

Self-report Instruments for Assessing Emergency Nurses' Clinical Competence: A COSMIN-guided Systematic Review

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Abstract

Background

Clinical competency among emergency nurses is essential to ensure the quality of service. Various self-reporting tools have been created to measure these competencies, but the methodological quality of each tool varies. Using the COSMIN framework, this systematic review assessed the measurement characteristics of self-report tools for evaluating the clinical competency of emergency nurses in non-disaster scenarios.

Methods

In accordance with PRISMA 2020, a literature search was conducted. The A-C recommendation categories generated by the COSMIN methodology were used to evaluate the identified instruments on content validity, construct validity, reliability, and internal consistency.

Results

The Nurse Competency Scale (NCS) and Competence Scale of Actions of Nurses in Emergencies (CSANE) are well-established instruments with substantial methodological support and are recommended (category A). Instruments with moderate evidence, such as the Clinical Competency Questionnaire and the Emergency Nurse Professional Competency Instrument, fall into category B and require further validation. Instruments with limited evidence, including the Lilalva Scale, fall into category C and are not recommended for routine use.

Conclusion

This review supports the evolution of clinical competency instruments in emergency care. The practical implication is the need to use instruments with strong evidence to support clinical practice, education, and research, and to encourage the development of new instruments with more comprehensive validation. This is consistent with the competency development framework from novice to expert and the principles of rigorous health measurement.

Introduction

Emergency departments demand that nurses deliver safe, timely, high-quality care. This requirement stems from the inherent complexity of clinical situations in such settings, which often involve critically ill patients, the necessity for rapid decision-making, and frequent interruptions in care delivery⁽¹⁾. Competence in emergency nursing practice encompasses advanced technical skills, the ability to evaluate a patient's condition, prioritize treatment, establish effective communication, and make sound professional judgments⁽²⁾. Systematic assessment of these competencies is essential to ensure workforce safety, promote continuing education, and maintain service quality⁽³⁾.

The standard of care provided to patients is closely linked to nursing competence, a fundamental element of practice. Competence is not limited to regulatory compliance or licensure but also involves professional self-assessment. Given the fast-paced nature of emergency departments, self-assessment offers a practical and cost-effective approach to evaluating clinical skills⁽⁴⁾. Instruments designed to measure nursing competence have demonstrated strong reliability and validity, making them valuable for educational evaluation, professional development, and research purposes⁽⁵⁾. Conversely, tools with weak validity or reliability reduce the usefulness of findings, as they fail to provide a systematic evaluation of measurement properties⁽⁶⁾.

The Consensus-Based Standards Initiative for the Selection of Health Measurement Instruments (COSMIN) was developed to guide the selection of high-quality patient-reported outcome measures (PROMs) for both research and clinical practice. COSMIN provides a comprehensive framework that supports evidence-based recommendations on which instruments are most appropriate⁽⁷⁾. Its methodology incorporates an updated checklist for evaluating the content validity of PROMs, emphasizes the importance of qualitative approaches, and helps identify robust tools for clinical and research use. Beyond clinical competence, a broader framework of essential professional and clinical skills underpins effective emergency nursing practice⁽⁸⁾. Recent scoping reviews highlight that health services are also shaped by psychosocial factors, including stigma directed at patients with mental illness⁽⁹⁾. Evaluating emergency nurse competency instruments through the COSMIN framework aligns with wider efforts to improve standards of care and address psychosocial barriers. Accordingly, this study aims to conduct a systematic review of self-report instruments used to measure emergency nurses' clinical competence, applying the COSMIN framework to identify reliable and practical tools for professional practice, training, and research.

Methods

Design and Reporting

This systematic review aimed to identify, assess, and synthesize evidence concerning the self-report instruments utilized to evaluate the clinical competence of emergency nurses. The review adhered to the Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) guidelines for systematic reviews of measurement tools and was documented in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) statement. The review process was conducted from June 1, 2025, to February 28, 2026. The review protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO) under registration number CRD420261291023. No amendments were made to the registered protocol.

Eligibility Criteria

Studies were included if they met the following criteria: (1) involved nurses working in emergency care settings, including emergency departments, triage units, trauma units, or related acute care areas; (2) evaluated a self-report instrument intended to measure clinical competence, professional competence, or emergency nursing competence; (3) reported at least one relevant measurement property, such as content validity, structural validity, internal consistency, reliability, or construct validity; and (4) were primary methodological, validation, development, or cross-cultural adaptation studies.

