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ESTUDO DELPHI: CRIAÇÃO DE UM INSTRUMENTO PARA AVALIAÇÃO DO RISCO DE INTERNAMENTO HOSPITALAR INAPROPRIADO

A DELPHI STUDY: DEVELOPMENT OF AN INSTRUMENT TO ASSESS THE RISK OF INAPPROPRIATE HOSPITAL LENGTH OF STAY

UN ESTUDIO DELPHI: DESARROLLO DE UN INSTRUMENTO PARA EVALUAR EL RIESGO DE HOSPITALIZACIÓN INAPROPIADA

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RESUMO

Introdução: A permanência prolongada do utente no hospital constitui um importante indicador em saúde, que se une à demora na alta hospitalar, ao aumento do risco de complicações e custos em saúde. Deste modo, a identificação dos fatores envolvidos e o desenvolvimento de intervenções orientadas são essenciais para qualificar a prestação de cuidados e otimizar a gestão hospitalar.
Objetivo: Criar um instrumento para avaliação do risco de internamento hospitalar inapropriado.
Métodos: Estudo metodológico, sendo o instrumento fundamentado em revisões bibliográficas e nas etapas propostas por Coluci, Alexandre e Milani. Este processo teve a participação de um painel de especialistas com experiência na gestão de altas em hospitais públicos portugueses, decorrendo em três rondas, com a criação dos items, avaliação da clareza, relevância e representatividade dos domínios e itens definidos; com a análise de concordância por índice de validade de conteúdo e taxa de concordância entre os especialistas.
Resultados: Foi elaborado um instrumento com 3 domínios principais, relacionados com as características individuais; o contexto social, económico e familiar do utente; e os recursos da comunidade. Cada domínio inclui diferentes itens que correspondem a determinada pontuação, culminando numa pontuação final de risco.
Conclusão: Elaboração e validação de um instrumento para avaliação do risco de internamento hospitalar inapropriado, com um total de 23 itens, distribuídos em 3 domínios principais.

Palavras-chave: avaliação de risco; instrumentos de avaliação; pesquisa em administração de enfermagem; tempo de internamento

ABSTRACT

Introduction: Prolonged patient stay in the hospital is an important healthcare indicator, along with delays in hospital discharge, increased risk of complications, and healthcare costs. Therefore, identifying the factors involved and developing targeted interventions are essential to improve the quality of care and optimize hospital management.
Objective: Create an instrument for assessing the risk of inappropriate hospital length of stay.
Methods: A methodological study was developed, with the instrument based on bibliographic reviews and the steps proposed by Coluci, Alexandre, and Milani. This process included a panel of experts with experience in management of discharge teams in Portuguese public hospitals, taking place in three rounds with itemisation, evaluation of clarity, relevance, and representativeness of the domains and defined items; and analysis of results using a content validity index and the rate of validation among the experts.
Results: An instrument with 3 main domains was developed, related to individual characteristics; the patient's social, economic and family context; and community resources. Each domain includes different items that correspond to a specific score, culminating in a final risk score.
Conclusion: Development and validation of a tool for assessing the risk of inappropriate hospital admission, consisting of 23 items across 3 main domains.

Keywords: assessment instruments; length of stay; nursing administration research; risk assessment

RESUMEN

Introducción: La estancia prolongada de los pacientes en el hospital es un importante indicador de salud, asociado a retrasos en el alta hospitalaria, mayor riesgo de complicaciones y mayores costes sanitarios. Por lo tanto, identificar los factores implicados y desarrollar intervenciones específicas es fundamental para mejorar la calidad de la atención y optimizar la gestión hospitalaria.
Objetivo: Crear una herramienta para evaluar el riesgo de hospitalización inapropiada.
Métodos: Se desarrolló un estudio metodológico, cuyo instrumento se basó en revisiones bibliográficas y en los pasos propuestos por Coluci, Alexandre y Milani. Este proceso involucró a un panel de expertos con experiencia en la gestión de altas hospitalarias en hospitales públicos portugueses y se desarrolló en tres fases: creación de ítems; evaluación de la claridad, relevancia y representatividad de los dominios e ítems creados; y análisis de la concordancia mediante un índice de validez de contenido y el grado de acuerdo entre los expertos.
Resultados: Se desarrolló un instrumento con tres dominios principales: características individuales; contexto social, económico y familiar del usuario; y recursos comunitarios. Cada dominio incluye diferentes ítems que corresponden a una puntuación específica, culminando en una puntuación de riesgo final.
Conclusión: Elaboración y validación de un instrumento para evaluar el riesgo de ingreso hospitalario inadecuado, con un total de 23 ítems, distribuidos en 3 ámbitos principales.

