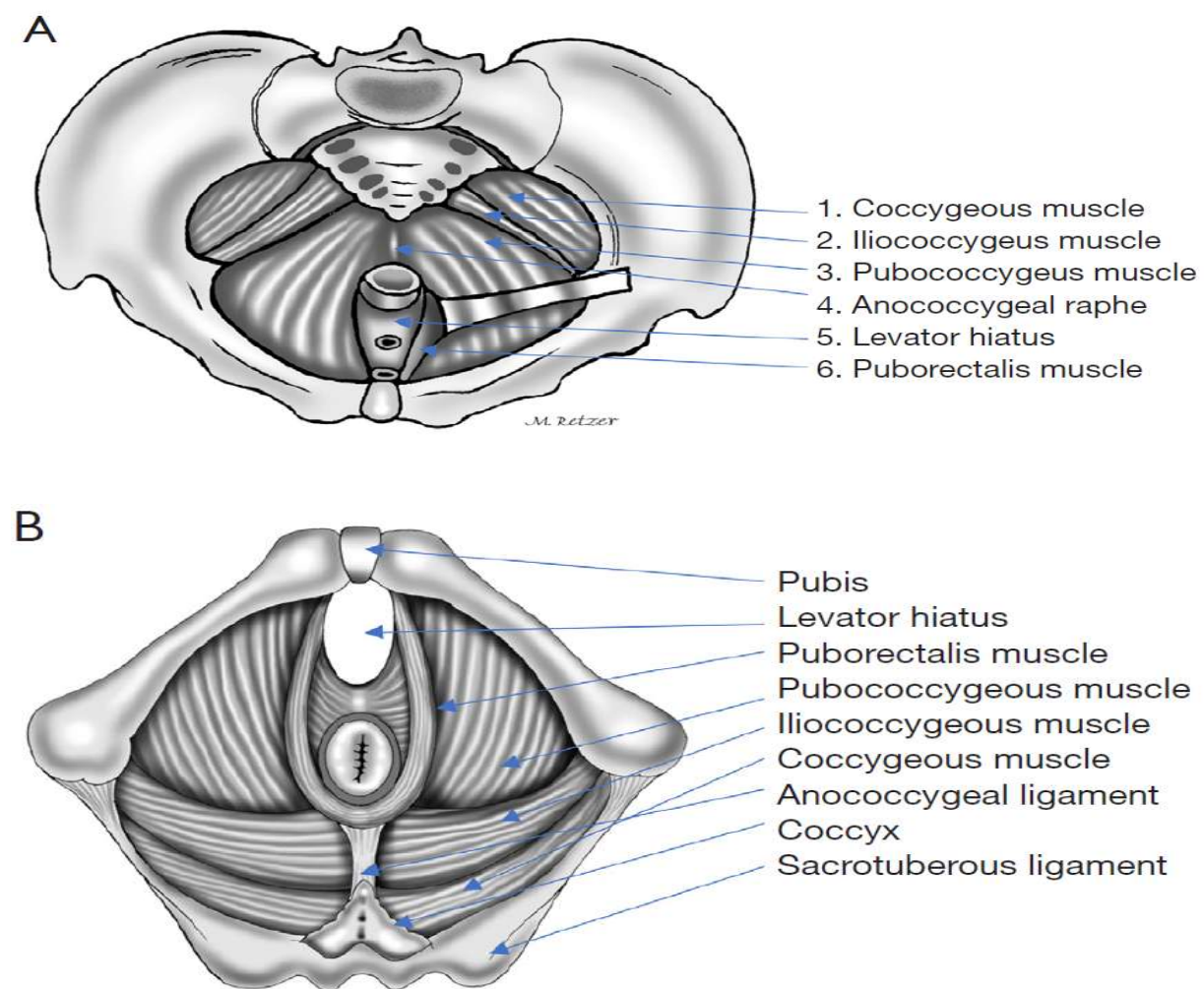


Figure 1 The pelvic floor pelvic or superior view (A) and perineal or inferior view (B). (Jorge and Bustamante-Lopez, 2022)

