Nursing Quality Indicators in Emergency Nursing

OPEN

A Scoping Review

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ABSTRACT

Background: Nursing quality indicators (NQIs) are essential for evaluating and managing care, yet few validated NQIs exist for emergency nursing. The dynamic nature of this field demands specific, validated indicators.

Purpose: The purpose of this review was to identify NQIs in adult emergency nursing using Donabedian's quality categories (structure, process, outcome) and explore their validation.

Methods: A scoping review was conducted including articles from 2010 to February 2023, using the Cumulative Index to Nursing and Allied Health Literature and Medline (Ovid) databases.

Results: Among 936 screened articles, 18 were included, identifying 85 NQIs across structure (n = 14), process (n = 45), and outcome (n = 26) in emergency nursing. However, the validation of these NQIs was limited.

Conclusions: NQIs evaluate emergency nursing quality, primarily in process assessment. Future work should validate the NQIs identified in this review for adult emergency nursing and search for potential new ones.

Keywords: emergency nursing, healthcare evaluation, nursing quality indicators, quality improvement, validation studies

Nursing quality indicators (NQIs) are criteria for assessing nursing quality, measuring the impact of nursing actions on patient outcomes. NQIs in nursing significantly impact patient safety, patient satisfaction, adherence to care plans, staffing ratios, and documentation, thereby enhancing the safety and effectiveness of health care delivery.[1] Nurse leaders employ NQIs to bolster nursing practice and cultivate staff resilience.[2,3] Donabedian's framework, with its components of structure, process, and outcomes, offers a widely accepted model for assessing health care quality.[4-8] Within this framework, structures relate to organizational aspects, processes denote health care provider actions, and outcomes gauge care results.[5] Through Donabedian's lens, nurse leaders adopt a systematic method to assess and enhance care quality, guided by empirical evidence. This evidence-based leadership empowers informed decision-making, efficient resource allocation, and organizational enhancement, culminating in improved patient outcomes and organizational effectiveness.[8]

Emergency nursing is vital, with a significant number of Europeans visiting emergency departments (EDs) annually.[9] Delivering high-quality emergency nursing requires comprehensive knowledge, prompt responses, and effective actions in critical situations.[10-12] To assess emergency nursing quality comprehensively, all categories of the Donabedian framework must be evaluated.

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An integrative review on emergency nursing NQIs indicates a need for further research, highlighting the undefined nature of these indicators.[13] While studies on quality indicators[14-16] and frameworks exist in emergency medicine,[17,18] the same cannot be said for emergency nursing. Research and development of standardized NQIs, particularly for elderly emergency patients, have been proposed,[19-21] emphasizing the need for nursing-sensitive and well-validated indicators.[19-23]

This scoping review uses Donabedian's framework to assess NQI coverage in adult emergency nursing, focusing on structures, processes, and outcomes. NQIs, assessed within each Donabedian category, are vital for evaluating emergency nursing quality. The aim of this scoping review was to identify NQIs in adult emergency nursing within Donabedian's quality categories, explore their validation, and enhance their utilization in this context. By reviewing emergency nursing quality through Donabedian categories (structures, processes, and outcomes), a comprehensive assessment of quality can be achieved. The following research questions guided this review: (1) Which NQIs have been used in quality assessment in adult emergency nursing? (2) Under which Donabedian category does each NQI fall? (3) Have the NQIs been validated?

METHODS

This scoping review is reported using the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR)[24] guideline. The review did not require registration,[25] and no institutional approvals were required.

Search strategy

In line with typical scoping reviews, the broad question aims to summarize extensive evidence.[25,26] Due to emergency nursing's complex nature, the previously mentioned research questions were used to guide the review. The review applied the PCC (Populations, Concept, Context) framework as suggested by Peters et al.[25]: "Populations" as nursing professionals, "Concept" as nursing-sensitive quality indicators, and "Context" as emergency nursing. Following Joanna Briggs Institute recommendations, the Cumulative Index to Nursing and Allied Health Literature and Medline (Ovid) databases were utilized, ensuring sufficient coverage.[27] The search protocol, detailed in Supplemental Digital Content, Table 1, available at: http://links.lww.com/JNCQ/B272, was developed with an information specialist. The search, conducted in February 2023, focused on English-language articles without timeline restrictions; 2 additional articles were included based on manual reference search.

