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The suffering is expensive: comparison of therapeutic costs between palliative care and dysthanasia patients

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Abstract: Objectives: Several studies highlight benefits of palliative care for patients with life-threatening illnesses, especially in terms of pain control and improving life quality. However, there is still research gap, particularly in the Brazilian context, regarding its ability to reduce costs associated with unnecessary invasive tests and procedures often invested in dysthanasia patients, thereby relieving the burden on the healthcare system. Given this scenario, the objective was to determine whether there is a significant difference in healthcare costs between cancer patients receiving palliative care and those in dysthanasia. Method: Documentary research, analyzing 94 medical records of patients who died from cancer in a hospital, divided into two groups: 47 in palliative care and 47 in dysthanasia. The groups had their average costs compared by surveying all tests and procedures recorded in the last 30 days of each patient's life, with values scored based on the price table of the Unified Health System (Sistema Único de Saúde). Results: Patients receiving curative care in dysthanasia incurred an average cost of 2,316.92 Brazilian Reais (SD = 3,146.60) for tests and procedures in the last 30 days of life. Patients in palliative care had an average cost of 945.40 Brazilian Reais (SD = 2,508.01). There is a statistically significant difference in the invested values between patients in palliative care and those in dysthanasia ($U = 620.00$; $Z = -4.334$; $p < 0.001$). Conclusions: Implementing palliative care can be considered an effective strategy for reducing hospital costs, leading to significant savings within the healthcare system.

Keywords: Cancer, palliative care, end-of-life care, cost analysis.

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ESP El sufrimiento es caro: comparación de costos terapéuticos entre pacientes en cuidados paliativos y distanasia

ESP **Resumen:** Objetivo: Varios estudios destacan los beneficios de los cuidados paliativos para pacientes con enfermedades potencialmente mortales, especialmente en términos de control del dolor y mejora de la calidad de vida. Sin embargo, todavía existe un vacío de investigación, particularmente en el contexto brasileño, con respecto a su capacidad para reducir los costos asociados con pruebas y procedimientos invasivos innecesarios que a menudo se invierten en pacientes con distanasia, aliviando así la carga sobre el sistema de salud. Ante este escenario, el objetivo fue determinar si existe una diferencia significativa en los costos de atención médica entre los pacientes con cáncer que reciben cuidados paliativos y aquellos en distanasia. Método: Investigación documental, analizando 94 historias clínicas de pacientes que fallecieron por cáncer en un hospital, divididas en dos grupos: 47 en cuidados paliativos y 47 en distanasia. Los grupos compararon sus costos promedio encuestando todas las pruebas y procedimientos registrados en los últimos 30 días de vida de cada paciente, con valores puntuados con base en la tabla de precios del Sistema Único de Salud. Resultados: Los pacientes que recibieron atención curativa en distanasia incurrieron en un costo promedio de 2,316,92 reales brasileños (SD=3.146,60) por pruebas y procedimientos en los últimos 30 días de vida. Los pacientes en cuidados paliativos tuvieron un costo promedio de 945,40 reales brasileños (DE=2,508,01). Existe una diferencia estadísticamente significativa en los valores invertidos entre pacientes en cuidados paliativos y aquellos en distanasia (U=620,00; Z=-4,334; p<0,001). Conclusiones: La implementación de cuidados paliativos puede considerarse una estrategia eficaz.

Palabras clave: Cáncer, cuidados paliativos, atención terminal, análisis de costos.

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1. Introduction

Cancer is configured as a high incidence disease, representing one of the main causes of death and one of the greatest barriers to increasing the life expectancy of the world's population(1-2). It is estimated that in 2020, there were approximately 19.3 million new cases of cancer worldwide (18.1 million if we exclude non-melanoma skin cancer cases), of which approximately 10 million resulted in the death of patients(1). The impact of the disease on the global population is significant, affecting one in five individuals over their lifetime(1,3) and being the cause of death for one in every eight men and one in every eleven women(1).