Studies were excluded if they (1) focused primarily on disaster nursing, emergency preparedness, or mass-casualty competence rather than routine emergency department practice; (2) used only observer-rated, simulation-based, or performance-based measures without a self-report component; (3) did not provide psychometric or measurement property data; or (4) were review articles, editorials, conference abstracts without sufficient methodological details, dissertations, or inaccessible full-text reports. For synthesis, studies were grouped according to the instrument evaluated and the type of measurement properties reported.

Information sources

A comprehensive literature search was conducted in the following electronic databases: PubMed/MEDLINE, Scopus, Proquest and Taylor & Francis Online. In addition, the reference lists of the included studies were manually screened to identify further relevant reports, and citation tracking was performed, where appropriate. The review/search process was conducted from June 1, 2025, to February 28, 2026, and the final search was completed on that date.

Search Strategy and Study Selection

A comprehensive search was conducted in PubMed/MEDLINE, Scopus, Proquest and Taylor & Francis Online from June 2025 inception to February 2026. Disaster-related terms were excluded. Two reviewers independently screen titles, abstracts, and full texts in Rayyan, with disagreements resolved through discussion or a third reviewer.

Search strategy

The search strategy employed a combination of controlled vocabulary and free-text terms relevant to emergency nursing, clinical competence, self-report instruments, questionnaires, scales, and psychometric validation. The search terms were tailored to each database's indexing system. To ensure consistency with the review objective, terms associated with disaster preparedness, emergency preparedness, and related disaster-focused constructs were deliberately excluded from the search process. The full search strategies for all databases, including Boolean operators, filters, and limits used, are provided in supplementary appendix 1 in accordance with PRISMA 2020 guidelines.

Selection process

All identified records were exported to a reference management file and subsequently screened in Rayyan. Duplicate records were removed prior to screening. In the initial stage, three reviewers (AR, RTAR, and IGNJ) independently screened titles and abstracts against predefined eligibility criteria. Full-text reports of potentially eligible studies were retrieved and independently assessed by the same reviewers. Any disagreements during the title/abstract screening or full-text reviews were resolved through discussion. Upon completion of the first-stage review, unresolved discrepancies and final eligibility decisions were discussed with the supervisors, SA and IR, who acted as adjudicators when a consensus could not be reached. No automation tools, other than Rayyan's organizational support, were employed to make exclusion decisions.

Data collection process

Data were extracted using a standardized form developed by the review team. Before full extraction, the form was pilot-tested and refined to ensure consistency and completeness. AR, RTAR, and IGNJ independently extracted data from the included studies, and the reviewers cross-

checked the extracted information. Discrepancies in data extraction were resolved through discussion, and, where necessary, final decisions were made by SA and IR.

When the information in the published reports was incomplete or unclear, it was interpreted conservatively, based on the available text. No numerical imputation was applied to missing psychometric values.

Data items

The primary data items extracted were the reported measurement properties of each self-report instrument, including:

1. content validity,
2. structural validity,
3. internal consistency,
4. reliability, and
5. construct validity.

Additional data items included the following:

1. author and year of publication,
2. country of study,
3. study design,
4. emergency care setting,
5. sample characteristics and sample size,
6. name of the instrument,
7. number of items,
8. response format or scale,
9. conceptual domains or subscales,
10. instrument development or validation procedures, and
11. Key psychometric findings:

If more than one publication evaluated the same instrument, the findings were considered together to inform the overall appraisal.

Risk of bias assessment

The methodological quality of the included studies was evaluated using the COSMIN Risk of Bias checklist for studies on measurement properties. Each relevant measurement property was assessed according to the COSMIN methodological standards. In line with COSMIN guidance, the “worst score counts” principle was applied to determine the overall methodological quality of each measurement property within a study.

The risk of bias assessment was performed independently by AR, RTAR, and IGNJ. Any discrepancies were resolved through reviewer discussion and, if necessary, consultation with SA and IR.

Effect measures

As this review focused on the quality of measurement instruments rather than intervention effectiveness, conventional pooled-effect measures were not used. Instead, the evidence for each measurement property was summarized using COSMIN ratings as sufficient (+), insufficient (–), or indeterminate (?) based on the reported psychometric results.

Synthesis methods

A quantitative meta-analysis was not performed because the included studies were heterogeneous with respect to instrument purpose, development stage, sample characteristics, and psychometric evaluation methods. Therefore, the findings were synthesized narratively in this review.

