Original Research

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Improper Access to the Emergency Department: Development and Validation of a Tool

Citation: Castiglione A, Di Nardo L, Iodice S, Mariani G, Di Nardo V. "Improper Access to the Emergency Department: Development and Validation of a Tool" (2025) *Interdisciplinary Journal of Nursing and Health* 4(4): 303-310. DOI: https://doi.org/10.82051/ijnh-2025-227

Received: July 29, 2025

Revised: October 22, 2025

Just accepted: December 18, 2025

Published: December 31, 2025

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Data Availability Statement: All relevant data are within the paper and its Supporting Information files.

Conflict of Interest: The author(s) declare(s) no conflict of interest.

Funding: This research received no external funding.

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Abstract

Introduction. The main purpose of the Emergency Department (ED) is to treat emergency and urgent cases requiring immediate assistance through rapid diagnosis and timely medical or surgical intervention. However, citizens may perceive the ED as a solution for all health and social issues, leading to inappropriate visits. This critical phenomenon has recently been highlighted at the international level due to the potential negative consequences. The underlying causes of inappropriate ED use are still not clearly understood. This study aims to provide a tool to identify the underlying reasons for inappropriate ED visits.

Methods and materials. Multi-phase study. Phase 1: narrative literature review to identify domains and develop specific items; Phase 2: content validation by a panel of experts; Phase 3: face validation by an additional group of professionals. Phase 4: translation by bilingual experts.

Results. A total of 21 items were developed, distributed across 4 domains, plus a section to be completed by the administrator. The content validity index of individual items (I-CVI) ranged from 0.80 to 1.00; the scale content validity index (S-CVI) of the questionnaire was 0.98. The final version of the questionnaire achieved an average face validity score of 3.90 (± 0.32) on a 4-point scale.

Discussion. Non-urgent ED use is considered an indicator of healthcare system efficiency. This study offers the scientific community a useful tool to explore the motivations behind inappropriate ED use, with particular attention to the knowledge of territorial services, perceived urgency, and trust in healthcare professionals. This type of study can inform the development of strategies to address inappropriate ED use and to evaluate the effectiveness of

community-based services. Larger, prospective studies are warranted to further confirm the safety profile of these devices.

Keywords: Inappropriate Use, ED, Questionnaire, Nurse, Psychometric Validation

Introduction

The main purpose of the Emergency Department (ED) is to treat emergency and urgent cases that require immediate assistance through rapid diagnosis and timely medical or surgical treatment (Sartini et al., 2022). However, this service can be perceived by citizens as the solution for all health and social problems, leading to ED visits for non-urgent cases and therefore potentially inappropriate access (Bonetti & Melani, 2019).

For years, the scientific community has debated the definition of "inappropriate" or "unwarranted" ED visits, due to the equivalence often made between non-urgency and inappropriateness of access (Honigman et al., 2013; Mengoni & Rappini, 2007; Mistry et al., 2008). In this study, we adopted the definition provided by Bianco (2003), according to which an ED visit is considered inappropriate if it is non-urgent and could be more appropriately managed by other territorial healthcare facilities (Bianco et al., 2003).

Inappropriate visits are one of the main contributors to overcrowding (Bahadori et al., 2020), defined as a situation in which the normal operation of the ED is hampered by a mismatch between healthcare demand—represented by the number of patients waiting and being treated—and the logistical, instrumental, and professional resources available (Ministry of Health & General Directorate for Health Planning, 2019).

This phenomenon, internationally known as overcrowding, has become a serious healthcare issue, worsened by the reduction in the number of EDs and the increase in patients requiring emergency services (Carter et al., 2014). Various studies agree on the high prevalence rates of inappropriate ED use, estimated between 20% and 40% (Carret et al., 2009).

In Italy, overcrowding represents a daily challenge for healthcare professionals (Belardinelli et al., 2024). Overcrowding is a complex and multifactorial phenomenon (Salway et al., 2017), essentially characterized by three factors: input (volume of incoming patients), throughput (time needed to process and treat patients), and output (volume of patients leaving the ED) (Badr et al., 2022).