In the Brazilian context, cancer also poses a significant challenge, with approximately 450,000 new cases diagnosed and 232,000 deaths each year, making it the second most common cause of death(4). Furthermore, expectations regarding these rates are pessimistic because, due to population growth and aging, it is estimated that between 2020 and 2040, there will be a 66% increase in the number of new cancer cases and an 81% increase in cancer-related deaths in the country, solidifying it as one of the leading causes of death in the country(4).

Due to the significant and concerning statistics, despite advances in biomedicine regarding its treatment, cancer has a negative social representation, with the popular imagination associating the disease with painful treatments and its diagnosis with a death sentence[5-6]. Faced with the threat posed by a cancer diagnosis, a scenario of battle unfolds for the patient, where the disease is seen as an adversary to be fought, and the treatment becomes a true struggle against death, sustained by the hope of a cure that must be achieved through medical treatment or perhaps granted through divine intervention(6). During the treatment, a combative stance is encouraged among the triad of patient, family, and healthcare professionals. The patient is expected to carry themselves as a "warrior" who fights and endures, while the family and doctors must exert all efforts and utilize all resources to achieve a cure. This is because death in this context is often perceived by all as a failure, which confronts them with their limitations, powerlessness, and their own mortality(7).

In this battle against cancer, the course of the disease can either lead to success and cure or result in the dreaded reserved prognosis, where therapeutic success is not foreseeable. It is at this moment that the healthcare team may commonly adopt a stance of therapeutic obstinacy through dysthanasia, choosing to implement aggressive and futile procedures and interventions aimed at prolonging the patient's life at any cost, even though they are incapable of reversing the course of the dying process. In dysthanasia, this process becomes more prolonged, and the patient is subjected to intense and unnecessary suffering(8-9). It is, therefore, a therapeutic approach that subjects the patient to an undignified, difficult, and excessively painful death, reducing their quality of life in the dying process. Similarly, it adds an unnecessary burden to the healthcare system(10).

In contrast to this logic, orthothanasia emerges as an alternative that promotes dignity, advocating for a death at the right moment without abbreviation or prolongation. It offers care at all times, with the control of pain and comprehensive management of physical, psychological, social, and spiritual discomforts for both the patient and their family(7,11). In orthothanasia, the patient is surrounded by their family and loved ones, with their dignity protected and the opportunity to make decisions about the course of their treatment. Their wishes are considered while receiving individualized care(12-13).

Orthothanasia is made possible through palliative care, defined by the World Health Organization(14) as an approach that improves the quality of life for patients and their families when facing problems associated with life-threatening illnesses or severe suffering. This strategy provides prevention and relief of pain and suffering and allows for an affirmative approach to life, recognizing death as a natural process in the human experience. Its goal is not to hasten or delay the dying process but to provide support so that the patient can live as actively as possible during their process of finitude. Additionally, palliative care extends to the patient's family, expanding the support strategy to help them cope with the illness and the resulting grieving process.

However, despite the importance and benefits of palliative care, the implementation of this strategy faces barriers in the form of attitudinal obstacles from professionals, organizations, and the healthcare system itself, particularly in countries with lower-income populations(13). It is estimated that, annually, more than 56.8 million people, including 25.7 million in their last year of life, require palliative care, of which 78% reside in low and middle-income countries. The projection for the coming decades is that the global need will continue to grow, due to factors such as population aging and an increase in the incidence of non-communicable diseases. By 2060, it is estimated that the need for end-of-life palliative care will double. In contrast, globally, only 12% of the population in need of palliative care is currently being served by healthcare professionals using this approach(14).

Resistance to the implementation of palliative care has negative effects on patients, their families, and healthcare systems worldwide. Patients who do not receive palliative care often die with invasive and unnecessary treatments, in suffering, compromising the effectiveness of providing a good quality of life during the end-of-life process(15,16). In Brazil, this resistance places the country 42nd out of 80 countries in a ranking of countries with the worst quality of death for their patients(17).

In addition to all the benefits provided to patients and their families, evidence has shown that palliative care teams effectively reduce the cost of clinical care for patients with advanced diseases without compromising the quality of care provided to them(13,18,19). Thus, a care model based on palliative care can also be a decisive factor in reducing healthcare resource waste(19-23). For example, it can reduce the quantity and duration of emergency hospitalizations and stays in intensive care units, thus contributing to resource efficiency(19,21-22).

