Care Transitions From Hospital to Community Among Oncological Patients

Caroline Donini Rodrigues

Universidade Regional do Noroeste do Estado do Rio Grande do Sul

Elisiane Lorenzini

Universidade Federal de Santa Catarina

Manuel Portela Romero

Universidade de Santiago de Compostela

Nelly Donszelmann Oelke

The University of British Columbia School of Nursing

Vanessa Dalsasso Batista Winter

Universidade Regional do Noroeste do Estado do Rio Grande do Sul

Letícia Flores Trindade

Universidade Regional do Noroeste do Estado do Rio Grande do Sul

Adriane Cristina Bernat Kolankiewicz (✉ adri.saudecoletiva@gmail.com)

Universidade Regional do Noroeste do Estado do Rio Grande do Sul <https://orcid.org/0000-0003-1793-7783>

Research Article

Keywords: Continuity of patient care, Care transitions, Neoplasms, Patient safety.

Posted Date: July 19th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-619880/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Purpose

To analyze the transition of care from the perspective of cancer patients, in a hospital in southern Brazil, correlating perspectives with sociodemographic and clinical characteristics.

Methods

Cross-sectional study using the Care Transitions Measure (CTM) with cancer patients undergoing clinical or surgical treatment following hospital discharge. Data collection was completed by telephone between June and September 2019. Data analysis was performed using descriptive and inferential statistics.

Results

The average CTM score was 74.1, which was considered satisfactory. The CTM factors, understanding about medications (83.3) and preparation for self-management (77.7) were satisfactory, while secured preferences (69.4) and care plan (66.1) were unsatisfactory for an effective and safe care transition. No statistically significant difference was found between sociodemographic variables and the CTM. Among the clinical variables, primary cancer and the secured preferences factor showed a significant difference ($p = 0.044$).

Conclusion

The transition from hospital care to the community was considered satisfactory in the overall assessment.

Introduction

Cancer is a complex disease, with a high incidence of morbidity and mortality, representing a worldwide public health problem [1]. Affected patients require continuity of care, therefore, there is a need for integration and organization of care across the health system [2]. Plans for health services action are essential to ensure quality and safety during care transitions.

The care transition process is defined as a set of coordinated actions for continuous patient care from the moment of admission to hospital discharge, as well as the transfer of patients between units in the same facility or between different health services [3]. These actions include discharge planning, health education for the patient and family, promotion of self-management of care, guidance on medications, coordination between health services, communication between teams and post-discharge monitoring [4, 5]. For an effective and safe care transition, it is necessary to overcome the organizational barriers of the

different levels of health care, establishing the appropriate coordination mechanisms and redefining, if necessary, the functions within interprofessional teams [6].

Care transition from hospital to the community is a critical juncture in the care journey of patients. Studies [7, 8] have shown that the lack of planning and preparation for discharge, the difficulty in self-management of medications, the occurrence of adverse events and the increase in readmissions are common. On the other hand, effective care transitions were associated with cost reduction in health services, hospital readmissions and improvement in patients' quality of life [4, 5].

Studies have been published internationally that have evaluated care transition through the *Care Transitions Measure* (CTM), an instrument that assesses the quality of transitions, in cancer patients, and indicated averages of 51.2 to 58.8 [9], 66.32 [10] and 73.1 to 81.8 [11] in the overall score. However, despite the fact that care transitions are an internationally explored topic, the literature is still emerging as shown by Alberta's first Home to Hospital to Home Transitions Guideline [12].

In Brazil, there have been no studies to evaluate the care transitions of cancer patients [13]. The results of this study will contribute to the understanding of the perceptions of patients and/or their caregivers regarding the quality of care transitions during hospitalization and discharge to the community. Furthermore, the results will contribute to supporting the development and implementation of safe care transitions for this group of patients, which in general has a high rate of readmissions [14] thereby continuity of care is essential. The aim of this study was to analyze care transitions from the perspective of cancer patients or their caregivers, in a hospital in southern Brazil, and to correlate those results with sociodemographic and clinical characteristics.