Although many studies have specifically examined the factors influencing non-urgent ED use, it remains difficult to draw meaningful conclusions about patients' reasons due to methodological differences, study designs, quality assessments, and synthesis approaches. Moreover, most studies have been published in high-resource countries such as the United States, the United Kingdom, Canada, and Australia. Therefore, the understanding of non-urgent ED use in lower-resource countries is still limited (Bahadori et al., 2020; McIntyre et al., 2023).

According to McIntyre et al. (2023), further investigation is needed in areas that would help fill the knowledge gaps about inappropriate ED use and address methodological issues. The authors argue that health literacy, emotions, beliefs, attitudes, and behavioral response models influence decision-making, particularly concerning the perceived severity and urgency of a condition.

Morgans & Burgess (2011) also point out that psychosocial factors such as stress and coping abilities have been explored in only a limited number of studies, mostly as an afterthought (Morgans & Burgess;2011). New research should explicitly assess health literacy, personal health beliefs, stress, and coping capacity using validated outcome measures (McIntyre et al., 2023).

In Italy, several studies have addressed the issue using ad hoc questionnaires developed with reference to the specific healthcare services available in the respective geographic areas, making them less generalizable to the national context. There is a lack of validated tools in the literature, based on scientific evidence, that provide reliable data on the motivations behind this phenomenon in the Italian context.

Based on these reflections, the authors aimed to develop a tool grounded in the most recent

scientific evidence, in the form of a questionnaire to be administered to users accessing the ED for non-urgent conditions, with the goal of identifying their motivations.

The main objective of this study is the development and validation—both content and face—of a tool designed to investigate the motivations behind inappropriate access to the Emergency Department. The tool aims to explore users' level of knowledge, self-perception of urgency, and the social recognition of the nurse's role in meeting healthcare needs related to ED access.

Methods and Materials

A multi-method, multi-phase study was conducted. The first phase focused on tool development; the second phase assessed the content validity of the questionnaire; the third phase examined the face validity of the final instrument.

Working Group

For each phase of the study, a dedicated working group was formed based on the specific needs of that phase.

Phase One: Identification of Domains

To investigate the phenomenon of inappropriate ED access, a narrative, non-systematic literature review was carried out by AC and VD, aimed at identifying the specific items for questionnaire development (Green et al., 2006). A total of 19 items were created (the demographic section was considered as a single item), grouped into five domains: demographics; reasons for access; knowledge; social recognition of the nurse; and a section to be completed by the administrator.

Items in the 'Social recognition of the nurse' domain were expanded based on recent organizational models in which nurses are assigned greater autonomy and competence than in the past.

Phase Two: Content Validity

Content validity reflects how well the elements of an assessment tool are relevant and representative of the intended construct—i.e., how completely and appropriately they explore the subject under study (Yusoff, 2019).

Establishing content validity is essential to support the validity of a tool and the results it yields. Haynes et al. (1995) emphasize that "Inferences from assessment tools with inadequate content validity will be questionable, even if other indicators of validity are satisfactory."

A panel of 10 experts—4 physicians and 6 nurses from Umbria, Emilia-Romagna, Sicily, Campania and Sardinia—was assembled to evaluate the content validity. This geographic diversity was intended to ensure adaptability of the tool across different regional healthcare systems. Experts were selected based on their experience in emergency healthcare, with selection criteria including:

a) at least 5 years of experience in emergency care (either in ED or territorial emergency services);

b) at least one postgraduate qualification, such as a Master's in Critical Care or a Master's Degree (for nurses).

The questionnaire was shared with the panel in February 2024. Experts were asked to rate the relevance of each item based on appropriateness and adherence to the study using a four-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree), following Yusoff's (2019) methodology (Yusoff, 2019).

All items except those in the demographic section were evaluated for content validity. The Content Validity Index (CVI) was calculated for each item (I-CVI) and for the entire questionnaire (S-CVI). I-CVI was calculated as the number of experts rating an item as relevant (Likert 3 or 4) divided by the total number of experts. With ten experts, an I-CVI ≥ 0.78 was considered acceptable (Yusoff, 2019). The S-CVI was derived from the average I-CVI values (S-CVI/Ave). An S-CVI > 0.8 was considered acceptable (Yusoff, 2019).