Article selection

Included articles focused on NQIs for quality assessment, evaluation, or improvement in adult emergency nursing, encompassing both research and non-research studies. Included non-research articles had to contain new information that was different from research articles. Emergency nursing was defined as immediate care for sudden illnesses, injuries, or medical emergencies in clinical settings such as hospital EDs or urgent care centers. NQIs measured outcomes manageable by nursing practice.[5] Two reviewers independently selected articles, with the third reviewer consulted in disagreements. See Figure for a flow diagram of how articles were included in the review.

Data charting

One reviewer extracted the following variables: author(s), year of publication, country, purpose, study aim, design, sample size, main results, and NQIs used. Critical appraisal was not performed, as it is not required in scoping reviews.[25] See Supplemental Digital Content, Table 2, available at: http://links.lww.com/JNCQ/B273 for an overview of the studies included in the review.

Identifying and analyzing NQIs from data

To ensure that all NQIs were discovered, 2 of the researchers independently identified all NQIs before jointly reviewing and analyzing the results in the following way: (a) Identification: the NQIs used in the empirical analysis of the studies or NQIs that were the result of a study were identified; (b) Coverage of the quality: the NQIs identified were categorized deductively into structure, process and outcome[5]; (c) Validation: the protocols and/or process for how each NQI was validated were identified.

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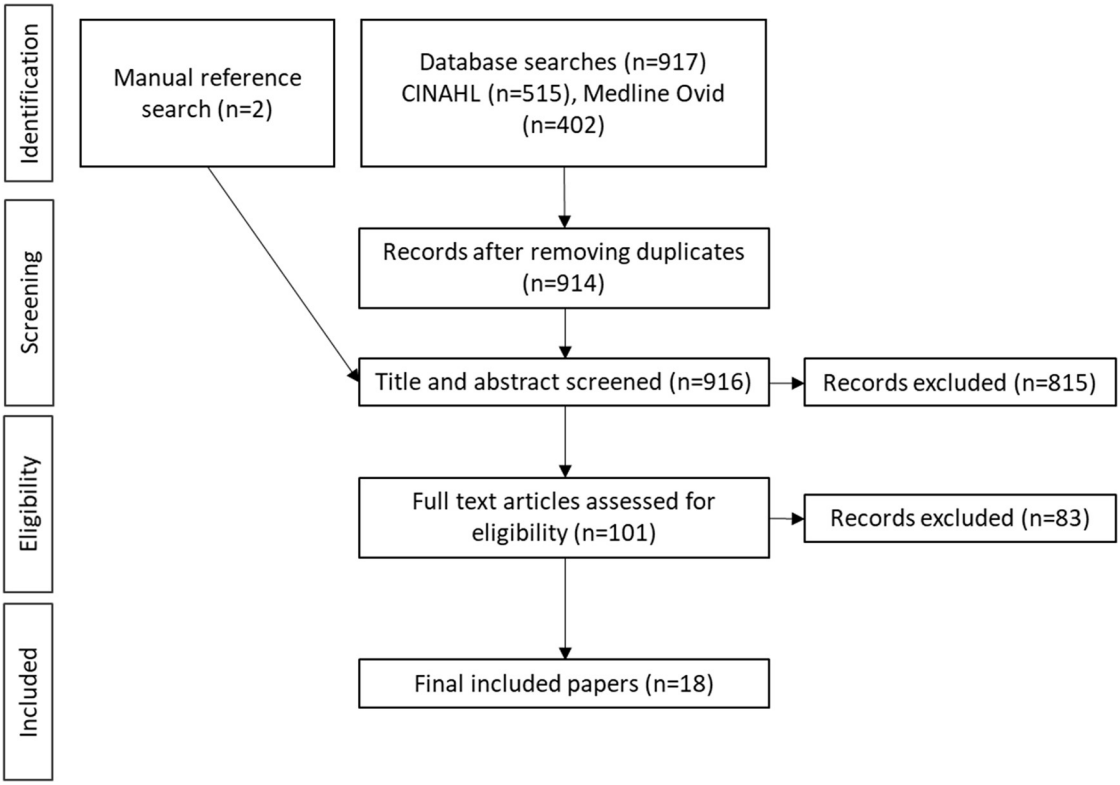


