



Original Article

Role of Physiotherapy in Palliative Care among Cancer Patients

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ABSTRACT

Background: The role and benefits of physiotherapy and rehabilitation exercises in palliative care have been proved. Disability has been a common problem among patients who need palliative care focusing on cancer patients. There is an increasing literature that provides evidence that rehabilitation interventions improve quality of life and functional status and lessen symptoms such as fatigue, pain, swelling and anxiety among this population. **Objective:** To review the benefits of physiotherapy exercises and rehabilitation intervention among cancer patients who are under palliative care. **Method:** This study is a cross-sectional study with a sample size of 41 was calculated using Epitool. Data for this study was collected from cancer patients from the oncology and medicine ward of Nawaz Shareef Social Security Hospital, Lahore, Pakistan. Consent forms printed both in Urdu and English were signed by every patient recruited in this study. A convenient sampling technique was employed for recruiting cancer patients in this study. Cancer patients who fulfilled the inclusion criteria were recruited in this study. Data was collected from cancer patients from Nawaz Shareef Social Security Hospital. The patients were inquired about how better they felt after their physiotherapy exercise session. The physiotherapy interventions employed were hot packs, bed mobility, ankle pumps, the elevation of limbs, active and passive Range of motion exercises, manual stretching and relaxation exercises. The Statistical Package of Social Sciences version 23 was utilized to calculate the results. Descriptive data was calculated for qualitative data. Fisher's test was utilized to determine the association between the interventions used and the type of cancer. **Results:** This showed us that 82.9% of cancer patients felt much better after their physiotherapy intervention session. Fisher's exact test showed us that a significant association is present between bed mobility and type of cancer and ankle pumps and type of cancer. **Conclusion:** The results of this study conclude that physiotherapy and rehabilitation exercises should be an essential part of the palliative care of a cancer patient. This study concludes that interventions like bed mobility, ankle pumps, the elevation of limbs and manual stretching must be incorporated in the palliative care plan for cancer patients.

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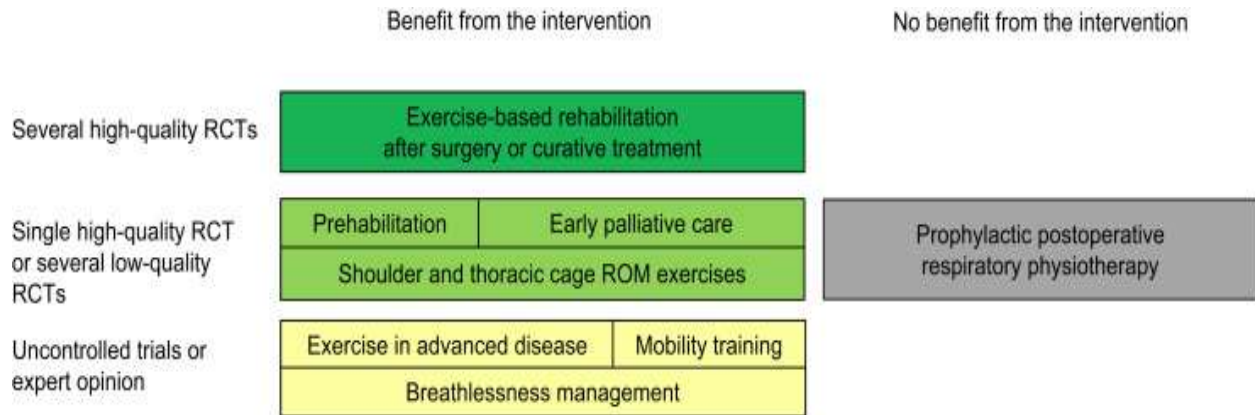
INTRODUCTION

Cancer has been always associated with substantial mortality and morbidity and is an extensive affliction to the healthcare systems. Physiotherapists are known to play a very important role in managing patients with cancers. Improvements and advances in the world of research over the past period, specifically supporting and encouraging the use of exercise training, have observed to have been speedily advanced the role of physiotherapy for cancer patients.¹ A precise summary of the physiotherapy interventions that have been used in managing cancers with the levels of evidence that support their usage is represented in Figure 1. The physiotherapy interventions fluctuate and vary and it depends on the stage in the trajectory of the disease and the time duration of the treatment plan. The physiotherapy services for cancer patients have been factually hospital-based.² Some other physiotherapy interventions, such as exercise training have been observed to be used less frequently as a part of routine clinical practice, although the rapid growth of evidence has been gathered which supports these interventional measures over the last decade.²

Cancer patients who are under palliative care are known to experience higher levels of functional disabilities which are related to the progression of their disease, pain, deconditioning, the direct effect of tumors, Para neoplastic syndromes and their local systematic effects and complications.³ Progressive functional decline and pain have been observed in the last six months of cancer patients.^{3,4} An impairment that hinders physical functioning is a substantial factor that contributes to diminishing the quality of life of cancer patients.^{5,6} Numerous cancer patients who are under palliative care have a longing to remain physically active and independent during their course of disease. They also intend to maintain or regain their physical

independence and this can be a very reasonable goal for a specific group of cancer patients.^{7,8} The idea and concept of incorporating physical therapy rehabilitation in palliative care is attracting a lot of attention in the literature.⁹⁻¹² That is why this current study will also focus on adding more literature and evidence concerning this domain.

