

A Systematic Review of the Role of Physiotherapy Interventions in Palliative Care

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Abstract

The aim of this research is to conduct a systematic review analysing the role of the physiotherapy interventions in palliative care. PRISMA as a critical appraisal tool was utilised for the selection of the research articles. The inclusion criteria were based on the year of publication, ease of availability, language, geographical location, and study type. To ensure the credibility, databases such as Elsevier, Proquest, and EBSCO Host were used to filter the grey content. Data published in the past ten years (2009-onwards) was only included to ensure the selection of the most recent interventions used by the physiotherapists. A total of 11 articles were selected which determined that physiotherapy interventions involving breathing exercises, aerobic exercises, manual therapies, and educational awareness were critical to promoting the functional capability and empower the patients.

Keywords: Physiotherapist, Palliative Care, Physical Therapy, End-of-Life Care, Non-pharmacological Intervention

Background

World Health Organisation (WHO) defined palliative care as the approach which enhances the quality of life of the patients who are encountered with life-threatening diseases through the management and relief from the suffering through early intervention, impeccable evaluation, and treatment of pain and other associated issues [1]. Patients in palliative care experience a greater level of functional incapability and disability as a result of disease progression, direct local and systematic impacts, and deconditioning pain. Impairment in physical functioning is a predominant contributor to a significant decline in the quality of life of such patients. Palliative care patients expressed a high desire to stay physically active during the course of the disease while sustaining and retaining physical independence [2]. Thus, the notion of rehabilitation in palliative care patients is to promote adequate treatment provided with the objective to eradicate disability through optimising the functional status, independence, autonomy, and standard of living.

The World Confederation for the Physical Therapy has defined physical therapy or physiotherapy as the provision of services to the people for the development, maintaining, and restoring the maximum mobility as well as functional capability throughout the entire life-span [3].

Physiotherapy, in particular, encompasses the services in situations where the function and the movement are threatened by the ageing process or due to any injury/disease [4]. Physiotherapists form an integral component of the multidisciplinary team (MDT) in the palliative care by focusing on the processes and procedures for enhancing the function and quality of life through multivariate care dimensions [5]. Of these care dimensions, the physical dimension in the palliative care treatment and management is linked to symptom control, improving the flexibility, mobility, endurance, deformity, gait, balance, co-ordination, deformity, energy expenditure, and exercise tolerance along with maintaining adequate breathing. The functional dimensions, on the other hand, are related to improving the daily activities and functions that include the sensorimotor performance [6]. Physiotherapists aim to improve the successful performance of the complicated physical functional activities such as housekeeping and maintaining personal hygiene which requires the involvement of the affective and cognitive abilities.

The integration of physiotherapists into the palliative care plan is a relatively new concept despite the fact that the physiotherapy interventions in palliative management were identified during the early 1960s [1]. The primary objective of including a rehabilitation approach while treating the palliative care patients is through goal setting to enhance the functional ability while subsequently reducing the disease consequences as long as possible [7]. The ultimate goal of the physiotherapist is to promote independence as much as possible to ensure the accomplishment of important activities to ease the end-stage life of the people. However, in cases where improving the functional ability is not possible, physiotherapy intervention is to promote the patient as well as the ability of the carer to cope with the deteriorating condition of the patient through awareness and education to improve the quality of life [8]. Therefore, the overall aim of the physiotherapist is to facilitate the patient to reach the best possible quality of living for the remaining patient's life.

Methodology

Research Design

The research design for this study has been based on the systematic review of the literature to determine the interventions of physiotherapists in palliative care. Through a systematic review, the selection of the appropriate data sources enabled the researcher in collecting pertinent, credible, and reliable information through the use of databases for the selection of peer-reviewed journal

articles [9]. Provided the nature and phenomenon of the research topic, systematic qualitative review of literature is optimal as it enables in determining the interventions of physiotherapists from previous authenticated researches without the involvement of any statistical testing as no variables are involved in this research.

