Quality of Life of Patients Undergoing Chemotherapy Treatment at a Leading Oncology Hospital in the Northern Region

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Qualidade de Vida de Pacientes em Tratamento Quimioterápico Atendidos em um Hospital de Referência Oncológico da Região Norte

Calidad de Vida de Pacientes en Tratamiento de Quimioterapia Atendidos en un Hospital Oncológico de Referencia de la Región Norte

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ABSTRACT

Introduction: Cancer is a malignant neoplasm that is among the leading causes of morbidity and mortality. Its treatment has always been a concern due to its biopsychosocial consequences and impacts on quality of life. **Objective:** To analyze the quality of life of cancer patients undergoing chemotherapy treatment at a reference institution in the North region of Brazil. **Method:** Descriptive, cross-sectional study with a quantitative approach, conducted in the Chemotherapy Sector between May and August 2025. The instrument used was a questionnaire administered in person, containing two sections: one aimed at obtaining general data about the participants and the other containing the Medical Outcome Severity Short-Form 36 Health Survey (SF-36). **Results:** Fifty-two cancer patients participated in the study. The quality-of-life scores for physical limitation and emotional limitation showed the lowest mean values (12.0 and 36.5, respectively). Regarding age, patients aged 60 to 77 years achieved better mean scores in emotional limitation and perception of general health status (51.9 and 67.5) compared with patients aged 20 to 39 years (16.7 and 52.0). In addition, patients undergoing treatment for more than 12 months did not present significantly different quality-of-life scores compared to those with a shorter treatment duration. **Conclusion:** Quality of life did not show a linear correlation with the time since cancer diagnosis in the studied sample, reinforcing the multifactorial and individual nature of this perception. Furthermore, older participants presented better scores regarding their subjective perceptions of quality of life.
Key words: Neoplasms; Quality of life; Drug Therapy.

RESUMO

Introdução: O câncer é uma neoplasia maligna que figura entre as principais causas de morbimortalidade. Seu tratamento sempre suscitou preocupação por causa dos seus desdobramentos biopsicossociais e dos impactos à qualidade de vida. **Objetivo:** Analisar a qualidade de vida de pacientes oncológicos em tratamento quimioterápico em uma instituição de referência na Região Norte do Brasil. **Método:** Pesquisa de caráter descritivo, transversal, com abordagem quantitativa, realizada junto ao Setor de Quimioterapia, entre maio e agosto de 2025. O instrumento utilizado foi um questionário aplicado de forma presencial, contendo duas seções, sendo uma delas direcionada a obter dados gerais sobre os participantes e outra contendo o *Medical Outcome Short-Form 36 Health Survey* (SF-36). **Resultados:** Participaram do estudo 52 pacientes oncológicos. Os escores de qualidade de vida de limitação física e limitação emocional apresentaram as menores médias (12,0 e 36,5). Quanto à idade, pacientes de 60 a 77 anos pontuaram melhor na média de limitação emocional e percepção de estado geral de saúde (51,9 e 67,5) em comparação aos de 20 a 39 anos (16,7 e 52,0). Além disso, pacientes em tratamento há mais de 12 meses não obtiveram escores de qualidade de vida significativamente diferentes de pacientes com menor tempo de tratamento. **Conclusão:** A qualidade de vida não apresentou correlação linear com o tempo de diagnóstico oncológico na amostra estudada, reforçando o caráter multifatorial e individual dessa percepção. Além disso, participantes idosos apresentaram melhores escores no que concerne às percepções subjetivas sobre a sua qualidade de vida.
Palavras-chave: Neoplasias; Qualidade de vida; Tratamento Farmacológico.

