

ORIGINAL ARTICLE

PATIENT PROFILE NAVIGATED BY NURSES: TIME INTERVAL FOR START OF TREATMENT*

HIGHLIGHTS

1. Predominance of female gender and breast cancer diagnosis.
2. Prevalence of initial diagnosis with advanced disease (stage IV).
3. Most participants were over 60 years old.
4. Most started treatment after 60 days of diagnosis.

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ABSTRACT

OBJECTIVE: Describe and analyze the sociodemographic and clinical profile and the interval between diagnosis and cancer treatment according to the gender of patients navigated by nurses in high complexity. **METHOD:** Observational, descriptive study conducted between December 2022 and September 2023, collected in October 2023, in an institutional database in supplementary health, including 119 patients navigated by nurses, in a pilot project carried out in Rio de Janeiro (Brazil). Descriptive and inferential statistics analyzed the data. **RESULT:** There were 76 (63.87%) females; 77 (64.71%) over 60 years old; 60 (50.85%) with initial stage IV, p-value 0.077 for palliative treatment; treatment started after 60 days of diagnosis with similar percentages between genders, 30 women (39.47%) and 18 men (41.86%). **CONCLUSION:** Patient navigation by nurses reduces access barriers and improves care coordination, contributing to faster treatment initiation and better clinical outcomes in oncology practice.

KEYWORDS: Patient Navigation; Nursing; Medical Oncology; Health Profile.

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INTRODUCTION

Cancer is the leading public health problem in the world and is among the four main causes of premature death (before the age of 70) in most countries. The incidence and mortality from cancer have been increasing, partly due to the aging population and urbanization, which brings with it habits and attitudes such as a sedentary lifestyle and inadequate diet¹.

According to the National Cancer Institute (INCA), 704,000 new cases of the disease are estimated in Brazil for each year of the 2023 to 2025 triennium. The most common types of cancer include non-melanoma skin (31.3% of total cases), followed by female breast (10.5%), prostate (10.2%), colon and rectum (6.5%), lung (4.6%), and stomach (3.1%)². This scenario highlights the need for effective strategies for controlling and early diagnosing the disease.

Cancer control encompasses actions from prevention to palliative care, including diagnosis, treatment, and follow-up of patients. Careful planning, organization of health services, and continuous monitoring of control actions are essential² to ensure comprehensive care. In response to this need, in supplementary health in Brazil, the National Supplementary Health Agency launched the OncoRede Project in 2016, aiming at reorganizing the oncology care network. The project proposes the implementation of patient navigation programs for oncology, with the role of the patient navigator named "Care Assistant." The nurse is the professional indicated to perform this function due to their knowledge and area of expertise, working collaboratively with the oncologist and multidisciplinary team³. Nurses identify knowledge gaps, support needs, and patient management requirements³ in this context.

Patient navigation is a process in which an individual, usually a nurse, guides patients diagnosed with cancer through the healthcare system, helping to overcome socioeconomic barriers and improving treatment adherence⁴⁻⁵. This model has been widely promoted to increase the likelihood that patients will adhere effectively to the recommended treatment, reduce socioeconomic, racial, and ethnic barriers to care⁵⁻⁶, optimize healthcare costs, and improve clinical outcomes.

Navigation programs have proven to be an important differentiator in oncology services in Brazil, especially with the role of the nurse navigator, who assists in patient care and in overcoming barriers to accessing the healthcare system, reducing treatment delays⁷.

In light of this scenario, the need to create strategies in the health sector for managing cancer patients is recognized. These strategies should encompass prevention, early detection, access to treatment, rehabilitation, and palliative care. The patient navigation tool presents itself as a promising methodology in healthcare assistance in Brazil and worldwide.

Currently, according to Law No. 12,732, of November 22, 2012, only the Unified Health System (SUS) has a defined deadline to start treatment in case of malignant neoplasm – up to 60 days after diagnosis⁸. However, as the prognosis of cancer is highly dependent on the time elapsed between diagnosis and the start of treatment, it is crucial to reduce this interval also for supplementary health.

In this context, the aim of this study is to describe and analyze the sociodemographic and clinical profile, as well as the interval between cancer diagnosis and treatment, of patients navigated by nurses in high-complexity settings based on their gender.

METHOD

This is a retrospective cohort that followed the recommendations of *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE)⁹. The study site is a high-complexity oncology center of supplementary health located in Rio de Janeiro (Brazil). The institution serves adult oncology patients aged equal to or older than 18 years from all oncology specialties.