Radiotherapy and Its Impact on the Pelvic Floor

Radiotherapy is a key treatment for gynaecological cancers, but it can significantly affect the pelvic floor. Radiation used for cervical, uterine, and ovarian cancers can damage pelvic tissues, including muscles, nerves, and connective tissues (Ramirez and Frumovitz, 2024). Ionizing radiation disrupts cellular structures, causing fibrosis, reduced elasticity, and muscle atrophy. This damage can impair bladder control, leading to incontinence, and interfere with nerve function, affecting bladder sensation and the ability to empty the bladder fully. The resulting urinary incontinence can severely impact the quality of life for women undergoing treatment (Marci *et al.*, 2018).

Pelvic Floor Exercises in Gynaecological Cancer Patients

Pelvic floor exercises, also known as Kegel exercises, strengthen the pelvic floor muscles by enhancing their tone, endurance, and coordination through intentional contraction and relaxation. (Rodas and García-Perdomo, 2018). Biofeedback, another therapeutic approach, utilizes sensors to provide real-time feedback on muscle contractions, enhancing exercise effectiveness. Current guidelines recommend pelvic floor rehabilitation for urinary incontinence, with exercise programs tailored to individual patient needs.

Pre-treatment pelvic floor exercises are pivotal in preventing radiation-induced incontinence (RII) (Sacomori *et al.*, no date). The concept of "prehabilitation" involves strengthening pelvic muscles before radiation exposure to help them better withstand treatment-related stress and damage (Silver and Baima, 2013). Research, including a pilot study and a randomized controlled trial, supports the benefits of pelvic floor muscle exercises (PFMEs) for women undergoing radiotherapy for gynaecological cancers. In a pilot study of 49 women with cervical cancer (stages I–III), those who performed preventive PFMEs at home before, during, and after radiotherapy showed no significant decline in pelvic floor muscle strength or increase in incontinence one month post-treatment. The median pelvic floor muscle strength remained stable (median = 2; IQR = 1). Despite 43%

of participants being lost to follow-up, the findings suggest that pre-rehabilitation with PFMEs may help maintain pelvic floor muscle strength and prevent incontinence ($p > 0.05$) (Sacomori *et al.*, 2020).

Further evidence from a prospective randomized controlled trial (RCT) involving 34 gynaecological cancer patients revealed that a structured 4-week pelvic floor rehabilitation program (PFRP) significantly improved pelvic floor strength and quality of life (QoL). Patients in the PFRP group demonstrated a mean difference of 14.22 in pelvic floor strength ($t_9 = 2.389$, $p = 0.036$) compared to the non-PFRP group, alongside notable improvements in sexual functioning and physical well-being, as assessed by the European Organization for Research and Treatment of Cancer (EORTC) (Yang *et al.*, 2012).

Nurse-Led Interventions in Pelvic Floor Exercises

Nurses play a crucial role in pelvic floor rehabilitation, particularly through nurse-led interventions that offer personalized care and ongoing support. These programs ensure patients adhere to exercise regimens and understand the significance of pelvic floor exercises in managing incontinence (Berzuk, 2007). Nurse-led programs educate patients on pelvic floor anatomy, exercise techniques, and incorporating exercises into daily routines. Personalized programs boost engagement and outcomes, while nurses also offer psychological reinforcement to help patients cope with the challenges of cancer treatment.

The effectiveness of nurse-led pelvic floor exercise programs has been well-documented. A study on gynaecological cancer patients undergoing pelvic radiotherapy accentuate the success of a nurse-led rehabilitation program. The intervention, which included exercise guidance and follow-up, significantly improved quality of life ($t = -7.650$, $p = 0.000$), sexual function ($t = -6.465$, $p = 0.000$), and family cohesion ($t = -8.417$, $p = 0.001$). Additionally, urinary incontinence was reduced, demonstrating the effectiveness of nurse-led care in enhancing patient outcomes (Li *et al.*, 2016). A systematic review of five RCTs and two

retrospective cohort studies (n = 886) found that pre-treatment pelvic floor exercises, along with counselling and yoga, improved sexual function (SMD = -0.96, 95% CI = -1.22 to -0.70) and quality of life (SMD = 0.63, 95% CI = 0.38 to 0.88) in cervical cancer survivors. Dilator therapy also reduced vaginal complications (OR = 0.37, 95% CI = 0.17 to 0.80) (Brennen *et al.*, 2020). These results highlight the effectiveness of nurse-led interventions in improving radiotherapy-induced incontinence and related outcomes.