RESUMEN

Introducción: El cáncer es una neoplasia maligna que se encuentra entre las principales causas de morbilidad y mortalidad. Su tratamiento siempre ha sido una preocupación debido a sus consecuencias biopsicosociales e impactos en la calidad de vida. **Objetivo:** Analizar la calidad de vida de pacientes con cáncer sometidos a tratamiento de quimioterapia en una institución de referencia en la región Norte del Brasil. Método: Estudio descriptivo, transversal con un enfoque cuantitativo, realizado en el sector de quimioterapia entre mayo y agosto de 2025. El instrumento utilizado fue un cuestionario administrado en persona, que contiene dos secciones: una destinada a obtener datos generales sobre los participantes y otra que contiene el *Medical Outcome Severity Short-Form 36 Health Survey* (SF-36). **Resultados:** Participaron en el estudio 52 pacientes oncológicos. Las puntuaciones de calidad de vida relacionadas con limitación física y limitación emocional presentaron los promedios más bajos (12,0 y 36,5, respectivamente). En cuanto a la edad, los pacientes de 60 a 77 años obtuvieron mejores puntuaciones promedio en limitación emocional y percepción del estado general de salud (51,9 y 67,5) en comparación con los pacientes de 20 a 39 años (16,7 y 52,0). Además, los pacientes en tratamiento durante más de 12 meses no presentaron puntuaciones de calidad de vida significativamente diferentes de aquellos con menor tiempo de tratamiento. **Conclusión:** La calidad de vida no mostró una correlación lineal con el tiempo transcurrido desde el diagnóstico de cáncer en la muestra estudiada, lo que refuerza la naturaleza multifactorial e individual de esta percepción. Además, los participantes de mayor edad presentaron mejores puntuaciones en lo que respecta a las percepciones subjetivas sobre su calidad de vida.
Palabras clave: Neoplasias; Calidad de vida; Quimioterapia.

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INTRODUCTION

Cancer is a malignant neoplasm that represents one of the leading causes of morbidity and mortality in the world population[1]. Projections indicate a significant increase in cancer records, potentially reaching 35 million cases by 2050[2]. More recent estimations suggest the occurrence of 20 million new cases and 9.7 million deaths from cancer in 2022 alone[3]. In Brazil, excluding cases of non-melanoma skin cancer, around 518 thousand new cases a year are estimated for the 2026-2028 triennium[4]. Such data indicate the magnitude of this theme in the country and worldwide, and, consequently, the importance of scientific investigation into therapeutic procedures[5].

The definition of oncological treatment depends on the type of neoplasm, clinical staging, and the patient's individual characteristics[6]. Among the available therapeutic modalities, chemotherapy remains widely employed in the management of different malignant neoplasms, especially in tumors with high proliferative and metastatic potential[6]. However, despite their therapeutic relevance, chemotherapy agents present low cellular selectivity, working not only on neoplastic cells but also on healthy tissues with high cellular renewal rate, which contributes to the development of systemic toxicities during treatment[7].

In this context, adverse events related to chemotherapy result mainly from the cytotoxic and immunosuppressive mechanisms of antineoplastic agents and can vary according to therapeutic protocol, administered dose, exposure time, and clinical conditions of the patient[8]. These toxicities can manifest through gastrointestinal, hematological, cardiovascular, and hepatic alterations, significantly compromising physical, emotional, and functional aspects related to the quality of life of oncological patients[8].

Although previous studies have made important contributions to understanding the adverse effects of chemotherapy, analyses that integrate patients' subjective perception of well-being during chemotherapy treatment are still scarce in scientific literature. Moreover, studies that analyze the logistic and socioeconomic particularities of peripheral populations are still limited in the national scenario[9,10].

In the context of the North Region, this gap is even deeper, as existing studies often neglect how geographic access barriers and assistance gaps directly affect quality of life during chemotherapy[11]. When it comes to patients cared for in the North Region of the country, understanding the impacts of treatment on quality of life has scientific and social relevance, as it can support strategies to improve the process of care for these patients.

In this context, the objective of the present study is to analyze the quality of life of patients in chemotherapy treatment at a referral hospital for cancer treatment located in the North Region.

