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Breast cancer patients' beliefs, behaviors, and knowledge about the value of physical therapy in their rehabilitation

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ABSTRACT

This study aimed to examine breast cancer patients' knowledge, attitudes, and practices regarding physical therapy and its impact on rehabilitation after surgery and radiotherapy. A cross-sectional design was used, involving 67 women who had undergone surgery or radiotherapy for breast cancer. Participants completed a valid and reliable self-prepared questionnaire comprising of 32 questions. The data were analyzed using IBM SPSS version 25. Results showed that 46.2% of patients were unaware of the role of physical therapy in breast cancer rehabilitation. Patients with higher education and those over 60 years old, demonstrated significantly greater knowledge about physical therapy ($p < 0.05$). Access to physical therapy services was limited, with only 14.9% receiving it post-diagnosis and 20.9% post-surgery. For those who received physical therapy sessions after surgery, positive correlations were found between physical therapy and improvements in mobility ($r = 0.355$, $p \leq 0.05$) as well as pain and muscle tension relief ($r = 0.602$, $p \leq 0.05$), and result for the variable pain ($r = .202^*$, $p \leq 0.05$). These findings underscore the need for increased awareness about physical therapy, improved access to services, and better communication from healthcare providers to optimize rehabilitation outcomes for breast cancer patients in Kosovo.

KEYWORDS

Breast Cancer Patients; Physical Therapy; Rehabilitation; Knowledge and Attitudes; Recovery Outcomes

1. INTRODUCTION

According to the World Health Organization (WHO), breast cancer caused 685,000 deaths globally in 2020. Approximately 2.3 million women were diagnosed with breast cancer during the same period, making it the most prevalent cancer worldwide, of which half of the cases of breast cancer are found in women with no specific risk factors other than gender and age (WHO, 2023).

Cancer is a group of diseases caused by the uncontrolled growth and spread of abnormal cells in the body, which may metastasize and, in the worst cases, lead to death. These diseases, known as malignant tumors and neoplasms, can affect any part of the body. Cancer develops from the transformation of normal cells into tumor cells through a multistage process influenced by genetic factors and external agents such as ultraviolet radiation, chemicals like asbestos, and biological factors like viruses (WHO, 2022).

Breast cancer can spread beyond it through blood vessels and lymphatic vessels, leading to metastases. Following a breast cancer diagnosis, the pathology report and imaging test results are reviewed to understand the tumor's specific characteristics. By analyzing a tissue sample obtained from a breast biopsy or surgery, the medical team determines the type of breast cancer. This information aids in selecting the most appropriate treatments (Bleiweiss & Nayak, 2020),

Physical therapy plays a critical role in treating the consequences of breast cancer treatment, significantly impacting the quality of life for affected patients. It can prevent potential complications both before and after treatment, serving as a key factor in promoting early diagnosis and effective management (Reyes, 2018).

A study conducted by Akezaki et al. (2023) identified factors influencing the quality of life in breast cancer patients after surgery. They included: psychological challenges, movement limitations, axillary web syndrome (AWS), lymphedema, returning to work, and participation in recreational activities.

Key complications and physiotherapeutic interventions include axillary web syndrome, which results in limited mobility and pain due to scarring and stiffness in lymphatic tissues (Olsson Möller et al., 2010). Physiotherapists address this issue through manual therapy and stretching exercises to

restore shoulder function. Pain and stiffness, which often persist, are carefully assessed and treated using specific physiotherapeutic techniques (Joaquim et al., 2022). Muscle weakness is addressed through strengthening exercises targeting the shoulder and core muscles (Stout et al., 2012). Finally, lymphedema, characterized by swelling caused by the buildup of lymphatic fluid following surgery or radiotherapy, is managed using manual lymphatic drainage techniques (Physiopedia, 2022).

According to a groundbreaking study analyzing the frequency of postoperative home exercises and physical therapy recommendations for breast reconstruction patients, most women do not receive guidance for such activities despite strong evidence supporting their benefits. This lack of guidance can hinder recovery and delay the return to daily activities, highlighting the need for further research to engage these patients in appropriate rehabilitation (Reyes, 2018).