For the composition of the non-probabilistic, consecutive sample, the following eligibility criteria were employed: all patients followed by the nurse navigators in the pilot project of a patient navigation program; age 18 years or older; and attended at the institution during the study's time frame (December 6, 2022, and September 1, 2023), regardless of the clinical oncological diagnosis. The navigators were nurses with postgraduate degrees and/or residency in oncohematology.

The patient navigation pilot project, conducted by specialized nurses, was implemented in outpatient patients undergoing systemic treatment, including neoadjuvant, adjuvant, and palliative care for solid tumors. Hematological patients were considered separately.

The population was analyzed considering the age groups 18 to 35 (young adults), 36 to 60 (middle-aged), and over 60 (elderly)².

The information was collected retrospectively through an electronic form developed exclusively for this study in October 2023, containing sociodemographic and clinical variables. The variables investigated were related to sociodemographic data, clinical data, and the interval between diagnosis and treatment: gender, age, type of tumor according to the International Classification of Diseases (ICD10), initial staging of the disease, initial treatment modality, and time between diagnosis and start of treatment.

The data collected was entered into a spreadsheet of the *Microsoft Excel* program version 2403 (Build 17425.20176) and submitted for analysis using the computational resources of the Stata-64 program, version 15.0.

In inferential analysis, the Shapiro-Wilk test was performed to verify the normality distribution and assess whether a distribution is parametric or non-parametric. Next, for the bivariate analysis, the difference between the distribution of proportions of two independent groups was analyzed using the Chi-square test. The discussions about significance tests were conducted considering a maximum significance level of 0.05 (5%).

The study was submitted and approved by the Research Ethics Committees through the substantiated opinion No. 6,552,292. The data presented in this article relates to the macro project entitled "Analysis of the Effectiveness of a Cancer Patient Navigation Program: A Retrospective Cohort Study."

RESULTS

In the period from December 6, 2022, to September 1, 2023, 119 patients with different types of cancer¹² were included in a pilot project of the navigation program, most of them diagnosed with malignant breast neoplasia 27 (22.7%) and colon 22 (18.5%), as can be seen in Table 1.

Table 1 - Topography of cancer type according to the International Classification of Diseases - 10. Rio de Janeiro, RJ, Brazil, 2023

ICD	n	%
C10 Malignant neoplasm of the oropharynx	1	0.84
C16 Malignant neoplasm of the stomach	1	0.84
C18 Malignant neoplasm of the colon	22	18.48
C20 Malignant neoplasm of the rectum	2	1.68
C22 Malignant neoplasm of liver and intrahepatic bile ducts	1	0.84
C25 Malignant neoplasm of the pancreas	6	5.04
C31 Malignant neoplasm of the sinuses	1	0.84
C32 Malignant neoplasm of the larynx	1	0.84
C34 Malignant neoplasm of the bronchi and lungs	10	8.4
C43 Malignant melanoma of the skin	7	5.88
C49 Malignant neoplasm of connective and other soft tissue	1	0.84
C50 Malignant neoplasm of the breast	27	22.68
C53 Malignant neoplasm of the cervix	3	2.52
C54 Malignant neoplasm of the body of the uterus	2	1.68
C56 Malignant neoplasm of the ovary	5	4.2
C61 Malignant neoplasm of the prostate	9	7.56
C63 Malignant neoplasm of other male genital organs and NE	1	0.84
C64 Malignant neoplasm of kidney except for renal pelvis	1	0.84
C67 Malignant neoplasm of the bladder	6	5.04
C81 Hodgkin's disease	4	3.36
C82 Non-Hodgkin follicular lymphoma	2	1.68
C83 Diffuse non-Hodgkin lymphoma	1	0.84
C83.3 Large cells	1	0.84
C90.0 Multiple myeloma	3	2.52
D46 Myelodysplastic syndrome	1	0.84

Source: The authors (2023).

In the analyzed population, there was a predominance of females (76 – 63.87%); patients over 60 years old (77 – 64.71%); in stage IV (60 – 50.85%), with a p-value of 0.005 found in stage II; in palliative treatment (59 – 49.58%); subjected to previous surgery and adjuvant systemic treatment (34 – 28.57%); and, to initial treatment with neoadjuvant (15 – 12.61%) (Table 2).