In Brazil, for example, the federal government spent approximately R$ 3.50 billion on hospital and outpatient procedures in the Unified Health System (SUS) for cancer patients aged 30 or older in the year 2018 alone. If the trend of increasing cases continues at this rate, it is projected that by 2040, the federal government's expenditure could reach around R$ 7.84 billion. Therefore, optimizing the utilization of limited and finite resources available to healthcare systems is a pressing need, especially in the oncological context, as expenditures on cancer care threaten the financial viability of these systems(4).

In this context of increasing pressures on healthcare budgets, evidence regarding the economic value of treatments and interventions is essential to inform resource allocation and improve the quality and efficiency of healthcare delivery(19). In this way, it becomes relevant to identify and question practices such as dysthanasia, which do not benefit the patient, on the contrary, they hinder their dying process, in addition to unnecessarily burdening public finances. It is imperative to assess the allocation of resources in public healthcare that are inadvertently being invested not in cure but in prolonging the suffering of patients in the terminal stages of their illness.

In light of the above, it is recognized that there are several studies that demonstrate the benefits of palliative care to patients, especially in terms of pain control and the provision of quality of life. However, there is still a gap in research, particularly in the Brazilian context, regarding its ability to reduce costs associated with unnecessary tests and invasive procedures, thus relieving the burden on the healthcare system. To address this demand, the objective was to determine whether there is a significant difference in healthcare costs between cancer patients receiving palliative care and those subjected to dysthanasia. Through this analysis, it will be possible to provide insights to support strategic decision-making by managers, aiding in the prioritization of interventions aimed at optimizing public resources, such as the implementation of palliative care teams and the provision of quality of life in the process of dying of cancer patients.

2. Method

Study type

The present study is a documentary research involving the analysis of medical records of terminally ill cancer patients at a specialized cancer care hospital in Fortaleza (Ceará, Brazil).

Sample

The study utilized a non-probabilistic convenience sample, consisting of 94 medical records of patients who passed away due to cancer, divided into two groups: 47 patients receiving palliative care and 47 patients subjected to dysthanasia (see Table 1).

The decision to limit the sample to cancer patients was made to avoid the type of pathology acting as a third variable that could create biased data, since different pathologies would entail different treatments, symptoms, and consequently, varying therapeutic costs, regardless of the approach. Furthermore, cancer is the second leading cause of death in the country and receives the most significant investment in palliative care.

It's also worth noting that the choice of a single institution follows the same logic. Although the city has several hospitals that provide cancer care, they differ in terms of the complexity of their services, tests, and procedures. Therefore, selecting patients from the same institution, who have equal access to tests and procedures of the same complexity level, will allow us to determine if differences arise due to the type of therapeutic approach used, rather than the complexity level of the institution.

Inclusion criteria included: 1) Group 1 - medical records of patients with a declared reserved prognosis who were under the care of the palliative care service (hospital-based and/or home-based), and 2) Group 2 - patients who had a prognosis of terminality, metastasis, or for whom treatments were no longer curative (characteristics of patients indicated for complementary or exclusive palliative care), but who were not placed under palliative care and remained on curative treatments (dysthanasia/therapeutic obstinacy) until their passing.