A 2020 systematic review publication indicates that regular exercise can lower breast cancer risk factors, reduce the side effects of treatment, and improve overall quality of life. It suggests that physical activity reduces breast cancer risk by lowering circulating levels of estrogen and androgen hormones (Montaño-Rojas, 2020). Furthermore, a European study confirms that increasing physical activity, particularly at home, lowers breast cancer risk. While more evidence is needed to validate this link, moderate activity is highlighted as essential for preventing breast cancer in middle-aged and older women (Lahmann, 2007).

In a cohort study by Klein et al. (2021), it was shown that exercises and physical therapy significantly enhance recovery for breast cancer surgery patients. Benefits include improved body function, increased range of motion, reduced pain and muscle tension, boosted self-confidence, and a quicker return to daily routines. The study also notes a positive correlation between the intensity and frequency of physical activity and patient recovery (Klein et al., 2021).

According to the Kosovo Agency of Statistics (KAS) report, during 2022, 47,351 outpatient visits were conducted at the Oncology Clinic. The number of new cases of malignant and benign diseases reached 3,110, of which 547 were new cases of malignant breast neoplasms (543 in females and 4 in males), making it the second most frequent cancer after malignant tumors of the digestive organs (602 new cases). The total number of cases treated at the Oncology Clinic was 4,365, of which 1,125 were malignant breast neoplasms (1,119 females and 6 males) (ASK, 2022).

In Kosovo, physical therapy for breast cancer patients is not consistently included in postoperative or post-radiotherapy care, despite physiotherapists' work in the Oncology Clinic.

Surgeons and oncologists rarely recommend it, and when they do, it often follows patients reporting difficulties in daily activities.

The aim of this study is to evaluate the knowledge, attitudes, and practices of breast cancer patients regarding the importance of physical therapy in their rehabilitation, and the impact of these treatments on improving their quality of life.

2. METHODS

2.1. Study design and participants

The study is descriptive, explanatory, and exploratory, utilizing quantitative and qualitative methods. The study was conducted on 67 patients with breast cancer where the data were collected within the period April and June 2024. Participants were recruited from the Oncology Clinic of Kosovo Hospital and University Clinical Service, Physiotherapy "Kabashi" in Klina, Primary Health Care Center in Peja, and the NGO "RENESANSA" in Pristina, Kosovo. Patients with breast cancer were identified by the researcher at these sites and invited to participate based on their diagnosis. Eligibility criteria were applied, and informed consent was obtained from all participants.

2.2. Study instrument

The questionnaire used in this study was developed by the researcher. It includes three sections: the first section gathers demographic data (age, gender, profession, marital status) about the study participants. The second section includes 5 questions about patients' knowledge and attitudes regarding the importance of physical therapy in rehabilitation, as well as their knowledge, attitudes, and practices related to physical therapy. The third section focuses on their practices related to treatment and rehabilitation, including the most frequent complaints, the impact of physiotherapeutic exercises on pain management, edema, mobility, and the return to work and daily life. The questionnaire was distributed physically to the patients and completed by them. The researcher was always available to provide assistance or clarification regarding the questions.

2.3. Statistical analysis

SPSS V25 was used to conduct statistical analyses to address the study's inquiries. Descriptive statistics (frequency and percentages) were used to analyze categorical data regarding participants' knowledge and experiences with physical therapy. ANOVA was applied to compare the mean knowledge scores of participants across different education levels and age groups. Pearson

correlation was used to examine the relationships between physical therapy sessions post-surgery and improvements in mobility, pain, muscle tension, and energy levels. Regression analysis was employed to assess the relationship between physical therapy sessions and mobility improvement. A p-value of ≤ 0.05 was considered statistically significant.

3. RESULTS

3.1 Participants' characteristics

All patients included in the study were after their surgical or radiotherapy treatment. The sociodemographic characteristics of the 67 participants indicate that most women diagnosed with breast cancer are aged between 41 and 50 years was 34.3%. Regarding education, the majority have completed primary education 41.7%, with secondary and higher education, the percentage was the same with 26.8%. Geographically, most participants are from the Peja region 32.8%, followed by the Pristina region with 23.8% and the Prizren region with 19.4% (Table 1).