Search Strategy

The search strategy for the attainment of the most desirable information comprised on the use of the keywords “Physiotherapy”, “Physiotherapist” “Physiotherapy interventions”, and “Palliative care” alone as well as in combination with the utilisation of the Boolean Operators “AND” and “OR”. The Boolean Operators were incorporated into the search strategy of the most reliable, authenticated, and prominent databases in the field of health sciences which included Elsevier, ProQuest and EBSCO Host. Here, it is important to signify that the entire research was constituted using the widely used and openly accessed databases to ensure the reproducibility and credibility of the literature.

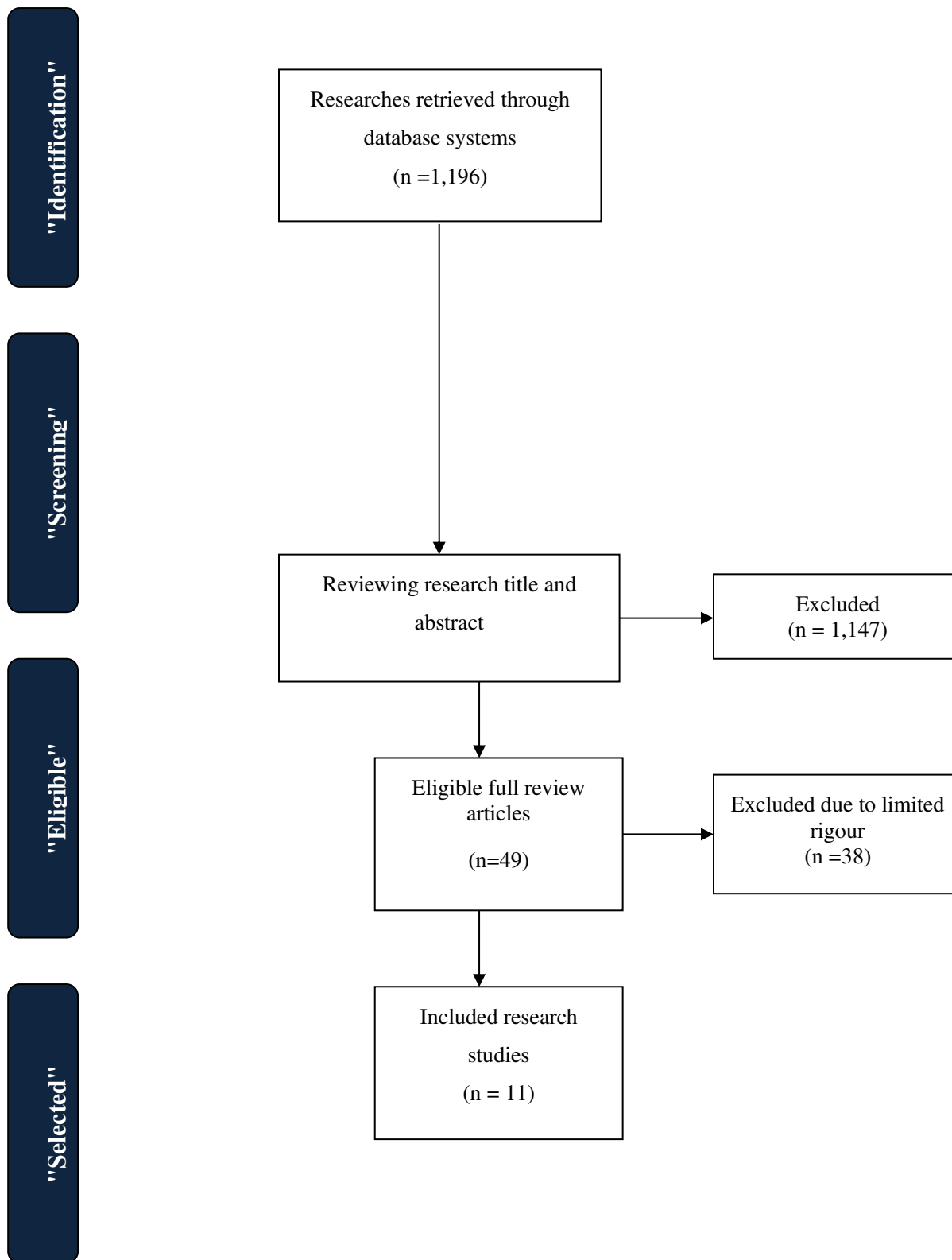
Data Extraction

The criterion for the extraction of data was based on the inclusion versus the exclusion criteria. The inclusion criteria facilitate in setting the boundaries and restrictions for collecting the most viable, authenticated, and reliable information [10]. Different approaches for the inclusion criteria which had been specified for this research included the language, publication year, study type, geographical aspects, design of the research, and the interest exposure. In the regard, through the use of the inclusion criteria, the researches which had been published in the English language only were opted while literature in a language other than English was excluded. In a similar manner, the research studies which had been published in the last ten years were selected for this study to ensure the inclusion of the most updated and relevant context. Thus, literature published before 2009 was excluded from the selection.

Selection of the Study

The selection of the study in the systematic approach is regarded as the critical appraisal which ensures the value and trustworthiness of the study. Critical appraisal is commonly regarded as the implications of the values and rules that predominantly assist in the evaluation of the resulting viability, method, and procedures while adhering to the ethics. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) are used for the assessment of the critical

appraisal tool for determining the validity and reliability of the data collection [11]. PRISMA promotes in easy filtration of the research articles to comply with the standards of the quality. The step-by-step assessment of the PRISMA to determine the physiotherapy intervention in palliative care is illustrated in the following figure below:



Data Findings

Author	Year	Country	Methodology	Key Findings
Hegarty et al.	2016	Ireland	Cross-sectional Study	The key findings indicated that physiotherapy induced palliative exercising interventions in patients suffering from Parkinson's disease improved the strength of the lower limbs. The physiotherapy intervention specifically deduced that palliative exercising could serve as a potential modification for the accomplishment of clinically relevant results in the walking ability of the patients.
Lim and Ng	2015	Singapore	Mixed methodology	It was determined that improving the knowledge and skills of the physiotherapists through perception and knowledge in the palliative care domain could predominantly assist in analysing the challenges in acute hospital settings. Good palliative care is dependent on effective communication so physiotherapy intervention is based on developing communication skills to improve technical competencies.