METHOD

Descriptive, cross-sectional research with a quantitative approach. Data collection was conducted from May to August 2025, including patients aged 18 and over, in chemotherapy treatment for at least six months at the High-Complexity Oncology Center *Hospital Ophir Loyola* (Cacon – HOL), located in Belém, Pará State (PA). This institution is the main oncology reference center in the State of Pará and the North Region of Brazil, playing a key role in the National Health System (SUS) care network, and working as an academic training and research center in the Brazilian Amazon. HOL concentrates the largest volume of high- and medium-complexity specialized consultations in Pará, being the destination of a continuous flow of patients coming from several geographic regions and socioeconomic contexts, including other States, such as Amapá, which provides it with high epidemiological relevance for the study of quality of life in oncology in the regional scenario[12].

The chosen time frame is justified by the need to assess quality of life after the initial period of adaptation to diagnosis and acute side effects from the first therapeutic cycles, considering that the literature suggests that, in the first months, clinical instability and psychological stress tend to fluctuate sharply[9,13].

The study excluded patients who presented any physical impairment (such as speech incapacity or uncorrected hearing loss) or acute psychic suffering at the time of assessment (such as crying spells or psychomotor agitation) that made it unfeasible for them to understand and autonomously fill out the research instrument, as well as those who did not fill out the questionnaire in full.

Patients were invited to participate, and data collection was conducted at the hospital when they were informed about the study's objectives, methodology, risks, and benefits. Upon acceptance, the participants signed the Free and Informed Consent Form (FICF).

Data was obtained from a questionnaire structured in two sections: the first regarding the sociodemographic and clinical profile of participants (independent variables, such as gender, age, marital status, religion, time since diagnosis and duration of chemotherapy); and the second containing the Medical Outcomes Short-Form 36 Health Survey (SF-36)[14], a translated and Portuguese-validated psychometric instrument, used to assess quality of life (independent variables). The questionnaire is composed

of 36 items, divided into 8 categories: functional capacity, physical aspects, pain, overall health status, vitality, social aspects, emotional aspects, and mental health.

Data collection was conducted by the previously trained researchers, aiming to standardize the approach, reading, and clearing operational doubts about the instruments, without inducing any kind of answers. The preliminary training consisted of aligning the team on the theoretical aspects of the SF-36 questionnaire domains and conducting practice runs of its administration to ensure consistency in language and minimize measurement bias.

Data collection was conducted via supervised, in-person self-administration. Given this systematization, the team proceeded with the following steps: initial approach, explanation of the research objectives, and instructions on how to fill out the collection instruments. Next, a printed copy of the questionnaire was delivered for the participant to fill out autonomously and privately.

During this time, the researchers maintained direct visual or verbal contact, strictly intervening when requested by the participants to clear operational doubts. For such, a rigorous standardization was set for this support: upon occasional difficulties in understanding some item, the researcher would simply literally and neutrally read the text of the statement or alternative options out loud in the same tone of voice, without emitting subjective explanations, providing informal synonyms, or paraphrases that could induce the choice of a particular answer. At the end, the questionnaires were returned and immediately checked by the researcher to verify the completeness of all items and avoid missing data.

Although data collection during chemotherapy sessions exposes patients to acute physical and emotional stress factors inherent in the hospital environment, which may influence some answers here and there, this methodological strategy enabled the perception of quality of life at the exact time the impact on the therapeutic routine is more present. Furthermore, addressing patients in the infusion sector enabled access to a clinically active sample and minimized common refusals in approaches conducted in waiting rooms or after chemotherapy.

To calculate the scores and response standardization of the SF-36, the study used the instrument-defined standard algorithm Raw Scale Score, which scores each question on an intensity scale. Later, these crude values were mathematically transformed through specific formulas for each domain, creating a standardized scale that ranges from 0 (worst health status) to 100 (best health status). Therefore, higher scores reflect a better perception of health-related quality of life.