Table 1. Sociodemographic data of participants

Sociodemographic Characteristics	Percentage
Age Group	
41-50 years	34.3%
51-60 years	26.8%
31-40 years	25.4%
Over 60 years	13.4%
Education Level	
Primary education	41.7%
Higher education (university)	26.8%
Secondary education	26.8%
No formal education	4.4%
Region of Residence	
Region of Peja	32.8%
Region of Pristina	23.8%
Region of Prizren	19.4%

3.2. Knowledge, access, and impact of physical therapy among breast cancer patients

The findings shows that patients with breast cancer have significant knowledge and advice gaps in physical therapy. The majority of respondents, 47.76% of them said they knew very little

about physical therapy as a treatment component, and 28.35% said they knew nothing about it at all. Similar to this, just 8.96% of respondents fully understood its significance, while 46.27% were unfamiliar with it. While 47.76% acknowledged the need of physical therapy in enhancing recuperation, 28.36% were unfamiliar with the phrase. Additionally, 34.32% said they did not receive particular rehabilitation counsel, and 37.32% said their doctor did not explain the value of physical therapy. Remarkably, 38.81% of those surveyed did not receive instructions to see a physiotherapist. (Table 2).

Table 2. Participants' knowledge of physical therapy in breast cancer treatment and awareness of its importance

Question	**Frequency**	**Percentage**
Do you have any knowledge about physical therapy as a component of treatment after being diagnosed with breast cancer?	**N=67**	**100%**
Yes, very well	16	23.88%
I have some knowledge, but not much	32	47.76%
No, not at all	19	28.35%
Do you understand the role of physical therapy in managing patients with breast cancer?	**N=67**	**100%**
Yes, I fully understand	6	8.96%
I have partial knowledge	30	44.77%
I am not familiar with it at all	31	46.27%
How would you assess your current knowledge related to the role of physical therapy and rehabilitation in patients with breast cancer?	**N=67**	**100%**
I understand that physical therapy helps improve physical recovery and functionality by reducing fluid retention	32	47.76%
I have some knowledge, but not much	16	23.88%
I have no knowledge or understanding of this term	19	28.36%
Have you received information from your doctor about the importance of physical therapy and rehabilitation treatment?	**N=67**	**100%**
Yes, the doctor has informed me about the importance of physical therapy and rehabilitation	13	19.40%
I have received some basic information	29	43.28%
No, the doctor has not provided any information	25	37.32%
Have you been given any advice by your doctor regarding treatment and physical rehabilitation after your diagnosis?	**N=67**	**100%**
Yes, the doctor has given me concrete and personalized advice for physical therapy treatment	10	14.93%
I received some general advices	34	50.75%
No, I didn’t get specific advices	23	34.32%
Have you received any specific instructions from your doctor to seek help from physical therapist for your rehabilitation after surgical procedures or radiotherapy?	**N=67**	**100%**
Yes, my doctor has specifically instructed me to seek help from physical therapist	12	17.91%
My doctor has mentioned the possibility of consulting physiotherapist, but not with detailed instructions	29	43.28%
No, my doctor did not mention the request for visit to a physical therapist	26	38.81%

According to the results in Table 3, patients with breast cancer have a notably limited access to physical therapy. Following their diagnosis, only 14.9% of people reported going to physical therapy sessions; where 64.2% of them had not physical therapy, and 20.9% had simply gotten broad instructions for at-home workouts. In a similar vein, only 14.9% of patients who underwent breast cancer surgery received physical therapy, while 64.2% received no treatment at all and 20.9% only received instructions on at-home exercises.

Table 3. Patients' access to physical therapy treatment after breast cancer diagnosis and surgery/radiotherapy

Question	Answer Option	Percentage (%)
Have you had any physical therapy sessions after your breast cancer diagnosis?	Yes, I have had physical therapy sessions	14.9%
	No, I have not had any physical therapy sessions	64.2%
	I have only received general advice from the physiotherapist for home exercises	20.9%
Have you been treated with physical therapy after breast cancer surgery/radiotherapy?	Yes, I have been treated with physical therapy	14.9%
	No, I have not been treated with physical therapy	64.2%
	I have only received advice for home exercises from the physiotherapist	20.9%

The benefits of physical therapy for patients with breast cancer following surgery or radiation therapy are demonstrated by the results in Table 4. The majority of them 80%, reported a discernible increase in mobility, 50% reported a notable alleviation of pain and muscle tension, 47.5% reported a discernible decrease in edema, and 53% reported a discernible increase in energy and vitality.

