Original Article

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☑ Knowledge translation and advances in health and nursing practices

Development of a measurement instrument to assess patient safe transition at hospital discharge

Construção de instrumento de avaliação da transição segura do paciente na alta hospitalar

Elaboración de un instrumento para evaluar la transición segura del paciente al alta hospitalaria

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ABSTRACT

Objective: To develop and validate the content of a measurement instrument to assess the quality of care transitions and patient safety at hospital discharge from the nurses' perspective.

Methods: A methodological study developed in southern Brazil between April 2019 and January 2022, in three stages: integrative review and semi-structured interviews with six nurses for construction of the instrument; content validation with a committee of 14 experts; and a pre-test with 20 nurses. A Content Validity Index above 0.80 was employed.

Results: A measurement instrument with 37 items organized into six domains was developed, as follows: structure; discharge planning; care education; referral for continuity of care; safety culture, and care transitions results. The general Content Validity Index reached 0.93.

Conclusions: The measurement instrument presented content validation and will contribute to understanding transitional care in the Brazilian context, proposing changes to qualify and strengthen patient safety at hospital discharge.

Keywords: Patient discharge. Continuity of patient care. Patient safety. Patient transfer. Quality of health care. Nursing.

RESUMO

Objetivo: Construir e validar o conteúdo de um instrumento de avaliação da qualidade da transição do cuidado e da segurança do paciente na alta hospitalar na perspectiva de enfermeiros.

Métodos: Estudo metodológico, desenvolvido no Sul do Brasil entre abril de 2019 e janeiro de 2022, em três etapas: revisão integrativa e entrevistas semiestruturadas com seis enfermeiros para construção do instrumento; validação de conteúdo por comitê de 14 especialistas; e pré-teste com 20 enfermeiros. Empregou-se Índice de Validade de Conteúdo acima de 0,80.

Resultados: Desenvolvido instrumento com 37 itens organizados em seis domínios: estrutura; planejamento de alta; orientações sobre cuidados; encaminhamento para continuidade de cuidados; cultura de segurança, e resultado da transição do cuidado. O Índice de Validade de Conteúdo geral foi 0,93.

Conclusões: o instrumento apresentou validação de conteúdo e contribui para a compreensão da transição do cuidado no contexto nacional, propondo mudanças para qualificar e fortalecer a segurança do paciente na alta hospitalar.

Palavras-chave: Alta do paciente. Continuidade da assistência ao paciente. Segurança do paciente. Transferência de pacientes. Qualidade da assistência à saúde. Enfermagem.

RESUMEN

Objetivo: Construir y validar el contenido de un instrumento de evaluación de la calidad de la transición de la atención y la seguridad del paciente en alta hospitalaria desde la perspectiva de los enfermeros.

Métodos: Estudio metodológico, desarrollado en el sur de Brasil entre abril de 2019 y enero de 2022, en tres etapas: revisión integradora y entrevistas semiestructuradas con seis enfermeras para construir el instrumento; validación de contenido por un comité de 14 expertos; y pre-test con 20 enfermeras. Se empleó un Índice de Validez del Contenido superior a 0,80.

Resultados: Instrumento desarrollado con 37 ítems organizados en seis dominios: estructura; planificación del alta; pautas de atención; derivación a la continuidad asistencial; cultura de seguridad, y resultado de la transición asistencial. El Índice de Validez de Conocimiento general fue de 0,93.

Conclusiones: El instrumento presentó un valor de contenido y contribuyó a la comprensión de la transición del cuidado en el contexto nacional, proponiendo cambios para calificar y fortalecer la seguridad del paciente en el hospital de alta.

Palabras clave: Alta del paciente. Continuidad de laatención al paciente. Seguridaddel paciente. Transferencia de pacientes. Calidad de laatención de salud. Enfermería.

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INTRODUCTION

The search for quality of health services has been a focus of worldwide interest, motivating the development of health policies and actions aimed at minimizing the occurrence of unnecessary harms to patients and that improve the care provided[1–2]. Among the global strategic objectives established by the World Health Organization for 2021-2030, care transition is identified as an important strategy to ensure safety in the care process[1–2].

