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CONSTRUCTION OF THE INSTRUMENT FOR CARE TRANSITION IN PEDIATRIC UNITS

Michelini Fátima da Silva[1]
Patrícia Kuerten Rocha[2]
Maria Elena Echevarria-Guanilo[2]
Kátia Cilene Godinho Bertoncello[2]
Sabrina de Souza[3]
Karine Larissa Knaesel Schneider[1]

[1]Universidade Federal de Santa Catarina, Hospital Universitário Polydoro Ernani de São Thiago, Florianópolis, Santa Catarina, Brasil.
[2]Universidade Federal de Santa Catarina, Programa de Pós-Graduação em Enfermagem, Florianópolis, Santa Catarina, Brasil.
[3]Universidade Federal do Paraná, Hospital de Clínicas, Curitiba, Paraná, Brasil.

ABSTRACT

Objective: to build and semantically validate a safe communication tool to systematize care transition in pediatric clinical and emergency units.
Method: a methodological study, based on the Classic Theory of Psychometric Tests and on the Instrument Development Model, proposed by Pasquali, which included seven professionals, five nurses and two physicians, experts in pediatrics and/or patient safety, who followed specific criteria for inclusion. Data collection was carried out between November and December 2016 and took place with the application of a form made available to the experts via the Google Drive/Microsoft® tool in two validation rounds, conducted by the Delphi Technique, being organized into two domains with 19 items. Data analysis was performed by calculating the Content Validity Index.
Results: in order to validate the content, it was necessary to reach a Content Validity Index ≥ 0.80; thus, in the first round, five items underwent changes and were adjusted according to the experts' recommendations. These were validated in the second round, maintaining two domains and nineteen items.
Conclusion: the construction and content validation of the instrument can enhance and qualify the clinical practice and contribute to minimize failures in pediatric patient safety associated with effective communication.

DESCRIPTORS: Nursing. Patient safety. Hospitalized child. Case managers. Validation studies.

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CONSTRUÇÃO DO INSTRUMENTO PARA TRANSIÇÃO DE CUIDADO EM UNIDADES PEDIÁTRICAS

RESUMO

Objetivo: construir e validar semanticamente um instrumento de comunicação segura para sistematizar a transição de cuidado em unidades clínicas e de emergência pediátricas.
Método: estudo metodológico, fundamentado na Teoria Clássica dos Testes da Psicometria e no Modelo de Construção de Instrumentos, proposto por Pasquali, o qual incluiu sete profissionais *experts* em pediatria e/ou segurança do paciente, que seguiram critérios específicos para inclusão, sendo cinco enfermeiras e duas médicas. A coleta de dados foi realizada entre novembro e dezembro de 2016 e ocorreu com a aplicação de formulário disponibilizado as *experts* via ferramenta *Google Drive/Microsoft*® em duas rodadas de validação, conduzida pela Técnica Delphi, sendo organizados em dois domínios com 19 itens. A análise dos dados ocorreu pelo cálculo do Índice de Validade de Conteúdo.
Resultados: para a validação do conteúdo foi necessário atingir um Índice de Validade de Conteúdo ≥ 0,80, assim na primeira rodada cinco itens sofreram alterações e foram ajustados de acordo com as recomendações das *experts*. Sendo estes validados na segunda rodada, mantendo dois domínios e dezenove itens.
Conclusão: a construção e validação de conteúdo do instrumento pode incrementar e qualificar a prática clínica e contribuir para minimizar as falhas na segurança do paciente pediátrico associado a comunicação eficaz.

DESCRITORES: Enfermagem. Segurança do paciente. Criança hospitalizada. Gerentes de casos. Estudos de validação.

