

# Quality of care transition and its association with hospital readmission\*

**Theme:** chronic care.

**Contribution to the discipline:** The qualified performance of nurses is fundamental for implementing safe care transitions at discharge from hospital to home, providing continuity of care and improving the quality of nursing care. The results of this research stimulate new reflections on the quality of care transitions and their association with hospital readmission, as well as encouraging innovation in the work process, care practices and health policies, which would contribute to the visibility and appreciation of nursing in developing care transitions for people with non-communicable chronic diseases.

## ABSTRACT

**Objective:** To evaluate the quality of care transition for patients with chronic diseases and to verify its association with hospital readmission within 30 days after discharge. **Method:** Cross-sectional epidemiological study of 210 patients with chronic diseases discharged from a hospital in southern Brazil. The *Care Transition Measure-15* (CTM-15) instrument was used, through a telephone contact and, in order to identify readmissions within 30 days, the hospital management system was consulted. Student's t-tests analysis of variance and nonparametric Pearson or Spearman correlation tests were performed. **Results:** CTM-15 score was 74.7 ( $\pm$  17.1). No significant association was found between the quality of care transition and hospital readmission. 12.3 % of the patients were readmitted, and 46.2 % of these readmissions were to the emergency service. **Conclusions:** The quality of the care transition for chronic patients from inpatient units to home, showed a satisfactory score. However, there was no association between the quality of care transition and hospital readmission within 30 days after discharge.

**KEYWORDS** (SOURCE: DECS)

Continuity of patient care; patient discharge; patient readmission; chronic disease; nursing.

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# *Calidad de la transición del cuidado y su asociación con la readmisión hospitalaria\**

## RESUMEN

**Objetivo:** evaluar la calidad de la transición del cuidado de pacientes con enfermedades crónicas y averiguar su asociación con la readmisión hospitalaria en hasta 30 días luego del alta. **Método:** estudio epidemiológico transversal con 210 pacientes con enfermedades crónicas que tuvieron salida de un hospital ubicado en el sur de Brasil. Se empleó el instrumento *Care Transition Measure-15*, por medio de contacto telefónico y, para identificar las readmisiones en hasta 30 días, se consultó el sistema de gestión hospitalaria. Se realizaron pruebas t-Student, análisis de variancia y correlación no paramétrica de Pearson o Spearman. **Resultados:** el puntaje del CTM-15 fue de 74,7 ( $\pm 17,1$ ). No se encontró asociación significativa entre la calidad de la transición del cuidado y la readmisión hospitalaria. Se readmitió el 12,3 % pacientes, en que el 46,2 % de las readmisiones fue al servicio de urgencias. **Conclusiones:** la calidad de la transición del cuidado de enfermos crónicos de unidades de hospitalización clínica hacia el domicilio presentó un indicador satisfactorio. Sin embargo, no se encontró asociación entre la calidad de la transición del cuidado y la readmisión hospitalaria en hasta 30 días luego del alta.

## PALABRAS CLAVE (FUENTE: DECS)

Continuidad de la atención al paciente; alta del paciente; readmisión del paciente; enfermedad crónica; enfermería.

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\* Artículo extraído de la tesis de maestría titulada "Avaliação da transição do cuidado de pacientes com doenças crônicas do hospital para o domicílio", presentada al programa de posgrados en Enfermería de la Universidade Federal do Rio Grande do Sul, Brasil, en 2018.

# Qualidade da transição do cuidado e sua associação com a readmissão hospitalar\*

## RESUMO

**Objetivo:** avaliar a qualidade da transição do cuidado de pacientes com doenças crônicas e verificar sua associação com a readmissão hospitalar em até 30 dias após a alta. **Método:** estudo epidemiológico transversal com 210 pacientes com doenças crônicas que tiveram alta de um hospital no Sul do Brasil. Utilizou-se o instrumento *Care Transition Measure-15*, por meio de contato telefônico e, para identificar as readmissões em até 30 dias, consultou-se o sistema de gestão hospitalar. Foram realizados testes t-Student, análise de variância e correlação não paramétrica de Pearson ou Spearman. **Resultados:** a pontuação do CTM-15 foi de 74,7 ( $\pm$  17,1). Não foi encontrada associação significativa entre a qualidade da transição do cuidado e a readmissão hospitalar. Foram readmitidos 12,3 % pacientes, sendo 46,2 % das readmissões no serviço de emergência. **Conclusões:** a qualidade da transição do cuidado de doentes crônicos de unidades de internação clínica para o domicílio apresentou um escore satisfatório. Entretanto, não foi verificada associação entre a qualidade da transição do cuidado e a readmissão hospitalar em até 30 dias após a alta.