Methods

A cross-sectional study was carried out in a hospital located in southern Brazil. The hospital has 228 beds and has an average of 12,256 hospitalizations per year.[*] All cancer patients admitted for clinical treatment (cancer treatment or clinical complications due to cancer) or surgery were eligible to participate in the research. Elective admissions for chemotherapy and radiation were also included. During the study period, 393 oncology patients were discharged from hospital; of these, 213 patients participated in our study. Inclusion criteria included cancer patients, aged 18 years or older, hospitalized for at least 24 hours. We included only patients with a length of stay equal to or greater than 24 hours; this was the minimum period to characterize admission to a service. Those who stayed for shorter periods would not have sufficient contact with professionals to facilitate the assessment of the transition of care [15]. Exclusion criteria included patients that had cognitive conditions that impacted their ability to answer the questionnaire. During data collection of the CTM-15, those who did not answer telephone calls after the third attempt within seven to 30 days after hospital discharge, were considered to be lost to follow-up. We excluded 8 patients and 10 patients were lost to follow-up.

Data were collected between the months of June and August 2019. After consent, sociodemographic and clinical data were collected in the hospital during hospitalization, from the patient, their caregiver, or

family member and from the patient's medical record. The CTM-15 instrument, validated for use in Brazil [16], was completed by telephone with the patient, caregiver, or family member, within 30 days after hospital discharge. Permission for the use of the Brazilian CTM-15 was provided.

The CTM-15 is a questionnaire designed and validated for telephone use. It measures, from the patient's perspective, the quality of the care transition from hospital to home or between different services [17]. It aims to assess the quality and experience of care transitions including the transfer of appropriate information, the preparation of patients and their caregivers, support for self-management of the health condition and the inclusion of the preferences of patients and their caregivers and family members in care planning. The instrument aims to assist health professionals and managers in building strategies for efficient and safe care transitions.

The CTM-15 has four factors, divided into 15 questions: 1) preparation for self-management, the preparation of the patient and family for self-management of post-discharge health at home; 2) understanding of medications, refers to the patient and family's understanding of the proper use of medications after hospital discharge; 3) preferences, describes the patients' needs and preferences to be included by the care team when making treatment decisions; and 4) care plan, the existence of a care plan, including follow-up procedures to be carried out after discharge.

From the participant's responses, a score is assigned. The instrument uses a five-point scale: I don't know / I don't remember / it doesn't apply = 0; strongly disagree = 1 point; disagree = 2 points; agree = 3 points; totally agree = 4 points. To calculate averages, a formula is applied that transforms the results obtained into scores from 0 to 100 [17]. Higher scores indicate better quality of the care transitions. Although there is no cut-off point, a score equal to or greater than 70 is considered satisfactory [16].

The data were analyzed using the program, *Statistical Package for Social Sciences* version 25.0 (SPSS Inc., Chicago/IL, USA, 2015). A level of 5% was considered to be significant. Descriptive statistics with absolute and relative distribution and measures of central tendency and variability were applied. Analysis of Variance - ANOVA (One-Way) Post Hoc Tukey (independent groups of similar sizes) or Scheffé (independent groups of very different sizes and / or heterogeneity of variances were used in the comparison of continuous variables between two or more independent groups). Approval was obtained from the Institutional Research Ethics Committee.

Footnote:

[*]Information obtained through contact with the hospital.

Results

Our study sample included 213 cancer patients. Of these, 68.1% patients lived in urban areas, 57.7% were male and 42.3% were female, and 86.2% identified as being white. Participants' average age was 59.6

years, the majority were married or in a stable relationship (79.7%) and just over half of the sample (58.2%) had a lower education than high school. Only 13.6% were working before hospitalization.

As shown in Table 1, neoplasms of the digestive system were most common (63.4%). Clinical complications were the main reason for hospitalization (73.1%). Cancer Stages III (27.9%) and IV (38.0%) were most prevalent in participants. The presence of metastasis was confirmed in 44.2% of patients. Just over half of the cases reported having another comorbidity (52.6%). When admitted, 68.5% of the patients used continuous medication, 45.0% reported undergoing chemotherapy or radiotherapy and (26.9%) were admitted for surgery.