The synthesis proceeded in several steps: first, the studies were organized by instrument. Second, the measurement properties of each instrument were evaluated using the COSMIN criteria for good measurement properties. Third, the certainty of evidence for each measurement property was graded using a modified GRADE approach recommended by COSMIN, taking into account risk of bias, inconsistency, imprecision, and indirectness. Finally, the instruments were categorized into the following recommendation groups:

1. Category A: Instruments recommended for use, with evidence of sufficient content validity and at least low-quality evidence of sufficient internal consistency.
2. Category B: Instruments with potential but requiring further validation
3. Category C: Instruments not recommended because of high-quality evidence of insufficient measurement properties.

Data analysis in this systematic review was conducted narratively in accordance with COSMIN guidance, rather than through statistical synthesis or meta-analysis. As no meta-analysis was performed, heterogeneity analysis and sensitivity analysis were not conducted. A formal assessment of reporting bias was also not undertaken, as it was not applicable to the methodological nature of the included studies. The results were summarized in structured tables presenting the study characteristics, methodological quality, measurement property ratings, certainty of the evidence, and final recommendations.

Reporting bias assessment

A formal assessment of reporting bias was not conducted because the included studies were methodological measurement instrument studies and were not suitable for meta-analytic assessment of publication bias. Nevertheless, incomplete reporting of methods and psychometric findings was taken into account during the COSMIN risk-of-bias assessment and evidence grading.

Certainty assessment

The certainty of the evidence for each instrument's measurement properties was graded using a modified GRADE approach, in accordance with COSMIN guidance. The certainty of the evidence was classified as high, moderate, low, or very low, depending on the overall confidence in the evidence. The data extraction form, extracted data, and other material used in this review are available from the corresponding author upon reasonable request.

Result

The literature search identified 1517 records from the databases and supplementary searches. After removing 256 duplicate records, 1261 records remained for title and abstract screening. Of these, 1222 records were excluded because they did not meet the eligibility criteria. A total of 39 full-text reports were assessed for eligibility. After a full-text review, 28 studies were excluded. The main reasons for exclusion were the use of non-self-report instruments ($n = 11$), a focus on disaster or emergency preparedness rather than routine emergency department competence ($n = 9$), and the absence of psychometric or measurement property data ($n = 8$). Ultimately, 11 studies were included in the qualitative analyses. The full study selection process is presented in the PRISMA 2020 flow diagram in Fig. 1.

Study characteristics

The 11 included studies evaluated a range of self-report instruments used to assess emergency nurses' clinical competence across various countries and clinical settings. Most studies were conducted in emergency departments or emergency installations, with contributions from Saudi Arabia, Iran, Brazil, and Finland. The included studies varied in design and purpose, including instrument development, psychometric validation, content validation, and cross-sectional competency assessment.

The instruments identified in this review included the Nurse Competence Scale (NCS), Competence Scale of Actions of Nurses in Emergencies (CSANE; 78 items), Emergency Core Nursing Competency Tool (ECNCT), Lilalva Scale, and several other emergency nursing competency questionnaires. Across studies, the instruments addressed multiple domains of competence, including cognitive knowledge, clinical skills, professional values, communication, critical reasoning, leadership, teamwork, and adaptability. Sample sizes ranged from small expert panels used for content validation to larger nurse samples used for psychometric testing. The detailed characteristics of the included studies and instruments are listed in Table 1.

Table 1
Characteristics of Instruments and Studies Based on Data Extraction Results

No.	Author (year)	Instrument Name	Competency Domain	Number of Items	Response Scale	Country	Setting	Sample (n)
1.	Siam et al., 2022 (10)	Self-assessment instrument for clinical competency, together with a demographic information form	Cognitive knowledge, practical skills, and professional values/attitudes	46	Likert 1–5	Saudi Arabia	Emergency Installation	87
2.	Tamadoni et al., 2020 (11)	Nurse Competence Scale (NCS)	Supportive roles, educational and coaching activities, therapeutic practices, diagnostic responsibilities, management of clinical situations, quality assurance, and professional work functions	73	Likert 0–10	Iran	ED	266
3.	Ghanbari et al., 2017 (12)	Clinical competency questionnaire subjected to Q methodology and exploratory factor analysis for validation	Domains of clinical care, professional growth, collaborative communication and teamwork, critical reasoning, and personal accountability	67 competencies (30 general + 37 specific)	Likert 1–5	Iran	Emergency Installation	710
4.	Holanda et al., 2018 (13)	Emergency Nurse Professional Competency Instrument	Domains include service delivery performance, patient-centered humanization, clinical decision-making, interpersonal collaboration, outcome orientation, proactive engagement, teamwork, and leadership capacity	81	Likert 1–5	Brazil	Emergency Installation	14