## PALAVRAS-CHAVE (FONTE: DECS)

Continuidade da assistência ao paciente; alta do paciente; readmissão do paciente; doença crônica; Enfermagem.

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\* Artigo extraído da dissertação de mestrado intitulada "Avaliação da transição do cuidado de pacientes com doenças crônicas do hospital para o domicílio", apresentada no programa de Pós-Graduação em Enfermagem da Universidade Federal do Rio Grande do Sul, Brasil, em 2018.

## Introduction

The period after hospital discharge is a time of challenge for patients and their families (1), as they find it difficult to perform daily activities and have doubts about self-care management (2). Such problems may lead to poor treatment adherence, adverse events related to continuous use medications (3) and exacerbation of the underlying disease (4), which may lead to readmissions.

Hospital readmissions, in addition to causing harm to patients, entail greater costs to the health system, which makes the development of measures to avoid them being important (5). High hospital readmission rates may be related to potentially preventable factors such as inefficient discharge planning, adverse drug events, lack of primary care follow-up and insufficient continuity of care after discharge (6). Approximately one quarter of readmissions in the United States of America are estimated to be potentially preventable (7).

In addition, some noncommunicable chronic diseases (NCDs), such as cardiovascular, respiratory, neoplasms and diabetes are associated with high readmission rates (7), requiring greater care in preparation for discharge. In the global context, NCDs have caused a high number of premature deaths, decreased quality of life and are responsible for economic impacts on families, communities and society (8).

Patients with chronic diseases are more vulnerable to hospital readmission, as they have greater difficulties to manage care in the home environment and need long-term care continuity (9). In Brazil, the NCDs are the leading cause of morbidity and mortality and most hospitalizations, which is a serious public health problem (10). These individuals account for 12.7 % of readmissions in the United States of America (2) and 27.4 % in Italy (7). In Brazil, a study conducted in Rio de Janeiro found that 40.4 % of patients with chronic diseases were readmitted after discharge (11).

Care transition is an important strategy to avoid hospital readmissions, as it contributes to coordination and continuity of care (12), minimizing adverse events and other post-discharge complications (13). Actions taken include discharge planning, health education, promotion of self-care management, guidance on medications and articulation with the health network (14). This strategy is widely used in several countries with elderly, chronically ill, patients with various therapeutic plans and complex health conditions (15).

In recent years, the interest of researchers and health managers in studying the theme of care transition has been increasing. International studies have verified the association of the quality of care transition with hospital readmission, identifying a reduction in readmission rates when the quality of the transition is high (1, 13). However, in Brazil, the literature is scarce. There are studies that evaluate specific aspects of the care transition, such as discharge planning actions, self-care education and medications (4), home care (16) and nurses' perceptions of activities performed during care transitions (17), which demonstrates weaknesses in the health system in ensuring safe transitions. The absence of studies verifying the association between the quality of care transition and hospital readmissions in the Brazilian scenario is identified, which indicates an important knowledge gap.

It is recognized that the qualified performance of nurses is fundamental for the implementation of safe care transitions, as well as contributes to the visibility and appreciation of nursing care. However, the development of innovative and evidence-based interventions is needed. It is considered that assessing the quality of care transitions of patients with chronic diseases is important for the improvement of care transition practices, as well as for the evaluation and management of care of chronic patients after hospital discharge. Moreover, being aware of aspects that may lead to hospital readmission offers subsidies for the improvement of care and management practices to enhance the quality of health care.

Given the above, the objective of this study is to evaluate the quality of the care transition for patients with chronic diseases and to verify its association with hospital readmission within 30 days after discharge.

This study is based on the principles of the *Care Transitions Program* (CTP), designed to support patients with complex care needs and their caregivers, and to promote qualified and safe care transitions from hospital to home. The program is supported by four pillars: patient-centered records, self-management of medications, knowledge of warning signs, follow-up in primary and specialized care (18).