Factors Influencing Effectiveness

The effectiveness of pre-treatment pelvic floor exercises is influenced by factors such as patient demographics, exercise timing and frequency, and adherence. Younger women with early-stage cancer typically experience better outcomes due to stronger pelvic floor muscles and higher engagement in rehabilitation (Lindgren, 2020). The timing of exercise initiation is crucial, with studies propose that starting exercises 4-6 weeks before radiotherapy yields the best results. A study of 45 women showed significant improvements in urinary incontinence and pelvic floor muscle function after 12 weeks of pelvic floor exercises, with ICIQ UI SF (International Consultation on Incontinence Questionnaire Urinary Incontinence Short Form) scores decreasing from 12.56 to 8.86 (p < 0.001) and pelvic floor muscle strength escalating from 21.63 to 23.49 (p < 0.001). Consistent exercises three times a week were more effective than lower-frequency regimens. Regular check-ins significantly improved adherence and continence outcomes (p < 0.001) (Jagdish and Daptadar, 2024).

Several barriers exist when introducing pre-treatment pelvic floor exercises. Institutional challenges include limited resources, staff time, and deficiency of infrastructure to implement standardized rehabilitation programs (Percival, Nordin and Fotopoulou, 2020). Resistance or lack of awareness from healthcare providers can hinder the integration of pelvic floor exercises into standard care. Patients may face barriers such as fatigue, limited awareness of the benefits, and psychological factors such as embarrassment or fear of ineffectiveness (Araya-Castro *et al.*, 2022).

Several strategies have been proposed to address these barriers. At the institutional level, integrating pelvic floor rehabilitation into standard care pathways and training nurses to lead these interventions can address resource and staffing challenges. Financial support and creating a dedicated team of professionals could further enhance implementation (Watts, 2024). From the patient perspective, increasing awareness through educational materials, group counselling, and support groups can reduce stigma and improve participation. Tailoring exercise programs to individual needs, such as home exercises with minimal equipment, can boost adherence. Studies emphasize the role of personalized education and regular nurse follow-up to motivate patients and maximize benefits from pelvic floor rehabilitation. (Lindgren, 2020).

Discussion

This systematic review demonstrates that pre-treatment, nurse-led pelvic floor exercises significantly reduce both the incidence and severity of radiation-induced incontinence (RII) in gynaecological cancer patients. Improvements were seen in patient-reported outcomes, particularly urinary incontinence severity and quality of life scores (Coughenour, Alkhameys and Sharma, 2024). These reviews have highlighted the effectiveness of pelvic floor exercises for incontinence in general cancer populations, this review specifically addresses gynaecological cancer patients undergoing radiotherapy. Dissimilar to some studies that focus on post-treatment interventions, this review emphasizes the benefits of pre-treatment exercises, offering a proactive approach to managing incontinence (Sacomori *et al.*, 2020). Pelvic floor exercises enhance muscle strength, improving the support for pelvic structures and reducing the strain caused by radiation. Increased muscle tone and better control over pelvic structures probably contribute to the reduction of incontinence symptoms (Yang *et al.*, 2012; Lindgren, 2020). Nurse-led interventions ensure proper technique, providing tailored guidance and boosting patient motivation. Healthcare providers should consider integrating nurse-led pelvic floor exercises into standard care protocols for gynaecological cancer patients. Incorporating this

intervention into pre-treatment education can empower patients to prevent incontinence and improve pelvic health during and after radiotherapy (Li *et al.*, 2016; Brennen *et al.*, 2020; Coughenour, Alkhameys and Sharma, 2024; Jagdish and Daptadar, 2024).