Figure. PRISMA-ScR flow diagram. CINAHL = Cumulative Index to Nursing and Allied Health Literature; PRISMA-ScR = Preferred Reporting Items for Systematic Review and Meta-Analyses Extension for Scoping Reviews.

RESULTS

A total of 917 articles were identified in the search. Based on the screening of the titles and abstracts, the first author chose 101 articles to be independently reviewed in full by 2 of the researchers. Included articles (n = 18), published between 2010 and 2022, were from the USA (n = 10), Australia (n = 5), Great Britain (n = 2), and China (n = 1). Among the research articles, there were 2 intervention studies; 2 Delphi studies; and 1 study with each of the following designs: retrospective, observation, mixed-methods, feasibility, single-site, focus group interview, integrative review, and systematic review. The remaining 6 articles were non-research.

NQIs in adult emergency nursing

A total of 85 NQIs were identified, comprising 65 from research and 20 from non-research articles. The integrative review included in this research article comprised 3 articles, which were also identified through the literature search for this scoping review. The results from both systematic and integrative reviews identified potential indicators for emergency nursing, which are included in this review. Indicators were categorized into quality categories: structure (n = 14), process (n = 45), and outcomes (n = 26). In the following paragraphs, these indicators are detailed; an overview can be found in Supplemental Digital Content, Table 3, available at: http://links.lww.com/JNCQ/B274.

Structural NQIs were least utilized in both research and non-research articles (n = 14). In research articles, they covered preventive tools,[13,28,29] observation protocols, patient characteristics, and resources.[13,30] Non-research NQIs focused on staff skill mix,[31] interventions for specific diseases,[29,32] and methods for collecting reasons for ED visits.[32] Both research and non-research articles identified an availability of falls prevention protocols (ie, risk assessment protocols)[28,31] and diversion hours[32,33] as structural NQIs.

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The majority of NQIs were process indicators (n = 45). In research articles, process NQIs focused on documentation,[13,28,30,34,35] patient identification,[13,35] suicidal patient identification,[34] the risk for pressure injuries,[28] standardized handoff reports,[34] and ED patient medication.[13,30] Rapid-response situations (eg, stroke, sepsis) were evaluated with timeline-specific process NQIs from research articles.[13,30,34] Non-research articles addressed process indicators focused on managing treatment,[29,36] screening for high blood pressure,[31,36] recognizing depression,[29,31,36] screening for nutrition,[31] telephone triage (providing remote medical advice and coordinating care over the phone during emergencies),[29] and home medication.[29,36] Common process NQIs in both research and non-research articles covered pain,[13,23,28-32,34-36] falls risk assessment,[28,31,34] transitions,[29,35] and triage.[29,33]

Outcome NQIs (n = 26) assessed both nurses' and patients' perspectives, including patient engagement. Exclusively in research articles, these NQIs covered adverse events, identifications of high-risk patients, triage target response time attainment rate, identification of the need for immediate isolation/decontamination at triage, and immediate recognition of high-risk patients. Outcome NQIs in non-research articles focused on the number of hospitalized and redirected patients (ie, rerouted within the health care facility) and patients that left the ED before completing treatment. Both research and non-research articles presented NQIs related to patient satisfaction,[28-31,37-40] nurses' job satisfaction,[33,39] accuracy of triage,[28,29,34] falls in the ED,[13,30,31,34] and overall length of time spent in the ED.