CONSTRUCCIÓN DEL INSTRUMENTO PARA TRANSICIÓN DE CUIDADOS EN UNIDADES PEDIÁTRICAS

RESUMEN

Objetivo: construir y validar semánticamente una herramienta de comunicación segura para sistematizar la transición de cuidados en las unidades clínicas y de urgencias pediátricas.
Método: estudio metodológico, basado en la Teoría Clásica de Pruebas Psicométricas y en el Modelo de Construcción de Instrumentos, propuesto por Pasquali, que incluyó a siete profesionales especialistas en pediatría y / o seguridad del paciente, que siguieron criterios específicos de inclusión, cinco enfermeras y dos médicas. La recolección de datos se realizó entre noviembre y diciembre de 2016 y se dio con la aplicación de un formulario puesto a disposición de los especialistas a través de la herramienta *Google Drive/Microsoft*® en dos rondas de validación, realizadas por la Técnica Delphi, organizadas en dos dominios con 19 ítems. El análisis de los datos se realizó calculando el Índice de Validez de Contenido.
Resultados: para la validación de contenido fue necesario alcanzar un Índice de Validez de Contenido ≥ 0,80, por lo que en la primera ronda se modificaron cinco ítems y se ajustaron según las recomendaciones de los expertos. Estos fueron validados en la segunda ronda, manteniendo dos dominios y diecinueve ítems.
Conclusión: la construcción y validación de contenido del instrumento puede incrementar y calificar la práctica clínica y contribuye a minimizar las fallas en la seguridad del paciente pediátrico asociadas a una comunicación efectiva.

DESCRIPTORES: Enfermería. Seguridad del paciente. Niño hospitalizado. Administradores de casos. Estudios de validación.

INTRODUCTION

Concern for patient safety has become a priority, motivating proposals for international policies and leading to joint efforts by institutions, professionals and patients in order to effectively reduce and control risks arising in the health services.[1] In turn, the safety of pediatric patients needs to be further discussed as they constitute a high-risk population, with numerous peculiarities which can increase the chances of suffering some harm.[2]

Despite the progress of the past few years, preventable harms remain unacceptably frequent in health care settings. In this sense, a recently released study points out that hospital institutions add numerous cultural issues, which can interfere with patient safety, such as: hierarchy of positions, praise of the medical professional, failures in team and individual work, inadequate or outdated practices, and mainly failures in the communication process among the health professionals during care transition.[3]

In this perspective, care transition or case transfer is defined as the transfer of responsibility for care between health professionals and the transmission of information about some or all aspects related to the assistance of one or more patients to another person or group of professionals, either temporarily or permanently.[3]

Communication errors during care transition among the health professionals cause adverse events[4], being the third cause of sentinel events in 2015.[5] In this sense, care transition is recognized as a moment of vulnerability for hospitalized patients who depend on it, resulting in a 12%-34% probability of hospital deaths.[6]

Other research studies carried out worldwide have identified risk factors associated with care transition, such as difficulty in carrying it out, deficit in the systematization of information, and lack of instruments, which inevitably leads to the existence of interpretation errors and, consequently, communication failures.[4,7]

However, it is still not possible to identify the main flaw in care transition, whether this is due to the inability to recognize the clinical deterioration of the patient in the first instance or to the inability to effectively transfer critical information to another professional. It is noteworthy that both skill sets (recognition of clinical deterioration and communication) are decisive factors for the survival and good prognosis of the pediatric patient.[8]

In this perspective, the instruments used for care transition must guarantee the transfer of accurate and clear information,[9] since pediatric patient safety depends on effective communication among the health professionals.

The instruments are systematized recommendations in the shape of a formal structure, with the purpose of guiding health professionals' decisions regarding adequate care in specific clinical circumstances.[10] These recommendations are based on scientific evidence, on the technological and economic evaluation of the health services.[10]

Standardization of practices are initiatives that can contribute to promoting the safety of pediatric hospitalized patients with direct repercussions on health care.[11] However, for their success, it always necessary to seek to satisfy the needs of those for whom the instrument is intended, so that health care is more effective.[12]

According to a study recently released in Brazil, communication failures in pediatric units are frequent due to multiple sources of information, inadequate number of professionals, and the demands of activities.[13]

In view of this, one of the communication techniques that is increasingly used in the health area is the mnemonic Situation, Background, Assessment, Recommendation (SBAR), originally developed in the USA to standardize communication between physicians and nurses. It should be noted that it was adapted for the Australian, Belgian, Canadian, Indian, Japanese, German and Korean cultures.[14–21]