Limitations: The included studies revealed several limitations. First, many studies require long-term follow-up, making it difficult to assess the sustained impact of pre-treatment pelvic floor exercises on radiotherapy-induced incontinence (RII). Without this extended evaluation, the lasting benefits of the intervention remain unclear. Additionally, the studies varied in the type of pelvic floor exercises and nursing interventions used, which created challenges in comparing results across studies. This heterogeneity in approaches complicates the ability to draw definitive conclusions about the most effective strategies. Future research should focus on including larger sample sizes and incorporating long-term follow-up to better understand the enduring effects of pre-treatment pelvic floor exercises. Additionally, studies could explore the integration of digital tools, such as mobile apps, to support patient adherence to exercise regimens and enhance the delivery of pelvic floor rehabilitation. These innovations may offer a more accessible and personalized approach to improving patient outcomes.

Conclusion: This systematic review concludes that pre-treatment nurse-led pelvic floor exercises significantly reduce the incidence and severity of radiotherapy-induced incontinence in gynaecological cancer patients. These exercises also improve patient quality of life and should be considered as a standard part of cancer care. Healthcare institutions should adopt standardized, nurse-led pelvic floor exercise programs to reduce RII. Training nurses to deliver these programs can provide patients with valuable tools to manage their health during cancer treatment. Given the growing body of evidence supporting the benefits of pre-treatment pelvic floor exercises, these interventions should be integrated into clinical practice to improve the well-being of gynaecological cancer patients undergoing radiotherapy.

References

- Araya-Castro, P. Roa-Alcaino S, Celedón C, Cuevas-Said M, de Sousa Dantas D, Sacomori C. (2022) 'Barriers to and facilitators of adherence to pelvic floor muscle exercises and vaginal dilator use among gynecologic cancer patients: a qualitative study.', *Supportive care in cancer: official journal of the Multinational Association of Supportive Care in Cancer*, 30(11), pp. 9289–9298. Available at: <https://doi.org/10.1007/s00520-022-07344-4>.
- Berzuk, K. (2007) 'A Strong Pelvic Floor: How Nurses Can Spread the Word', *Nursing for Women's Health*, 11(1), pp. 54–61. Available at: <https://doi.org/https://doi.org/10.1111/j.1751-486X.2007.00118.x>.
- Brennen, R. Lin, K.Y, Denehy L, Frawley H.C. (2020) 'The Effect of Pelvic Floor Muscle Interventions on Pelvic Floor Dysfunction After Gynaecological Cancer Treatment: A Systematic Review', *Physical Therapy*, 100(8), pp. 1357–1371. Available at: <https://doi.org/10.1093/ptj/pzaa081>.
- Cho, S.T. and Kim, K.H. (2021) 'Pelvic floor muscle exercise and training for coping with urinary incontinence.', *Journal of exercise rehabilitation*, 17(6), pp. 379–387. Available at: <https://doi.org/10.12965/jer.2142666.333>.
- Coughenour, E., Alkhameys, F. and Sharma, N.K. (2024) 'Rehabilitation of pelvic floor dysfunction after radiation therapy for a rare gynaecological cancer: A case report.', *Gynecologic oncology reports*, 56, p. 101534. Available at: <https://doi.org/10.1016/j.gore.2024.101534>.
- Dilalla, V. Chaput G, Williams T, Sultanem K. (2020) 'Radiotherapy side effects: integrating a survivorship clinical lens to better serve patients.', *Current oncology (Toronto, Ont.)*, 27(2), pp. 107–112. Available at: <https://doi.org/10.3747/co.27.6233>.
- Jagdish, P. and Daptadar, A. (2024) 'A Study to Assess the Effect of Pelvic Floor Muscle Strengthening Exercises on Urinary Incontinence in Patients With Cervical Cancer Undergoing Radiation Therapy at a Tertiary Cancer Center [Preprint V2]', *Qeios*, pp. 1–23.
- Jorge, J.M.N. and Bustamante-Lopez, L.A. (2022) 'Pelvic floor anatomy', *Annals of Laparoscopic and Endoscopic Surgery*, 7. Available at: <https://doi.org/10.21037/ales-2022-06>.
- Liang HY, Hann Lin L, Yu Chang C, Mei Wu F, Yu S. (2016) 'A home-based, nurse-led health program for postoperative patients with early-stage cervical cancer: A randomized controlled trial', *European Journal of Oncology Nursing*, 21, pp. 174–180. <https://doi.org/10.1016/j.ejon.2015.09.009>.