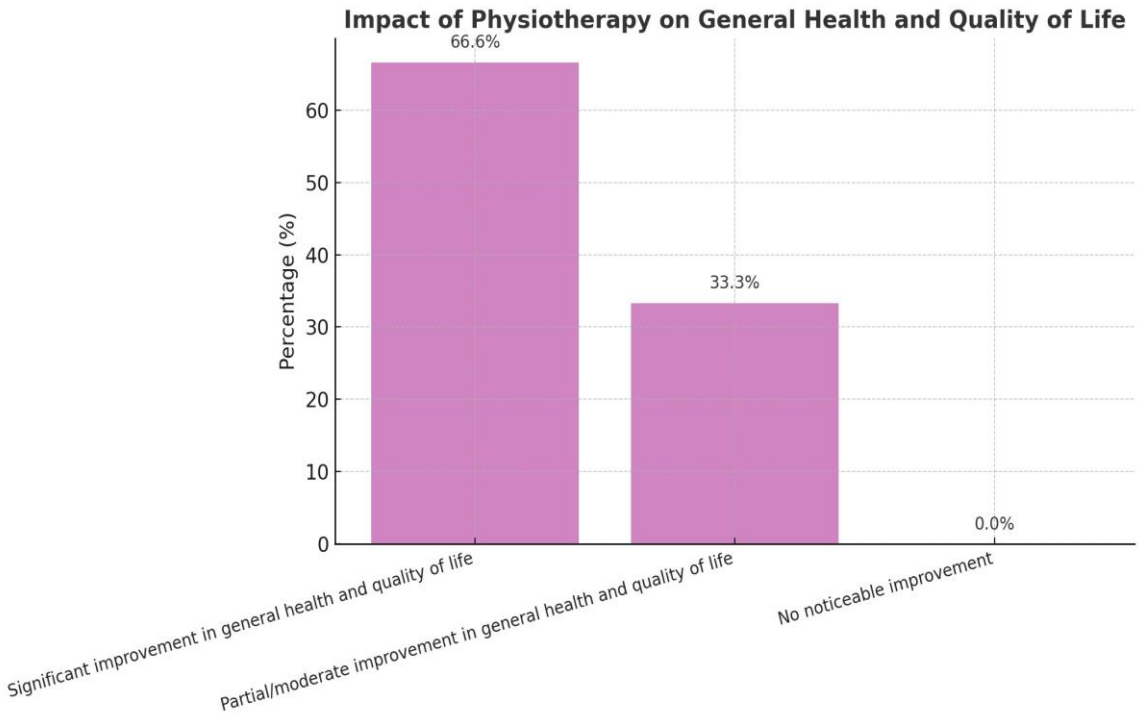
Table 4. Comprehensive impact of physical therapy on physical function, pain, edema, and vitality

Question	Response	Percentage (%)
Have you noticed improved mobility after physical therapy?	Yes, noticeable improvement	80%
	Yes, slight improvement or no change	20%
Impact of physical therapy on pain and muscle tension	Yes, noticeable reduction	50%
	Moderate reduction	25%
	Minimal or no reduction	25%
	Noticeable reduction	47.5%

Impact of physical therapy on reducing edema	Partial/moderate reduction	40%
	Minimal or no reduction	12.5%
Impact of physical therapy on energy and vitality	Noticeable improvement	53%
	Moderate improvement	34%
	Minimal or no improvement	13%

The results from the graphic below indicate the overall impact of physical therapy on general health and quality of life, as reported by patients. A majority of participants 66.6% of them reported significant improvements in their general health condition and quality of life. Additionally, 33.3% experienced partial or moderate improvement. None of the respondents reported no changes in these aspects. These findings highlight the effectiveness of physical therapy in improving overall well-being and enhancing the quality of life for most individuals undergoing treatment (Graph 1).