Palabras clave: evaluación de riesgo; instrumentos de evaluación; investigación en administración de enfermería; tiempo de internación

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INTRODUCTION

The hospitalisation of a patient takes place during a defined period of time, which includes the appropriate length of stay, the period of time between hospital admission and the moment when the person is able to be discharged; and, in some cases, the period named length of delay, the time interval between the moment when the person is able to be discharged and actually leaves the hospital (Holmås, Islam, Kjerstad, 2013).

The inappropriate length of stay of a patient's internment refers to this delayed discharge, where the patient continues to occupy a hospital bed (Bate, 2017), causing a situation of bed blocking [Micallef et al. (2022), Majeed et al. (2012)]. Micallef et al. (2022, p.106) defined this delayed discharge as "an instance where a medically fit patient is needlessly kept in hospital due to internal organisational/operational factors or where a patient is flagged as in need of alternate level of care and is delayed because of deferred transition of care and/or lack of external transfer-of-care arrangements".

This delay can affect the person's health and wellbeing, increasing the risk of occurrences such as falls, malnutrition, cognitive changes, infection, development of pressure ulcers or morbidity, leading to situations of patients' dependency regarding activities of daily living; as well as health economics, increasing the associated cost (Rambani, Okafor, 2008).

According to the Organisation for Economic Co-operation and Development (OECD) data, regarding Portugal, between the years 2015 and 2023, public spending in the health sector increased by 30%, a higher percentage than the European Union average (OECD, 2025).

As mentioned by Micallef et al. (2022), the problem of delayed discharges is prominent all around the world. According to Abdelhalim et al. (2024), this problem has persisted over the last two decades, with no long-term solution on the horizon. Facing this reality, shorter hospital stays are preferred (Lin, Iannettoni, 2005).

Analysing the causes of this problem, according to a scoping review that has been carried out, the delay in hospital discharge may be mainly due to social reasons, reasons related to community resources, organisational factors related to health care or hospital management, and individual causes, emphasizing family and financial issues (Modas, Nunes, Charepe, 2019). Identifying these causes and acting upon them is paramount (Majeed et al., 2012). Measures such as identifying the patients' risk factors (Lin, Iannettoni, 2005) and implementing an integrated multidisciplinary preparation plan towards hospital discharge from the moment of admission (Ramos, 2015) are fundamental in order to identify potential factors of delay in hospital discharge, resulting in inappropriate length of stay. For this identification, it is important to apply risk assessment instruments. Therefore, a second scoping review was carried out to identify those instruments. The results obtained were not sufficiently comprehensive. In this sense, a new and more comprehensive instrument was found to be necessary.

This article aims to explain the process of creating that instrument to assess the patients' risk of inappropriate hospital length of stay. In this first stage, the definition of delayed discharge was based on the period between the moment the patient should have been discharged, according to the homogeneous diagnosis group (HDG) assigned to each hospitalisation, and the moment they actually leave the hospital. The HDG is a classification system for patients, in accordance with the acute episodes of illness that are treated in hospitalisation, allowing the characterisation of hospital production (Official Journal of the Republic, 2017).

1. BACKGROUND

A review carried out to identify instruments used for assessing the patient's risk of inappropriate hospital length of stay was able to identify 4 possible instruments:

- Patient Status of Continence, Ambulation, Age, Social Background and Thought Processes (CAAST);
- 4-Score;
- Blaylock Risk Assessment Screen (BRASS);
- The Multidisciplinary Record.

These different tools focus essentially on the patients' age, pathologies, and capacity for self-care. "The instrument CAAST and the 4-Score focus on social causes; the BRASS identifies three levels of prolonged hospitalization risk and points out the importance of discharge planning; and the Multidisciplinary Record presents an interdisciplinary methodology of preventive discharge" (Modas, Nunes, 2019, p.243). Nevertheless, neither of these instruments takes into consideration all the causes related to this matter; neither is totally encompassing and complete.