## Method

This is an observational and cross-sectional epidemiological study conducted in a general, public and university hospital in

southern Brazil. The hospital has over 60 medical specialties, with 833 beds; of these, 645 for hospitalization.

The population consisted of patients with chronic diseases who were discharged from clinical inpatient units to their homes, identified through a report from the computerized hospital management system. For the sample calculation, an absolute error of 4 points was used, mean standard deviation  $69 \pm 27$  and 95% confidence level, according to a previous study that used the same instrument for data collection (19), defining a random sample of 210 patients.

The following inclusion criteria were established: being 18 years old or older, having a chronic disease (neoplasms, cardiovascular diseases, diabetes mellitus, respiratory diseases, neuropsychiatric and musculoskeletal diseases) and being discharged from the clinical inpatient unit to home. In addition, the patient should have been hospitalized for at least 72 hours in the hospital and for 24 hours in the inpatient units. Patients who died or were readmitted at the time of data collection were excluded from the sample. When the patient had no clinical or communication conditions to respond to the instrument, the caregiver who accompanied the hospitalization and discharge instructions participated as a substitute respondent. The instruments were answered by 141 patients and 69 caregivers.

Data collection was performed in two parts. The first occurred from March to August 2017 and used the version of the CTM-15 instrument, adapted and validated for Brazil, to assess the quality of the care transition. The Brazilian version of the instrument has semantic equivalence with the original, is reliable and has face and content validity. It has good stability over time and demonstrates good internal consistency (Cronbach's  $\alpha = 0.929$ ) (19). The instrument consists of 15 items, which are divided into four factors: "Self-Management Training", "Understanding of Medication", "Preferences Respected" and "Care Plan". It has five-point Likert scale response options. The application of the instrument occurred between one and four weeks after the date of hospital discharge, through telephone contacts (12). In addition, an identification form was filled out with patient characterization information from the data contained in the computerized system report.

The second part of data collection was held in November 2017. In order to identify participants who were readmitted within 30 days from the date of discharge at the index hospitalization, a new computerized hospital management system report was ob-

tained, containing information on the reason and date of readmission, the unit where they were readmitted and also the time spent on readmission.

Responses to each CTM-15 item were scored as follows: 0 points - "Don't know/ Don't remember/ Not Applicable"; 1 point - "Strongly Disagree"; 2 points - "Disagree"; 3 points - "Agree"; 4 points - "Strongly Agree". To identify the mean scores, we used a formula that transforms the averages obtained into scores from 0 to 100, and the higher the score, the better the care transition (18). The authors of the original instrument indicate that scores equal to or higher than 70 may be considered satisfactory (12).

The data were exported to a spreadsheet using the Excel program, with double checking of the data. The analysis was performed using the *Statistical Package for the Social Science* (SPSS), version 18.

Descriptive statistics was used with the presentation of absolute frequency (n) and percentage (%) data of categorical variables to describe the sample profile and the calculation of position and dispersion measures (mean, median, standard deviation, minimum and maximum values) was used for the continuous variables. Student's t-tests, analysis of variance (ANOVA), non-parametric Pearson or Spearman correlation were used, with a margin of error of 5% ( $p \leq 0.05$ ) and a confidence level of 95%.

The study was conducted based on the ethical principles of research involving human beings, according to Resolution 466/2012 of the National Health Council (20), and was approved by the Research Ethics Committee of the hospital (Certificate of Presentation for Ethical Appreciation with the number 63817417.5.0000.5327). Tacit consent for participation in the research was obtained through verbal agreement of the participant at the time of telephone call, using a script with information about the objective, the justification, the purpose, the time allocated to respond to the instrument, the research-related risks and benefits, assurance of voluntariness and anonymity.

## Results

There was a prevalence of men (52.4%), average age of 60.9 years ( $\pm 15$ ) and incomplete elementary school (50.5%). The most frequent diseases were heart diseases (47.6%) and malignant neoplastic (45.7%) (Table 1). It was found that 25% of patients had two or more diseases (data not shown in the table).