The main goal of rehabilitation and physical therapy exercises in cancer patients under palliative care is, along with a suitable endowment of treatment, to eliminate and reduce disability by optimizing cancer patients and their functional status, physical independence and quality of life.¹³ The rehabilitation plans are mostly most appropriate for patients who are suffering from advanced disease and who have very short and limited life spans. There is only a little evidence that rehabilitation interventions can improve the functional status of cancer patients under palliative care, so this current study might add evidence concerning this. However, it is really difficult to predict which cancer patients can benefit the most from rehabilitation plans and for how long they can manage to sustain the functional gains.^{14,15} The palliative care units have been recognized as a unit that is not only known to provide supportive terminal care but also promotes rehabilitation of cancer patients with radical malignancies and various terminal conditions.¹⁵ The main interest of this study is the utilization of physiotherapy in a palliative care unit. The main aim of this current study is to assess the utilization of physiotherapy in cancer patients admitted to hospitals and are under palliative care, to characterize the disabilities in cancer patients who receive physiotherapy treatment, and to recognize the factors associated with functional improvement following rehabilitation and physical therapy intervention. Lymphedema has been observed to occur commonly in advanced cancer patients under palliative care



In this population of cancer patients, lymphedema has been known to affect, functioning, body image and interpersonal relationships and causes anxieties about life and the future. It might also increase the risk of deep venous thrombosis and various skin-related abnormalities.¹⁴ This current study will add evidence to the literature regarding incorporating physiotherapy interventions in the palliative care plan of cancer patients. This study might increase the significance of physiotherapy interventions to be used for the betterment of cancer patients. This study might also summarize the management of cancer by focusing specifically on physiotherapy interventions, and might also provide directions and guidelines for clinical practice and research. A great need has been observed to increase knowledge and awareness about the the generalized effects of cancer rehabilitation and to incorporate physiotherapy and rehabilitation interventions in the palliative care plan for cancer patients among patients, health care providers and families of the cancer patients. This current study will add more reliable and authentic evidence to increase the knowledge and awareness concerning the effects of cancer rehabilitation and physiotherapy exercises for cancer patients.

METHODS

This study is a cross-sectional Study which was designed to review the roles and benefits

of physiotherapy exercises and rehabilitation interventions for cancer patients in their palliative care. This study was ratified by the ethical committee of the University of Lahore, Lahore, Pakistan. This study was accomplished within six months after the approval of its synopsis. Data for this study was collected from cancer patients from the oncology and medicine ward of Nawaz Shareef Social Security Hospital, Lahore, Pakistan. Consent forms printed both in Urdu and English were signed by every patient recruited in this study. A convenient sampling technique was employed for recruiting cancer patients in this study. The sample size of this study came out to be 41, considering a 10% rate of response and 90% confidence interval.¹⁶ The following formula was employed to calculate the sample size:

$$n = \frac{z^2 \times (1-p)}{e^2} \div \frac{1 + (z^2 \times (1-p))}{e^2}$$

Where n is the population size, e is the margin of error of 5% and z is z- score. These steps were employed while recruiting cancer patients in this study: Recruitment of cancer patients was done from the oncology and medicine ward of the hospital. Of those cancer patients who were consciously stable,¹⁷ underwent palliative care with physiotherapy and rehabilitation exercises incorporated into their care plans.¹⁷ The objectives and aims of this study were very well explained to all the

selected cancer patients in precise, simple and plain language. Their socio-demographic data was collected. They were inquired about which type of cancer they were suffering from. Then the cancer patients were inquired about the duration of the physiotherapy sessions they were receiving daily. Then the patients were inquired about how better they felt after their physiotherapy session. They responded with yes or no. The physiotherapy interventions that were employed were hot packs, bed mobility, ankle pumps, the elevation of limbs, active and passive range of motion exercises, manual muscle stretching and relaxation exercises.^{18,19} The Statistical Package of Social Sciences version 23 was utilized to calculate the results. Descriptive data was calculated for qualitative data. Fisher's test was utilized to determine the association between the interventions used and the type of cancer.