As such, the researchers considered it important to create a new instrument that takes into consideration all these dimensions and causes. This article aims to present the investigation developed to create this new instrument, a tool for assessing the risk of inappropriate hospital length of stay in adult and elderly patients.

With the creation of this instrument, "it is intended to reduce cases of prolonged hospitalisation, concomitantly with associated costs and risks to the patient's health and well-being, by promoting preventive, individual-centered and evidence-based care" (Modas, Nunes, 2019, p.244).

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2. METHODS

This methodological study was carried out taking into consideration the stages of developing measurement instruments listed in Coluci, Alexandre, and Milani's narrative review (2015), in order to identify which items should be included in an instrument to assess the risk of inappropriate hospital length of stay in adult and elderly patients.

Based on the literature review previously held regarding causes of delayed hospital discharge among adult patients and on instruments for evaluating the risk of prolongation of hospital stay, and with the contributions obtained by a panel of experts, the researchers developed an investigation procedure to create a new instrument, with content validation.

According to Coluci, Alexandre, Milani (2015), the development of said instrument includes the following steps: defining the conceptual framework, the objectives of the instrument and the population involved; developing the items and the response scales; selecting the items and structuring the instrument; carrying out the content validity and the pre-test. This article focuses on these steps, excluding the pre-test stage.

2.1 Sample

The panel of experts determined by consensus the items that should be integrated into the instrument, developing content validation (Coluci, Alexandre, Milani, 2015) and enabling the application of this process to the local population.

In this investigation, the panel included 11 health practitioners from the discharge management teams (nurses, doctors and hospital administrators) who have been actively employed in this area in public hospitals in the district of Setúbal, for a period of no less than 3 years. The researcher elected these individuals due to their experience in this area and in dealing with this problem daily, obtaining a more comprehensive view of the issue in focus, as well as coherence in the analysis of the tool being created, taking into account the content validity process. In summation, the researchers worked with a non-probability, intentional, representative heterogeneous sampling (Ribeiro, 2010). This collaboration process took place electronically, by email.

2.2 Data collection tools and methods

This process was structured in three rounds. In the first round, the researchers set about developing concepts, based on the collected opinions from the experts (Keeney, Hasson, McKenna, 2011). A questionnaire was created with two questions, requesting itemisation of: what were the main causes of prolonged hospital length of stay in their place of work; and which items should be included in the instrument to assess the risk of inappropriate hospital length of stay. The responses obtained were then subjected to content analysis, extracting the instrument's domains and items, creating the general format for this new tool.

In the second round, the researchers presented the experts with the results previously obtained. The content validity started with the experts' evaluation of the defined items and domains, determining if those correspond to the instruments' objective and if the items represent the respective domain, in such a manner that each expert analysed the relevance and clarity of each item. The researchers looked for possible improvements, determining which items should be selected, eliminated, or added. For this evaluation, a 4-point likert-type scale was used, ranging from 1 to 4, such as: item that is unclear, less clear, quite clear, or very clear; or non-relevant or non-representative item, item that needs a major revision to be representative, item that needs a small revision, and item relevant or representative (Coluci, Alexandre, Milani, 2015). After the conclusion of this first assessment, the researchers established the panels' agreement rate, analysing the percentage in each domain, dividing the number of experts who agreed by the total number of participants, and multiplying by 100 (Tilden, Nelson, May (1990); Coluci, Alexandre, Milani (2015). If each result obtained was lower than 90%, it meant that the domain needed further analysis, adding the necessary changes to the instrument in construction.

After this process had fully run its course, a second content validity was performed, constituting the third and final round. Each expert evaluated each item, taking into consideration the title, the filling instructions, and the scale response, regarding clarity and pertinence. Afterwards, the researcher calculated the percentage of panels' agreement on the items' validity through the content validity index, adding the responses classified as 3 and 4 and dividing the result by the total number of responses, aiming for concordance rates greater than 0.78. Some authors consider percentages equal to or greater than 70% (Keeney, Hasson, Mckenna, 2011). Items with results lower than 70% were eliminated, as well as the items classified 1 and 2, which were eliminated or revised (Coluci, Alexandre, Milani, 2015).