Phase Three: Face Validity

Face validity refers to the qualitative (subjective) assessment of how suitable an instrument appears to be for measuring the intended concept. It is a superficial estimation based on the immediate impression of appropriateness (Elangovan & Sundaravel, 2021).

An additional group of experts was formed for this phase, consisting of 1 physician and 4 nurses from different regions (Umbria, Lazio, Campania e Sicily), all with experience in critical care units. The nurses had at least a first-level Master's

degree in Critical Care or a Master's degree.

The questionnaire was administered to the expert group, and to ensure a methodical process, they were asked to evaluate each item based on adequacy, clarity, completeness, and neutrality, assigning a score from 1 (minimum) to 4 (maximum).

Phase Four: Translation

The questionnaire was translated into English, French, Spanish, and Arabic through a process involving bilingual experts, with particular attention to the cultural adaptation of the items.

Ethical Considerations

The questionnaire included in this study was submitted to the Ethics Committee of the Umbria Region and received approval for administration (No. CE-743/24, 17/04/2024). The committee also recommended offering the tool in multiple languages, which is reported in phase 4 in the methods section.

Results

Content Validity

The content validity scores for individual items ranged from 0.80 to 1.00. Experts gave unanimous agreement (universal agreement, S-CVI-UA) for 17 out of 19 items (89.4%). The overall scale content validity index (S-CVI/Ave) was 0.98, indicating excellent relevance in relation to the questionnaire's research objective. Table 1 summarizes the I-CVI and S-CVI scores.

Table 1. Excel worksheet used to calculate Content Validity Index.

	Sicily	Sardegna	Campania	Umbria	Umbria	Sardegna	Sardegna	Emilia Rom.	Emilia Rom.	Umbria			
	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Expert 10	Experts in Agreement	I-CVI	UA
Item													
Q1	1	1	1	1	1	1	1	1	1	1	10	1	1
Q2	1	1	1	1	1	1	1	1	1	1	10	1	1
Q3	1	1	1	1	1	1	1	1	1	1	10	1	1
Q4	1	1	1	1	1	1	1	1	1	1	10	1	1
Q5	1	1	1	1	1	1	1	1	1	1	10	1	1
Q6	1	1	1	1	1	1	1	1	1	1	10	1	1
Q7	1	1	1	1	1	1	1	1	1	1	10	1	1
Q8	1	1	1	1	1	1	1	1	1	1	10	1	1
Q9	1	1	1	1	1	1	1	1	1	1	10	1	1
Q10	1	1	1	1	1	1	1	1	1	1	10	1	1
Q11	1	1	1	1	1	1	1	1	1	1	10	1	1
Q12	1	1	1	1	1	1	1	1	1	1	10	1	1
Q13	1	1	1	1	1	0	1	1	1	0	8	0,8	0
Q14	1	1	1	1	0	1	1	1	1	1	9	0,9	0
Q15	1	1	1	1	1	1	1	1	1	1	10	1	1
Q16	1	1	1	1	1	1	1	1	1	1	10	1	1
Q17	1	1	1	1	1	1	1	1	1	1	10	1	1
Q18	1	1	1	1	1	1	1	1	1	1	10	1	1
Q19	1	1	1	1	1	1	1	1	1	1	10	1	1
											S-CVI/Ave	0,98	
Proportion relevance	1	1	1	1	0,95	0,95	1	1	1	0,95	S-CVI/UA		0,89
										Average proportion of items judged as relevance across the experts	0.98		

Legend: **Q** = Question; **CVI** = content validity index; **UA** = universal agreement; **I - CVI** = individual - level content validity index; **S - CVI/Ave** = scale-level content validity index based on the average method; **S - CVI/UA** = scale-level content validity index based on the universal agreement method.

Face Validity

The face validity evaluation yielded an average score of 3.90 (± 0.32). None of the items in the final version raised significant concerns; thus, the experts agreed that no modifications were needed. Scores ranged from 3 to 4 on a 1–4 scale, both for individual items and the overall tool, indicating good quality (Table 2).

Table 2. Overall scores of the face validation

	Score (±SD)
Pertinence	3,90 (± 0,35)
Clarity	3,94 (± 0,23)
Understandability	3,89 (± 0,30)
Neutrality	3,88 (± 0,40)
Overall score	3,90 (± 0,32)

Legend: **SD** = standard deviation.