Hospital discharge is considered a vulnerable period, as nearly 30% of the patients develop an adverse event after discharge, including mild (e.g., nausea, diarrhea or skin rash) and even severe (such as gastrointestinal bleeding, delirium or respiratory failure) harms[3]. These adverse events can result in worsening of symptoms, longer rehabilitation times, use of emergency services, or even hospital readmissions[3–4].

In addition, actions in care transitions contribute to continuity of the assistance provided and minimize risk of complications after hospitalization[5–6]. When successful, they result in quality care and in appropriate return of the patients to their homes[7]. Present in the Brazilian legislation, transitional care at hospital discharge provides for the participation and development of autonomy in patients and families, for the articulation between the different points of the health care network, and for the adoption of dehospitalization mechanisms[8].

The following strategies have been used for better transitions: discharge planning, health education for the patients and promotion of self-management, safety in medication use, full communication of diverse information and post-discharge follow-up[9–10]. Some hospitals in countries such as Canada, Spain and Portugal direct nurses to work exclusively in care transitions, with the function of improving communication and care coordination at hospital discharge[6].

In Brazil, deployment of nurses or teams devoted to care transition is still emerging[6]. Often times, post-discharge continuity of care is hampered by the limitations in involvement of health teams, work overload, limited time spent on educating and guiding patients and their families, as well as unplanned discharges, difficulties scheduling appointments and lack of in-home monitoring[10–11].

Aligned with transitional care, safety culture has been disseminated in hospital environments, seeking providers' compliance in a positive way and making them co-participants in safe care[1], which stimulates safety behaviors and outcomes for patients, providers and healthcare institutions[12]. Therefore, evaluating patient safety aspects in the hospital-home transition can contribute to the use of diverse scientific evidence for health practice, management and policies, scientifically supporting decision-making and management interventions and modifying unsafe practices. Assessing this construct by means of valid, reliable and easy-to-apply indicators is a necessity for managers, providers and researchers.

The following instruments are available to assess transitional care in Brazil: the Care Transitions Measure (CTM), developed in the United States and validated in Brazil[13], which assesses quality of the care transition from the patients' perspective; the PREPARED questionnaire, which assesses discharge planning quality[14]; and the Readiness For Hospital Discharge Scale (RHDS), which assesses readiness for hospital discharge from the patient's perspective[15]. No instruments were identified that address patient safety during care transition from the perspective of providers who develop actions for hospital discharge, which is the rationale for conducting this study.

This research provides providers and managers with a valid instrument that allows an understanding of transitional care from the nurses' perspective, as well as identify barriers to patient safety during hospital discharge and achieve improvements in the providers' care regarding care transition from hospital to home. Considering the various difficulties in using research evidence in practice, knowledge translation strategies are necessary. In this case, the availability of an assessment tool enhances the incorporation of new interventions in healthcare and nursing, specifically. In addition, the tool will contribute to the visibility of nurses' work and expanding nursing positions in transitional care.

In view of the above, the objective of this study is to develop and validate the content of a measurement instrument to assess the quality of care transitions and patient safety at hospital discharge from the nurses' perspective.

METHODS

A methodological study that followed the process to develop instruments described in the literature[16] was organized in three stages: 1) Development of the instrument, which included a phase of an integrative review and a phase of semi-structured interviews to establish the conceptual framework, definition of the instrument objectives and of the population involved, construction of the items and answer scales, selection and organization of the items, and structuring of the instrument; 2) Content validation, with review by an expert committee; and 3) Pre-test with the target population. The study was conducted in two hospitals from the South of Brazil, referred to as A and B. Hospital A is a large-size public institution that provides general care, except for trauma care. Hospital B is a large-size, public, university hospital.

The first stage of the study consisted of the development of the instrument. Initially, an integrative review was carried out in the Medical Literature Analysis and Retrieval System online (MEDLINE via PubMed) and Latin American and Caribbean Health Sciences (LILACS) databases, to analyze the diverse evidence available in the scientific literature on the health interventions used to reduce hospital readmissions 30 days following discharge from the hospital to home. The search of the databases took place in January 2019 and was updated in April 2020. The final sample consisted of 71 articles. This integrative review that sustained Stage 1 is published elsewhere[17].