With all three rounds concluded and all the necessary changes made to the instrument, the last step carried out with the panel consisted of a meeting between the researcher and the experts to clarify divergent issues, in order to conclude this part of the instrument's creation, completing the content validation process and obtaining the version for pre-test (Coluci, Alexandre, Milani, 2015).

This study was approved by each expert on the panel. All the elements were informed of the study objectives, and written consent was obtained before procuring answers to the first round. No hospital ethics committee approval was needed. All the data collected during this process were used only in accordance with the investigation objectives.

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3. RESULTS

The construction of this instrument was based on the results obtained in the two scoping reviews carried out and the panels' opinion and expertise.

The panel was constituted by 11 health professionals from the discharge management teams: 54.5% were nurses, 36.4% doctors, and 9.1% hospital administrators, professionals whose age ranged from 39 to 56 years, with experience in the area from 3 to 14 years.

The panel process was developed in three rounds and culminated with a general meeting.

3.1. Delphi panels' first round

In the first round, each expert answered two questions, in light of their own experience: what were the main causes of prolonged hospital length of stay in the hospital where they work; and which items should be integrated into the instrument in order to assess the risk of inappropriate hospital length of stay.

According to the experts, the main causes identified were: inefficient discharge preparation, absence of multidisciplinary assessment and complementary diagnostic tests, infectious complications, unavailable transport at the hospital discharge moment, insufficient social support due to lack of resources in the community, and situations of insufficient economic resources among the population, especially in the elderly. Analysing the individual characteristics, the experts identified an aging population, with several morbidities, especially patients with pressure ulcers and in a situation of dependency; as well as the lack of family/caregiver support/capacity/communication and unrealistic expectations from the patient/family/caregiver.

Focusing on the items that merit inclusion in the instrument, the experts identified the following:

assessment of the patients' dependency (including functional and mental state), comorbidities, characterisation of the infections, accidents and pressure ulcers; planned/emergency hospital admission, pre-existing hospital admissions, referral by social services, the existence of a family doctor, the accommodations and the need for continuity of care (namely rehabilitation, nursing care or home support) after the hospital discharge and caregiver/family support and their needs.

The experts also highlighted the social, demographic, economic, and family factors, including the patients 'age, expectations, and objectives; housing conditions, considering architectural barriers and sanitary conditions; and the identification of specific risk situations, along with the existence of protocols for medical assessments and educational leaflets in the nurse station about the most recurrent pathologies.

All these responses were subjected to content analysis, leading to the emergence of the instruments' domains and items, creating a first prototype to be presented in the second round. This prototype was created with four domains: one related to individual characteristics, a second related to community, and two organisational domains, the first regarding hospital management and the other related to health care.

3.2. Delphi panels' second round

In the second round, each expert assessed the level of the domains' adequacy and relevance; the items' and instructions' clarity and the suitability of quotations, identifying which items should be eliminated and which should be added.

Regarding the domains, the entirety of the panel considered that the items included in each one reflected their content. However, in the individual characteristics' domain, 42.9% of the experts did not agree with the inclusion of all the items; the same for 14.3% of the panel regarding the community and organisational domains related to healthcare. In the organisational domain related to hospital management, the agreement rate was 100%.

Specifically, in the individual characteristics' domain, the panel firstly identified the items related to family and informal caregiver, the need for transportation at the time of discharge, pain, number of usual medications, hearing and visual acuity, management of the therapeutic regimen, planned/emergency hospital admission and the need for surgical intervention. The latter five were eliminated after a second review. In the pain item, according to the panel, its assessment should be more stratified. In the need for transportation only one expert did not consider it relevant, so after further evaluation from the panel, this item was considered indeed relevant and, as such, should be kept in the instrument. In the family and informal caregiver items, the experts considered it appropriate to designate them as family/informal caregiver in order to encompass both.

In the community domain, the items concerning the financial capacity of the patient to meet their basic needs and housing conditions shifted to the individual characteristics domain. The item regarding the destination after hospital discharge was included in awaiting institutional integration and housing conditions.

In the organisational domain related to healthcare, the panel considered relevant the creation of a new item related to social service evaluation.