Discussion

The use of the ED for non-urgent care is often seen as an indicator of inadequate primary healthcare (Booker et al., 2015). This

phenomenon can negatively affect patients, healthcare providers, and the healthcare system as a whole (Bahadori et al., 2020).

Understanding the subjective motivations and psychosocial factors that influence user behavior is essential to addressing the issue of overcrowding. This is particularly relevant in Italy, where 23% of the population is over 65 years old (Italian Government, 2021), and chronic conditions are increasingly prevalent. Older adults are at high risk of complications and exacerbations, making them frequent users of emergency services (Longhini et al., 2023).

This study led to the development of a validated tool capable of objectively and thoroughly exploring the motivations that prompt users to access the ED for non-urgent conditions. The questionnaire underwent a rigorous process of content and face validation, demonstrating strong ability to capture key factors associated with inappropriate access.

A central issue raised is the motivations behind low-priority ED visits. Although several international studies have addressed this phenomenon (McIntyre et al., 2023), most focus on high-income countries with limited attention to national or resource-limited settings. In Italy, previous research has been region-specific and not always based on rigorous scientific criteria. This knowledge gap prompted the creation of a standardized, validated questionnaire to explore these motivations.

The high I-CVI and S-CVI scores confirm the tool's reliability and relevance (Haynes et al., 1995). A key factor is users' health literacy and subjective perception of urgency. As noted by McIntyre et al. (2023), patients' perception of their condition's severity plays a crucial role in their decision to go to the ED. Improving public awareness and information about community health services could reduce the tendency to view the ED as the only solution, even for non-urgent issues.

Although the validation processes included experienced physicians and nurses working in six different regions, the evaluations may not fully represent the Italian territory, characterized by a large geographical extension and local health services organized differently.

Study Limitations

Although the questionnaire was developed with consideration for the regional heterogeneity of the Italian healthcare system, the experts involved in the content validation process were drawn from only five Italian regions. This limited geographic representation may have affected the generalizability of the instrument.

Another limitation is the lack of involvement of the study's target users in the evaluation process.

Finally, the tool requires further testing to assess its generalizability and adaptability to settings other than Italy, as well as to different levels of health literacy.

Practical Implications and Future Perspectives

The results of this study offer valuable insights for improving the management of inappropriate ED access and may inform public health policies. The validated questionnaire may serve as a basis for broader studies involving larger populations to generate representative and objective data that could facilitate regional comparisons. Furthermore, the information gathered can guide targeted interventions to reduce inappropriate access and ED overcrowding by improving awareness, health education (Williams & Haffizulla, 2021), access to community services, and the recognition of the nurse's role.

The nurse has proven effective in reducing inappropriate ED use through innovative models such as See & Treat (Di Nardo et al., 2023), Process Nurse (Belardinelli et al., 2024), and integrated home care (Campagna et al., 2022). Future studies should explore larger, more diverse samples to validate the tool in various healthcare settings.

According to McIntyre et al. (2023), additional studies should use validated outcome measures to investigate the role of psychosocial factors influencing decision-making, including health literacy, personal health beliefs, stress, and coping skills.

Each region could simulate scenarios like the one presented here to evaluate how a management model for low-priority emergencies could alleviate ED overcrowding.

Conclusions

Understanding the motivations behind inappropriate ED access is essential for developing effective overcrowding management strategies, which has financial and operational consequences for users, staff, and the healthcare system (Annese et al., 2019).

The questionnaire developed in this study offers a new investigative approach to collect data useful for improving health policy, particularly in terms of health education and public perception of urgency.

Assessing the perception of various healthcare roles—especially that of nurses—may help better understand how patients view healthcare personnel's role in managing their health. Understanding the social recognition of nurses could promote their professional visibility and inform the curriculum of future clinical master's degree programs.

Offering the questionnaire in multiple languages allows the exploration of differences between local and non-Italian users.

The validated questionnaire is a significant first step toward better understanding this phenomenon and improving the effectiveness and efficiency of emergency healthcare services.

The presented paper will be followed by a multicenter pilot study involving a large sample of users.

Future research could enhance the tool's effectiveness by testing it in broader and more varied contexts, contributing to a more efficient and appropriate use of emergency healthcare resources.

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