Also in the first stage, semi-structured interviews were conducted with nurses from Hospital A, selected according to the inclusion criteria, namely: being a nurse, working in clinical inpatient units for adults, working on day shifts, and being involved in care transitions activities or management of hospital discharge processes. Nurses on vacation or leave during data collection were excluded. Nurses were selected intentionally according to their involvement in discharge processes and availability to respond to the interview. A total of six nurses participated based on data saturation, when no new elements emerged in the analysis[18]. Using a script with open-ended questions, perspectives were elicited about activities to ensure patient safety in transitional care and how the quality of care transitions and patient safety at discharge could be assessed. The interviews were audio-recorded and transcribed. Thematic analysis, facilitated by NVivo® software, was used for analyzing the data, following the stages of pre-analysis, exploration of the material, and analysis and interpretation of the material[19]. The interviews were conducted in November and December 2019.

From the synthesis of the main contents of the integrative review and the interviews, the items of the measurement instrument were developed, classified as structure, process and results indicators, considering the Donabedian Triad[20]. In addition, the objectives and the target population were defined, with the aim of evaluating the quality of transitional care and patient safety at hospital discharge, and the target audience being nurses working in hospital inpatient units. For selection and organization of the items and the response scale, the measurement instrument was presented and widely discussed at a meeting of the research group of this study and authors of this paper. The last step was structuring the measurement tool, where the items were organized in a logical presentation order.

In Stage 2, a content validation process of the measurement tool was completed by a committee of experts. Specialists were intentionally selected considering the criteria: providers with clinical experience, managers, professors and/or researchers that focused on the theme of care transitions and patient safety. Selection was performed based on the search for Curriculum Vitae in the Lattes Platform from the National Council for Scientific and Technological Development using descriptors "care transitions" or "deinstitutionalization". A total of 42 specialists were invited via email, 28 were excluded after not responding following three email contact attempts. The Expert Committee included 14 respondents. It is important to note that authors indicate a minimum of five and a maximum of 10 to 20 experts to review a measurement[16,21].

Through Google Forms®, the experts evaluated each item of the measurement instrument prepared individually, considering their clarity and representativeness on a Likert-type scale, with the criteria classified as follows: 1=Unclear/Not representative; 2=Unclear/Needs major revision to be representative; 3=Quite clear/Needs little revision to be representative; 4=Very clear/Representative. Suggestions regarding inclusion, removal or merging of items and comments were allowed. Data collection was conducted from December 2020 to February 2021.

For data analysis in this stage, the Content Validity Index (CVI) was used, in which the answers "3" and "4" were summed and divided by the total number of answers. A CVI value of 0.8 was considered as the criterion to decide on relevance of the measurement item or on the need to modify it[16].

In Stage 3, the new version of the instrument was submitted for pre-test with the target population, in which the instrument was applied in person to assess its structure and understanding of all items. The sample for the pre-test consisted of nurses from both hospitals, randomly selected according to the inclusion and exclusion criteria: being a nurse and working on clinical inpatient units for adults, while nurses on vacation or leave during data collection were excluded. The final sample totaled 20 participants (nine from Hospital A and 11 from Hospital B), which corresponds to the recommended number of 15 to 30 subjects in the pretesting stage[22].

The participants in this stage were asked about their understanding of the measurement items and their ability to complete the items in the instrument. A scale that ranged from 1 to 5 was used as follows: 1=I didn't understand to 5=I understood a lot. Data collection took place between June 2021 and January 2022. The data were analyzed using the same calculation for CVI as described in the previous stage, considering CVI values above 0.8 as satisfactory[16]. The final version of the measurement instrument was completed in this stage.

The study was approved by the Research Ethics Committees of the Federal University of Rio Grande do Sul (Certificate number 3357454) and of the hospital institutions involved (Certificate numbers 3505549 and 3562026), as set forth in Brazilian Resolution No. 466/2012. All the participants signed the Free and Informed Consent Form. The Standards for Quality Improvement Reporting Excellence 2.0 (SQUIRE) instrument from the Enhancing the Quality and Transparency of Health Research (EQUATOR) network was used to guide the writing of the article.

RESULTS

Development of the instrument

The following components were listed in the integrative review: identification of readmission risk, discharge planning, health education at hospital admission, health education after discharge, medication reconciliation, communication with the health services, outpatient follow-up after discharge, telephone contact after discharge, and home visit after discharge[17]. Analysis of the interviews resulted in three thematic categories supported by 10 subcategories (Chart 1).