Data was organized in the Microsoft Excel 2010 software. Graphs and tables were built on the tools available in Microsoft Word, Excel, and GraphPad Prism 9.0[15] softwares; the latter was also used for all statistical analyses. The quantitative variables (age, time since diagnosis, duration of chemotherapy, and scores in the SF-36 domains) were described in minimum, maximum, mean, median, and standard deviation values. Qualitative variables (gender, marital status, religion, other treatments, perception of the healthcare team, and degree of agreement with statements) were expressed in frequency and percentage.

The selection of statistical hypotheses tests was strictly guided by verification of normality assumptions. Distribution of numerical data was assessed regarding its normality using the Shapiro-Wilk test[16]. The criterion adopted was that p values> 0.05 indicated adherence to a normal distribution, justifying the use of parametric tests, whereas p values < 0.05 indicated a non-normal distribution, requiring the use of non-parametric methods.

To compare a numerical variable between two independent groups, Student's t test[16] was used for data with a normal distribution, or its non-parametric equivalent, Mann-Whitney's test[16], for data with a non-normal distribution.

To compare numerical variables between three or more independent groups, Analysis of Variance (ANOVA) was used for parametric data, followed by Tukey's post-hoc test[16] to identify specific differences between groups, and the Kruskal-Wallis test[16] was used for non-parametric data, detailed by Dunn's post hoc test for multiple pair-to-pair comparisons. In every post hoc analysis, p was adjusted to mitigate the occurrence of false positives. Results with p<0.05 were considered statistically significant.

This study has been approved by the Research Ethics Committee of the *Universidade do Estado do Pará* and Cacon HOL, report number 7,551,800 (CAAE (submission for ethical review): 86508925.5.0000.5174), in compliance with Resolutions 466/2012[17] and 510/2016[18] of the National Health Council.

RESULTS

A total of 52 patients were included in the study. Table 1 presents the sociodemographic profile of participants. In addition to the data presented, 30.8% of patients had received additional therapies before chemotherapy.

In the quality-of-life overall assessment, presented in Table 2, lower scores were observed in the physical limitation (12.0 ± 24.0) and emotional limitation (36.5 ± 39.2) domains, indicating greater compromise of these dimensions. In contrast, the highest scores were observed in emotional aspects (71.2 ± 23.6), pain (62.4 ± 25.3), and vitality (58.6 ± 23.6).

Table 1. Sociodemographic (gender, age, marital status, religion) and clinical (time since diagnosis and chemotherapy duration) characteristics of patients cared for at Cacon – HOL, Belém-Pará (May-August, 2025)

Variable	Frequency	% (n=52)
Gender		
Female	39	75.0
Male	13	25.0
Age		
20 to 39 years	10	19.2
40 to 59 years	24	46.2
60 to 77 years	18	34.6
Marital status		
Single	22	42.3
Married	15	28.8
Stable union	10	19.2
Widower	5	9.6
Religion		
Catholic	25	48.1
Evangelical	22	42.3
Protestant	3	5.8
Adventist	2	3.8
Time since diagnosis (months)		
Up to 12 months	24	46.2
13 to 24 months	14	26.9
25 to 36 months	6	11.5
>36 months	8	15.4
Chemotherapy duration – current cycle (months)		
Up to 12 months	32	61.5
13 to 24 months	9	17.3
25 to 36 months	4	7.7
>36 months	7	13.5
Other treatments		
No	36	69.2
Yes	16	30.8

Table 2. Quality of life scores of patients cared for at Cacon – HOL, Belém-Pará (May-August, 2025)

Variable	Minimum	Maximum	Median	Mean ± Standard deviation
Physical capacity	5.0	100.0	52.5	51.0 ± 26.9
Physical limitation	0.0	100.0	0.0	12.0 ± 24.0
Emotional limitation	0.0	100.0	33.3	36.5 ± 39.2
Vitality	10.0	100.0	60.0	58.6 ± 23.6
Emotional aspects	12.0	100.0	76.0	71.2 ± 23.6
Social aspects	0.0	100.0	62.5	59.9 ± 28.4
Pain	20.0	100.0	63.8	62.4 ± 25.3
Overall health status	25.0	95.0	60.0	59.0 ± 17.8