Graph 1. Impact of physical therapy on general health and quality of life



3.3. Factors influencing physical therapy knowledge and its impact on rehabilitation outcomes

According to education level has a significant impact on patients' knowledge of physical therapy, with university-educated patients having the highest knowledge (p=0.001). Also, those over 60 years old demonstrated significantly greater knowledge about physical therapy (p = 0.05), suggesting that age may have an influence on physical therapy knowledge, although the effects are not as strong as the impact of education level.

Table 5. Patients' knowledge of the importance of physical therapy in their rehabilitation, according to education level and age

Patients' knowledge of the importance of physical therapy in rehabilitation			
Education Level	**Mean ± SD**	**F value**	***p***
Primary	8.28 ± 1.88		
Secondary	9.07 ± 2.15	8.93	0.001
University	12.1 ± 2.76		
Post-University	9.66 ± 3.78		
Age Group	**Mean ± SD**	**F value**	***p***
31-40 years	9.47 ± 2.34		
41-50 years	8.91 ± 2.15	2.67	0.05
51-60 years	10.0 ± 3.37		
Over 60 years	11.7 ± 2.53		

To examine whether there is a correlation between the application of physical therapy sessions after the surgical procedure (mastectomy), improvements in mobility, reduction in pain and muscle tension, energy and vitality levels, a Pearson correlation analysis was conducted, as presented in the table below. The results show a positive relationship between physical therapy sessions post-surgery and improvements in mobility ($r = .355$, $p \leq .05$). A statistically significant positive relationship also exists between physical therapy sessions post-surgery and the management of pain and muscle tension ($r = .602$, $p \leq .05$) (Table 6).

Table 6. Relationship between physical therapy sessions post-mastectomy and improvements in mobility, pain and muscle tension management, and energy levels

	1	2	3	4
Physical therapy sessions post-mastectomy				
Improvements in mobility	.355*			
Pain and muscle tension management	.602*	0.214		
Energy and vitality levels	0.112	0.091	0.052	

The findings of a regression analysis looking at the connection between physical therapy sessions and increased mobility are displayed in Table 7. According to the results, physical therapy sessions account for 24.2% of the variance in mobility improvement, with the R square as a coefficient of determination having a value of.242. Furthermore, a statistically significant positive link is indicated by the significance value of p (sig. =.008 <.05).

Table 7. Regression analysis for determining mobility improvement

Model	R	R Square	Adjusted R Square
1	.242[a]	.058	.050

	Unstandardize Coefficients		Standardized Coefficients	t	*p*
	B	Std. Error	Beta		
(constant)	11.470	.707		16.229	.000
Physical Therapy Sessions	.106	.039	. 242	2.705	.008

F=7.317, Sig=.008[b] ***Dependent Variable****: Improvement in Mobility*

4. DISCUSSION

This study explored the role of physical therapy in the recovery and rehabilitation of breast cancer patients after surgical and radiotherapy treatments in Kosovo. The findings reveal important gaps in awareness and access to physical therapy services. Although 62.6% of participants acknowledged the importance of physical therapy in breast cancer rehabilitation, a notable 64.6% had never been informed about its benefits by their healthcare providers. Furthermore, only 14.9% had

undergone physical therapy sessions after their surgery, with 20.9% receiving only general advice for home exercises. This highlights an urgent need to incorporate physical therapy into standard care protocols and improve patient education.

Among those who accessed physical therapy, improvements were notable. A total of 80% reported enhanced mobility, and 53% observed significant improvements in energy levels. Pain management and muscle tension relief were also positively impacted, with 50% reporting significant improvements. However, 12.5% of patients noted minimal or no change in edema, underscoring the variability of responses and the need for personalized care plans.