The construction of the instrument to standardize communication among the health professionals is based on the criteria and recommendations of International and National Organizations for the Promotion of Patient Safety, among them: World Health Organization (WHO), Agency for Healthcare Research and Quality (AHRQ), Institute for Healthcare Improvement (IHI), The Joint Commission (JCI) and the National Patient Safety Program (*Programa Nacional de Segurança do Paciente*, PNSP).[22–25]

Thus, based on the global recommendations to promote effective communication, it is the ethical responsibility of the health professional to fill the gap identified in relation to the verification of safety elements, so that the factors that enhance adverse events and errors are reduced or eliminated.[26]

The choice of this theme as a research object, in addition to what has already been mentioned, was also due to perceiving, in view of professional experiences, that the situation of issues involving care transition among the health professionals is alarming, since it is a fact that there are difficulties for them to pass on and understand information about the clinical deterioration of the pediatric patient, because such information is not standardized and is provided according to the conceptions of each professional. This reality has compromised the communication process and, consequently, the assistance provided to pediatric patients.

In this perspective, this research aimed to build and semantically validate a safe communication tool to systematize care transition in pediatric clinical and emergency units.

METHOD

This is a methodological research study, based on the Classical Theory of Psychometric Tests and on the Instrument Development Model, proposed by Pasquali.[27]

Theoretical procedures were used to construct the instrument, which corresponds to the definition of the construct to be evaluated; definition of the properties of this construct; constitutive definition; identification of its dimensionality and operational definition; construction of the items that will compose the instrument and content validation of these items[27] (Figure 1).

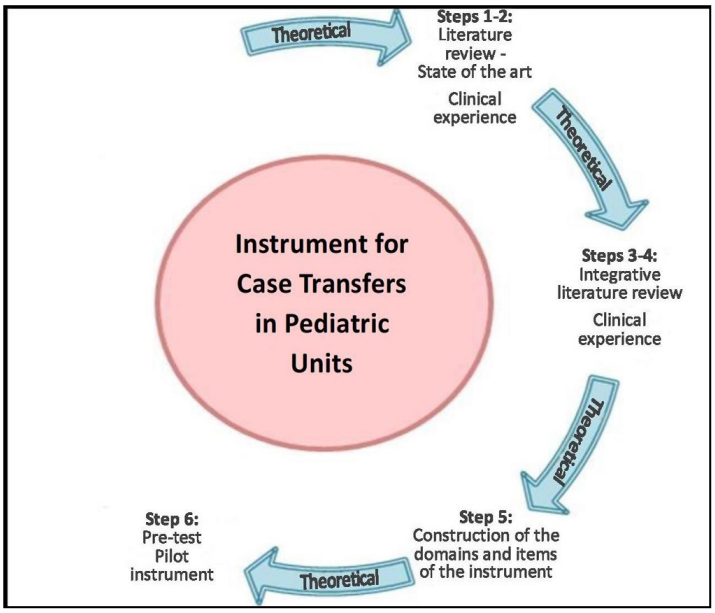

Figure 1 – Process of construction and semantic validation of the Instrument for Case Transfer in Pediatric Units, according to Pasquali (2010). Florianópolis, SC, Brazil, 2017.

From this, Version 1 of the instrument was built, proposed from 19 items, organized in two domains.

The instrument built was composed of 19 items organized in two domains. The first domain includes three items that refer to the conduct the health professional must follow before exchanging information with other professionals about the pediatric patient, as suggested by the World Health Organization (WHO) and by the Guidelines for Communicating with Physicians Using the SBAR Process.

In turn, the second domain consisted of 16 items from the SBAR mnemonic, which are: Situation: identification of the professional and briefly describing the problem of the child/adolescent; Background: it includes minimal information, which directly reflects the recognition of clinical deterioration in hospitalized children and adolescents; *Assessment*: clarify to the other professional what your assessment of the situation is; Recommendation: make your recommendations and report what you expect, record in the child's/adolescent's chart: time of contact with the other professional; name of the professional who was contacted; information and conducts taken.