Table 3. Relation between age (20-39 years; 40-59 years; 60-77 years) and quality of life scores (SF-36) of patients cared for at Cacon – HOL, Belém-Pará (May-August, 2025)

Variable	20 to 39 years (n=10)	40 to 59 years (n=24)	60 to 77 years (n=18)	*p*
Physical capacity	62.5 ± 32.3	46.3 ± 22.4	50.8 ± 28.9	0.282[1]
Physical limitation	22.5 ± 34.3	9.4 ± 16.2	9.7 ± 25.9	0.373[2]
Emotional limitation	16.7 ± 32.4	33.3 ± 39.3	51.9 ± 38.3	0.043[2]*
Vitality	68.5 ± 25.7	53.1 ± 20.8	60.3 ± 25.1	0.210[1]
Emotional aspects	70.4 ± 22.4	70.2 ± 23.7	72.9 ± 25.4	0.931[1]
Social aspects	62.5 ± 32.3	57.8 ± 29	61.1 ± 26.7	0.814[2]
Pain	70.5 ± 23.6	54.1 ± 27.4	68.9 ± 20.7	0.089[2]
Overall health status	52.0 ± 15.8	55.6 ± 18.5	67.5 ± 15.2	0.035[1]**

Captions: * = Emotional limitation with multiple significant comparisons: "20 to 39 years" *versus* "60 to 77 years" (p=0.043); ** = Overall health status with multiple significant comparisons: "20 to 39 years" *versus* "60 to 77 years" (p=0.046); [1] = Analysis of Variance Test (ANOVA); [2] = Kruskal-Wallis's test.
Note: Numerical variables are represented as mean ± standard deviation.

Table 3 shows the relation between age groups and quality of life scores measured by SF-36. There was a statistically significant difference in the emotional limitation (p=0.043) and overall health status (p=0.035) domains, with higher means among participants aged 60 to 77 years. Broad standard deviations indicated heterogeneity in the perception of quality of life among participants.

Table 4 shows the analysis of the relationship between the duration of chemotherapy since the beginning of the current cycle and quality of life scores. No statistically significant differences were observed between groups with 6-12 months of chemotherapy (61.53%), 13-24 months of chemotherapy (17.3%), and 25-72 months of chemotherapy (21.16%) in any of the assessed dimensions (p>0.05). Only a trend toward higher physical capacity scores was observed in the group with up to 12 months of treatment (57.3 ± 27.6), with no statistical significance (p=0.073). The other dimensions presented similar means (p=0.073).

The analysis between time since diagnosis and quality of life (SF-36), presented in Table 4, did not reveal statistically significant differences in any domain (p>0.05). A trend toward higher scores was observed in patients diagnosed up to 12 months prior, especially in the physical capacity (58.3 ± 27.7) and vitality (62.5 ± 25.4) domains, while emotional aspects received the best scores in the three groups, and physical limitation consistently presented lower scores.

In addition to scores in the SF-36 domains, Chart 1 presents the distribution of answers regarding overall perception of health status and its evolution over the past year. It was observed that 90.4% of participants classified their health as good, very good, or excellent. In comparison with the previous year, 63.5% reported improved health status, 11.5% reported stability, and 25.0% reported aggravation.

Regarding the functional activities assessed in Question 3 of the SF-36 questionnaire (Chart 1), there was a stronger compromise of activities that required intense physical exertion. More than half of the participants reported having great difficulty performing vigorous activities (55.77%), walking more than a mile (53.85%), and walking half a mile (59.62%). On the other hand, most participants showed no difficulties performing basic self-care activities, like bathing or dressing oneself (78.85%).