The measurement instrument developed in Stage 1 contained 43 items, organized into six domains: structure; discharge planning; care education; referral for continuity of care; safety culture, and care transitions results.

Content validation

A total of 14 experts took part in Stage 2: eight nurses, three physicians, two pharmacists and a physiotherapist. Of them, four (28.57%) were post-PhDs, four (28.57%) had Master's degrees, four (28.57%) had post-graduate certificate, and two (14.29%) were PhDs. Regarding the Region of Brazil, six (42,85%) were from the State of Rio Grande do Sul, two (14.29%) from Santa Catarina, and one (7,14%) from each State of Paraná, São Paulo, Mato Grosso, Goiás, Pará, and Distrito Federal.

It was verified that the measurement instrument title and format were clear and understandable from the participants' perspective. It was recommended to include the definition of care transition in the measurement instructions, which was accepted. Ten items were modified to reflect the suggestions made by the experts. Five items were excluded for not obtaining clarity or representativeness CVI values above 0.8 (Table 1).

Category	Subcategories
Positive elements of patient safety during care transition	Discharge preparation for the patient and the family
	Guidance to the patient and the family at discharge
	Monitoring of the patient after discharge
	Teamwork for better quality of hospital discharge
Negative elements of patient safety during care transition	Not addressing the patients' and family members' socioeconomic conditions
	Ineffective communication between the interprofessional team members
	Difficulty in the integration with the Primary Care services
	Absence of a discharge protocol
Patient safety assessment during and following care transition	Knowledge about the teamwork process for discharge
	Verification of hospital readmission as a quality indicator

Chart 1 – Presentation of the study categories and subcategories. Porto Alegre, Rio Grande do Sul, Brazil, 2019
Source: Study's data, 2019.

Table 1 – Presentation of the Content Validity Index corresponding to the measurement instrument in the content validation and pre-test phases, by domains. Porto Alegre, Rio Grande do Sul, Brazil, 2020-2022

Items	Content Validation			Pre-test
	Clarity CVI	Representativeness CVI	Assessment	Clarity CVI
Title of the instrument	0.93	NA	Maintained	NA
Format of the instrument	1.0	NA	Maintained	NA
Instructions for the instrument	0.83	NA	Modified	1.0
Structure domain				
1 The space and the physical structure favor transitional care	0.71	0.86	Excluded	NA
2 There is a specific program or team to carry out transitional care at hospital discharge	0.93	1.0	Maintained	1.0
3 The specific program or team is available at any time	0.86	1.0	Maintained	1.0
4 Use of an electronic medical chart system shared across services	0.86	0.93	Modified	0.95
5 A specific provider coordinates the team during transitional care	0.93	1.0	Maintained	0.95
6 Staffing is adequate to develop transitional care actions	0.86	1.0	Modified	0.80
Discharge Planning domain				
1 An instrument that identifies patients at a higher risk of readmission is used	1.0	1.0	Maintained	0.90
2 Transitional care actions for patients at risk of hospital readmission are prioritized	0.86	0.93	Maintained	0.95
3 Discharge planning is performed in advance	0.93	1.0	Modified	0.95
4 Discussion rounds or moments between the team members are implemented to plan and execute transitional care	0.93	1.0	Modified	0.95
5 The providers are informed about discharge of the patient in advance	1.0	1.0	Maintained	0.95

Table 1 – Cont.

Items	Content Validation			Pre-test
	Clarity CVI	Representativeness CVI	Assessment	Clarity CVI
6 The team considers the patient/caregiver values and preferences when defining the care plan	0.93	1.0	Maintained	0.90
7 Medication reconciliation is performed	0.93	0.93	Modified	0.85
Care Education domain				
1. Information is provided about the personal needs and the care measures after discharge	1.0	1.0	Maintained	1.00
2 Information is provided about care with the devices that will continue to be used in the patient's home	1.0	1.0	Maintained	1.00
3 Information is provided about medication use in the patient's home	1.0	1.0	Modified	0.95
4 The warning signs and symptoms that must be observed are explained	1.0	1.0	Maintained	1.00
5 Information is provided about the tests, consultations and/or monitoring to be performed after discharge	1.0	1.0	Maintained	0.95
6 Information is provided regarding which service/provider should be contacted in case of post-discharge health problems	0.78	0.93	Excluded	NA
7 The patient's and/or caregiver's questions are clarified while providing the discharge guidelines	1.0	1.0	Maintained	1.00
8 The patients and caregivers are asked if they understand the discharge guidelines provided	1.0	1.0	Modified	0.95
9 The discharge guidelines are provided in a short period of time on the day the patient is discharged from the hospital	0.86	0.93	Maintained	1.00
10 Educational material with diverse information about the care measures after discharge is handed to the patient/caregiver	1.0	1.0	Maintained	0.95
11 Educational and easy-to-understand material is provided with simple illustrations and language	1.0	1.0	Maintained	0.95