This version was subjected to semantic analysis, which involves the evaluation of items by the target population, that is, the population for which the instrument is intended. The semantic evaluation of the items is considered to be one of the most effective in assessing the understanding of the items, which should be performed as a form of pre-test and definition of the pilot instrument.[27]

The research was carried out in a large public teaching hospital, located in the southern region of Brazil, between November and December 2016, with the participation of seven experts in pediatrics and/or patient safety, five nurses and two physicians. The number of participants was defined by a non-probabilistic sample. The total number of participants recommended for inclusion in validation studies is controversial; however, it is common to recommend between five and ten experts.[27] In this study, it was decided to include seven. In the Delphi Technique, it is common for experts to withdraw in the successive validation rounds; however, this did not happen in this study.

The established criteria for selecting the experts were the following: working in hospitalization and pediatric emergency units; actively participating in research studies related to pediatric patient safety; having at least twelve months of experience in the area; and having at least a postgraduate degree.

For data collection, an electronic form composed of three parts was developed by the researchers, using the Google Forms® application. A Likert scale was inserted for each item presented in the form, containing the following alternatives: strongly disagree, disagree, neither agree nor disagree, agree and strongly agree. In order for the experts to be able to assess each item presented on the instrument, a space was inserted to record the following: necessary but missing items; unnecessary items; comments and/or suggestions in order to provide information to improve the final version and ensure understanding of each item.

Data collection was conducted using an instrument divided into three parts: the first part is aimed at characterizing the experts. The second part consists of the content assessment of the domains and their items. The third part of the instrument concerns its presentation. The evaluated criteria were the following: scope, clarity, coherence, criticality of the items, objectivity, scientific writing, relevance, sequence, uniqueness and updating.[27]

The form was sent to the experts via the Internet and an electronic address was created exclusively for this purpose. Before sending the form, contact was made by e-mail, clarifying the reasons for the study, how it would be developed and the participation of the experts. At this moment, signing of the Free and Informed Consent Form was requested. After acceptance by the study participant, the form was sent and the validation rounds started.

For each evaluated item, the Content Validity Index (CVI) was calculated. A CVI ≥ 0.80 was considered as an indicator of a valid item, to be maintained in the instrument.[27] For CVIs below this value, contents that needed to be reviewed or deleted were considered. For the calculation of the CVI, the total number of answers obtained was divided by the experts' evaluation.

The experts' recommendations were included in the content of the instrument for a new evaluation round. Two validation rounds took place in this study, between November and December 2016.

The analyses were processed using the Microsoft Office Excel 2013® program from data insertion in a spreadsheet developed for the research.

The development of the research followed the national norms of ethics in research involving human beings.

RESULTS

The results of the first stage of the study corresponded to the construction of the instrument by conducting a narrative and integrative literature review, in which the instruments that assessed the constructs that guide this research were identified; however, the instrument that stood out was the Guidelines for Communicating with Physicians Using the SBAR Process. Therefore, the data from this mnemonic, were used to compose the second domain of the instrument built. It is noteworthy that its choice was due to the fact that it has internationally recognized quality and trust and, especially, because it is guided by studies with practices based on scientific evidence. In addition, it is in the public domain and was obtained at no charge via the Internet. The instrument built was developed with theoretical references as instruments constructed for the same purpose, among them the Guidelines for Communicating with Physicians Using the SBAR Process.

In this review, seven articles were selected, analyzed and categorized, which in summary showed that the SBAR Technique was the most used to structure communication among the health professionals, but they have a shortage of publications in the pediatric context, indicating the need for further studies.

Based on the evidence obtained through the integrative review and the clinical experience of the researchers in the pediatric hospitalization units, a wide discussion was conducted about the reference domains and items to be adopted, as well as about the identification that the Guidelines SBAR mnemonic that could be used to build the second domain of the instrument for case transfers in pediatric units, which provides a structure for communication to take place in a clear and effective manner, that is, with correct, organized, safe and concise information. The instrument built was composed of 19 items organized in two domains.