No.	Author (year)	Instrument Name	Competency Domain	Number of Items	Response Scale	Country	Setting	Sample (n)
5.	Salonen et al., 2007 (14)	Nurse Competence Scale (NCS)	Competency areas encompass supportive roles, educational and coaching responsibilities, therapeutic practices, diagnostic tasks, situational management, quality assurance, and professional work functions	73	Likert 0–10	Finlandia	Emergency/ICU	235
6.	Holanda et al., 2019a (15)	The content validity of the identification questions was established using the Matrix and Profile of Competence	Nursing competencies comprise performance effectiveness, collaborative teamwork, leadership, patient-centered humanization, clinical decision-making, interpersonal communication, results orientation, and proactive initiative	56	Likert 1–5	Brazil	Emergency Installation	25 (expert)
7.	Holanda et al., 2022 (16)	Lilalva Scale	Clinical competency within the emergency department setting	78	Likert 1–5	Brazil	Emergency Installation	None (methodological studies on instrument development)
8.	Ferreira et al., 2023 (17)	Competence Scale of Actions of Nurses in Emergencies (CSANE)	Domains include professional practice, collaborative working relationships, adaptability to change, constructive behavioral approaches, engagement with positive challenges, and purposeful action	78	Likert 1–5	Brazil	Emergency Installation	39 (quantitative) + 17 (qualitative)
9.	Jesus & Balsanelli, 2023 (18)	Competence Scale of Actions of Nurses in Emergencies (CSANE)	Professional practice, collaborative relationships, adaptability, constructive conduct, positive challenge engagement, and purposeful action	78	Likert 1–5	Brazil	Emergency Installation	99 (91 nurses + 8 supervisors/residents)
10	AlRashedi et al.,	Emergency Core Nursing	Essential competencies	72	Likert 1–5	Saudi Arabia	Emergency Installation	213

No.	Author (year)	Instrument Name	Competency Domain	Number of Items	Response Scale	Country	Setting	Sample (n)
	2022(19)	Competency Tool (ECNCT)	required in emergency department practice					
11.	Holanda et al., 2019b (20)	Competence Scale of Actions of Nurses in Emergencies (CSANE)	Competency framework covering professional practice, effective communication, critical reasoning, technical proficiency, accountability, pursuit of professional excellence, and adaptability	78	Likert 1–5	Brazil	Emergency Installation	188 (147 nursing assistants + 41 managers)

Table 1. This review includes mostly studies conducted in emergency departments that focused on developing and testing assessment instruments for nursing competency. The competency aspects examined included knowledge, clinical skills, decision-making, communication, leadership, and interprofessional collaboration. Only one study emphasized the cross-cultural adaptation process, highlighting the limitations of geographical variation and emphasizing the importance of broader validation efforts for emergency nurse competency instruments across different healthcare systems.

Methodological quality of included studies

The methodological quality of the included studies, assessed using the COSMIN Risk of Bias framework, ranged from low to high risk of bias. Most studies demonstrated adequate to very good content validity, often supported by expert panel reviews, structured development procedures or cross-cultural adaptation processes. Structural validity was generally reported as adequate, and some studies showed a strong factorial structure through exploratory factor analyses.

Internal consistency was the most frequently reported measurement property and was generally rated as adequate to very good, with most studies reporting Cronbach's alpha values above the acceptable threshold. In contrast, reliability has been infrequently evaluated, and only a limited number of instruments have reported test–retest results. Construct validity was generally judged adequate, although in several studies the available evidence was incomplete or only moderately convincing.

Overall, well-established instruments such as the Nurse Competence Scale (NCS) and CSANE tended to show more robust methodological support and a lower overall risk of bias. In contrast, instruments at earlier stages of development, such as the Lilalva Scale, had less robust psychometric evidence and less favorable overall evaluations. The detailed methodological quality ratings are presented in Table 2.