Möller et al.	2016	Sweden	Pilot Study	Physiotherapy interventions in palliative care settings were determined through multiple therapeutic mechanisms focused on patient-centric needs. The pilot study determined that a better-nuanced investigation of the clinical complications could facilitate in the optimisation, clarification, and development of physiotherapy interventions.
Jensen et al.	2014	Germany	Retrospective, Descriptive Study	The key analysis indicated that physical exercise in advanced cancer patients had a beneficial impact on the mobility and functional ability with respect to the disease-related and socio-demographic aspects. Physiotherapeutic intervention including the relaxation and the breathing therapies improved the quality of living of terminally ill patients.
Przedborska et al.	2015	Poland	Quantitative Method	The findings indicated that though physiotherapy interventions did not exhibit a statistically significant relationship in enhancing the self-care and mobility of the

				patients in palliative care, however, prominent results were recorded in the management of the depression, anxiety, and intensity of dyspnea after the physiotherapy program.
Morrow et al.	2017	South Africa	Cross-sectional Descriptive Survey	Despite inadequate training, knowledge, and required skillsets, a large number of physiotherapists were able to manage the critical requirements of the patients during palliative care and thus proper inclusion of the palliative care knowledge in the graduate program could yield better and positive outcomes for optimising the individual functional capability.
Saher et al.	2018	India	Randomised Clinical Trial Retrospective Study	The final outcomes indicated that physiotherapy-led interventions improved the functional capability while offering relief from the symptoms to the patients in palliative care. This signified the notion that physiotherapists in caring of patients could enhance the independence and quality of life during end-stage of life.
Cullum	2019	United Kingdom	Qualitative Semi-structured Interviews	Within the inpatient settings, rehabilitative palliative care has become a challenge for the inpatient hospice unit and physiotherapist could play an integral role in eradicating the barriers through effective communication and rehabilitative palliative care practices while improving the confidence and autonomy of the patients.
Wilson and Briggs	2017	United States of America	Review Article	Lack of the consistent integration of physiotherapists within the hospital settings is constituted as a barrier in the provision of non-opioid alternatives for the management during the palliative care. Physical therapy supports pain management by improving the quality of life and reducing the dependency on opioid medication.
Pullen et al.	2014	Nigeria	Case Study Analysis	The key analysis interpreted a complete eradication of the shortness of breath (SOB) upon exertion and relief from pain due to the physiotherapy sessions. In addition, a prominent reduction was also observed in muscle endurance, strength, and resting heart rate. Hence, the physiotherapy interventions comprising of manual therapy