Table 1 – Cont.

Items	Content Validation			Pre-test
	Clarity CVI	Representativeness CVI	Assessment	Clarity CVI
12. A discharge plan, report or letter is provided with the care recommendations, list of medications, tests and consultations to be performed after discharge	1.0	1.0	Maintained	0.95
Referral for Continuity of Care domain				
1 Referral to services that provide necessary materials for the patient after hospital discharge is performed	0.93	1.0	Maintained	0.95
2 The Primary Care team attending to the patient is informed about their hospital admission and the home care plan	1.0	1.0	Modified	0.90
3 There are communication problems between this hospital unit and the Primary Care units	0.78	0.78	Excluded	NA
4 After discharge, the patient is contacted to verify adherence to the treatment, clarify questions and/or reinforce diverse information on post-discharge care	1.0	1.0	Maintained	0.90
Safety Culture domain				
1 A number of instruments (scripts, checklists, protocols) are used for qualified discharge	1.0	0.93	Maintained	0.95
2 The team knows about the responsibilities and actions to be performed during transitional care	1.0	1.0	Modified	0.90
3 The transitional care processes of this institution are standardized	0.78	0.86	Excluded	NA
4 There is participation in regular meetings or training sessions	0.93	1.0	Modified	0.85
5 The management and leaders of this unit are committed to promoting the best quality in transitional care	0.86	1.0	Maintained	1.00
6 During the discharge process, it is common to miss important information about the care to be provided to the patient	0.86	0.78	Excluded	NA

Table 1 – Cont.

Items	Content Validation			Pre-test
	Clarity CVI	Representativeness CVI	Assessment	Clarity CVI
7 Ways to prevent errors in transitional care are discussed	0.93	1.0	Maintained	0.85
Care Transitions Results domain				
1 There are delays in hospital discharge due to avoidable reasons	1.0	0.93	Maintained	0.90
2 Patients and caregivers show that they are prepared to return home	1.0	1.0	Maintained	0.85
3. Some hospital readmissions might be avoided	0.93	1.0	Maintained	1.00
4 Patients seek emergency care after being discharged from this unit	1.0	1.0	Modified	0.95
5 There are errors that affect patient safety at hospital discharge from this unit	0.86	0.86	Maintained	0.90
6 I am satisfied with the quality of transitional care when discharging patients from this unit	1.0	1.0	Maintained	0.85

Source: Study's data, 2020-2022.
CVI=Content Validity Index; NA=Not Assessed.
Note: The items and domains of the measurement were validated for the Brazilian Portuguese. Here is a translation into English.

Pre-test

In Stage 3, the final version of the measurement instrument was evaluated by the target audience represented by nurses from both hospitals, most of whom were female (95%), had post-graduate certificate (80%) and had worked at the institution for more than five years (90%). The overall CVI of the instrument was 0.93. All the items had CVI values above 0.8 (Table 1).

In its final version, the instrument called "Assessment of care transition and patient safety at hospital discharge (TranSPAH)" consisted of 37 items, classified in the six domains, as shown in Figure 1. The measurement is in Brazilian Portuguese. The items are presented in the form of statements, in which the respondents must indicate whether they agree or disagree according to a five-point Likert scale, as follows: I totally disagree=0; I partially disagree=1; I neither agree nor disagree=2; I partially agree=3; and I Totally agree=4. The items presented as negative statements (21,31,33,34, 35) will have their scores reversed, namely: I totally disagree=4 and I totally agree=0. The "Not applicable/I don't know" option will not be computed towards the final score. The means of the total scale answers will be calculated, as well as those corresponding to each item and to the domains. To ease disclosing of the results, a formula that transforms the means obtained into scores from 0 to 100 will be used, as shown below:

$$(\text{Mean}/4) \times 100$$

Zero will be considered as corresponding to the worst patient safety quality in transitional care during hospital discharge, while 100 will represent the best quality.