With these considerations, a new presentation of the instrument emerged for the third round of the panel, for a second analysis of content validity.

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3.3. Delphi panels' third round

At this stage, the percentage of agreement of the panel was determined through the content validity index. The researchers asked the panel about the title, the instruments' format, the instructions, each domain and item and the scoring-based classification, requesting an overall assessment of the instrument.

The evaluation regarding the clarity of the title, the format of the instrument, the instructions, the scoring-based classification, the comprehensiveness of the domains and the instrument overall obtained a content validity index of 100%. The calculation of the final classification score had a content validity index of 85.7%. One expert noticed that the calculation could be difficult to understand because the instrument included multiple pages. Therefore, it was decided to add the score space at the beginning of each page of the instrument to avoid any confusion.

The content validity index regarding the clarity of the items was 100% for 14 items, 85.7% for 8 items (age, comorbidities, activity, presence of infection, presence of invasive medical devices, communication and access to family/informal caregiver, patients' expectations/goals regarding their clinical situation and previous referral to social services), and 71.4% for 2 items (cognition and housing conditions). Based on these results, some items needed to be restructured.

Regarding the assessment of items' representativeness, a content validity index of 100% was obtained for 20 items, 85.7% for 2 items (need for transportation at the time of discharge and communication and access to family/informal caregiver), and 71.4% for 2 items (presence of infection and housing conditions). Based on these results, no item was eliminated.

3.4. Meeting with the different members of the Delphi panel

This meeting aimed to determine if the panel agreed with the final instrument or if there were still issues or suggestions to be taken into consideration. All the responses were transcribed and submitted for content analysis. Afterwards, the majority of the panel (71.4%) considered the instrument adequate and comprehensive, a useful tool to optimize the person's admission process and no more changes needed to be made.

One member of the panel brought into consideration the assessment scales at the end of the instrument, which could be confusing for the user, to move back and forth within the document. However, it was explained that these scales were an auxiliary resource tool, an appendix that the health professional could use in case of doubts during the assessment, with which the expert agreed.

Regarding the clarification of the instrument aspects, 57.1% of the experts had no doubts. One element asked about the final section in the instrument, where the researcher indicated the cause of prolonged hospital stay, when applicable, specifically the organisational causes regarding situations of falls, the need for urinary catheter placement or rehabilitation care, which the expert related to the need for healthcare. The researcher explained that this classification of organisational causes was based on the scoping review carried out previously, where it was subdivided into two categories: related to hospital management and healthcare.

Another issue was the use of the HDG to define delayed discharge in the patient. According to one expert, this may not be easy, since the patient may experience a delay in discharge due to family or social causes, situations that the HDG does not identify. Facing that, the researcher highlighted the importance of creating this instrument, where the social and family context would be evaluated. The purpose of the HDG identification was to define the appropriate number of hospitalisation days for each situation, providing an objective standard value for comparison with the length of stay of each patient. Even so, the researchers considered it important to add the medical discharge date to the instrument, precisely for comparison with the period of the patient's hospital stay, besides the time stipulated by the HDG. In conclusion, the only change made consisted of adding the medical discharge date at the end of the instrument.

After discussing all these aspects, the changes to be made to the instrument were assessed in order to obtain the final version for further implementation.

4. DISCUSSION

In the first round, two questions were posed to the panel: the causes of prolonged hospital length of stay and the items that should be included in an instrument to assess the risk of inappropriate hospital length of stay.

According to the results obtained, in this initial phase, the investigators decided to define the instruments' domains identified in the scoping review. They were the domains of individual characteristics, the domain of community, and two organisational domains, one related to health care and another related to hospital management. Each of these domains was constituted by the set of items that were identified by the panel.

In the second round, according to the results, from the initial 44 items, 5 were eliminated (number of usual medications, hearing and visual acuity, management of the therapeutic regimen, planned/emergency hospital admission and the need for surgical intervention) and 5 were changed (pain and items related to family and informal caregiver). The item housing conditions according to the patients' needs shifted from the community domain to the individual characteristics domain. The item of financial capacity to meet patients' basic needs was included in the item of socioeconomic conditions, and the discharge destination item was included in two items: awaiting institutional integration and housing conditions. In the individual characteristics' domain was

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added a new item about the nutrition and in the organisational domain related to health care was added the awaiting social service evaluation item.