<p>Pyszora et al.</p>	<p>2017</p>	<p>Poland</p>	<p>Randomised Clinical Trial</p>	<p>and exercise were beneficial as an adjunct therapy. Exercise program led to a prominent decrease in the fatigue scores within the palliative care which positively influenced the day-to-day functioning. These findings led to the belief that physiotherapy is regarded as an effective and safe method in cancer-related fatigue to improve the quality of living.</p>
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Discussion

The data analysis has offered a comprehensive evaluation highlighting the contemporary role of the physiotherapist interventions in the treatment and management of palliative care. Palliative care is regarded as a holistic practice which involves caring of the people living with life-threatening illnesses or individuals during the end stage of the lives. Though pharmacological interventions are the primary source to manage and treat the palliative care measures, exercise and the physical activity acts as a secondary mechanism to improve the quality of living thereby acting as a cornerstone to the non-pharmacological management [12]. In this context, a physiotherapist led palliative exercise programme (PEP-PD) was designed which was executed for a total of six weeks duration constituting of portable ankle weights. The outcomes of the study clearly signified that a progressive six-week physical therapy improved the muscle strength and intensity of the lower limbs in patients living with Parkinson's disease (PD). Nonetheless, the improvement in the flexibility and strength did not incur any difference in the severity of the patient condition. Similarly, physiotherapy leads to the maximisation of mobility, independence, and mobility provided adequate treatment and monitoring [13]. In this regard, improving the attitude, knowledge, experience, and beliefs of the physiotherapists to improve the standard and quality of life for the patients in palliative care is important [14]. Hence, physiotherapy-led interventions are integral in promoting individual autonomy, independence, mobility, and body functioning during the end of life care.

Other physiotherapy interventions included the strengthening exercises offered to patients determined that physiotherapy has a positive and direct relationship in improving the patient outcomes and perceived well-being in populations demanding palliative care [15, 21]. Despite the fact that the profession has been under-valued and underestimated across the globe, there is a

growing impetus for the improved physiotherapist's interventions and involvements in the in-patient as well as outpatient settings to offer relief from symptom and pain through non-pharmacological interventions. Specific physiotherapy interventions included breathing/aerobic exercises which are beneficial and recommended during the advanced disease progression to offer timely relief to the patients. Physiotherapy leads to a significant reduction in the rate of fatigue in patients receiving palliative care [16, 24]. Physiotherapy interventions are beneficial in the symptom management and alleviation of troublesome pain and discomfort through increased mobility and focusing on physical activity. Additionally, physiotherapy interventions in advanced diseases play a crucial role in improving the overall state of well-being of the patient while subsequently limiting the severity of the comorbid symptoms [17]. Hence, aerobic exercising, awareness, education, and alteration in the breathing mechanisms through physiotherapy interventions could play a positive role in improving the general state of the patients receiving palliative care.

Another physiotherapy intervention is based on generating awareness and improving the educational needs of the patients and the carers. Lim and Ng focused on the effectiveness and importance of the educational needs of the physiotherapists in the domain of palliative care [18, 23]. A lack of confidence and knowledge could lead to a negative influence on the quality of care services thereby affecting the patient well-being receiving palliative care. As opposed, good palliative care is highly dependent on effective communication skills as well as the technical competencies of the physiotherapists. In addition, multivariate role of the physiotherapists is involved in the specialised palliative care through prioritising the patient needs and addressing the emergent issues which directly hamper in the sudden alterations in the health status of the patients [19]. Therefore, educating the patient and creating awareness among the caregivers is also identified as a critical intervention through which the quality of life and well-being of the patients receiving palliative care could be addressed. Along with educating the patients, education and development of the skillset of the physiotherapists are equally important in developing effective communication and interpersonal therapeutic relationships to provide ease and independence during the last stages of life.