The mean CTM-15 score was 74.7 ( $\pm$  17.1). Factor 1 (Self-Management Training) obtained a mean score of 78.1 ( $\pm$  19.7), Factor 2 (Understanding of Medication) 69.0 ( $\pm$  28.1), Factor 3 (Preferences Respected ) 69, 7 ( $\pm$  21.2) and factor 4 (Care Plan) 78.8 ( $\pm$  23.3).

**Table 1.** Characterization of the sample. Porto Alegre, 2017

| Variables                                   | Total Sample(N=210) |
|---|---------------------|
| Age (years old)†                            | 60.9 $\pm$ 15.0     |
| Male gender*                                | 110 (52.4)          |
| Schooling (years)*                          |                     |
| None  | 9 (4.3)             |
| Elementary School Incomplete                | 106 (50.5)          |
| Complete Elementary School                  | 25 (11.9)           |
| Incomplete High School                      | 13 (6.2)            |
| Complete High School                        | 27 (12.9)           |
| Incomplete Higher Education                 | 2 (1.0)             |
| Complete Higher Education                   | 18 (8.6)            |
| Unregistered                                | 10 (4.8)            |
| Chronic Disease*††                          |                     |
| Heart diseases                              | 100 (47.6)          |
| Malignant neoplasms                         | 96 (45.7)           |
| Renal                                       | 19 (9.0)            |
| Diabetes mellitus                           | 18 (8.6)            |
| Neurological                                | 18 (8.6)            |
| Respiratory                                 | 16 (7.6)            |
| Hepatic cirrhosis                           | 13 (6.2)            |
| Musculoskeletal                             | 5 (2.4)             |
| Length of stay (days) in the unit ‡         | 4 (3-6)             |
| Number of previous hospitalizations ‡       | 4 (3-6)             |
| Readmission in 30 days*                     |                     |
| Yes   | 26 (12.3)           |
| No  | 184 (87.7)          |
| Time (days) from discharge to readmission * |                     |
| $\leq$ 7 days                               | 4 (15.4)            |
| 8 to 14 days                                | 5 (19.2)            |
| 15 to 21 days                               | 11 (42.3)           |
| More than 21 days                           | 6 (23.1)            |

Source: Own elaboration.

\*Categorical variables expressed as n(%); †Continuous variables expressed as mean  $\pm$  standard deviation; †† More than one disease per patient. ‡ Asymmetric variables presented as median and interquartile range.

Table 2 displays the mean scores of each instrument item. Items 9 and 12 obtained the highest averages. Item 9 is related to understanding the responsibility of the patient to take care of health after discharge, and item 12 refers to receiving a list of appointments or examinations to perform after discharge. Items 2 and 15 obtained the lowest averages. Item 15 refers to having knowledge of the side effects of medications used after discharge, and item 2 considers patients' preferences to decide health needs.

**Table 2.** Factor items, mean and standard deviation of CTM-15 item scores (n=210). Porto Alegre, 2017

| Item   | Factor | Mean $\pm$ SD   |
|--|--------|-----------------|
| 1. Agreed with the health care team on the health goals and how they would be achieved | 3      | 70.7 $\pm$ 27.7 |
| 2. Preferences considered when deciding the health needs                               | 3      | 65.4 $\pm$ 28.2 |
| 3. Preferences considered to decide where the health needs are met                     | 3      | 69.8 $\pm$ 30.8 |
| 4. Had the necessary information for self-management                                   | 1      | 75.7 $\pm$ 28.0 |
| 5. Clearly understands how to take care of their health                                | 1      | 78.4 $\pm$ 25.9 |
| 6. Understands warning signs and symptoms  | 1      | 72.2 $\pm$ 32.5 |
| 7. Received a written care plan  | 4      | 76.9 $\pm$ 28.1 |
| 8. Understands what makes their health condition better or worse                       | 1      | 78.4 $\pm$ 28.8 |
| 9. Understands their health care responsibilities                                      | 1      | 84.1 $\pm$ 21.2 |
| 10. Feels confident that they know what to do  | 1      | 76.9 $\pm$ 26.9 |
| 11. Feels confident that they can do what is necessary                                 | 1      | 74.5 $\pm$ 26.3 |
| 12. Received a written list of appointments or exams                                   | 4      | 79.9 $\pm$ 27.0 |
| 13. Understands the reason for taking the medications                                  | 2      | 74.8 $\pm$ 32.2 |
| 14. Understands how to take medications  | 2      | 78.1 $\pm$ 29.8 |
| 15. Understands the side effects of the medications                                    | 2      | 51.9 $\pm$ 38.2 |

Source: Own elaboration.