DISCUSSION

The analysis of results enabled the identification of factors that influence the quality of life of oncological patients in chemotherapy treatment, considering clinical, sociodemographic, and psychosocial variables. When assessing the SF-36 domains in association with characteristics such as time since diagnosis, type of neoplasm, gender, age, religiosity, and marital status, it was possible to observe trends in line with previous literature findings, which reveal important aspects of the subjective experience of these individuals.

Initially, the study showed that quality of life perception does not seem to depend on the chronicity of the diagnosis, given that results show no SF-36 domain presented significant differences between patients with different times since diagnosis. This suggests that quality of life may not have varied significantly between those diagnosed up to 12 months, 13 to 24 months, or more than 24 months prior. Even for patients living with the illness for longer periods, quality of life scores remained relatively stable among patients.

One reason for this pattern is that many patients, throughout the treatment, develop coping mechanisms that help them deal with the illness and its effects[13]. A fact that also explains the reality of most participants reporting

Table 4. Relationship between time since diagnosis and duration of chemotherapy (months) and quality of life scores (SF-36) of patients cared for at Cacon – HOL, Belém-Pará (May-August, 2025)

Variable	Time since diagnosis (months)				Duration of chemotherapy (months)			
	Up to 12 (n=24)	13-24 (n=14)	>24 (n=14)	*p*	Up to 12 (n=32)	13-24 (n=9)	25-72 (n=11)	*p*
Physical capacity	58.3 ± 27.7	44.6 ± 28.0	44.6 ± 22.8	0.1901	57.3 ± 27.6	36.1 ± 20.6	44.5 ± 24.8	0.0731
Physical limitation	10 ± 24.4	16.1 ± 28.8	10.7 ± 18.9	0.6652	14.1 ± 28.4	8.3 ± 12.5	9.1 ± 16.9	0.9882
Emotional limitation	33.3 ± 41.7	47.6 ± 38.6	30.9 ± 35.7	0.4192	37.5 ± 41.3	40.7 ± 36.4	30.3 ± 37.9	0.8142
Vitality	62.5 ± 25.4	57.5 ± 15.9	52.9 ± 26.9	0.4822	63.1 ± 24.4	50.0 ± 18.7	52.3 ± 23.1	0.2081
Emotional aspects	73.8 ± 22.3	67.7 ± 27.4	70.0 ± 22.9	0.8111	73.4 ± 23.1	63.6 ± 28.0	70.9 ± 22.1	0.6232
Social aspects	63.5 ± 28.8	54.5 ± 28.4	58.9 ± 28.8	0.6162	60.9 ± 29.4	55.6 ± 32.5	60.2 ± 23.6	0.9512
Pain	66.0 ± 25.2	56.3 ± 26.5	62.1 ± 25.0	0.5261	65.5 ± 25.8	57.5 ± 24.1	57.3 ± 25.9	0.5122
Overall health status	59.0 ± 18.4	54.3 ± 15.7	63.9 ± 18.5	0.3641	60.6 ± 18.2	53.3±17.7	59.1 ± 17.3	0.5631
Changes to lifestyle	58.3 ± 33.5	75.0 ± 31.0	71.4 ± 23.7	0.2482	65.6 ± 32.2	63.9 ± 39.7	70.5 ± 18.8	0.9952

Captions: [1] = Analysis of Variance (ANOVA);[2] = Kruskal-Wallis's test.
Note: Numerical variables are represented as mean ± standard deviation.

Chart 1. Questions 1, 2, and 3 of the Medical Outcome Severity Short-Form 36 Health Survey (SF-36) questionnaire were applied to patients cared for at Cacon – HOL, Belém-Pará