Validation of the NQIs

Validation of identified NQIs in adult emergency nursing was limited. Out of 12 research articles, 3[13,41,42] lacked validation information, while NQI validation occurred in 9 articles. Validation was made in 3 research articles[30,34,35] in the context of emergency nursing, 3[35-43] in emergency services, and 3[24,28,33] in intensive care units or inpatient wards without specifying the method. In a systematic review,[23] NQI validation was deemed insufficient for the emergency nursing field, posing a challenge in assessing quality and requiring further research for validation. Among 6 non-research articles, 2 lacked validation information,[39,40] 1 used an expert panel for validation,[29] and 3[41-32] referred to a task force and its work report. The validation protocols used are presented in Supplemental Digital Content, Table 4, available at: http://links.lww.com/JNCQ/B275.

DISCUSSION

This scoping review aimed to identify and classify NQIs used in adult emergency nursing. The objective was to analyze the validation of these NQIs and assess how comprehensively they cover the 3 Donabedian categories of structure, process, and outcome, contributing to the description of quality. The review identified 85 NQIs, with a notable emphasis on process indicators, followed by outcome and structure indicators. This highlights the prevailing focus on evaluating the quality of adult emergency nursing, particularly through widely reported process indicators. Moving forward, it is essential to ensure that all of Donabedian's quality categories used in this context remain relevant.

Structural NQIs are measured through the use of available preventive tools, observation protocols, and resource utilization but lack specificity for emergency elements such as triage or pain. Surprisingly, none of the research articles employed NQIs to assess the competence or education level of nurses; this aspect was addressed in only one non-research article.[31] It is imperative to identify and specify structural competencies in emergency nursing to assess professional needs and plan education and training.[5,13] As a summary, present structural indicators seem to inadequately reflect the specific nature of adult emergency nursing. For example, structural nursing NQIs have not yet undergone adequate validation or clear definition from the perspective of emergency nursing. Enhancing the description and validation process will improve the relevance of structural indicators in evaluating the quality of adult emergency nursing.

Process NQIs are easily collected, as these data are often readily accessible through the electronic health record.[39] Emergency nursing, which unfolds in a dynamic environment,[11] necessitates clear processes and protocols to ensure patient safety and achieve optimal patient outcomes. Process NQIs concentrate on tools, protocols, and specific processes associated with patient care, triage, pain

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management, medication administration, and the quality of documentation. An important positive discovery was the consistent use of pain-related protocols.[13,28-32,34-36] Pain stands out as one of the most common reasons for ED visits,[44] and effective pain management contributes to patient satisfaction[45] and overall health status. While pain is well-represented among process NQIs, it is noteworthy there were no pain specific NQIs identified within the structural category.

Process indicators in adult emergency nursing, including documentation and various delays, are critical for ensuring patient safety and nursing quality. Nevertheless, certain indicators concerning timelines, such as the time from examination to decision or the time from the ED door to transition, lack adequate validation.[23,28,33,36] Further research is needed to establish their relevance and identify precise measures for effective emergency nursing. This exploration should consider "nurse sensitivity," which refers to nurses' capacity to deliver personalized care tailored to individual patient needs in the ED.[13,34] It emphasizes nursing excellence in achieving positive outcomes in emergencies. Among process NQIs, only 4 were patient-related, covering aspects such as patients' belongings in the ED,[35] patient identification,[35] communication,[29,35] and managing patient self-care.[29] Recognizing patients' belongings as a NQI is important, reflecting care quality and enhancing satisfaction. Patient engagement in care has proven positive effects on satisfaction, outcomes, and the meaningfulness of nurses' work.[46] Therefore, future efforts should concentrate on integrating patient engagement into the assessment of adult emergency nursing quality.

Outcome NQIs assess perspectives from both nurses and patients, including patient engagement in care. These indicators evaluate triage accuracy, adverse events, and ED patient stay duration. Patient satisfaction, a prominent outcome indicator,[13,28-31,38-40] is widely used in health care and is integrated into organizational standards with systematic monitoring.[6,47] Future exploration should examine if assessing satisfaction alone enhances emergency nursing quality. Balancing patient satisfaction with nursing professionalism means meeting patient needs while upholding professional standards, crucial in the context of patient-centered care in nursing. In non-research articles, outcome NQIs often overlook vital nursing care aspects, which reflects the structural and process NQIs' emphasis on specific, clearly defined criteria or metrics for evaluation.