Table 1. Clinical characterization of cancer patients admitted to a hospital in southern Brazil. RS, Brazil, 2020. (n = 213)

Variables	Total Sample (n = 213) *	
	n	%
Staging		
I	6	3.4
II	26	14.5
III	50	27.9
IV	68	38.0
Other*	29	16.2
Metastasis		
Yes	92	44.2
No	116	55.8
Comorbidity		
Yes	110	52.6
No	99	47.4
Reason for hospitalization		
Chemotherapy Treatment / Radiotherapy	95	45.0
Surgical treatment	46	21.8
Clinical complications **	70	33.2
Use of continuous medication		
Yes	146	68.5
No	64	30.0
Do not know	3	1.4
Tumor location ***		
Respiratory System Neoplasm	14	6.6
Breast Neoplasm	14	6.6
Digestive System	135	63.4
Reproductive system	15	7.0
Leukemias / Lymphomas	9	4.2
Others****	26	12.2

Type of cancer		
Primary	128	60.7
Secondary	83	39.3
Oncological treatment		
Chemotherapy (neoadjuvant, adjuvant)	128	63.1
Surgical	42	20.7
Others*****	19	9.4
Does not perform	14	6.9

Source: Research data, 2020.

*Others: Chronic Lymphocytic Leukemias (LLC); Acute Lymphocytic Leukemia (ALL); Acute Myelocytic Leukemia (AML); Polycythemia Vera; Plasmablastic lymphoma.

**Clinical complications: pain; anemia; fatigue / tiredness / asthenia; pulmonary complications; inappetence; nausea; fever; diarrhea; oliguria; dysphagia; recurrence; jaundice; abdominal pain; convulsion; bleeding.

***Respiratory system (rhinopharynx, oropharynx, lung); Digestive system (pharynx, esophagus, gastric, colon, rectum, liver, pancreas); Reproductive system (ovary, uterus, vulva, prostate, testis); Leukemias / Lymphomas (Chronic Lymphocytic Leukemia; Acute Lymphocytic Leukemia; Acute Myelocytic Leukemia; Polycythemia Vera; Plasmablastic Lymphoma).

****Others (CNS, thyroid, urinary, renal, melanomas, soft tissues).

*****Others: radiotherapy; chemotherapy / radiation therapy; hormone therapy.

In the descriptive statistics for each of the questions of the CTM-15 scale the highest average was shown in question Q9 (3.7 ± 05) and the lowest in question Q7 (2.4 ± 07). No ceiling or floor effect were identified in the CTM-15. Only six participants (2.8%) answered all items as “strongly agree,” having the maximum score (ceiling), and no participant had the minimum score “totally disagree,” on all items of the instrument (floor).

This study demonstrated high reliability for internal consistency of the CTM-15 with Cronbach’s alpha 0.876. The general CTM-15 score ranged from 66.1 to 83.3, with an average of 74.1. When evaluating the means by factor, the highest mean was found in Understanding of medications (83.3) and the minimum in the Care Plan (66.1) (Table 2).

Table 2. Measures central tendency variability factors CTM-15 instrument. RS, Brazil, 2020. (n = 213).

CTM-15 estimates (n = 213)

Questions	Average	Standard deviation	Amplitude		Median	α C
			Minimum	Maximum		
CMT-15 GENERAL	74.1	10.0	31.3	100.0	73.4	.876
Factors						
Preparation for self-management	77.7	12.1	25.0	100.0	75.0	.852
Understanding about medications	83.3	11.5	25.0	100.0	83.3	.819
Secured preferences	69.4	16.5	25.0	100.0	75.0	.932
Care plan	66.1	13.9	25.0	100.0	62.5	.696

Source: Research data, 2020.

Abbreviations: α C, Alfa de Cronbach

Table 3 shows that there was no statistical significant difference between the mean scores of the factors and the sociodemographic characteristics of the patients.

Table 3. Average standard deviation of CTM-15 factors according socio-demographic characteristics. RS, Brazil, 2020. (n = 213).