It was found that 26 patients (12.3 %) were readmitted within 30 days after discharge, 30.8 % for the same reason as previous hospitalization and 61.5 % for disease in the same classification group. It was found that 46.2 % were readmitted in the emergency department and 53.8 % in inpatient units.

Higher scores on CTM-15 responses were obtained from those who were readmitted, although the differences were not significant. There was no significant correlation between time from discharge to readmission and CTM-15 scores. However, patients who had a longer time interval from hospital discharge to readmission were more likely to have higher factor 1 scores (Table 3).

**Table 3.** Association and correlation of CTM 15-Brazil total and factor scores with readmission within 30 days after discharge. Porto Alegre, 2017

| Variables  | Total       | Factor 1    | Factor 2    | Factor 3    | Factor 4    |
|--|-------------|-------------|-------------|-------------|-------------|
| <b>Readmission<sup>†</sup></b>                         |             |             |             |             |             |
| Yes*   | 79.2 ± 13.4 | 83.7 ± 13.6 | 74.4 ± 26.8 | 71.4 ± 19.4 | 82.7 ± 18.5 |
| No*  | 72.9 ± 18.3 | 76.1 ± 21.5 | 67.4 ± 28.3 | 68.3 ± 22.6 | 77.8 ± 23.9 |
| P  | 0.096       | 0.082       | 0.238       | 0.511       | 0.316       |
| <b>Time from discharge to readmission <sup>‡</sup></b> |             |             |             |             |             |
| Correlation coefficient                                | 0.275       | 0.372       | 0.252       | 0.235       | 0.173       |
| P  | 0.174       | 0.062       | 0.214       | 0.248       | 0.397       |

Source: Own elaboration.

\*Values expressed as mean value ± standard deviation. †Using Student's t-test. ‡Using Spearman's correlation test.

When comparing the items of the instrument with readmission, it was evidenced that patients with readmission obtained higher averages in almost all items than those who were not readmitted, being only item 2 the lowest average. Significant difference was found in item 5 (Table 4).

**Table 4.** Mean and standard deviation of items related to patients who were readmitted and not readmitted. Porto Alegre, 2017

| Item   | Has Readmission | No Readmission | p                  |
|--|-----------------|----------------|--------------------|
|  | Mean ± SD       | Mean ± SD      |                    |
| 1. Agreed with the health care team on the health goals and how they would be achieved | 72.0 ± 20.8     | 70.5 ± 28.5    | 0.802              |
| 2. Preferences considered when deciding the health needs                               | 65.3 ± 24.5     | 65.4 ± 28.8    | 0.993              |
| 3. Preferences considered to decide where the health needs are met                     | 74.4 ± 25.5     | 69.2 ± 31.5    | 0.425              |
| 4. Had the necessary information for self-management                                   | 84.6 ± 19.4     | 74.5 ± 28.8    | 0.083              |
| 5. Clearly understands how to take care of their health                                | 88.5 ± 16.2     | 77.0 ± 26.7    | 0.004 <sup>‡</sup> |
| 6. Understands warning signs and symptoms  | 82.1 ± 25.4     | 70.9 ± 33.2    | 0.100              |
| 7. Received a written care plan  | 81.9 ± 24.0     | 76.2 ± 28.6    | 0.347              |
| 8. Understands what makes their health condition better or worse                       | 85.9 ± 19.3     | 77.3 ± 29.8    | 0.057              |
| 9. Understands their health care responsibilities.                                     | 87.2 ± 19.0     | 83.6 ± 21.5    | 0.423              |
| 10. Feels confident that they know what to do  | 78.2 ± 23.0     | 76.7 ± 27.5    | 0.786              |
| 11. Feels confident that they can do what is necessary                                 | 79.5 ± 25.1     | 73.8 ± 26.5    | 0.301              |
| 12. Received a written list of appointments or exams                                   | 82.7 ± 19.5     | 79.5 ± 27.9    | 0.584              |
| 13. Understands the reason for taking the medications                                  | 82.1 ± 28.6     | 73.7 ± 32.6    | 0.218              |
| 14. Understands how to take the medications  | 80.8 ± 28.6     | 77.7 ± 30.1    | 0.626              |
| 15. Understands the side effects of the medications                                    | 60.3 ± 37.7     | 50.7 ± 38.2    | 0.234              |

Source: Own elaboration.