Assessment of care transition and patient safety at hospital discharge (TranSPAH)

INSTRUCTIONS

Care transition is defined as a set of actions aimed at care coordination and continuity for patients transferred between different loci in the health system, or between different care levels within the same institution, as well as from one health institution to their homes.

This survey asks for your opinion on the quality of care transition and patient safety at hospital discharge. You will need about 10 to 15 minutes to answer it. Your participation is very important.

Mark your answers with an "x" using the scale below:

A	B	C	D	E	X
I totally disagree	I partially disagree	I neither agree nor disagree	I partially agree	I totally agree	Not applicable/ I don't know

Please indicate your agreement or disagreement with the following statements about transitional care in your work area/unit.

Statements	A	B	C	D	E	X
1. There is a specific program or team to carry out transitional care at hospital discharge (for example: discharge management group, transitional care team, liaison nurse, etc.).						
2. The transitional care program or team is available at any moment to carry out transitional care for all patients.						
3. This institution uses a tool (for example: scale, protocol, software program) that identifies patients at higher risk of readmission.						
4. Providers use tools (for example: scripts, checklists, protocols) to conduct qualified discharge of the patients.						
5. This institution uses an integrated electronic medical chart system between Health Care Network services to monitor patients' admissions and consultations.						
6. There is a specific provider who coordinates the interprofessional team to conduct transitional care of the patients in this unit.						
7. The responsibilities and actions to be taken during the discharge process are known to and agreed upon by the members of the interprofessional team.						
8. The interprofessional team prioritizes transitional care actions for patients at risk of hospital readmission.						
9. The interprofessional team plans discharge in advance together with the patient and/or caregivers.						
10. Discussion rounds or moments between members of the interprofessional team are implemented to plan and perform hospital-home transitional care.						
11. The providers are notified of the patient's discharge in advance so that they can carry out the actions to prepare.						
12. The interprofessional team considers the patients' and the caregivers' values and preferences to define a care plan for after the patient is discharged home.						

Figure 1 – Assessment of care transition and patient safety at hospital discharge (TranSPAH) measurement. Porto Alegre, Rio Grande do Sul, Brazil, 2022

Statements	A	B	C	D	E	X
13. While the patient is hospitalized, the providers advise the patient and/or caregiver on personal needs and how to perform the care actions after discharge (personal hygiene, diet, activities of daily living, etc.).						
14. While the patient is hospitalized, the providers advise the patient and/or caregiver on how to care for devices that will continue to be used at their homes (ostomy care, drains, probes, catheters, etc.).						
15. The providers perform medication reconciliation, comparing and evaluating medications for continuous use with those prescribed in the hospital environment and those that the patient will use after discharge, to avoid discrepancies that could result in adverse events.						
16. When the discharge date is near, the providers advise the patients and/or caregivers about medication use in their homes; information about administration route, dosage, frequency and schedule, as well as the adverse effects.						
17. When the discharge date is near, the providers explain to the patients and/or caregivers about the warning signs and symptoms that must be observed to monitor the health condition in their homes.						
18. When the discharge date is near, the providers advise the patients about tests, consultations and/or follow-up to be performed after discharge.						
19. The providers clarify the patients' and/or caregivers' questions while providing the discharge guidelines.						
20. The providers check if the patients and/or caregivers understand the discharge guidelines provided.						
21. The discharge instructions are provided in a short period of time on the day of hospital discharge.						
22. The providers provide the patients and/or caregivers with educational materials (for example: booklets, manuals, leaflets, etc.) containing diverse information on care measures after discharge.						
23. The educational materials (for example: booklets, manuals, leaflets, etc.) provided to the patients and/or caregivers are easy to understand, with simple and accessible illustrations and language for the target population.						
24. The providers provide a discharge plan, report or letter (printed or electronic) to the patients and/or caregivers with the recommendations regarding the care measures, list of medications, tests and consultations to be carried out after discharge.						
25. This institution makes referrals to services that provide materials necessary for the patients after hospital discharge (for example: oxygen kit, colostomy kit, syringes, equipment, glucometer strips, etc.).						
26. The hospital providers communicate with the team in the community that will monitor the patients (via a computerized system, email, phone call, message, etc.) to inform about their stay in the hospital and the home care plan.						
27. After discharge, the interprofessional team contacts the patients to verify adherence to the treatment, clarify questions and/or reinforce information on post-discharge care measures.						
28. This unit has adequate staffing (number of providers) to develop transitional care actions for the patients discharged home.						