Variables	CTM-15 Factors							
	Preparation for self-management		Understanding Medications		Secured Preferences		Care Plan	
	Average	SD	Average	SD	Average	SD	Average	SD
Sex								
Male	78.4	11.8	83.2	11.0	69.9	16.5	65.6	14.2
Feminine	76.6	12.5	83.5	12.2	68.7	16.6	66.8	13.6
	.295		.844		.615		.523	
Age range								
25 to 59	78.5	13.0	84.2	11.4	70.8	16.4	67.0	15.4
60 to 69	76.9	11.6	82.9	11.0	69.8	17.5	67.0	13.0
≥70	77.0	11.0	82.1	12.2	66.4	15.6	63.5	11.9
	.653		.537		.281		.260	
Marital status								
Not married	79.0	8.5	82.9	11.3	72.0	14.9	65.3	12.7
Married or in a stable relationship	77.2	12.9	83.3	11.5	68.8	16.9	66.4	14.3
	.395		.846		.266		.645	
Breed								
White	77.3	12.4	83.2	11.6	69.5	16.7	65.8	14.3
Black or brown	79.6	10.1	84.9	11.2	71.0	17.3	66.7	12.2
	.353		.454		.659		.739	
Education								
Illiterate	77.1	14.2	80.9	18.2	76.4	17.7	68.8	18.8
Less than high school	77.1	12.8	82.8	11.1	68.9	17.0	65.8	14.3
High school	77.9	11.4	82.7	10.6	68.6	15.6	65.4	13.3
University education	80.3	8.7	88.9	10.0	70.3	15.5	67.9	10.6
	.731		.100		.490		.814	

Worked before hospitalization								
Yes	76.7	11.1	84.3	10.4	71.3	14.5	64.7	15.0
No	77.8	12.3	83.1	11.7	69.1	16.8	66.3	13.8
	.658		.598		.514		.545	
Place of residence								
Urban area	78.2	11.7	83.3	11.2	68.7	16.5	66.4	13.3
Countryside	76.4	12.9	83.2	12.1	70.9	16.6	65.5	15.3
	.316		.970		.366		.684	

Source: Research data, 2020.

Abbreviations: SD, Standard Deviation

In the CTM-15 factor of Assured preferences, patients with primary cancer (71.4 ± 16.9) had a higher mean, with a statistical significant difference ($p = 0.044$) when compared to the mean of patients with secondary cancer (66.8 ± 15.1). Other clinical variables did not show statistical difference on other CTM-15 factors (Table 4).

Table 4. Mean standard deviation of CTM-15 factors according to clinical characteristics. RS, Brazil, 2020. (n = 213).

Variables	CTM-15 Factors							
	Preparation for self-management		Understanding Medications		Secured Preferences		Care plan	
	Average	SD	Average	SD	Average	SD	Average	SD
Staging								
I	81.3	15.3	86.8	13.5	72.2	17.2	75.0	13.7
II	80.0	10.7	84.6	11.8	69.1	16.1	66.1	13.9
III	76.4	15.7	82.7	13.4	70.5	16.8	62.1	16.4
IV	77.0	10.7	83.4	9.6	68.7	16.2	67.9	11.6
Other*	80.2	9.6	84.7	11.2	67.9	20.1	69.1	16.2
	.513		.876		.948		.076	
Metastasis								
Yes	77.0	9.5	83.6	9.5	67.8	16.3	66.6	10.5
No	78.6	13.6	83.3	12.4	70.9	16.8	66.2	15.9
	.338		.824		.177		.866	
Comorbidities								
Yes	76.9	11.2	83.9	11.3	68.2	16.4	65.2	13.0
No	78.4	13.0	82.6	11.8	70.6	16.6	66.8	14.8
	.383		.419		.287		.416	
Reason for Hospitalization								
Chemotherapy Treatment / Radiotherapy	77.2	12.6	83.1	11.3	68.8	16.1	65.6	14.0
Surgery	78.4	12.7	80.8	11.9	73.2	16.8	67.9	14.3
Clinical complications **	77.6	11.3	85.0	11.5	67.2	16.6	66.1	13.6
	.867		.156		.149		.640	
Use of continuous medication								
Yes	77.4	12.2	84.0	12.0	69.2	16.5	65.7	14.0
No	78.3	12.3	81.5	10.3	69.9	17.1	67.3	14.2

Do not know	75.6	1.1	87.2	4.6	67.4	8.4	63.5	1.7
	.857		.311		.947		.704	
Tumor location ***								
Respiratory system	78.7	9.4	83.3	9.7	63.8	14.9	64.5	11.9
Breast	76.0	17.3	81.8	18.1	73.4	14.6	68.1	16.0
Digestive system	77.8	12.1	83.7	11.4	69.8	16.8	66.0	14.7
Reproductive system	79.3	11.0	82.7	10.7	71.8	16.6	65.2	10.8
Leukemia	82.2	12.2	86.0	12.7	68.7	19.4	72.6	16.1
Others****	74.8	10.8	81.4	8.9	67.1	16.4	65.0	10.6
	.658		.894		.657		.762	
Type of cancer								
Primary	78.9	11.9	83.6	11.1	71.4	16.9	66.1	14.9
Secondary	76.2	12.0	82.8	12.2	66.8	15.1	66.1	12.5
	.116		.649		.044		.989	
Current cancer treatment								
Chemotherapy (neoadjuvant / adjuvant)	77.2	11.8	84.0	11.0	67.4	17.3	65.7	13.8
Surgical	77.5	10.8	82.0	10.1	71.8	17.3	66.4	11.2
Others*****	77.9	16.4	81.4	15.2	71.8	12.1	68.9	17.2
Does not perform	77.1	13.3	80.8	14.2	73.5	13.8	63.8	17.3
	.995		.567		.271		.746	