Regarding the characterization of the experts, five were nurses and two physicians, with a mean age of 26 years and five months old, all having completed a *lato sensu* postgraduation course, five having participated in research groups and having scientific publications related to the Child Health theme. In addition, they had professional experience in this thematic area and also in inpatient and pediatric emergency units.

Chart 1 shows all the items that underwent changes in the instrument, before and after validation. The content differences (constructed with changes suggested by the experts) defined in the validation process are presented by words written in italics and in bold in the right column.

It is noted that, in the first version of the instrument, items 1, 3 and 7 had their writing reformulated at the suggestion of the experts, and items 4 and 13 were added. The rest of the items (13), on the other hand, obtained an agreement criterion greater than 80% among the experts. In the second round, all the items after the changes made by experts' suggestions reached a CVI ≥ 0.80.

In general, the experts' evaluation of the instrument revealed that the domains and items were understandable and relevant to the clinical practice. In addition, they stated that the answer options were clear and easy to understand. With this, Version 1 was improved, resulting in Version 2 of the Instrument for Case Transfers in Pediatric Units. After the analysis, the theoretical procedures in the construction of the measurement instrument were finished, with the pilot instrument as a product.

Chart 1 – Contents of the Instrument for Case Transfers in Pediatric Units before and after validation. Florianópolis, SC, Brazil, 2017.

Item	Before validation	CVI	After validation	CVI
Item 1	Observe and evaluate the main warning signs presented by the patient.	0.750	Observe and evaluate the main warning signs presented by the ***pediatric patient or reported by the mothers/guardians before making contact.***	0.986
Item 3	Have the patient's record at hand.	0.875	Have the patient's record at hand ***and have read the latest developments in nursing, medical or supplementary observations.***	0.999
Item 4	Did not have was included	0	***Identify yourself.***	0.986
Item 7	Provide a brief description of the problem.	0.874	Provide a brief description of the ***child's/ adolescent's problem.***	0.997
Item 13	Did not have was included	0	***Use scale for pain.***	0.986

After making the necessary changes to the instrument, the second version of the instrument was constituted, the final product of the theoretical phase, that is, the pilot instrument that will later be submitted to the empirical and analytical poles, considering the composition of 19 items organized in two domains (Chart 2).

Chart 2 – Pilot instrument for the Case Transfers in pediatric units. Florianópolis, SC, Brazil, 2017.

INSTRUMENT FOR CASE TRANSFERS IN PEDIATRIC UNITS	
BEFORE CALLING THE NURSE/PHYSICIAN RESPONSIBLE FOR THE PATIENT, CONSIDER THE FOLLOWING ITEMS:	
Observe and evaluate the main warning signs presented by the pediatric patient or reported by the mothers/guardians before making contact.	
Locate the nurse/physician you need to communicate in person or by phone for emergency situations. Do not wait more than five minutes between attempts.	
Have the patient's record at hand and have read the latest developments in nursing, medical or supplementary observations.	
WHEN TALKING TO THE NURSE/PHYSICIAN, YOU MUST FOLLOW THE STEPS OF THE SBAR TECHNIQUE:	
Situation:	Identify yourself.
	Provide a brief description of the child's/adolescent's problem
	Provide the full name, age, weight, admission diagnosis, and admission date of the child and/or adolescent.
	Clarify about changes presented regarding the critical health indicators: 1-Breathing; 2-Circulation/Hemodynamics; 3-Scale of consciousness level - Trauma/Sedation; 4-Elimination/Hydration.
	Clarify the current medications and intravenous fluids used, allergies.
	Inform the recent vital signs: T ºC; HR bpm; R ipm; SpO2%; AP mmHg.
	Pain scale (use pain scale).
	Report the results of laboratory tests: date and time when was performed; as well as the results of previous exams for comparison.
	Clarify other important clinical information.
Assessment	Explain to the other professional what your assessment of the situation is.
Recommendation	Make your recommendations and report what you expect. Record in the child's/adolescent's medical chart.

