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Correlation between Functional Capacity and Quality-of-life in Cancer Patients in Palliative Care

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Correlação entre Capacidade Funcional e Qualidade de Vida em Pacientes Oncológicos em Cuidados Paliativos
Correlación entre Capacidad Funcional y Calidad de Vida en Pacientes Oncológicos en Cuidados Paliativos

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ABSTRACT

Introduction: Palliative care is described as a set of therapies that aim to minimize the negative implications of severe life-threatening illnesses on the well-being of the individual affected. The progression of the disease and the symptomatology cause a gradual and generalized deterioration of the patient's condition and the physical symptoms cause the progressive loss of the functional capacity which, associated with emotional manifestations due to the moment the patient is living through, impact its quality-of-life. **Objective:** To correlate the functional capacity with the quality-of-life of cancer patients in palliative care. **Method:** Quantitative investigation with 225 individuals whose data were collected through sociodemographic questionnaire, Barthel Index and the European Organization for Research in the Treatment of Cancer Questionnaire Palliative (EORTC QLQ-C15-PAL) **Results:** The sample of 225 eligible individuals consisted in men and women evenly distributed with mean age of 55.73±15.14 years. Statistical analysis showed a positive association of 0.74 between the Barthel Index and the EORTC QLQ-C15-PAL quality-of-life with level of significance of $p<0.05$, as well as a negative correlation of -0.702 and -0.544 for the subscales functional and symptoms, respectively. **Conclusion:** There is a significant correlation between functional capacity and quality of life in cancer patients undergoing palliative care.

Key words: palliative care; functional residual capacity; quality of life.

RESUMO

Introdução: Cuidados paliativos são descritos como um conjunto de terapêuticas que visam minimizar as implicações negativas das doenças graves que ameaçam a vida e o bem-estar do indivíduo acometido. A progressão da doença e a sintomatologia provocam uma deterioração gradual e generalizada do estado do doente, e os sintomas físicos ocasionam a perda progressiva da capacidade funcional que, associados às manifestações emocionais pelo momento em que o paciente se encontra, impactam a sua qualidade de vida. **Objetivo:** Correlacionar a capacidade funcional com a qualidade de vida de pacientes oncológicos em cuidados paliativos. **Método:** Estudo transversal de abordagem quantitativa com 225 indivíduos. Os dados foram coletados por meio de questionário sociodemográfico, do índice de Barthel e do *European Organization for Research in the Treatment of Cancer Questionnaire Palliative* (EORTC QLQ-C15-PAL). **Resultados:** Dos 225 indivíduos elegíveis, observou-se homogeneidade entre a porcentagem de homens e mulheres, com média de 55,73±15,14 anos de idade. A análise estatística demonstrou associação positiva entre o escore do índice de Barthel e o escore de qualidade de vida do EORTC QLQ-C15-PAL com coeficiente de 0,74 e nível significância de $p<0{,}05$, bem como correlação negativa para as subescalas funcional e de sintomas com coeficiente de -0,702 e -0,544, respectivamente. **Conclusão:** Há uma correlação significativa entre a capacidade funcional e a qualidade de vida em pacientes oncológicos em cuidados paliativos.

Palavras-chave: cuidados paliativos; capacidade residual funcional; qualidade de vida.

RESUMEN

Introducción: Cuidados paliativos se describen como un conjunto de terapias que tienen como objetivo minimizar las implicaciones negativas de enfermedades graves que amenazan la vida y el bienestar del individuo afectado. La progresión de la enfermedad y la sintomatología provocan un deterioro paulatino y generalizado del estado del paciente, los síntomas físicos provocan la pérdida progresiva de la capacidad funcional, asociados a manifestaciones emocionales debido al momento en el que se encuentra el paciente, impactando en la calidad de vida del paciente. **Objetivo:** Correlacionar la capacidad funcional con la calidad de vida de pacientes oncológicos en cuidados paliativos. **Método:** Estudio transversal con un enfoque cuantitativo en el que participaron 225 individuos. Los datos se recogieron mediante un cuestionario sociodemográfico, el índice de Barthel y el *European Organisation for Research in the Treatment of Cancer Questionnaire Palliative* (EORTC QLQ-C15-PAL). **Resultados:** De los 225 individuos elegibles, se observó homogeneidad de género, con una edad promedio de 55,73±15,14 años. El análisis estadístico mostró una asociación positiva entre la puntuación del índice de Barthel y la puntuación de calidad de vida de la EORTC QLQ-C15-PAL con un coeficiente de 0,74, adoptando una significancia de p<0,05, así como una correlación negativa para las subescalas funcional y de síntomas con un coeficiente de -0,702 y -0,544, respectivamente. **Conclusión:** Existe una correlación significativa entre la capacidad funcional y la calidad de vida en pacientes oncológicos en cuidados paliativos.