- Lindgren, A. (2020) *Incontinence, physical activity, and pelvic floor muscle training in female pelvic cancer survivors after radiotherapy*. Linköping University Electronic Press.
- Marci R, Mallozzi M, Di Benedetto L, Schimberni M, Mossa S, Soave I, Palomba S, Caserta D. (2018) 'Radiations and female fertility', *Reproductive Biology and Endocrinology*, 16(1), p. 112. Available at: <https://doi.org/10.1186/s12958-018-0432-0>.
- Nakayama N, Tsuji T, Aoyama M, Fujino T, Liu M. (2020) 'Quality of life and the prevalence of urinary incontinence after surgical treatment for gynecologic cancer: a questionnaire survey.', *BMC women's health*, 20(1), p. 148. Available at: <https://doi.org/10.1186/s12905-020-01012-7>.
- Percival, N.L.W., Nordin, A. and Fotopoulou, C. (2020) 'British Gynaecological Cancer Society (BGCS) Cervical Cancer Guidelines: Recommendations for Practice'.
- Quaghebeur J, Petros P, Wyndaele JJ, De Wachter S. (2021) 'Pelvic-floor function, dysfunction, and treatment', *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 265, pp. 143–149. Available at: <https://doi.org/https://doi.org/10.1016/j.ejogrb.2021.08.026>.
- Ramirez, P.T. and Frumovitz, M. (2024) *Principles of Gynecologic Oncology Surgery E-Book*. Elsevier Health Sciences.
- Rodas, M.C. and García-Perdomo, H.A. (2018) 'From Kegel exercises to pelvic floor rehabilitation: A physiotherapeutic perspective', *Revista mexicana de urología*, 78(5), pp. 402–411.
- Sacomori C, Araya-Castro P, Diaz-Guerrero P, Ferrada IA, Martínez-Varas AC, Zomkowski K. (2020) 'Pre-rehabilitation of the pelvic floor before radiation therapy for cervical cancer: a pilot study', *International Urogynecology Journal*, 31(11), pp. 2411–2418. Available at: <https://doi.org/10.1007/s00192-020-04391-5>.
- Sacomori, C., Ara-Castro P., Sperandio, F. F., Zomkowski K., Dantas, D. (2024) 'Pelvic Floor Physiotherapy and its Research Development in the Continuum of Gynaecological, Prostate, and Colorectal Cancer Care', in. Cham: Springer International Publishing, pp. 1–30. Available at: https://doi.org/10.1007/16833_2024_205.
- Sankaranarayanan, R. and Ferlay, J. (2006) 'Worldwide burden of gynaecological cancer: The size of the problem', *Best Practice & Research Clinical Obstetrics & Gynaecology*, 20(2), pp. 207–225. Available at: <https://doi.org/https://doi.org/10.1016/j.bpobgyn.2005.10.007>.
- Silver, J.K. and Baima, J. (2013) 'Cancer Prehabilitation: An Opportunity to Decrease Treatment-Related Morbidity, Increase Cancer Treatment Options, and Improve Physical and Psychological Health Outcomes', *American Journal of Physical Medicine & Rehabilitation*, 92(8). Available at: https://journals.lww.com/ajpmr/fulltext/2013/08000/cancer_prehabilitation_an_opportunity_to_decrease.9.aspx
- Watts, C. (2024) 'Barriers & Supports to Occupational Therapists Working in Pelvic Health Across Three Healthcare Delivery Systems: Outpatient, Hospitals, and Home Health'.
- Yang EJ, Lim JY, Rah UW, Kim YB. (2012) 'Effect of a pelvic floor muscle training program on gynecologic cancer survivors with pelvic floor dysfunction: A randomized controlled trial', *Gynecologic Oncology*, 125(3), pp. 705–711. Available at: <https://doi.org/https://doi.org/10.1016/j.ygyno.2012.03.045>.