RESULTS

Table 1 shows the descriptive statistics for the types of cancers the patients were suffering from. Table 2 shows descriptive statistics for the time duration that their physiotherapy lasted. Table 3 shows descriptive statistics of patients for whether feeling better or not after their physiotherapy session. Table- IV shows the association of types of interventions employed with the types of cancers using Fisher's exact test. The results of Table- IV show us that bed mobility, ankle pumps, elevation of limbs and manual stretching have significant associations with the type of cancer the patient is suffering from. ($p < 0.05$) Figure 1 shows us that 61% of male cancer patients and 39% of female cancer patients.

DISCUSSION

This current study was conducted on a total of 41 cancer patients. Only those cancer patients were recruited in this study who fulfilled the inclusion criteria were excluded if they were at an increased risk of death or suffering from

Table I: Descriptive Statistics for Types of Cancer Patients

Types of cancer	Percentage
Breast cancer	22%
Colon cancer	7.3%
Endometrium cancer	2.4%
Gall Bladder cancer	7.3%
Liver cancer	22%
Lung cancer	19.5%
Lungs cancer (Both Lungs)	2.4%
Pancreatic cancer	7.3%
Prostate cancer	4.9%
Right thigh cancer	2.4%
Total	100 %

Table II: Descriptive Statistics for Duration of Physiotherapy Session

	Frequency	Percentage
5 minutes	2	4.9%
10 minutes	22	53.7%
15 minutes	9	22%
20 minutes	8	19.5%
Mean	2.56	100%
Std. Deviation	0.86	

any mental or learning difficulty. Almost 75% of cancer patients faced weight loss during the past few months. 37% of cancer patients recruited in this study were given Physiotherapy treatment daily while 30% of cancer patients were given physiotherapy treatment on alternate days. The majority of patients received physiotherapy treatment for about ten to fifteen minutes. Various kinds of physiotherapy modalities and physiotherapy interventions were applied to the cancer patients. Even though the physiotherapy

sessions made the cancer patients feel better and resulted in a reduction in their symptoms of swelling, pain and edema. Shirin and coworkers conducted a study in 2022 where they determined the perspectives of physical activity in cancer patients focusing on patients with advanced cancer. They recommended that patients with advanced cancer could benefit from physical activity, but they face numerous hurdles to physical activity participation. They concluded that physiotherapists could be well-positioned to sustain this population of patients.²⁰ This coincides with our current study. Their results indicated that Canadian oncology physiotherapists can describe the knowledge of the safety and significance of physical activity, and also considerations for advanced care of advanced cancer patients.²⁰

Furthermore, they also pinpointed the significance of a patient-centered approach to support this particular population, focusing on providing facilitative safety and meaningful physical activity, optimizing function and alleviating the burden of symptoms.²⁰ Their study and our study both recommend that further efforts are required to investigate the development and integration of physical therapy plans within the cancer care plan. Rashleigh and coworkers observed that terminal phases of cancers are accompanied by a wide range of physical complications, hence they concluded that these physical impairments urge the need to be managed and treated by health care professionals who are trained to deal with them, which includes physiotherapists too.²¹ They also concluded like our study that outreach palliative care teams need to include physiotherapists as essential members. Our study and another previous study recommend that a palliative approach to care should begin at a much earlier stage of cancer and should be applied not only to conditions usually considered for palliative care, which is typically cancer but

Table III: Descriptive Statistics for Patients Feeling Better After Physiotherapy Session

Do you feel better after your physiotherapy session?	Percentage
Yes	82.9%
No	17.1%
Mean	1.17
Std. Deviation	0.38

also applicable to unbearable and chronic neuromuscular disorders, cardiothoracic diseases and HIV AIDS.²² The palliative care in an earlier stage is essential in advanced cancers. A study which was published in 2010 determined that early palliative care comprised of, structured meetings with palliative care clinicians negotiating psychosocial and physical symptoms, objectives and goals, treatments and decisions about them and most importantly coordination of care. When this was compared with the more aggressive care given at the end of life, this early-stage palliative care tended to improve, health-related quality of life, survival and mood of cancer patients.²³ Our study agrees with these findings. The background of research done on cancer and its treatment has been altered significantly over the past two decades. Cancer is an incurable disease with an increased rate of rising incidence and mortality, healthcare and research now are allowing cancer to be a curable disease for many patients, resulting in a decline in the mortality rate and an increased number of patients living their lives as cancer survivors in our societies.¹ But unfortunately, the rate of cancers is extraordinarily less favorable and despite the minute advances in the medical treatment of cancers, the rate of survival remains frightful. Further research is needed on an urgent basis to discourse the efficacy of new treatments for cancers to improve the