Source: Research data, 2020.

* Other: Chronic Lymphocytic Leukemias (LLC); Acute Lymphocytic Leukemia (ALL); Acute Myelocytic Leukemia (AML); Polycythemia Vera; Plasmablastic lymphoma.

** Clinical complications: pain; thrombocytopenia; anemia; fatigue / tiredness / asthenia; pulmonary complications; inappetence; nausea; fever; diarrhea; oliguria; dysphagia; cancer recurrence; jaundice; abdominal pain; convulsion; bleeding.

*** Respiratory system (rhinopharynx, oropharynx, lung); Digestive system (pharynx, esophagus, gastric, colon, rectum, liver, pancreas); Reproductive system (ovary, uterus, vulva, prostate, testis); Leukemias / Lymphomas (Chronic Lymphocytic Leukemia; Acute Lymphocytic Leukemia; Acute Myelocytic Leukemia; Polycythemia Vera; Plasmablastic Lymphoma).

**** Others (CNS, thyroid, urinary, renal, melanomas, soft tissues).

***** Others: Radiotherapy, Chemotherapy plus Radiotherapy, Hormone Therapy.

Abbreviations: SD, Standard Deviation

Discussion

The results of this investigation made it possible to assess the quality of care transitions from the perspective of cancer patients discharged from hospital. Sociodemographic and clinical characteristics were also identified and compared to CTM-15 factor scores. Our key findings indicated poor scores for the care plan and assured preferences CTM factors highlighting the need for improvement. The overall average of the CTM was satisfactory. Similar values were obtained in others studies conducted in Brazil [16,8] indicating moderate quality in care transitions at the time of hospital discharge.

Our results corroborate with international data, as pointed out by the first Alberta's Home to Hospital to Home Transitions Guideline, which indicates near 30 per cent of patients in Alberta experience a gap in care during their transition from hospital to home. To address this gap, the provincial government launched the guideline targeting a standard approach to transitions, which enables the understanding of care transition processes from all involved in a transition. Above all, improvement in patient outcomes, experience and satisfaction are expected. Also, the approach will bring provider satisfaction and enable a collaborative team attitude to providing patient-centered care [12].

In our study, among factors of the CTM, preparation for self-management obtained a satisfactory average. Self-management of your health condition is influenced by the understanding or not of the information provided by health professionals, as well as the attention given to clarifying the patient or family's questions. This is an important component of care transitions that requires commitment from both, professionals and patient/family to avoid insecurity and uncertainties regarding the necessary care after discharge [5].

The literature also highlights that the patient's place of hospitalization is associated with the preparation for self-management of health after hospital discharge. A previous study [16] showed that patients hospitalized in clinical inpatient units evaluated this factor better, due to the availability of professionals and greater opportunities to prepare the patient for discharge. Furthermore, professionals see discharge planning as part of their work. However, for patients that remain several days in emergency department due to lack of hospital beds, aspects of care transitions become more complex, and a lower score can be attributed to insufficient time of health care providers to prepare the patient and family to be discharged.

Overcrowding and excessive work overload also impact health care providers' time. Cancer patients in our study were all from clinical and surgical inpatient units, which may explain the higher CTM-15 score regarding their perception of feeling better prepared to manage their health condition.