Figure 1 – Cont.

Statements	A	B	C	D	E	X
29. The providers of this unit participate in meetings, periodic training sessions or ongoing education activities that address transitional care and patient safety at hospital discharge.						
30. The hospital management and leaders of this unit are committed to promoting the best quality of transitional care for the patients.						
31. There are frequent delays in the hospital discharge procedures for avoidable reasons (for example: waiting for the release of test reports, delay in the decision of the actions to be taken by the team, unavailable out-of-hospital resources, etc.).						
32. The patients and/or caregivers show that they are prepared to return home as scheduled at discharge from the unit.						
33. On this unit, hospital readmissions that could be avoided with transitional care actions in the previous hospitalization are common.						
34. It is common for patients to seek emergency care up to 30 days after being discharged from this unit.						
35. There are errors that affect patient safety at hospital discharge from this unit.						
36. The providers discuss ways to prevent errors in transitional care during patient discharge.						
37. I am satisfied with the quality of transitional care when discharging patients from this unit.						
Thank you for answering this questionnaire and participating in this survey.						

Figure 1 – Cont.
Source: Study's data, 2022.
Note: The items and domains of the measurement were validated for the Brazilian Portuguese. Here is a translation into English.

DISCUSSION

Nursing research studies seek to incorporate diverse evidence into the practice and the use of measurement instruments facilitates the nurses' work, provides greater safety to the team and facilitates introduction of new technologies and rational use of resources, in addition to providing monitoring of process indicators and results and contributing to care quality and safety[21]. Regarding the transitional care theme, the use of measurement instruments is still limited and, therefore, development of TranSPAHmay help to measure the quality of the patient's safety during care transition at hospital discharge in Brazil.

The instrument available in the Brazilian literature to assess transitional care quality portray the patients' and caregivers' experience[13]. However, a number of authors who used this instrument report the influence of the patients' feelings of gratitude for the care received in the research results as a limitation, with a tendency to produce more auspicious data than reality[23–24]. Therefore, an assessment from the health providers' perspective contributes to the construction of knowledge about the theme.

Nurses play a pivotal role in care transitions, identifying patients' needs for post-discharge care, coordinating discharge planning, educating patients and families, communicating with health providers and other health services to ensure quality in patient healthcare trajectory[7,10]. The TranSPAH instrument could be used by nurses and institutions to identify strengths and weaknesses in care transitions and provide feedback for devising intervention proposals for nursing practice and management. The measurement might be a guiding resource for providers and decision-makers, as it provides data related to patient care, healthcare teams work and institutions' processes. Considering that the evaluation process leads to continuous reflection and learning, the use of the instrument may help to promote care transitions as an organizational culture, taking in part of the values, beliefs, and norms that influence processes of the institution.

It should be noted that, in addition to following the knowledge construction method[16], this study was concerned with developing knowledge translation for the application of new technology in management and care practice. For this purpose, knowledge users (nurses) and stakeholders (research group members who work in the health network) participated throughout the development process of the TranSPAH, from initiation through completion, in line with knowledge translation. Involving the knowledge users from the beginning of the research facilitates using the research results in the practice, as they can provide diverse information about the context that researchers often lack[25].

The nurses' reality in the field and the review of the literature, supported the conceptual structure for preparing the measurement instrument items in the six domains. A number of authors have suggested that an extensive literature review and the inclusion of the researcher in the social context of the target population are indispensable for the development of the content of measurement instruments in health care[16,26]. In addition, the TranSPAH items and domains were intensely debated by the authors' research group, whose members include researchers and stakeholders, seeking collective elaboration on the content of the items and the terminology used. The interactive process between the authors and the research group was fundamental to clarify initial points in the development of the instrument and planning its application in health services.