Kumar and Jim (2010) discussed different physical therapy techniques and interventions comprising of therapeutic exercise, electrical modalities, thermal modalities, additional physical

agents, and miscellaneous modalities (manual therapies) which offer an inherent role in improving the functional ability and care dimensions during the palliative care. The therapeutic exercises constituted of assisted active movement for offering relaxation, stabilisation, and mobilisation. Electrical modalities, on the other hand, included the neuromuscular electrical stimulation which has been regarded as useful specifically in pain relief and management. Thermal modalities included the utilisation of heating and cold packs to promote flexibility. Physiotherapists play integral part in the multidisciplinary team involved with patients receiving palliative care [20]. This is done through physical therapy interventions which improve flexibility, muscle strength, durability, and functional mobility, as well as through optimising the respiratory, circulatory, cardiac, and muscular functioning to control pain and improve the functional independence [22]. Thus, physical therapy in palliative care patients is significant in promoting physical strength and independence.

Conclusion

The aim of this research study was to evaluate the role of the physiotherapist intervention in palliative care through critical analysis of the past literature. This systematic review of literature facilitated in analysing different intervention techniques which are globally utilised by physiotherapists for improving the quality of life during the end-stage of the patients. The analysis of the 11 research articles published in a period of ten years (2009 onwards) has identified multivariate intervention techniques which are adopted by the physiotherapists to enhance the general well-being through functional mobility, independence, and educational awareness. The findings also emphasised on the active role of the physiotherapists in pain relief and improvement in the symptoms through non-pharmacological techniques which lead to better outcomes for the patients. Hence, it is subjugated that involvement of the physiotherapists in the multidisciplinary team designed for patients receiving palliative care is essential in improving the physical strength, independence, and autonomy of the patients through optimised control mechanisms.

References

1. Saher, T.; Kalra, S.; Yadav, J.; Thariwal, S.; Yadav, K.; Tanwar, P. Role and importance of Physiotherapy during Palliative Care in India: A Review. *World Journal of Research and Review* **2018**, *7*(4), 01-08.
2. Montagnini, M.; Lodhi, M.; Born, W. The Utilization of Physical Therapy in a Palliative Care Unit. *Journal of Palliative Medicine* **2003**, *6* (1), 11–17, doi:10.1089/10966210360510073.
3. What is physical therapy. <https://www.wcpt.org/what-is-physical-therapy> (accessed Apr 22, 2020).
4. Kumar, S.; Jim, A. Physical Therapy in Palliative Care: From Symptom Control to Quality of Life: A Critical Review. *Indian Journal of Palliative Care* **2010**, *16* (3), 174, doi:10.4103/0973-1075.73670.
5. Guide to Physical Therapist Practice. *Physical Therapy* **2001**, *81* (1), 9.
6. Jette, A. M. Physical Disablement Concepts for Physical Therapy Research and Practice. *Physical Therapy* **2010**, *74* (5), 380–386, doi: 10.1093/ptj/74.5.380.
7. Marcant, D.; Rapin, C.-H. Role of the Physiotherapist in Palliative Care. *Journal of Pain and Symptom Management* **1993**, *8* (2), 68–71, doi:10.1016/0885-3924(93)90102-2.
8. Peter, M.; Ann, C.; Sam, P.; Jacqui, S.; Dai, R.; Andrew, L.; Chris, T.; Ann, C. Complementary Therapists Motivation to Work in Cancer/Supportive and Palliative Care: A Multi-Centre Case Study. *Complementary Therapies in Clinical Practice* **2009**, *15* (3), 161–165, doi:10.1016/j.ctcp.2009.03.004.
9. Jackson, S. L. *Research methods and statistics a critical thinking approach*; Wadsworth Cengage Learning: Australia, 2016.
10. Salkind, N. J. *Encyclopedia of research design*; SAGE reference: Los Angeles, 2010.
11. Linsley, P.; Kane, R.; Barker, J.H. *Evidence-based practice for nurses and healthcare professionals*; Sage Publications: S.l., 2019.
12. Hegarty, D.; Galvin, R.; McGirr, L.; Cahill, F.; McQuillan, R.. Physiotherapy led palliative exercise programme for people with advanced Parkinson's disease (PEP-PD): A feasibility study. *Physiotherapy Practice and Research*, **2015**, *37*(1), 31-39, doi:10.3233/ppr-150070.