Palabras clave: cuidados paliativos; capacidad residual funcional; calidad de vida.

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INTRODUCTION

The epidemiological profile of countries has been changing over the decades. Currently, the group called chronic non-communicable diseases (NCDs), composed of cardiovascular diseases, chronic respiratory diseases, diabetes, cancer, among others, has a global prevalence, being indicated as a public health problem and one of the leading causes of death worldwide[1].

Among the most prevalent diseases is cancer, characterized by the disorganized multiplication of abnormal cells of a given tissue, with the ability to spread to other tissues and organs. This characterization covers a group of more than 100 diseases and has a multifactorial origin[2].

The evolution of science has made it possible to discover and apply different resources and treatments for this disease, such as surgery, systemic therapy, chemotherapy, immunotherapy, and radiotherapy. Because they are clinical therapies of cellular mechanism of action, they can generate complications for individuals undergoing cancer treatment, including muscle weakness. This complication has the potential to cause longer hospital stays and decreased survival[3].

When the cancer is in an advanced stage and with metastases, with no therapeutic prospect of cure, the individual can be referred to receive assistance in palliative care. At this moment, the focus is on measures aimed at the identification, evaluation and appropriate therapy for the physical, psychosocial, and spiritual symptoms that affect the quality of life of the individual[4].

According to the World Health Organization (WHO), palliative care consists of care provided by a multidisciplinary team in order to improve the quality of life of patients and their families in the face of a life-threatening disease, through the prevention and relief of suffering, early identification, perfect evaluation, treatment of pain and physical, psychological, social and spiritual symptoms[5].

In general, patients who need palliative actions have a high degree of dependence, caused by the reduction in functional capacity due to the situation in which they are and the symptoms and treatments, also implying perspectives regarding quality of life[6].

The functional capacity of the individual is defined as the ability to manage one's own life, attributed to the degree of independence and autonomy. It involves the harmonious and comprehensive functioning of activities of daily living, in common with mood, communication, mobility and cognition, aspects that allow analyzing the patient's situation to cope with the disease[7].

Quality of life refers to the degree of satisfaction found in life, which encompasses several areas such as social environment, existential aesthetics, family life, emotional life, ability to perform tasks, among others, in a singular and subjective way[8].

Considering the physical repercussions of palliative care and the psychological dimensions that this condition causes to the individual, this research aims to correlate functional capacity with the quality of life of cancer patients in palliative care, in addition to the following specific objectives: to contextualize cancer and its clinical condition; to verify functional capacity; and to evaluate the quality of life of cancer patients in palliative care.

Although the theme addressed is of great relevance, studies relating the variables functional capacity and quality of life in this population are still scarce, thus justifying the relevance in the production of this research. It is also understood that this work will contribute to the generation of new knowledge about the physical repercussions of cancer on the quality of life of patients, provoking a look at the role of physiotherapy in this area. The deepening of knowledge about these aspects may help the health team to develop strategies to improve care for patients in palliative care.

METHOD

Cross-sectional study with a quantitative approach, conduct at Ph. Cancer Hospital of Maranhao Tarquinio Lopes Filho, in Sao Luís, MA, Brazil. The population consisted of cancer patients receiving treatment in the hospital. This research followed the convenience sample, being carried out from October 2021 to October 2022. Individuals over 18 years of age, of both sexes, with a diagnosis of cancer confirmed by biopsy, able to read and understand Portuguese, aware of the diagnosis of cancer, and who were in palliative care were included in the research. Patients who were hemodynamically unstable, who did not complete or who refused to answer any item of the questionnaires were excluded from the study.

The research began with the agreement and signature of the Informed Consent Form (ICF). The instruments for data collection were a questionnaire to obtain sociodemographic data, the Barthel index[9,10] to verify functional capacity, and the European Organization for Research in the Treatment of Cancer QuestionnairePalliative[11] (EORTC QLQ-C15-PAL) to investigate quality of life.

The Barthel index is an instrument that assesses the individual's level of functional independence in ten basic life activities, which are: feeding, bathing, routine activities, dressing, urinary and rectal sphincter control, bathroom use, chair-bed-chair transfers, mobility on flat surfaces, and going up and down stairs. The scale score ranges from 0 to 100, where 0 corresponds to the maximum dependence of the individual, and 100, to the total independence to perform activities of daily living[9]. This scale is validated for cancer patients in palliative care[10].

The EORTC QLQ-C15-PAL is an instrument that assesses the quality of life of cancer patients in palliative care, validated for Brazilian Portuguese. It consists of 15 items, presented in three domains, which are: symptom status (nine items), functional scale (five items) and global health status (one item). The first two domains mentioned above must be scored by patients on a four-point Likert scale, in which 1 corresponds to nothing and 4 to a lot, while the overall health status on a scale from 0 (the worst possible) to 7 (excellent)[11].