DISCUSSION

The construction of instruments in the health area provides an evolution for assistance and, consequently, for patient safety as it comes with the purpose of providing scientific basis to the professional.[12]

In the synthesis of the integrative and narrative review carried out, the studies showed that the use of protocols to standardize communication among the health professionals is an important factor in combating adverse events and promoting the safety of pediatric patients, considering the demonstrated benefits, such as improvement in communication, teamwork and the development of a safety culture.[17,20,28–29]

The instrument semantically constructed and analyzed constituted the necessary conducts to standardize communication in the care transition in pediatric units. Thus, the Model proposed by Pasquali[27] proved to be the most appropriate for the construction of the instrument since, despite belonging to the area of Psychology, it is widely used in research in the field of Nursing and health in general.[30]

In the content validation phase, the general CVI index of the instrument was obtained by adding the CVI of each item and dividing by the number of items, obtaining the recommended agreement of at least 80%.

Some suggestions by the experts were incorporated in order to improve the instrument, such as: the suggestions that stood out the most in domain one were in relation to the first item, “observe and evaluate the main warning signs presented by the pediatric patient or reported by the mothers/guardians before making contact”, which was considered opportune and included in the instrument due to the fact that health professionals must be prepared to recognize, by assessing the signs and symptoms of each age group, the signs of severity.[31]

Early recognition of the rapid clinical deterioration of the pediatric patient can make the difference between life and death. In this perspective, it is noted that the nurse, for assisting the pediatric patient in a continuous manner, and being the link between the various health professionals and the pediatric patient/family, is one of the main members of the team responsible for detecting the severity or deterioration of the child’s and/or adolescent’s clinical condition.[31]

Thus, for a detailed assessment of the clinical condition of a pediatric patient, anamnesis and careful physical examination are required,[31] and should preferably follow the “evaluate, categorize, decide and act” model, as this is a systematic approach chosen for the recognition and treatment of critically-ill children and adolescents.[32]

According to the International Joint Commission, health professionals must pay attention to insert the patient in the assistance.[33] A study carried out in an ICU of a Brazilian hospital showed that family members are the vital sources of information about the pediatric patient.

In this sense, health professionals must encourage the family to be present during all phases of care, and the necessary resources to promote effective communication must be available, since inadequate communication between health professionals and patients and/or families can contribute to errors and adverse events.[34] Data showed 7,149 cases of negligence, of which 55% were related to communication failures between health professionals and patients and family members.[35]

In view of the statistics presented in relation to the increase in the number of adverse events, a recently released research study suggests that combining family members as critical and active partners in the practices with the health professionals, in order to ensure the implementation of safe practices, is an important strategy and promising for the promotion of patient health and safety.[34]

In addition, the role of the companion as a partner for the promotion of pediatric patient safety and, at the same time, a barrier to the occurrence of incidents, stands out.[11]

In this sense, the report by the Lucian Leape Institute of the National Patient Safety Foundation (NPSF), called Safety Is Personal: Partnering with Patients and Families for the Safest Care, highlights that the involvement of the patient and their family is essential for patient safety in all levels of care and health.[36]

Regarding the suggestion on item three, "have the patient's record at hand and have read the latest developments in nursing, medical or supplementary observations", it was included in the instrument.

Documentation is an essential practice in the health area, with clinical and legal importance, and constitutes an important communication tool among the professionals, being a legal support for patients and professionals.[37] They are responsible for maintaining accurate and complete records, in order to ensure continuity, safety and quality of the care provided[38].

The records in the medical chart or the complementary observations of the pediatric patient are important for decision-making, given the assistance provided to the patient, helping in the analysis of their general condition, their evolution and response to treatment. They can also collaborate so that, in case transfers, the actions carried out in order to guide the professional practice are certified and confirmed, which will give continuity to the assistance provided.[39]

In item four of the second domain, the suggestion "Identify yourself" was included at the time of contact, in the "Situation" stage. It is worth mentioning that a study shows that it is important that the professional is aware about who is speaking, because early identification creates relationships and reduces tensions among the professionals.[40]

Also regarding this item, it stands out that the communication process, regarding the information that circulates among the units, is more characterized by negotiation than by an exchange of information itself, that is, in this negotiation process the source of the information is a fundamental part to obtain veracity and confidence in what is being passed on; it must be remembered that, in the hospital, when technical information is circulated, it is assumed that it comes from scientific data and clinical findings based on the professional's knowledge.