The outcome NQIs overlook critical nursing issues, highlighting the necessity for greater sensitivity to nursing concerns, particularly in developing NQIs that capture nursing's nuanced impact on patient outcomes. Research articles highlighted several adverse event-related NQIs, underscoring the importance of examining both structural and process NQIs to ensure they effectively support patient safety and measure success in nursing practice.

The validation of NQIs in adult emergency nursing is limited, with only a subset of research articles employing protocols such as the Delphi method, existing quality frameworks, previous studies, and validation based on medical criteria, such as time-dependent outcomes. With limited methodological solutions available, the scope of validation remains constrained. While some studies achieved consensus on NQIs,[30,35,38] others did not. The widely used Delphi method produced validated indicators of emergency nursing quality,[29,30,34,35] yet the lack of a clear definition of emergency nursing and its characteristics may have affected indicator consistency. Further research is needed to validate already existing NQIs specifically in the emergency nursing setting.

This scoping review provides insights into the NQIs applied in adult emergency nursing, encompassing structure, process, and outcome indicators. While this scoping review identified NQIs used in adult emergency nursing, the findings are limited. Often only the name of the NQI was provided, but there was a lack of substantial details regarding the NQI definition and content. Future exploration should delve into the content of the utilized NQIs. Among identified NQIs, process indicators emerged as the most frequently used. However, the limited validation of these indicators underscores the necessity for additional research to ensure their reliability and applicability in the context of nursing quality in emergency settings. Moving forward, further validation of these existing 85 NQIs and the validation of new NQIs for adult emergency nursing are topics for further research.

NQIs assess adult emergency nursing across structures, processes, and outcomes, with process indicators being prevalent. While certain indicators like pressure injuries or falls were common

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across structure, process, and outcome categories, many other indicators were not shared across all categories. Donabedian's framework facilitates comprehensive assessment, identifying improvement areas by linking structures to processes, impacting outcomes.[7] Not all categories require an equal number of indicators; for example, nursing professionals' competence influences processes, and patient involvement enhances both structures and processes. Donabedian's approach allows for thorough examination, aiding nursing management, education, and individual practice.

Limitations

The scoping review methodology was chosen for a broad understanding,[24] with reliability ensured through systematic methods, including manual and automatic searches on 2 databases. Although we identified NQIs for assessing emergency nursing care quality, content descriptions in included articles, whether research or nonresearch, were limited. The review aimed for indicator identification and validation, and this level of precision sufficed considering the available data. To enhance nurse sensitivity identification, we defined nurse quality indicators, narrowing down identifiable NQIs. Yet, nursing sensitivity still requires further refinement.

The chosen method allowed inclusion of nonresearch articles; however, a significant portion lacked explicit mention of scientific methods derived from the task force's work. For this review's purpose of mapping indicators and assessing validation, the scoping review method sufficed. Future efforts should prioritize scientific validation to enhance reliability, ensuring identified indicators are rigorously tested and confirmed as accurate and effective measures of emergency nursing quality.

CONCLUSIONS

This scoping review aimed to identify NQIs in adult emergency nursing, examine their validation, and assess alignment with Donabedian's quality categories. Eighty-five NQIs were identified, mostly process-related, but with limited content descriptions, indicating the need for further exploration. Validation methods for NQIs in adult emergency nursing varied, with inconsistent consensus despite using methodologies like the Delphi method. Future research should focus on validation specific to emergency nursing. Considering the usability of Donabedian's categories in quality assessment is important. Exploring the relationship between structure, process, and outcome indicators is crucial for a holistic understanding of nursing care quality. Future research should prioritize validating existing NQIs and exploring new indicators for comprehensive assessment.

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