Aspects related to the CTM-15 factor, understanding of medications, was also evaluated in another study with patients with chronic disease [16], and was found to have the lowest average score of all CTM-15 factors. In contrast, the current study demonstrated that this factor was positively evaluated by cancer patients, with the highest average found among all factors of the CTM-15. This result corroborates with the literature, where adherence to medication is considered a priority by patients. In general, patients tend to value medication management more as compared to other health behaviors, such as exercise and diet after hospital discharge [7]. Studies have identified that the implementation of care protocols for medications based on scientific evidence that aim to avoid the occurrence of adverse events and maintain patient safety, are indispensable in all health institutions, as they improve care, organize health services, with the establishment of flows, and are imperative in improving the quality of care provided to the patient. In addition, having a routine review of medications and care plans by the interprofessional team helps to identify issues and the need for improvements in education for the patient and family [18]. Thus, information about medications, their use, dosage, and side effects are paramount for patients [19].

The factors of the CTM-15, care plan and assured preferences, were assessed as unsatisfactory by cancer patients. These results require strategies to overcome this gap in this study location. Similar results have also been reported in other surveys [16, 20].

Ensuring preferences in relation to the care process of cancer patients is paramount when making care decisions post-discharge. Considering these preferences is necessary to plan actions to provide patient-centered care. Therefore, including these individuals in the preparation of a care plan, where individual preferences and needs are taken into account, tends to minimize fragmented care and optimize discharge planning [16, 21].

Our study showed that the care plan was not prioritized in the care of cancer patients. However, a well-designed and individualized care plan would provide continuity of care, in addition to enabling an adequate care transition between the different health services in which this patient was receiving care. However, gaps and disarticulation in the health system in Brazil causes the lack of referrals and monitoring of health concerns and treatment [8]. Another Brazilian study observed that, through telephone contact between hospital nurses and primary health care nurses, for example, communication between services was strengthened and, consequently, the continuity of care for patients improved [22].

Ideally, advanced care planning, which can start at the time of hospitalization or even as an outpatient, guarantees an individualized care plan that includes patient/family preferences, instructions on medications, social support for access to health services, symptom warning signs and clinical monitoring. This makes the objectives of care clear and precise between the patient and health services, and between health care providers [5, 23]. Therefore, it is imperative that health institutions aim to

promote adequate and safe care transitions for their patients. Ideally, through strategies aimed at health education and self-care planning, involving patients and health professionals in developing an individualized care plan that considers medication reconciliation and treatment adherence can result in reduced hospital readmissions [5].

The profile of the cancer patient identified in our research corroborates findings from other Brazilian studies, with a predominance of males, white people, with low education, over 50 years of age and stage III cancer diagnosis [24, 25]. Also, we identified a higher prevalence of patients with neoplasms of the digestive system (64%). Malignant neoplasms of the digestive tract occur frequently in the population and are practically incurable once spread throughout the body, since the late development of symptoms is a hallmark of this type of cancer. This is reflected in diagnoses in more advanced stages [25] and requires hospitalization for treatment. Still, the sociodemographic variables did not present statistically significant association with the CTM-15 score, converging with a study carried out in Israel with cancer patients, which also found no significant difference between groups [9].

Patients with primary cancer showed a statistically significant difference in the assured preferences factor of the CTM-15 ($p = 0.044$), when compared to the average of patients with secondary cancer. The other clinical variables did not show statistical differences related to the CTM-15 factors. Other studies carried out using CTM-15 in cancer patients that compared the groups also found no statistical difference [7, 9-11, 20]. Due to the lack of large studies with oncology patients and CTM measures, it is not possible to point out possible or potentially associated factors that could be addressed to explore possibilities for strengthening care transitions from hospital to community in this group of patients.

Cancer is a chronic condition, with psychological and physical changes, requiring complex and long-term care with the participation of multidisciplinary health professionals. Above this, oncology patients require access to the necessary drugs and equipment, and it is necessary that they, like their family, are fully attended to, through the provision of health education and the involvement of the patient and family in the preparation for self-management in health and social support [26]. Continuity of care is essential and requires connection with all points of the health care system to facilitate effective and comprehensive care aimed at treating health problems.

Care transitions are considered a complex process that requires coordination and communication between the people involved, using clinical protocols, in addition to the organization and integration across the entire health care system. Thus, effective care transitions still challenge the integration and continuity of care for all patients, but particularly for cancer patients, as found in this study.

Clinical implications

Our key findings indicated poor scores for the CTM factors of care plan and assured preferences, highlighting the need for improvement. Further studies are needed to understand the reasons why the

secured preferences factor and the care plan have lower scores, which in practice make it difficult to provide or even prevent patient-centered care.