Table 2 - Frequency distribution of sociodemographic and clinical variables. Rio de Janeiro, RJ, Brazil, 2023

Variables	n	%	p-value
Sex			
Female	76	63.87	0.545
Male	43	36.13	

Age range			
18 to 35 years old	4	3.36	
36 to 60 years	38	31.93	<0.005
Over 60 years old	77	64.31	
Initial staging			
I	8	6.78	
II	21	17.8	
III	29	24.58	<0.005
IV	60	50.85	
Type of Treatment			
Neoadjuvant	15	12.61	
Adjuvant	34	28.57	0.669
Palliative	59	49.58	
Hematological	11	9.24	

Source: The authors (2023).

Table 3 - Analysis of the distribution over time (in days) between diagnostic confirmation and the start of cancer treatment. Rio de Janeiro, RJ, Brazil, 2023

Time (in days)	n	%	p-value
over 60 days	48	40.34	
<60 days	50	42.02	<0.005
No information	21	17.65	

Source: The authors (2023).

The analysis of the association between the sexes (female and male) in relation to the variables age group, initial staging, type of treatment, and time between diagnosis and start of treatment, which, as already indicated here in the text, were demonstrated in Table 4. The study shows that for both sexes, the population is predominantly over 60 years old (p-value 0.031). In the male gender, no patients were found between 18 and 35 years old. In parallel to this, 25 (58.14%) of the men discovered the disease at stage IV, 33 women (43.42%), and 26 men (60.47%) in palliative care, resulting in a p-value of 0.077.

Table 4 - Distribution of patient characteristics according to gender. Rio de Janeiro, RJ, Brazil, 2023

Variables	Female Sex		Male Sex		p-value
	n	%	n	%	
Age range					
18 to 35 years old	4	5.26	0	0	
36 to 60 years old	29	38.16	9	20.93	0.031

Over 60 years old	43	56.58	34	79.07	
Initial staging					
I	4	5.33	4	9.3	0.247
II	17	22.67	4	9.3	
III	19	25.33	10	23.26	
IV	35	46.67	25	58.14	
Type of Treatment					
Neoadjuvant	12	15.79	3	6.98	0.077
Adjuvant	21	27.63	13	30.23	
Palliative	33	43.42	26	60.47	
Hematological	10	13.16	1	2.33	
Diagnosis to Treatment					
>60 days	30	39.47	18	41.86	
<60 days	34	44.74	16	37.21	0.664
No information	12	15.79	9	20.93	

Source: The authors (2023)

The time between diagnosis and the start of systemic treatment was analyzed, and it was found that 48 participants (40.34%) started treatment more than 60 days after the confirmation of the cancer diagnosis (Table 3).

The analyzed data indicate that the average time between diagnosis and the start of cancer treatment is approximately 206 days. The median of the time interval, representing the data distribution's central point, is 64 days, suggesting that half of the patients started treatment within this period. The minimum time recorded between diagnosis and the start of treatment was 16 days, while the maximum time was 235 days.

DISCUSSION

The study revealed that the most common types of cancer in the analyzed population, such as breast and colon cancer, correspond to the national data from INCA for the 2023-2025 triennium². This alignment highlights the relevance of patient navigation strategies, which are essential for directing resources to the early diagnosis and treatment of the most common neoplasms^{1,10}. Navigation can improve clinical outcomes and patient's quality of life by optimizing access to treatment and coordinating care, especially for those diagnosed in advanced stages⁴.

The study's patient profile showed a significant proportion of elderly individuals and late diagnoses, highlighting weaknesses in the early diagnosis system, particularly among men. Although no statistically significant results were found, these findings suggest an urgent need to improve screening and early diagnosis strategies. Studies indicate that patient navigation can help overcome these deficiencies by facilitating access to preventive and diagnostic care¹¹.

The average of 206 days between diagnosis and the start of treatment is concerning compared to Brazilian legislation, which recommends a period of up to 60 days¹². This

delay can be attributed to barriers such as the overload of health services, the impact of the COVID-19 pandemic, and the bureaucratic processes of health insurance plans. The lack of resources in health services can compromise the timely execution of diagnoses and treatments¹³. The pandemic resulted in delays due to social isolation and service restrictions¹⁴, while bureaucracy and the need for prior authorizations for treatments can cause additional delays¹⁵⁻¹⁶. Patient navigation can mitigate these negative effects by facilitating access to consultations and diagnostic and therapeutic procedures, improving clinical prognoses, and reducing treatment delays⁴⁻⁵.

Nurse-led patient navigation is an essential process providing continuous and personalized support throughout the care journey. This includes assessing the patient's needs and challenges, creating an individualized care plan, and coordinating activities among healthcare professionals. In addition, nurses promote patient education about their conditions and treatment options, provide emotional support, and facilitate access to healthcare services. They also monitor the patient's progress and adjust the care plan as needed to improve outcomes and overall satisfaction⁴⁻⁵.