Furthermore, participants with a university education demonstrated a higher level of knowledge about physical therapy in breast cancer treatment (12.1±2.76, $F = 8.93$, $p = 0.001$), while older participants (over 60 years) had better understand than those in younger age groups ($F = 2.67$, $p = 0.05$). These results suggest that tailored educational efforts targeting less-educated and younger populations may bridge knowledge gaps. Regarding the relationships between study variables, the correlation analysis revealed a statistically significant relationship between physical therapy sessions and mobility improvement ($r = 0.355$, $p \leq 0.05$) as well as pain and muscle tension relief ($r = 0.602$, $p \leq 0.05$). Regression analysis further confirmed that 24.2% of the variance in mobility improvement is attributable to physical therapy ($R^2 = 0.242$, $p = 0.008$). These findings underscore the effectiveness of physical therapy in addressing key recovery challenges. However, significant gaps in awareness, access, and integration of physical therapy services persist, necessitating enhanced education for patients and better communication from healthcare providers.

Similar studies have highlighted the crucial role of physical therapy in improving and rehabilitating breast cancer patients at various stages of treatment. Rosal-Jurada et al. (2020) evaluated the quality of clinical guidelines for physical therapy in breast cancer survivors, using the AGREE II scale. Their findings indicated the need for improvements in these guidelines. However, physical therapy exercises were shown to provide significant benefits, emerging as an effective strategy for alleviating treatment side effects, with strong supporting evidence (Del-Rosal-Jurado et al., 2020). Rees et al. (2021) concluded that exercises from the PROSPER program helped participants feel physically safe and regain control during breast cancer treatment. Positive results and evaluations from physiotherapists demonstrated the effectiveness of this intervention in enhancing the quality of life for women at risk of shoulder problems following breast cancer surgery.

Zegarski & Basalygo (2010) also looked at how physical therapy affected breast cancer patients' quality of life. Their results showed decreases in lymphedema and increases in acromial joint mobility. According to Evstigneeva & Gerasimenka (2022), regaining arm function following breast cancer surgery is significantly aided by the addition of monophysical elements in physical therapy treatment.

Furthermore, Tvarijonaviciene (2013) evaluated the impact of physical therapy on 40 women divided into two age groups (35–49 and 50–64) after breast cancer surgery. The results showed improvements in mobility, reduction in swelling, and improved life quality for both groups, concluding that physical therapy is an effective method for women of various ages in post-surgery rehabilitation.

Overall, these studies support the important role of physical therapy exercises and modalities in treating and improving outcomes for breast cancer patients. Therefore, the analysis of these studies in the field of physical therapy after breast cancer surgery demonstrates that this treatment has a positive impact on improving life quality and upper arm function in cancer survivors.

5. CONCLUSIONS

The study concludes by showing how important physical therapy is for enhancing breast cancer patients' quality of life and prognosis. It is evident that physical treatment presents a number of major obstacles for breast cancer patients in Kosovo. According to the study, a large number of patients do not know enough about physical therapy and its function in rehabilitation, which results in a low use rate.

In Kosovo, patients frequently don't get enough information about physical therapy from their providers because of poor communication. Only 14.9% of patients received physical therapy treatments after diagnosis, and 20.9% after surgery, indicating restricted access to these services. Physical therapy sessions were linked to gains in mobility and the alleviation of pain and muscle tension in patients who had them following surgery. Therefore, in order to provide quicker and simpler access, physical therapy should be included at the primary healthcare level.

6. RECOMMENDATIONS

Based on the results of this study, several measures are recommended to improve the effectiveness of physical therapy and raise awareness about its importance in the rehabilitation of breast cancer patients. First, informative campaigns should be developed to educate patients and the

community about the role of physical therapy after breast cancer surgeries and treatments. Additionally, improving communication among healthcare professionals is essential, with inter-professional collaboration being a key factor. Expanding physical therapy services is also crucial, which includes increasing the number of trained physiotherapists and ensuring the availability of necessary equipment in clinics and hospitals. Moreover, the Ministry of Health should explore including physical therapy in health insurance packages and financial support programs to help patients cover treatment costs. Continuous training and education programs should be provided to physiotherapists to enhance their skills in treating breast cancer patients. Finally, municipal health departments should work to strengthen connections between clinics and the community, ensuring that patients have easy access to accurate information about physical therapy services.

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ETHICAL CONSIDERATIONS

This study has been approved by the Hospital and University Clinical Service of Kosova. No.1864/14, Date 06.03.2024, and Ethical Committee from Medical Faculty of Gjakova, no 006/751, date 12.12.2023. The information provided by the participants was confidentially protected.

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All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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