Table 1. Participant distribution by type of approach

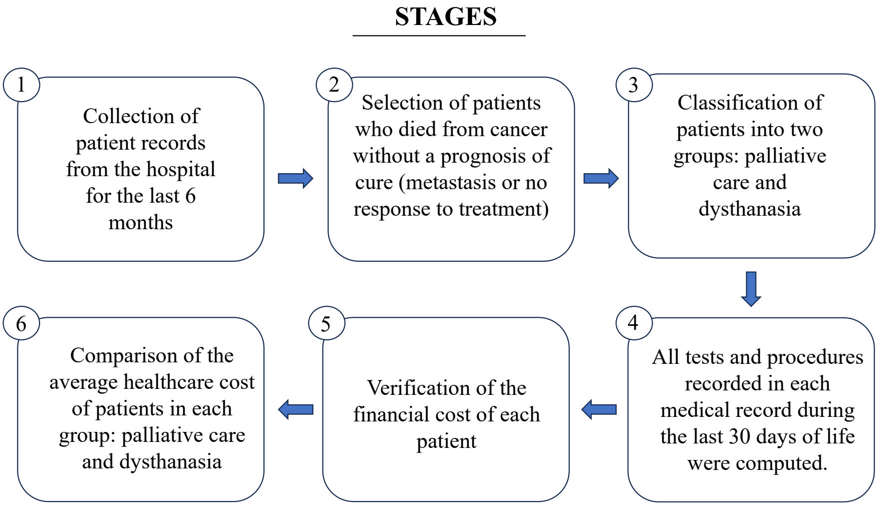
TYPE OF APPROACH	PARTICIPANTS
Palliative Care	47
Therapeutic obstinacy	47
Total	94

Document Selection

The search was conducted in all patient medical records admitted to the hospital during a six-month time frame. In the initial, filter-free search, all medical records were analyzed, and only those related to patients who died with metastasis or without response to treatment were selected.

After applying the inclusion criteria, the medical records were classified into two groups: palliative care or dysthanasia. Then, all tests and procedures recorded in each medical record during the last 30 days of the patients' lives were computed. Subsequently, the financial cost of each patient was assessed. Finally, comparisons were made of the average cost of patients in each group: palliative care and dysthanasia (see Figure 1).

Figure 1. The stages of the documentary research



Ethical Aspects

The project was approved by the Research Ethics Committee, under report number 2,428,047, and the research was conducted in accordance with ethical standards, respecting National Health Council Resolutions 466/12, 510/16, and 580/18, with the participants providing an informed term of consent.

3. Results

Regarding the data description, it was found that patients receiving dysthanasia-oriented curative care had an average cost of 2,316.92 Brazilian Reais (SD = 3,146.60) for tests and procedures in the last 30 days of life. The most expensive patient cost 16,457.13 Brazilian Reais, and there were also patients who did not generate any expenses. On the other hand, patients receiving palliative care had an average cost of 945.40 Brazilian Reais (SD = 2,508.01). Notably, the most expensive patient in this group cost 13,986.40 Brazilian Reais, with some patients not incurring any expenses for the hospital (see Table 2).

Table 2. Descriptive Statistics of Healthcare Expenses in the Studied Groups

	N	**Minimum**	**Maximum**	**Average**	**SD**	**Median**
Patients in Dysthanasia	47	0	16,457.13	2,316.92	3,146.60	1,332.94
Patients in Palliative Care	47	0	13,986.49	945.40	2,508.01	20.00

With the aim of determining whether there is a statistically significant difference between the costs of the two groups, the normality of the data was examined to determine the most appropriate test. Based on the normality test (Kolmogorov-Smirnov), it was found that the data for both the palliative care group (p<0,001) and the dysthanasia group (p<0,001) are non-parametric, indicating that the Mann-Whitney test is more suitable for this case (see Table 2).

Based on the Mann-Whitney test, it was found that there is a statistically significant difference in the invested values between patients receiving palliative care and those subjected to dysthanasia (U = 620.00, Z = -4.334, p < 0.001). It is confirmed that these patients receiving curative care are more expensive (MD = 1,332.94) than the palliative care patients (MD = 20.00) (see Table 3). Subsequently, the effect size of the comparison was assessed and was found to be moderate (r = -0.57).

Table 3. Test U of Mann-Whitney

	Costs
U of Mann-Whitney	620.000
Wilcoxon W	2051.000
Z	-4.334
Significance Sig. (bilateral)	<.0001

4. Discussion

The present research revealed a significant discrepancy in hospital costs associated with the treatment of cancer patients. The results indicated that patients undergoing curative measures until the time of death incurred much higher costs than those who received palliative care.

This finding aligns with a similar study conducted by Chung et al.(20) in the United States. The study compared patients receiving palliative care with those receiving curative treatment in intensive care units. Although patients under palliative care had a longer length of stay, the average total cost of hospital expenses for this group was 21% lower compared to the curative treatment group.