Therefore, reducing the time between diagnosis and the start of treatment is crucial to improving outcomes. Bill 1215/21, which proposes shorter deadlines for the start of treatment in cancer patients, is a significant advancement in this context¹⁷. Patient navigation should be an essential tool to ensure patients receive timely and coordinated care¹⁸.

The study highlights the need to promote health, prevent cancer, and diagnose early. The COVID-19 pandemic has significantly impacted cancer detection and treatment, and future analyses should explore these effects in more detail^{14,19}. The study's limitations, such as the lack of detailed sociodemographic data and the sample being restricted to a single center, should be considered in future research for a more comprehensive analysis.

This study has limitations, such as the lack of detailed sociodemographic data (race/color, income, and education), which may influence access to health and self-care. Furthermore, the sample restricted to a single center limits the generalization of the results. Future studies should consider these limitations and seek a more comprehensive analysis.

FINAL CONSIDERATIONS

This study highlights the crucial role of patient navigation as a strategy in cancer control, especially in Brazil's supplementary health context. Navigation programs have effectively reduced barriers to accessing cancer treatment, provided better care coordination, and significantly improved patient clinical outcomes.

The predominance of late diagnoses and the high average time between diagnosis and the start of treatment highlight the urgent need to improve screening and early diagnosis strategies. In this context, the role of the nurse navigator is essential. This professional plays a vital role in identifying gaps in care, providing ongoing support, facilitating treatment adherence, overcoming socioeconomic barriers, and optimizing healthcare costs.

An important contribution of this study is demonstrating the need to improve regulations in supplementary health to benefit cancer patients, especially in the interval between diagnosis and the start of treatment. The literature already presents evidence that a well-structured patient navigation program helps patients overcome barriers to accessing health services.

Given this, it can be stated that the presence of navigator professionals from the beginning of the patient's cycle, from screening to treatment, increases the likelihood of completing the diagnostic investigation in less time and promotes more effective adherence to the recommended treatment. These professionals are essential for reducing socioeconomic, racial, and ethnic barriers in care.

For future research, a more comprehensive analysis is recommended, including a greater diversity of centers and sociodemographic contexts, aiming to provide a more complete and accurate view of the effectiveness of patient navigation programs in Brazil. The continuity and expansion of these programs are essential to addressing the growing challenge of cancer and improving patients' quality of life.

This study underscores the need for public policies and regulations that encourage patient navigation in supplementary health, promoting faster, more efficient, and equitable cancer care.

REFERENCES

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. [Internet]. 2018 [cited 2023 June 10]; 68:394-424. Available from: <https://doi.org/10.3322/caac.21492>
2. Instituto Nacional do Câncer. Estimativa 2023: incidência de câncer no Brasil [Internet]. Rio de Janeiro: INCA - Instituto Nacional de Câncer; 2023 [cited 2023 June 10]. Available from: <https://www.inca.gov.br/publicacoes/livros/estimativa-2023-incidencia-de-cancer-no-brasil>
3. Agência Nacional de Saúde Suplementar. Projeto ONCOREDE: análise dos dados do projeto-piloto de abril 2017 a abril 2018 [Internet]. 2021 [cited 2023 Nov. 20]. Available from: <https://www.gov.br/ans/pt-br/arquivos/assuntos/gestao-em-saude/projetooncorede/relatorio-conclusivo-oncorede-pdf>
4. Freeman HP, Rodriguez RL. History and principles of patient navigation. *Cancer J*. [Internet]. 2011 [cited 2023 June 13]; 17(S15):3537-40. Available from: <https://doi.org/10.1002/cncr.26262>
5. Freeman HP. The origin, evolution, and principles of patient navigation. *Cancer Epidemiol Biomarkers Prev*. [Internet]. 2012 [cited 2023 Aug. 10]; 21(10):1614-7. Available from: <https://doi.org/10.1158/1055-9965.EPI-12-0982>
6. Carroll JK, Humiston SG, Meldrum SC, Salamone CM, Jean-Pierre P, Epstein RM, et al. Patients' experiences with navigation for cancer care. *Patient Educ Couns*. [Internet]. 2010 [cited 2023 Nov. 08]; 80(2):241-7. Available from: <https://doi.org/10.1016/j.pec.2009.10.024>
7. Pautasso FF, Zelmanowicz A de M, Flores CD, Caregnato RCA. Atuação do Nurse Navigator: revisão integrativa. *Rev Gaúcha Enferm*. [Internet]. 2018 [cited 2022 Mar. 26]; 39(0). Available from: <https://doi.org/10.1590/1983-1447.2018.2017-0102>
8. Brasil. Lei nº12.732, de 22 de novembro de 2012. Dispõe sobre o primeiro tratamento de paciente com neoplasia maligna comprovada e estabelece prazo para seu início [Internet]. Brasília, 2012 Nov. 22 [cited 2023 Dec. 3]. Available from: https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/l12732.htm
9. Malta M, Cardoso LO, Bastos FI, Magnanini MMF, Silva CMFP da. STROBE initiative: guidelines on reporting observational studies. *Rev Saude Publica*. [Internet]. 2010 [cited 2023 Dec. 3]; 44(3):559-65. Available from: <https://doi.org/10.1590/S0034-89102010000300021>
10. World Health Organization. Global cancer statistics. WHO; 2020.