Analysing the results obtained in the scoping reviews and the collaboration from the panel, the investigators considered that the organisational domain should not be included in the instrument because it contained items that were not possible to evaluate in the initial period after admission, which is the time when to implement the instrument, such as the existence of informational brochures in the services about the diseases or the sensitivity of the clinical management to this problem.

In the individual characteristics domain, the researchers chose to include items relating to aspects intrinsic to the individual. These were the age, comorbidities, cognition, activity, degree of dependence, presence of infection, risk of falls and pressure ulcers, pain, nutrition, and number of hospital admissions.

Related to the nutrition item, previously suggested by the experts, the researchers considered it relevant to assess all the types of invasive medical devices that the patient had, due to the fact that these may require continuity of care after discharge, as well as the associated risk of complications. Analysing the nutrition item itself, a study conducted in a hospital in Paraná verified that medical and surgical patients who had nutritional risk at admission had a higher risk of mortality and length of stay in the hospital (Ferreira 2018).

Referring to comorbidities, Husaini et al. (2021) identified the top 4 in their study. They were hypertension, diabetes mellitus, obesity, metabolic syndrome, and hyperlipidemia.

Regarding the item pressure ulcers and the importance of assessing the risk of developing this complication, according to a study, the presence of pressure ulcers in the patient had a percentage impact of 13.61% on the length of hospital stay for patients with an ulcer of category II, 22.28% in cases with category III, and 55.99% in situations with category IV. According to the authors themselves, early identification and preventive actions in patients of risk allowed to avoid 2,977.61 days of hospitalisation (Venâncio et al., 2019).

The item regarding the pre-existence of inappropriate hospital length of stay was removed by the researchers, due to the reason that the assessment of this item can be difficult, because the patient may not know the correct answer and the healthcare professional may not have the knowledge about the HDG and each length of stay determined, making it impossible to answer correctly to this assessment.

The domain related to community resources covered waiting for institutional integration, access to a family doctor, the need for home support, and healthcare after discharge. About the first item, Abdelhalim et al. (2024, p.18) state that “patients often face delays due to the unavailability of appropriate rehabilitation services that are necessary for their continued recovery after hospital discharge”.

Regarding the need for home support, Allan et al. (2021) attributed the large number of discharge delays to situations of lack of home care availability, identifying a significant inverse relationship. The authors defend that the delayed discharge problem can be "significantly reduced with an increased number of home care providers in a local market, and this could have important cost saving implications (…) health and social care systems are inexorably linked and that to deliver effective and efficient health care the supply of social care for the older community-dwelling population should also be considered” (Allan et al., 2021, p.10).

The item regarding coordinated response with community services was eliminated. It corresponded to a nonspecific item which was difficult to assess during the first period of hospitalisation.

A highly praised aspect raised by the panel was the assessment of social and family needs. For that reason, the researchers considered it relevant to create a new domain related to the social, economic and family context. That domain included family support, socioeconomic and housing conditions according to the patient's needs, the need for transportation upon hospital discharge, communication with the family/informal caregiver, the family/informal caregiver availability and capacity to provide care, and the unrealistic expectations and goals of the patient/family/informal caregiver regarding the clinical situation and previous referral to social services.

About the family, in Junior’s investigation it was concluded that families who are not present and do not provide care to the patient constitute an obstacle to hospital discharge, a situation that was observed in 10.5% of the cases that experienced delayed hospital discharge. The same author also found that the different difficulties experienced by the family account for 9.7% of the cases of delayed discharge, whether due to financial issues, communication difficulties, or acceptance of the patient's clinical situation (Junior, 2019).

In summary, at the end of the second round, the instrument included 12 items in the individual characteristics domain, 4 items in the community resources domain, and 8 items in the social, economic, and family context domain. Regarding the response scales, the researchers chose the Likert-type scale: present/not present and present/risk/not present. Adding all the parameters, the higher the final score obtained, the higher the risk of inappropriate hospital length of stay. Once the analysis of this round was completed, the third round of the panel followed, with the second analysis of content validity.