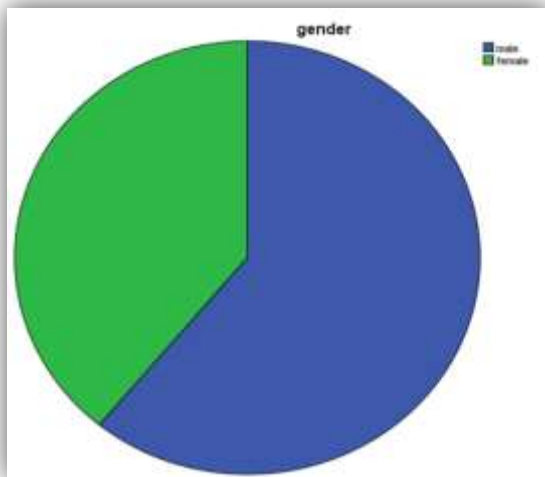
Table IV: Association of Physical Therapy Interventions with Types of Cancers Using Fisher's Exact Test

Interventions	Cancer type							
	Breast		Liver		Lung		Others	
	Yes	No	Yes	No	Yes	No	Yes	No
Bed Mobility	0% N=0	76.90% N=10	32.10% N=9	0% N=9	32.10% N=9	0% N=9	35.70% N=10	23.1% N=13
Fisher's Exact Test(29.4) $p < 0.05$; significant ASSOCIATION PRESENT between bed mobility and cancer type.								
Ankle Pumps	0% N=0	30.3% N=10	62.5% N=5	12.1% N=4	0% N=0	27.3% N=9	37.5% N=3	30.1% N=10
Fisher's Exact Test(10.25) $p < 0.05$; SIGNIFICANT ASSOCIATION IS PRESENT between ankle pumps and cancer type.								
Elevation of limb	60.0% N=9	3.8% N=1	13.3% N=2	26.9% N=7	13.3% N=2	26.9% N=7	13.3% N=2	42.3% N=11
Fisher's Exact Test(12.15) $p < 0.05$; significant ASSOCIATION IS PRESENT between elevation of limbs and cancer type.								
Active/passive Rom Exercises	41.7% N=10	0.0% N=0	16.7% N=4	29.4% N=5	16.7% N=4	29.4% N=5	25.0% N=6	41.2% N=7
Fisher's Exact Test(15.41) $p > 0.05$; significant Association is NOT present between active and passive range of motion exercises and cancer type.								
Hot packs	0.0% N=0	25.6% N=10	100.0% N=2	17.9% N=7	0.0% N=0	23.1% N=9	0.0% N=0	33.3% N=13
Fisher's Exact Test(4.40) $p > 0.05$; significant Association is NOT present between hot packs and cancer type.								
Manual Stretching	41.7% N=10	0.0% N=0	16.7% N=4	29.4% N=5	16.7% N=4	29.4% N=5	25.0% N=6	41.2% N=7
Fisher's Exact Test(10.43) $p < 0.05$; significant ASSOCIATION IS PRESENT between manual stretching and cancer type.								
Relaxation	33.3% N=9	7.1% N=1	14.8% N=4	35.7% N=5	25.9% N=7	14.3% N=2	25.9% N=7	42.9% N=6
Fisher's Exact Test(5.64) $p > 0.05$; significant Association is NOT present between relaxation exercises and cancer type.								

chances of cure. In 2005, the very first publication showed us that exercises improved survival in patients with breast cancer.²⁴ Exercises have the potential to affect inflammation, morphology of tumor, growth of tumor and recurrence of cancer.^{25,26} The question now arises whether physiotherapy exercises improve the rate of survival in cancers which is substantial to address and is still negotiable. Now the challenge is to

evaluate, test and establish the potential role of exercises and tell whether they play an essential role in treating cancer patients with the ultimate goal of increasing the rate of survival.¹ This current study also raises the same questions for further authentic studies and is leaving this same gap for future researchers. There are numerous gaps and limitations in this current study. The exercise included in this study are generally small, lack

Figure 2: Descriptive Statistics of Gender of Cancer Patients



of randomization and control groups and doesn't include a long-term follow-up. The interventions employed in this study vary in terms of duration and timing. Incorporating physical therapy exercises in the plan of care for cancer patients has been recognized to be a growing area of practice and has the potential to diminish the devastating physical and psychological deterioration that occurs with cancers. This current recommends that as evidence is emerging, a substantial target for physiotherapy prevailing over the next decade would be to promptly translate the findings of research studies into clinical physiotherapy practice.

CONCLUSION

The results of this study conclude that physiotherapy and rehabilitation exercises should be an essential part of the palliative care of a cancer patient. This study concludes that interventions like bed mobility, ankle pumps, elevation of limbs and manual stretching must be incorporated into the palliative care plan for cancer patients

DECLARATIONS

Consent to participate: Written consent had been taken from patients. All methods were performed following the relevant guidelines

and regulations.

Availability of data and materials: Data will be available on request. The corresponding author will submit all dataset files.

Competing interests: None

Funding: No funding source is involved.

Authors' contributions: All authors read and approved the final manuscript.

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