Its interpretation must be performed separately for each domain, and there is a need to transform the raw scores into scores ranging from 0 to 100. For the functional and global health subscale, a higher score indicates a better condition of the individual, whereas, in the symptom domain, a higher score indicates greater impairment[12].

The data obtained during the collection were tabulated in the Microsoft Excel tool. Qualitative variables were described in tables containing absolute and relative frequencies, and quantitative variables in mean, standard deviation, median, interquartile difference, and amplitude. For consistency analysis of the research and processing of the correlation, the statistical *software* STATA, version 16.0, was used, adopting a significance level of 5%. Then, the Shapiro Wilk test was applied to verify the normality of the data and, from this, the use of Spearman's correlation coefficient, which established the magnitude of correlation between functional capacity and quality of life of cancer patients in palliative care.

This research was submitted to the Research Ethics Committee of the Federal University of Maranhão and approved under the consolidated opinion number 4,711,612 (CAAE: 44064821.5.0000.5087), based on Resolution nº. 466/2012 of the National Health Council[13].

This study has risks of information leaks that can cause embarrassment to the individual. Thus, the researchers were assured of the utmost precaution so that this could be avoided. The benefits are indirect to the participants of this study. It is hoped that the offer of knowledge on the subject addressed can contribute to the scientific community as well as to the population.

RESULTS

A study carried out with 225 participants, with homogeneity between genders, with 49.78% female and 50.22% male, and an average of 55.73±15.14 years of age.

Table 1 shows the data involving the sociodemographic and clinical information of the participants, most of whom had low education, whose highest level of formal education was divided into primary education (32%) and elementary education (35.56%). Regarding marital status, the largest number of the sample was composed of married individuals (n=119).

It is also noteworthy that most of them underwent drug treatment (n=122), in which 64% continue to work actively. The presence of metastasis is found in 57.33% of the participants.

Table 2 describes the results on raw scores of the EORTC QLQ C-15 pal and the Barthel index. Regarding the Barthel index, the average found was 72.39±19.92, with a range of 100 to 25, indicating that most participants eventually need some help to perform activities of daily living.

Regarding the EORTC QLQ C-15 pal, the functional subscale had a mean of 44.44±25.27, which suggests some decrease in the functionality of the participants; the symptom score had a mean of 36.88±20.33, demonstrating that they had a certain burden of symptoms. The mean quality of life subscale was 55.33±28.80, which indicates that the individuals studied perceive their quality of life as unsatisfactory.

In this study, the Barthel index was correlated with each subscale of the EORTC QLQ-15 PAL. Table 3 shows the results found, which demonstrate that the Barthel index was associated with the EORTC QLQ C-15 pal domains, with a positive association for the quality-of-life score, with a coefficient of 0.74, and a negative association for the functional and symptom domains, with a coefficient of -0.702 and -0.544, respectively.

DISCUSSION

The results of the present study indicate that the gender of the participants was practically homogeneous, with an average age of 55.73±15.14 years, most of whom were married and still actively exercising their work activity. Similarly to this, a study that verified the sociodemographic profile of patients in palliative care obtained similar results regarding the age group (50 and 61 years) and marital status, in which 67% had a fixed partner and low education. On the other hand, there was a prevalence of females (77%), and most participants did not work[14].

Regarding the age group found in the research, studies indicate that the advanced age of the participants may be related to the increase in life expectancy indicated by demographic estimates of population aging. Thus, chronic-degenerative diseases must be seen as a priority

Table 1. Sociodemographic and clinical characteristics of cancer patients. São Luís, MA, 2022 (n=255)

Variables	N	%
Gender		
Female	112	49.78
Male	113	50,22
Age (years)		
(Average ± standard deviation)	55.73±15.14	
Range (highest-lower value)	(86-18)	
Marital status		
Married	119	52,89
Divorced	22	9.78
Single	50	22.22
Widow/widower	34	15,11
Education		
Primary	72	32.00
Elementary school	80	35.56
High school	66	29.33
Higher education	7	3,11
work status, job status, project status		
Active	144	64.00
Standstill	81	36.00
Current treatment		
Surgical	23	10,22
Medication	122	54.22
Chemotherapy	69	30.67
Radiotherapy	11	4.89
Presence of metastasis		
No	96	42.67
Yes	129	57.33

Table 2. Results of EORTC QLQ-C15 and Barthel index of cancer patients. São Luís, MA, 2022 (n=255)