Study limitations

As limitations of the study, we highlight the cross-sectional design, in addition to the inclusion of only cancer patients admitted to a single hospital. Still, the results are important, as this is the first study conducted in Brazil with this profile of patients. From the analysis of these results, we suggest carrying out further research, applying mixed methods, for example, to try to understand, in depth, the reasons why the patients' preferences and the care plan did not receive appropriate attention from professionals, which hinders or may even prevent patient-centered care. Furthermore, qualitative perspectives from patients and families could also be helpful.

Conclusion

Care transitions, assessed using the CTM-15, were considered satisfactory by cancer patients admitted to clinical and surgical units of a hospital in southern Brazil. The factors of the CTM-15 preparation for self-management and understanding of medications showed positive results. The factors of patient preferences and care plan showed lower averages, considered insufficient for an effective and safe care transition. The results contribute to supporting the development of strategies to improve care transitions among the different sectors in the institution, also among other health services in the health care system.

Declarations

Funding: The authors have no funding to disclose.

Conflicts of interest/Competing interests: The authors declare that they have no conflict of interest.

Availability of data and material: The authors have full control of all primary data and agree to allow the journal view primary data upon request.

Authors' contributions Caroline Donini Rodrigues, Elisiane Lorenzini and Adriane Cristina Bernat Kolankiewicz conceived and designed the study. Material preparation, data collection and analysis were performed by Caroline Donini Rodrigues, Vanessa Dalsasso Batista Winter and Adriane Cristina Bernat Kolankiewicz. The first draft of the manuscript was written by Caroline Donini Rodrigues and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Code availability: Not applicable

Ethics approval: This study was approved by the local institutional ethics committee

Consent to participate: Informed consent was obtained from all individual participants included in the study

References

1. Siegel R, Miller KD, Jemal A (2020) Cancer Statistics. *Ca Cancer J Clin* 70:7–30. <https://doi.org/10.3322/caac.21590>
2. Teston EF, Fukumori EFÇ, Benedetti GMS, Spigolon DN, Costa MAR, Marcon SS (2018) Feelings and difficulties experienced by cancer patients. *Esc. Anna Nery* 22 (4). Art. 20180017. <https://doi.org/10.1590/2177-9465-EAN-2018-0017>
3. Coleman EA, Boult C (2003) American Geriatrics Society Health Care Systems Committee. Improving the Quality of Transitional Care for Persons with Complex Care Needs. *J Am Geriatr Soc* 51(4): 556–557. <http://doi.org/10.1046/j.1532-5415.2003.51186.x>
4. Hirschman KB, Shaid E, McCauley K, Pauly MV, Naylor MD (2015) Continuity of care: the Transitional Care Model. *Online J Issues Nurs* 20(3):1. <https://doi.org/10.3912/OJIN.Vol20No03Man01>
5. Lima MADS, Magalhães AMM, Oelke ND, Marques GQ, Lorenzini E, Weber LAF (2018) Care transition strategies in Latin American countries: an integrative review. *Rev Gaúcha Enferm* 39:e20180119. <https://doi.org/10.1590/1983-1447.2018.20180119>
6. Corrales-Nevado D, Alonso-Babarro A, Rodríguez-Lozano MA (2012) Continuity of care, innovation and redefinition of professional roles in caring for chronic and terminal patients. Report SESPAS 2012. *Gac Sanit* 26(S1):63–68. <https://doi.org/10.1016/j.gaceta.2011.09.032>
7. Cao X, Chen L, Diao Y, Liu W, Jiang X (2015) Validity and Reliability of the Chinese. Version of the Care Transition Measure. *PLoS ONE* 10 (5), Article: e0127403 <http://doi.org/10.1371/journal.pone.0127403>
8. Weber LAF, Lima MADS, Acosta AM (2019) Quality care transition and association with hospital readmission. *Aquichan* 19(4): e1945. <http://doi.org/10.5294/aqui.2019.19.4.5>
9. Rayan N, Admi H, Shadmi E (2014) Transitions from hospital to community care: the role of patient – provider language concordance. *Isr J Health Policy Res.* 3:24. <http://dx.doi.org/10.1186%2F2045-4015-3-24>
10. Yoshimura M, Sato M, Sumi N (2017) Validity and Reliability of the Japanese version of the Care Transitions Measure. *Int J Health Plan Mgmt* 33:380–390. <http://doi.org/10.1002/hpm.2472>
11. Shadmi E, Zisberg A, Coleman EA (2009) Translation and validation of the Care Transition Measure into Hebrew and Arabic. *Int J Qual Health Care* 21(2):97–102. <http://doi.org/10.1093/intqhc/mzp004>
12. Alberta Health Services (2020) Alberta`s Home to Hospital to Home Transitions Guideline. Alberta. Canada. <https://together4health.albertahealthservices.ca/home-to-hospital-to-home>
13. Lorenzini E, Boell JEW, Oelke ND et al (2020) Care transition from hospital to home: cancer patients' perspective. *BMC Res Notes* 13:267. <https://doi.org/10.1186/s13104-020-05099-x>
14. Montero AJ, Stevenson J, Guthrie AE et al (2016) Reducing unplanned medical oncology readmissions by improving outpatient care transitions: A process improvement project at the