Based on the results obtained in the third round, some items needed to be restructured. They were: activity, the presence of infection, the presence of invasive medical devices, the communication and access to family/informal caregiver, the patient’s expectations and objectives, the previous referral for social assistance, the housing conditions, and the cognition item.

Analysing the items in question that had a lower percentage in the content validity index, in the activity item, it was considered helpful to add the identification of the assessment scale to be used in the evaluation of the item, proceeding equally in all the items where assessment scales were used.

In the presence of infection item, space was added to characterise the infection. Stewart et al. (2021) found out in their study that 7.8 days of delayed discharge were attributable to healthcare-associated infection (HAI), standing out the pneumonia, bloodstream infection, and surgical site infection. According to the authors, “patients with complex conditions and multiple morbidities are often at greater risk of developing HAI due to their intrinsic risk factors, or are exposed to extrinsic risks as a result of the treatment they received during their hospital stay; these patients also potentially require a longer duration of treatment within hospital, increasing their risk of developing HAI” (Stewart et al., 2021, p.28).

In the presence of the invasive medical devices item, it was important to specify which devices were present.

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In the communication and access to family/informal caregiver item, the response was stratified in three hypotheses: no difficulty in communication, difficulty and absence of communication, and access to the family/informal caregiver. In the patient's expectations and objectives item, it was considered helpful to add that these aspects were related to the patients' clinical situation. Abdelhalim et al. (2024) highlighted the importance of communication and coordination among patients/family and healthcare professionals in the prevention of delayed discharges, where understanding the patients/family/caregivers' viewpoints and perspectives is crucial in this process.

In the previous referral for social assistance item, a field was added to indicate the institution that previously referred the patient.

In the housing conditions item, the investigators added aspects related to hygiene, space, and obstacles in order to help the health professional in the evaluation.

The need for transportation at the time of discharge item was considered not important for one element of the panel. However, all the other elements disagreed, so the researchers considered it valid to keep the item in the instrument. According to Ajimura (2016), this need for transportation was related to 54.5% of delayed discharge situations, 39.7% of them involving waiting for transportation by the family, which corresponds to an average of 8 additional days in hospital stay after clinical discharge.

The only item that was eliminated was the cognition item due to the impossibility of patients with impaired cognition being able to give their consent for the research.

The next step was meeting with the different elements of the panel, where the only change made in the instrument was the addition of the medical discharge date at the end.

Once these steps were completed, the instrument for risk assessment was prepared for further implementation. The next stage contemplates the pre-test assessment and its sensitivity and specificity assessment too, evaluating the risk of inappropriate hospital length of stay in the sample in the study.

Lastly, and regarding the study's limitations, the researchers acknowledge the limitation of national representativeness concerning the expert sample, since it is limited to health professionals from Setúbal district, and as such, a geographically restricted sample.

CONCLUSION

The instrument created has three domains: the domain related to individual characteristics, the domain related to the social, economic and family context; and the domain related to community resources. In each domain, there are several items to evaluate, a total of 23, that are considered objective, clear, relevant, and heterogeneous, allowing a holistic assessment of the patient.

The domain of individual characteristics evaluates demographic issues and the person's health status. The domain of social, economic and family context addresses issues related to support, communication and availability of family/informal caregiver, as well as socioeconomic and housing conditions.

The domain of community resources assesses the support that the patient and family have and need.

The creation of this instrument, with the contributions of the Delphi panel and based on the literature reviews, seeks to help address the problem of inappropriate hospital length of stay. Identifying, in an early stage of hospitalisation, patients at risk of experiencing delays in discharge, in order to anticipate interventions in these cases to prevent such situations and associated complications.

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AUTHORS' CONTRIBUTION

Conceptualization, D.M., E.N., L.S., C.Z. and C.S.; data curation, D.M., E.N., L.S., C.Z. and C.S.; formal analysis, D.M., E.N., L.S., C.Z. and C.S.; investigation, D.M., E.N., L.S., C.Z. and C.S.; methodology, D.M., E.N., L.S., C.Z. and C.S.; supervision, E.N., L.S., C.Z. and C.S.; validation, D.M., E.N., L.S., C.Z. and C.S.; writing – original draft, D.M., E.N., L.S., C.Z. and C.S.; writing – review & editing, D.M., E.N., L.S., C.Z. and C.S.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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