"The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?"			
Question 1. In general, would you say your health is:		**n**	**%**
Question 1	Excellent	5	9.62
	Very good	15	28.85
	Good	27	51.92
	Fair	5	9.62
	Poor	0	0.00
Question 2. Compared to one year ago, how would you rate your health in general now?		**n**	**%**
Question 2	Much better now than one year ago	16	30.77
	Somewhat better now than one year ago	17	32.69
	About the same as one year ago	6	11.54
	Somewhat worse now than one year ago	11	21.15
	Much worse now than one year ago	2	3.85
Question 3. Activities	**Yes, limited a lot**	**Yes, limited a little**	**No, not limited at all**
a) Vigorous activities, such as running, lifting heavy objects, and participating in strenuous sports	29 (55.77%)	16 (30.77%)	7 (13.46%)
b) Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	20 (38.46%)	18 (34.62%)	14 (26.92%)
c) Lifting or carrying groceries	12 (23.08%)	12 (23.08%)	28 (53.85%)
d) Climbing several flights of stairs	20 (38.46%)	18 (34.62%)	14 (26.92%)
e) Climbing one flight of stairs	14 (26.92%)	10 (19.23%)	28 (53.85%)
f) Bending, kneeling or stooping	15 (28.85%)	14 (26.92%)	10 (19.23%)
g) Walking more than a mile	28 (53.85%)	14 (26.92%)	10 (19.23%)
h) Walking half a mile	31 (59.62%)	12 (23.08%)	9 (17.31%)
i) Walking one hundred yards	11 (21.15%)	17 (32.69%)	24 (46.15%)
j) Bathing or dressing yourself	5 (9.62%)	6 (11.54%)	41 (78.85%)

improved health in comparison to the previous year, which might reflect not only clinical response to the treatment but also a progressive adaptation to the diagnosis and therapeutic process.

The literature suggests that emotional, social, and spiritual strategies can reduce the negative impact of diagnosis over time[19]. It is hypothesized that after the initial months, usually more stressful, many patients reach a phase in which they better accept the illness and adapt to treatment, which would justify the stabilization observed in the perception of quality of life over time, reducing differences between groups.

It is possible that factors such as the intensity of symptoms, adverse effects from chemotherapy, type of protocol utilized, and family support, influence quality of life more than time since diagnosis[15]. Thus, even patients aware of the illness for longer may present quality of life levels similar to those of the recently diagnosed ones[20].

Results reinforce that clinical and psychosocial follow-up must consider immediate factors that affect the well-being of these patients, and not only the time since diagnosis. The stability of scores suggests that specific interventions can be useful regardless of the diagnosis phase. However, patients who present a more

compromised clinical condition require intensified psychological and social support actions, particularly when there is referral to oncological palliative care[21].

Furthermore, delays in diagnosis, limitations in access to services, and inadequacies in follow-up tend to intensify physical and emotional symptoms, which can negatively reverberate in their general well-being. These factors reinforce the need for strategies that broaden screening, qualify care, and promote interventions capable of preserving and improving quality of life throughout the treatment and survival of the illness[12].

The association of domains with the age of patients demonstrated that participants aged 60–77 years presented higher scores in the overall health status and emotional limitation than patients in younger age groups, suggesting a higher quality of life perception and lower limitation ($p<0.05$). This finding is close to the so-called "paradox of well-being", described in the literature, according to which elderly individuals tend to report improved subjective health even in the face of a greater burden of comorbidities and troublesome prognosis[22].

Furthermore, it can be inferred that for elderly patients, psychological factors may be more strongly related to self-rated health, unlike in younger individuals, whose perception appears to align more closely with physical limitations, as previously described in the literature.[23,24]. The differential of the present study is to demonstrate this paradoxical pattern in the oncological context, among patients in chemotherapy treatment, suggesting emotional resilience of the older participants even in the face of treatment challenges and adverse effects.

Regarding the physical capacity of the assessed participants, activities such as carrying groceries, climbing stairs, and kneeling down, which depend on muscle strength and cardiorespiratory capacity, also presented important limitations. Studies with patients in active treatment demonstrate similar patterns: difficulties in daily tasks that require mobility, weightlifting and repeated movements are among the most frequently reported losses, associated with both the systemic impact of cancer and the adverse effects of the treatments, such as fatigue, lean body mass loss and muscle strength loss[25-27].