- Cleveland Clinic. *Journal of Oncology Practice* 12(5):e594–e602.
<https://ascopubs.org/doi/10.1200/JOP.2015.007880>
15. Acosta AM (2016) Transição do cuidado de pacientes com doenças crônicas: do serviço de emergência para o domicílio [dissertation]. Porto Alegre: Universidade Federal do Rio Grande do Sul
 16. Acosta AM, Lima MADS, Pinto IC, Weber LAF (2020) Care transition of patients with chronic diseases from the discharge of the emergency service to their homes. *Rev. Gaúcha Enferm.* 41 (spe). Article e20190155.<https://doi.org/10.1590/1983-1447.2020.20190155>
 17. Coleman EA, Mahoney E, Parry C (2005) Assessing the Quality of Preparation for Posthospital Care from the Patient's Perspective. *The Care Transitions Measure Medical Care* 43(3):246–255.
<http://doi.org/10.1097/00005650-200503000-00007>
 18. Oliveira PP, Santos VEP, Bezerril MS, Andrade FBP, Melo R, Silveira EAA (2019) Patient safety when administering antineoplastic chemotherapy and immunotherapy for cancer treatment: scoping review. *Texto Contexto – Enfermagem* 28:e20180312. <http://dx.doi.org/10.1590/1980-265x-tce-2018-0312>
 19. Shank BR, Nguyen PAA, Pherson EC (2017) Transitions of Care in Patients with Cancer. *Am J Manag Care* 23(7):280–284. <http://www.ajmc.com/journals/evidence-based-oncology/2017/june-2017/transitions-of-care-in-patients-with-cancer?p=1>
 20. Ford BK, Ingersoll-Dayton B, Burgio K (2016) Care Transition Experiences of Older Veterans and Their Caregivers. *National Association of Social Workers* 41(2):129–138.
<https://doi.org/10.1093/hsw/hlw009>
 21. Facchinetti G, D'Ângelo D, Piredda M et al (2020) Continuity care interventions preventing hospital readmission of older people with chronic diseases: A meta-analysis. *Int J Nurs Stud* 101:103396.
<http://dx.doi.org/10.1016/j.ijnurstu.2019.103396>
 22. Day CB, Witt RR, Oelke ND (2016) Integrated care transitions: emergency to primary healthcare. *J Integr Care* 24(4):225 –225 32. <http://doi.org/10.1108/JICA-06-2016-0022>
 23. Burke RE, Kripalani S, Vasilevskis EE, Schnipper JL (2013) Moving beyond readmission penalties: creating an ideal process to improve transitional care. *J Hosp Med* 8(2):102–109.
<http://doi.org/10.1002/jhm.1990>
 24. Kolankiewicz ACB, Magnago TSBS, Dullius AIS, Domenico EBL (2017) Association of demographic, economic, and clinical variables in daily activities and symptoms presented by patients in cancer treatment. *Canadian Oncology Nursing Journal* 27(4):365–374.
<https://doi.org/10.5737/23688076274365374>
 25. Mendes AAR, Santos FCT, Assis MO et al (2018) Overall survival of gastrointestinal cancer patients in a county by side city of Minas Gerais. *Rev Med Minas Gerais* 28(4):5–11.
<http://www.dx.doi.org/10.5935/2238-3182.20180018>
 26. Domenico EBL (2016) The complexity of oncology care: current and future challenges. *Acta paul Nurse* 29(3). <http://doi.org/10.1590/1982-0194201600034>