It also aligns with another study conducted by Abian et al.(18), in which it was highlighted that patients assisted by palliative care teams during their last hospitalization had lower costs compared to those who did not receive this assistance, even with the same level of severity and risk of mortality. The authors emphasized the importance of integrating knowledge in palliative care into the training programs of medical specialties that deal with advanced and complex diseases. Additionally, they underscored the relevance of an appropriate approach to treatment, considering the appropriateness of therapeutic efforts in relation to the benefit, which can optimize healthcare resources.

Considering these results, the early implementation of palliative care may be a relevant strategy to provide cost savings to the hospital system, as discussed by Srinivasan et al.(22) in a study conducted at a large academic medical center in the United States. The results of this prospective cohort study showed that the palliative care strategy resulted in cost reduction throughout the patients' hospitalization period, being even more effective when introduced early within the first three days of admission.

The importance of early initiation of palliative care in reducing hospital costs was also highlighted in the study conducted by Sheridan et al.(21) with advanced cancer patients in a metastatic state. Patients who received palliative care earlier experienced a significant cost reduction compared to those who received curative care until the end of life. Among patients receiving palliative care, those who were included earlier (about four weeks before death) showed a cost reduction of approximately $4,643, while those who received palliative care only in the last seven days of life had a cost reduction of approximately $451.

These data highlight the positive impact of the palliative care strategy on reducing hospital costs for terminal-phase patients, aligning with previous studies that have also demonstrated the economic value of these interventions. Luta et al.(19) emphasize that evidence regarding the economic value of treatments and interventions is essential for better resource allocation and healthcare efficiency. The authors emphasize that a patient-centered approach and the early implementation of palliative care can contribute to greater efficiency in resource utilization.

Therefore, the results of the present research are in accord with previous international studies that support palliative care as a cost-saving strategy in the hospital setting(22). A patient-centered approach and early implementation of palliative care have the potential to reduce hospital costs while improving the quality of care and the patient's experience in their final journey of life.

5. Conclusion

Based on the results obtained, it is evident that the implementation of palliative care can be considered an effective strategy for reducing hospital costs, leading to significant savings within the healthcare system. These findings align with previous research conducted in other countries that also emphasize the economic value of palliative care interventions in various healthcare settings.

However, despite the significant contributions of the present study to the topic, like any scientific endeavor, it has limitations. First, it did not investigate or evaluate whether the specific timing of the introduction of palliative care - whether earlier or later - has any impact on a patient's medical costs. This information gap may influence the magnitude of the observed cost savings since early intervention in palliative care may have different effects compared to those in advanced stages of the disease. Another limitation of the research is that it did not investigate whether the palliative care regimen - in the hospital or home setting - differs in terms of medical costs. This comparison could provide valuable insights into the feasibility and efficiency of each model.

Therefore, it is suggested that future research address these limitations, considering in their analyses the timing of patients' entry into palliative care, their level of performance status, and the care setting (home or hospital). This way, it's possible to enhance the understanding of the impact of palliative care on hospital costs.

In summary, the present study reinforces that palliative care, which already has a well-established literature regarding its ability to provide better quality of life for patients in the end-of-life process, deserves another angle of analysis and recognition for its benefits. The results of this study provide support for the relevance of palliative care as an approach that can promote cost savings in the hospital environment. It is important to emphasize that the discourse presented here is not about disinvestment or mysthanasia in patients in the dying process. Rather, it advocates for reflection and a review of the financial expenditure allocated to futile invasive procedures and tests that do not lead to a cure but only result in an undignified and painful prolongation of the dying process.

Managers and health professionals are urged to consider incorporating palliative care into their care protocols for patients with advanced illnesses. To do so, it is necessary to abandon the myth that this is an expensive team and superfluous to the management plan, as, through this strategy, it is not only possible to provide more humanized assistance focused on the patient's needs, but there is also a significant reduction in hospital costs. Therefore, this work does not end here, it is merely an invitation for the community, experts, academics, and managers to engage in discussions, research, and revisions of public policies and therapeutic plans for patients in the dying process.

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