<sup>‡</sup>Statistical significance (p ≤ 0.05).

## Discussion

This study evaluated the quality of care transition for patients with chronic diseases using the CTM instrument and tested its association with hospital readmission. Although the CTM is the most used validated instrument to assess the quality of the care

transition in the world, it is scored according to the experiences of patients and caregivers, which can generate more auspicious data than reality (21). It is considered that the care transition is complex and involves issues related to the performance of professionals, the use of clinical protocols, the organization of the health care network, among others. Thus, assessing the quality of care transition is a challenge that needs to be addressed from multiple perspectives and different instruments and indicators (21).

In this research, it was found that the mean CTM-15 score was 74.7. Studies that used the CTM in inpatient units found heterogeneous results. Scores ranging from 66.6 to 82.4 in the United States of America (22, 23) and 76.4 in Brazil (19) were identified.

In this study, aspects related to self-management preparation and care plan obtained positive results from the perspective of patients and their caregivers. On the other hand, items related to the understanding of medications and the guarantee of patient and family preferences obtained the worst means in the instrument scores. Another study using CTM-15 also found similar findings (22).

Factor 4, which obtained the highest score on CTM-15 factor scores, is related to the discharge plan and referrals after hospital discharge. The use of discharge plans and the establishment of flows help care management, as well as facilitate the transition of care between different levels of care, which provides continuity of care (15). However, it is identified that there are still problems of disarticulation between services in the health care network (24), especially regarding referrals and/or monitoring of the health problem when they are in the community, which generates the fragmentation of care after the discharge (6). In a Brazilian study, in an emergency department, resident nurses made telephone contacts for Primary Health Care (PHC) nurses, who provided pertinent information about the health status of patients discharged from hospital and who needed care after their return to home, which strengthened communication between the hospital and the PHC (25).

Factor 1 refers to information received during the patient's hospitalization, especially about signs and symptoms of chronic disease exacerbation and information to improve self-care in the home environment. Although factor 1 obtained a high average, item 11, referring to "feeling confident" that they can do what is necessary to take care of their health, was identified with a lower average among the factor items, which demonstrates weaknesses in the information provided to patients. Similar data was found

in a study conducted in the United States of America, in which patients and caregivers did not feel confident to manage care when they return home from the hospital (22).

Communication between health professionals and patients is of paramount importance and aims to improve daily care after hospital discharge. By providing an environment that can expose problems and doubts about self-care management, nurses can facilitate the understanding of instructions and thus provide greater adherence to care and treatment at home (15). However, information on treatment regimen and daily care is known to be provided upon discharge for a shorter period of time, which may indicate that patients with complex care needs are sent home prior to being fully informed, in a clear manner, on their health condition (26), which can lead to complications after discharge and unnecessary readmissions in the emergency services.

Factor 3 is related to patient and family preferences regarding care for chronic disease, however, this factor obtained a low average in the CTM-15 score. The inclusion of patients and families in the treatment and care decisions has been highlighted during the discharge planning (26). Introducing patient and family in care management decisions is crucial to promote self-management of care after discharge, but a more active role for patients and family is needed to achieve this (22). In addition, it is relevant to have more knowledge about chronic disease to make decisions about the conduct to be defined, and nurses have an important role in promoting the health education of patients and family.

In factor 2, as for the understanding about the medications, the second worst mean in the instrument scores was measured. However, it is noteworthy that items 13 and 14 were identified with good scores, unlike item 15, which was the item with the worst average of the instrument. Similar results were found in a study that used the CTM-15, in which item 15 had the lowest average among the instrument items (22), which indicates that the information provided about side effects was limited. Thus, many patients understand the reason for administering the medications as well as their daily dose, but do not know the possible adverse effects of medications.