13. Tomlinson, C. L.; Herd, C.P.; Clarke, C.E.; Meek, C.; Patel, S.; Stowe, R.; Deane, K.H.; Shah, L.; Sackley, C.M.; Wheatley, K.; Ives, N. Physiotherapy for Parkinson's disease: a comparison of techniques. *Cochrane Database of Systematic Reviews* **2014**, (6).
14. Morrow, B. M.; Barnard, C.; Luhlaza, Z.; Naidoo, K.; Pitt, S. Knowledge, Attitudes, Beliefs and Experience of Palliative Care amongst South African Physiotherapists. *South African Journal of Physiotherapy* **2017**, *73* (1), doi:10.4102/sajp.v73i1.384.
15. Jensen, W.; Bialy, L.; Ketels, G.; Baumann, F. T.; Bokemeyer, C.; Oechsle, K. Physical Exercise and Therapy in Terminally Ill Cancer Patients: a Retrospective Feasibility Analysis. *Supportive Care in Cancer* **2013**, *22* (5), 1261–1268, doi:10.1007/s00520-013-2080-4.
16. Przedborska, A.; Misztal, M.; Wroński, M.; Gruzziel, D.; Świątczak, M.; Ciałkowska-Rysz, A. Raczkowski, J.W. The effect of physiotherapy on the condition of cancer patients receiving palliative care. *Medycyna Paliatywna/Palliative Medicine* **2016**, *8*(2), 68-74.
17. Kaur, D.; Kumar, G.; Billore, N.; Singh, A. Defining the Role of Physiotherapy in Palliative Care in Multiple Sclerosis. *Indian Journal of Palliative Care* **2016**, *22* (2), 176, doi:10.4103/0973-1075.179599.
18. Lim, J.; Ng, K. Educational Needs of Physiotherapists in the Area of Palliative Care: a Multi-Centre Study in Singapore. *Physiotherapy* **2015**, *101*, e875–e876, doi:10.1016/j.physio.2015.03.1704.
19. Möller, U. O.; Malmström, M.; Beck, I.; Rasmussen, B. The Variability of Physiotherapeutic Interventions in Specialized Palliative Care. *Physiotherapy* **2016**, *102*, e92–e93, doi:10.1016/j.physio.2016.10.094.
20. Laakso, L. The role of physiotherapy in palliative care. *Australian family physician*, **2006**, *35*(10), 781.
21. Wilson, C. M.; Briggs, R. Physical Therapys Role in Opioid Use and Management During Palliative and Hospice Care. *Physical Therapy* **2017**, *98* (2), 83–85, doi:10.1093/ptj/pzx108.
22. Pyszora, A.; Budzyński, J.; Wójcik, A.; Prokop, A.; Krajnik, M. Physiotherapy Programme Reduces Fatigue in Patients with Advanced Cancer Receiving Palliative Care: Randomized Controlled Trial. *Supportive Care in Cancer* **2017**, *25* (9), 2899–2908, doi:10.1007/s00520-017-3742-4.

23. Pullen, S.; Chigbo, N.; Chukwudi, N. E.; Chim, A. C.; Chinwe, C.; Chukwunoso, I. S. Physiotherapy Intervention as a Complementary Treatment for People Living with HIV/AIDS. *HIV/AIDS - Research and Palliative Care* **2014**, *99*, doi:10.2147/hiv.s62121.
24. Cullum, S. Rehabilitative Palliative Care - a Challenge on the Hospice Inpatient Unit? *Physiotherapy* **2019**, *105*, e167–e168, doi:10.1016/j.physio.2018.11.172.