In addition to the SF-36 scores, the subjective assessment of overall health status revealed relevant results. It was observed that 90.4% of participants classified their health as good, very good, or excellent, while 63.5% reported that their health condition was better compared to the past year. This finding suggests that the overall perception of health does not rely solely on the presence of physical limitations or treatment adverse effects, but also on subjective factors related to adapting to illness, therapeutic expectations, and coping strategies. Even in the face of functional restrictions observed in some SF-36 domains, many patients may interpret chemotherapy treatment as a process of recovery or illness control, which contributes to more positive assessments of their health status.

This result is consistent with studies that demonstrate that oncological patients often reassess their comparison parameters throughout the course of the illness, a phenomenon known as response shift. In this context, changes in expectations, personal values, and psychological adaptation mechanisms can lead individuals to perceive their quality of life more favorably, even in the presence of symptoms and objective limitations. Additionally, hope associated with treatment continuity and the perception of family and professional support can contribute to positive self-reported health assessments[19].

In the general characterization of the sample, a high standard deviation was observed, indicating heterogeneity of participants, which reinforces the individuality of the experience of the illness and the chemotherapy treatment, suggesting that self-reported health depends on objective, organic, and biopsychosocial factors.

Finally, this study has some methodological limitations that must be considered. The convenience sample, reduced sample size, and uneven distribution of sexes decrease the statistical strength of subgroups and limit generalization of the findings, although this impact has been mitigated by collection on different days and periods. Additionally, the absence of detailed clinical variables, added to the non-stratification of the sample per neoplasm type and the lack of control of confounding factors in the bivariate analyses, resulted in a heterogeneity that limited comparability between participants. Moreover, no internal consistency assessment was done in the sample studied, which was supported by the fact that the utilized questionnaire is already widely validated in the national oncological scenario.

Heterogeneity in treatment duration and exclusive use of SF-36, a generic instrument, also constitute limitations. In addition, the study did not stratify the impact of additional therapies compared with chemotherapy-only treatment, a variable that could influence patient quality of life and was not analyzed in isolation.

Furthermore, collection in the infusion sector exposed participants to acute stress factors of the hospital environment, which could have influenced responses. However, the supervised in-person self-application method minimized social desirability bias by ensuring total privacy. Despite such conditions demanding caution when extrapolating data, this approach enabled us to draw a faithful situational diagnosis of the overall impact of a therapeutic routine in the local reality of a clinically active sample, providing a basis for further multivariate investigations.

CONCLUSION

This study has investigated the quality of life of patients in chemotherapy treatment at an oncology reference hospital, located in the North Region, suggesting that the perception of well-being and health of these individuals seems to be unrelated to the chronicity of the diagnosis or duration of exposure to treatment.

The results indicated that quality of life is not correlated with time since oncological diagnosis, suggesting the activation of adaptive and emotional resilience mechanisms on the patient side across their therapeutic journey.

Additionally, elderly participants presented better subjective health assessments and lower emotional limitation when compared to younger patients, aligning with the so-called paradox of well-being described in the literature, which might suggest a possible resilience in the face of stressful chemotherapy factors. The high heterogeneity of the sample ratifies that the cancer experience is strictly individual.

In summary, we conclude that the management of oncology patients must transcend the purely clinical and chronological approach. It becomes imperative to strengthen continuous, customized, and interprofessional technical and psychosocial support networks, with special attention to physical rehabilitation and palliative care support when indicated.

Finally, despite the methodological and sample limitations of this study, the results offer a valuable situational diagnosis of the local reality, reinforcing the need for further longitudinal and multivariate investigations that can foster more equitable and humanized public policies and strategies for the Region.

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CONTRIBUTIONS

All the authors have substantially contributed to the study design, data acquisition, analysis, interpretation, wording, and critical review. They approved the final version for publication.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

Relevant data for the objectives of the study are contained in the manuscript. Additional data can be provided by the authors upon request.

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