Information on using the medications after discharge is of fundamental importance to avoid the occurrence of adverse events in the home environment (7). However, instructions on the side effects of the medications are still incipient. Medications

information is provided at discharge, and patients and families are not counseled about side effects, receiving only the prescription, dose, time and route of administration (4), which could raise doubts after discharge and consequently result in readmissions.

In this study, 12.4 % of participants were readmitted within 30 days after discharge, lower than that identified in a Brazilian study with cardiac patients (27). In investigations that used the CMT internationally, there are higher values (13) and lower readmission values (1, 22).

Regarding the reason for readmissions, 30.8 % of cases were for the same reason as previous hospitalization, and 61.5 % due to disease in the same classification group, which is in accordance with Brazilian investigations conducted with chronic patients with comorbidities, which showed high percentages of readmissions for the same reason (5, 27-28). A study conducted in a public hospital in the state of São Paulo, Brazil, found that readmissions occurred for the same reason as previous hospitalization in 47.9 % of patients (5). Another study with patients with heart failure found that 96 % were readmitted due to what motivated the previous hospitalization (28).

There are evidences that weaknesses in the care transition lead to unnecessary use of health services, both in emergencies and hospital readmissions (1). The literature indicates that higher CTM scores decrease readmission rates (1, 13). However, in this study, no associations or correlations between CTM-15 scores and readmissions were identified. This is supposed to be due to the fact that most patients may be much debilitated, have multiple comorbidities and/or have complex care needs, and readmissions in these cases are not preventable (29).

By associating the CTM-15 scores with readmissions, it was found that the scores were higher in those who readmitted within 30 days after discharge, but without statistical significance. Also, when the CTM-15 items were compared with hospital readmission, a significant difference was found in item 5, which indicates that patients who were readmitted understood more about how to take care of their health than those who did not readmit.

The chronic diseases require continuous care over time, as well as changes in daily life and self-management of care in the home environment (10). However, a Brazilian study found that patients who are readmitted think that following medical instruc-

tions can prevent readmissions, but did not relate this to other care actions and believed that their readmissions occurred due to living conditions and social determinants (9). Although there is understanding of care in the home environment, patients need to know the importance of care with chronic disease, and changes in daily habits are necessary for continuity of care to occur.

The education of the patients helps their empowerment, especially on aspects related to the health-disease process, which facilitates understanding the value of self-care and enables the management of chronic disease for a longer time after discharge (9). This evidence corroborates the finding of the study that patients who took longer time to readmission had higher factor 1 scores regarding self-management of care after the hospital discharge.

The results of this study found no association between the quality of care transition with patients' particularities, clinical characteristics or hospital readmissions, assuming that these variables do not interfere with the quality of care transition for chronic patients. However, it is suggested that the care transition has influence on the characteristics of health services, and may be related to the work process, care practices and national health policies.

## Conclusions

The quality of the care transition for chronic patients from inpatient units to home showed a satisfactory score. The items related to the instructions on self-management, the discharge plan and referrals after hospital discharge were favorable points to qualify the transition of care during hospitalizations. However, items regarding choices based on patient and family preferences for managing chronic disease and information about the use of medications in the home environment need further attention and improvement in the hospital environment.

Notwithstanding these results, no association was found between the CTM-15 score and hospital readmission within 30 days after discharge. Although readmission is an important indicator for the evaluation of the care transition during the hospital discharge process, it is understood that other aspects may influence the patient's return to the hospital, such as severity and complexity of health conditions, institutional factors and coordination of the care in the health care network.

Given the above mentioned aspects, the lack of formalization of the care transition process is a Brazilian reality, as there are no national care transition policies. This fact makes it difficult to share information and care responsibilities, especially for patients with chronic diseases and complex care needs that require ongoing care over time.

Thus, further investigations are needed in order to more comprehensively and thoroughly evaluate and analyze the quality of care transition and hospital readmissions, observing different perceptions of patients, professionals and managers of health institutions. Equally, it is important to evaluate the work processes

in health institutions, as well as improve actions and care in order to qualify care transitions.

As a limitation, it is pointed out that the study was conducted with a population of chronic patients and restricted to a single hospital. In addition, some caregivers were respondents to the instrument, who may have different perceptions of patients about the care transition. Finally, it is pointed out the lack of national studies using the same instrument, since it was found the use of several international studies, which made it difficult to compare and discuss the results at the national level.

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