11. Anderson BO, Cazap E, Saghir NS El, Yip CH, Khaled HM, Otero IV, et al. Optimisation of breast cancer management in low-resource and middle-resource countries: executive summary of the Breast Health Global Initiative consensus, 2010. *Lancet Oncol*. [Internet]. 2011 [cited 2023 June 10]; 12(4):387-98. Available from: [https://doi.org/10.1016/s1470-2045\(11\)70031-6](https://doi.org/10.1016/s1470-2045(11)70031-6)
12. Brasil. Lei nº12.732/2012. Dispõe sobre o primeiro tratamento de paciente com neoplasia maligna comprovada e estabelece prazo para seu início [Internet]. *Diário Oficial da União*, 2012 Nov. 22 [cited 2023 June 10]. Available from: https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/l12732.htm
13. Neal RD, Din NU, Hamilton W, Ukoumunne OC, Carter B, Stapley S, et al. Comparison of cancer diagnostic intervals before and after implementation of NICE guidelines: analysis of data from the UK General Practice Research Database. *BMJ*. [Internet]. 2014 [cited 2023 June 10]; 349. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3915139/pdf/bjc2013791a.pdf>
14. Teixeira ACG, Sá AC de, Silva DAM, Almeida ILL, Rego JF, Barros JDBS, et al. Impacts of COVID-19 on cancer patients: a systematic review. *Rev Med Minas Gerais*. [Internet]. 2022 [cited 2023 June 10]; 32. Available from: <https://rmmg.org/artigo/detalhes/3936>
15. Chino F, Kamal AH, Chino J, Zafar SY, Altomare I, Samsa GP, et al. The patient experience of prior authorization for cancer care. *JAMA Netw Open*. [Internet]. 2023 [cited 2023 June 10]; 6(1). Available from: <https://pubmed.ncbi.nlm.nih.gov/37851442/>
16. Sausser L. Cancer Patients Face frightening delays in treatment approvals. *Cancer Health*. [Internet]. 2023 [cited 2023 Nov. 20]. Available from: <https://www.cancerhealth.com/article/cancer-patients-face-frightening-delays-treatment-approvals>
17. Brasil. Projeto de lei nº1215, de 2021. Altera a Lei nº9.656, de 1998, que dispõe sobre os planos e seguros privados de assistência à saúde, para dispor sobre prazos para tratamento de neoplasias malignas [Internet]. Brasília, 2021 [cited 2023 Oct. 20]. Available from: https://www.camara.leg.br/proposicoesWeb/prop_mostrarintegra?codteor=1985006&filename=PL%201215/2021
18. Fiscella K, Ransom S, Jean-Pierre P, Cummings SW, Escarce JJ, Sanders M, et al. Patient navigation for breast and colorectal cancer treatment: a randomized trial. *Cancer Epidemiol Biomarkers Prev*. [Internet]. 2011 [cited 2023 Oct. 20]; 20(10):1970-8. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3724524/>
19. Hanna TP, King WD, Thibodeau S, Jalink M, Paulin GA, Harvey-Jones E, et al. Mortality due to cancer treatment delay: systematic review and meta-analysis. *BMJ*. [Internet]. 2020 [cited 2023 June 10]; 371. Available from: <https://doi.org/10.1136/bmj.m4087>

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **Pecoraro JP, Fuly P dos SC**. Drafting the work or revising it critically for important intellectual content - **Fuly P dos SC**. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **Pecoraro JP**. All authors approved the final version of the text.

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