In a way, all the professionals involved in this communication process within an environment have some power, whether through knowledge about a pathology, a technique and/or even having privileged information. Negotiation occurs through this game of influence and constant dispute that involves knowledge, the appropriation of resources, personal and interpersonal skills, so there is a need for the personal identification of each professional.[41]

Another conduct included in the same domain, in the stage corresponding to the "Background" was in relation to item 13 "use pain scale". This suggestion was considered in view of the fact that pain must be assessed in a multidimensional manner, incorporating physiological parameters, which are not specific, with objective measurements based on standardized scales to provide information on individual responses to pain.

In this perspective, a study reveals that crying, facial mime, body movement and agitation were the signs used to assess pain in newborns and children.[42]

Pain identification is important for effective management. Self-reporting is considered by health professionals as one of the best tools for pain assessment. However, newborns do not verbalize their pain. Thus, it is essential that there are other methods known and used by the professionals to assess pain, such as the use of validated scales.[42]

In addition, lack of clinical knowledge, lack of studies and ignorance of the adverse effects caused by opioids, make effective pain management an uncommon practice.[43]

It is considered that the experts played an important role in the analysis of the instrument's structure, highlighting the countless contributions and suggestions during its development. The items proposed in the instrument as a whole were shown to have theoretical characteristics to guide and assist health professionals in the communication process during care transition, standardizing the information and optimizing the time to be spent on this task, being totally modifiable according to the needs presented by the hospitalized pediatric patient.

We highlight that, after the semantic analysis, the theoretical procedures in the Construction of the Instrument were finished, for Case Transfers in Pediatric Units, having as a product the pilot instrument, which will later be submitted to the empirical and analytical poles.

CONCLUSION

The process of construction and semantic validation of the "Instrument for Case Transfers in Pediatric Units" followed the methodological steps recommended by Pasquali, resulting in an instrument with theoretical characteristics to guide and assist health professionals in the process of safe communication during care transition.

As a contribution of this research, the methodological presentation of the stages of building an instrument stands out, allowing for the guidance of other researchers in the construction of instruments capable of evaluating the communication process in care transition.

It is worth highlighting the importance that a standardized and validated instrument has for promoting effective communication. Thus, as this is an unprecedented study in Brazil and because this instrument was built and validated using the Guidelines for Communicating with Physicians Using the SBAR Process for the Brazilian reality, it was not possible to conduct a discussion supported by other published national literature.

It is also believed that the instrument built and semantically validated needs to go through the clinical validation process to be used in the professional practice, since this was the first phase of the instrument's validation.

Therefore, it is understood that this is a limitation of this study, and that the continuation of this research is necessary to contribute to the area of pediatric patient safety.

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NOTES

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CONTRIBUTION OF AUTHORITY

Study Desing: Silva MF, Rocha PK
Data collection: Silva MF, Rocha PK
Analysis and interpretation of data: Silva MF, Rocha PK
Discussion of the results: Silva MF, Rocha PK, Souza S, Echevarria-Guanilo MH, Bertoncello KCG, Schneider KLK
Writing and/or critical review of content: Silva MF, Rocha PK, Souza S, Echevarria-Guanilo MH, Bertoncello KCG, Schneider KLK
Review and final approval of the final version: Silva MF, Rocha PK, Souza S, Echevarria-Guanilo MH, Bertoncello KCG, Schneider KLK

ETHICS COMMITTEE IN RESEARCH

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CONFLICT OF INTERESTS

There is no conflict of interest.

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CORRESPONDING AUTHOR

Sabrina de Souza
sabrinas.enfer@gmail.com