As for measurement instrument structure, there is no consensus in the literature regarding the number of items and domains to represent a construct; however, the starting point is the premise that they follow a logical order, from the most general to the most specific, and that they should be brief or moderately long, not requiring a large amount of time to complete[16]. TranSPAH has 37 items; however, they are short easy-to-answer statements.

The items are organized in relevant domains for the assessment of patient safety in transitional care. The "Structure" domain deals with the perception of the quality of the human and organizational conditions for the development of effective care transitions including aspects related to a better number of providers and having a specific program or team to coordinate transitional care at hospital discharge that denote higher quality[6,10].

The "Discharge planning" domain focuses on the recognition of the activities developed by the team to plan hospital discharge. These include such items as the identification of readmission risk, the development of a discharge plan in advance, and considering the patients' and/or caregivers' values and preferences. These items are all corroborated by the literature[7,17].

The "Care education" domain addresses the perception about health education activities to prepare the patient and caregiver for hospital discharge, including aspects related to care after discharge, such as personal hygiene, diet, therapeutic devices, medication use and warning signs, among others described in the literature[9–10]. In addition, the domain addresses some health education strategies that contribute to transitional care, such as clarifying questions and using educational materials[17].

The "Referral for continuity of care" domain deals with activities to ensure access to health services for care continuity after discharge including referral to primary care, services that provide necessary materials to the patient, and follow-up after discharge[17].

Considering that care transitions must be recognized as institutional priorities and be introduced into the organizational culture, the "Safety culture" domain addresses the perception about the organizational commitment to safety at patient discharge, from recognition of the responsibilities and actions by the interprofessional team to encouraging leadership and ongoing education.

Finally, the "Care transitions results" domain focuses on perceptions on the impact of the actions developed for patient safety in hospital discharge. These include aspects related to delays in the discharge procedures for avoidable reasons, occurrence of hospital readmissions, search for emergency services after discharge, and provider satisfaction with the quality of transitional care[17].

The TranSPAH domains are comprehensive and include aspects investigated in the Care Transitions Measure, whose factors refer to preparation for self-management, understanding of medications, assured preferences and the development of a care plan[13]. The domains are also aligned with those in the PREPARED instrument such as diverse information about support structures, information about medications, preparation for reintegration and control over the circumstances[14].

The newly developed TranSPAH instrument showed content validity with 90.5% of the items presenting CVI values above 0.8 for the clarity criteria and 95.2% for relevance when reviewed by the Expert Committee. Ten items were modified according to the suggestions made by the experts and five were excluded for not reaching the minimum agreement level required. The main changes were related to wording of the items, such as replacing the term "shared electronic medical chart system" by "integrated electronic medical chart system". Other items were excluded based on not reaching CVI values greater than 0.8 as experts found them broad and very subjective that would hinder filling out the instrument. In the pre-test with nurses from large-size hospitals, representative of the measurement instrument's target population, good clarity of the measurement items was shown.

However, authors do note that evaluating the psychometric properties of an instrument, verifying validity of the construct, criterion, reliability, practicability, sensitivity, responsiveness and interpretability are strongly recommended[16]. The fact that the measurement instrument developed was only assessed for content validity is identified as a limitation of this study. Other psychometric properties will be evaluated in future stages of the instrument's testing.

In addition, the pre-test process with the target population was based on the opinion of nurses working in clinical inpatient units of hospitals from a municipality in the Brazilian South region, which may not correspond to other locations and health contexts. Even though validation by specialists from other areas of Brazil would reduce this problem, further studies are recommended to evaluate a broader use of this instrument in the country.

CONCLUSION

The measurement instrument to assess the quality of care transition and patient safety at hospital discharge from the nurses' perspective proved to be valid and easy to apply in the Brazilian context, reaching satisfactory indices both in the validation by the expert committee and in the pre-test by the target population. The final version consists of structure, process and result evaluation items that affect transitional care quality.

It is expected that future studies will evaluate the instrument's psychometric properties to apply it to obtain a better understanding of patient safety in transitional care at hospital discharge from the nurses' perspective in Brazil. It is understood that TranSPAH can be a viable tool to be considered by managers and nurses in the situational diagnosis of the strengths and weaknesses in their health services. In this way, it can support health providers in decision-making and in evidence-based management interventions, modifying care practices, facilitating the application of evidence into practice and promoting institutional culture for improving care transitions.

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