Scales	
Barthel – Total score	
Average ± standard deviation	72.39±19.92
Average (3-quartile quartile 1)	70.00 (90-55)
Range (highest-lower value)	100/25
EORTC QLQ-C15 pal	
Functional score	
Average ± standard deviation	44.44±25.27
Average (3-quartile quartile 1)	40 (66.67-26.66)
Range (highest-lower value)	(100-0)
Symptoms score	
Average ± standard deviation	36.88±20.33
Average (3-quartile quartile 1)	37.03 (55.55-18.52)
Range (highest-lower value)	(85.19 - 0)
Quality of life score	
Average ± standard deviation	55.33±28.80
Average (3-quartile quartile 1)	50.00 (83.33-33.33)
Range (highest-lower value)	(100-0)

Table 3. Correlation between the EORTC QLQ-C15 and the Barthel index of cancer patients. São Luís, MA, 2022 (n=255))

EORTC QLQ-C15 PAL domains	Barthel index	
	Coefficient	***p-value*** *
Functional score	-0,702	**<0.001**
Symptoms score	-,544	**<0.001**
Quality of life score	0,749	**<0.001**

(*) Spearman rank correlation coeficiente.

in health care[15].

According to some studies, low education is associated with the possibility of less understanding by patients about information, guidelines, and recommendations in relation to health care in general. Delay in seeking health services is commonly observed in this population and may lead to a greater possibility of suffering[16,17].

Regarding the presence of metastasis, the data found in this study corroborate a study in which most individuals had metastatic tumors, already in advanced stages of the disease[18]. In addition, authors report that the palliative purpose is directed to these cases, since the presence of metastases limits the use of curative therapeutic protocols[19].

In the research in question, functional capacity was assessed using the Barthel index, which indicated that most individuals needed some assistance to perform basic life activities. In agreement, a study that evaluated the functional capacity of individuals in palliative care, using the Karnofsky performance index (KPS)[20], obtained an average of 64.63±15.34 of the total score, indicating the need for occasional help by the participants to perform some daily activities.

Regarding quality of life, the results of the application of the EORTC QLQ C-15 pal indicated, in their domains, a certain degree of functional dependence, symptom burden, and that patients evaluated their quality of life as unsatisfactory. Regarding this, a systematic review revealed that individuals with colorectal cancer in palliative care report low health-related quality of life, and that there are multiple variables, such as age, gender, education, depression, type of treatment performed, which may interfere with this understanding[21].

For some authors, the perception of individuals in relation to quality of life is subjective and is linked to several factors such as the state of health in which they are, presence of symptoms such as pain and difficulty in performing personal activities, inability to return to work, financial difficulties, support from family members, among others. The health-disease process is closely linked to how the individual sees life, directly influencing their quality of life[22].

In another study, which evaluated the quality of life of cancer patients in palliative care, contrary results were evidenced, in which the individuals studied considered the quality of life as satisfactory with an average greater than 60 of global health. This indicates that the maintenance of quality of life has been gaining prominence in the treatment of cancer patients, especially for those in palliative care[23].

The quality of life of cancer patients in palliative care has been increasingly monitored by health professionals involved in treatment and rehabilitation. The interest in a better quality of life at the end of life, in Brazil, is involved in a greater understanding of the characteristics related to care in this final period in which the individual is[24].

This study correlated functional capacity with the quality of life of cancer patients in palliative care, obtaining a significant association between the Barthel index and the domains of the EORTC QLQ C-15 pal. In agreement, a study that used the KPS to measure functional capacity and the EORTC-QLQ-C30 to assess quality of life in 400 women diagnosed with breast cancer showed results that indicated that quality of life was closely related to functional capacity, especially in the functional, symptom and global health scales[25].

A study conducted with 101 patients diagnosed with cancer undergoing chemotherapy treatment obtained results indicating that the global health *status* and quality of life assessed by the EORTC-QLQ-C30 have a direct association with functional capacity measured by the KPS. Data that resemble those found in the present research.

As limitations, one can consider the fact that the sample is composed entirely of patients seen in a hospital service, without the inclusion of those seen in outpatient clinics, clinics or at home. Thus, the data are not generalizable to other realities. The exclusion of individuals who did not complete or who refused to answer any item of the questionnaire can also be highlighted as a limitation. In the literature, there are few studies of correlation between functional capacity and quality of life of cancer patients in palliative care, which limits the discussion and comparison of this work with others.

CONCLUSION

Functional capacity has a significant correlation with quality of life in cancer patients in palliative care. The results also indicated that these patients have a decrease in functional capacity, since most participants needed help to perform activities of daily living and that this quality of life was perceived by them as unsatisfactory.

CONTRIBUTIONS

All authors contributed substantially in the design and/or planning of the study; in the analysis and/or interpretation of the data; in the writing and/or critical review; and approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interest to declare.

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