Table 2

Methodological quality assessment of self-assessment instruments for the clinical competence of emergency nurses based on COSMIN

Instrument Name	Content Validity	Structural Validity	Internal Consistency	Reliability	Construct Validity	Overall RoB
Self-assessment instrument for clinical competency, together with a demographic information form Siam et al., 2022 (10)	Adequate	Not reported	Adequate	Not reported	Doubtful	Moderate
Nurse Competence Scale (NCS) Tamadoni et al., 2020 (11)	Very good	Adequate	Very good	Not reported	Adequate	Low
Clinical competency questionnaire subjected to Q methodology and exploratory factor analysis for validation Ghanbari et al., 2017 (12)	Adequate	Very good	Very good	Not reported	Adequate	Low
Emergency Nurse Professional Competency Instrument Holanda et al., 2018 (13)	Adequate	Adequate	Very good	Not reported	Adequate	Moderate
Nurse Competence Scale (NCS) Salonen et al., 2007 (14)	Very good	Adequate	Very good	Adequate	Adequate	Low
The content validity of the identification questions was established using the Matrix and Profile of Competence Holanda et al., 2019a (15)	Adequate	Not reported	Adequate	Not reported	Doubtful	Moderate
Lilalva Scale Holanda et al., 2022 (16)	Adequate	Adequate	Adequate	Not yet	Not yet	High
Competence Scale of Actions of Nurses in Emergencies (CSANE) Ferreira et al., 2023 (17)	Very good	Adequate	Very good	Not reported	Adequate	Low
Competence Scale of Actions of Nurses in Emergencies (CSANE) Jesus & Balsanelli, 2023 (18)	Adequate	Adequate	Very good	Not reported	Adequate	Low
Emergency Core Nursing Competency Tool (ECNCT) AlRashedi et al., 2022 (19)	Adequate	Adequate	Very good	Not reported	Adequate	Moderate
Competence Scale of Actions of Nurses in Emergencies (CSANE) Holanda et al., 2019b (20)	Adequate	Very good	Very good	Not reported	Adequate	Low

Table 2 presents the methodological quality assessment of self-assessment instruments for emergency nurses' clinical competence using the COSMIN Risk of Bias framework. Most instruments showed adequate to excellent content validity, mainly through the involvement of expert panels or cross-cultural adaptation processes. Structural validity was generally reported as adequate, with some instruments showing strong factor structures through exploratory factor analysis. Almost all instruments demonstrated excellent internal consistency, with Cronbach's alphas above 0.80. In contrast, reliability was rarely tested; only one study reported a test-retest test. Construct validity is generally considered adequate, although some instruments provide only limited evidence. Overall, the level of risk of bias varies: some well-established instruments, such as the Nurse Competence Scale (NCS) and CSANE, are assessed as having low risk, some instruments with limited reporting are in the moderate category, while instruments that are still in initial stages of development, such as the Lilalva Scale, show high risk.

Measurement properties of included instruments

Evaluation of measurement properties using COSMIN criteria showed that most instruments had sufficient content validity and internal consistency. Structural validity was also sufficient for several instruments, particularly those that underwent factor analysis testing. However, uncertainty remained for some tools because their structural validity or construct validity was not fully reported or was only partially explored.

The Nurse Competence Scale (NCS) has demonstrated consistently favorable results across studies, including sufficient content validity, structural validity, internal consistency, and reliability in one study. The Competence Scale of Actions of Nurses in Emergencies (CSANE), comprising 78 items, has also demonstrated strong psychometric performance across multiple studies, with sufficient ratings for content, structural, internal consistency, and construct validity. Other instruments, such as the Clinical Competency Questionnaire and the Emergency Nurse Professional Competency Instrument, have shown promising results but still lack complete psychometric evidence, particularly regarding reliability. Some instruments, including the self-assessment tool reported by Siam et al. and the content validity study based on the competence matrix, showed limited or uncertain evidence for certain measurement properties. The Lilalva Scale remains in the early stages of methodological development, with insufficient evidence for several key properties. The findings are presented in Table 3.

Table 3

Assessment of Measurement Properties of Self-report Tools for Evaluating Emergency Nurses' Clinical Competence (COSMIN Standards)

Instrument Name	Content Validity	Structural Validity	Internal Consistency	Reliability	Construct Validity
Self-assessment instrument for clinical competency, together with a demographic information form Siam et al., 2022 (10)	+	?	+	?	-
Nurse Competence Scale (NCS) Tamadoni et al., 2020 (11)	+	+	+	?	+
Clinical competency questionnaire subjected to Q methodology and exploratory factor analysis for validation Ghanbari et al., 2017 (12)	+	+	+	?	+
Emergency Nurse Professional Competency Instrument Holanda et al., 2018 (13)	+	+	+	?	+
Nurse Competence Scale (NCS) Salonen et al., 2007 (14)	+	+	+	+	+
The content validity of the identification questions was established using the Matrix and Profile of Competence Holanda et al., 2019a (15)	+	?	+	?	-
Lilalva Scale Holanda et al., 2022 (16)	+	+	+	?	?
Competence Scale of Actions of Nurses in Emergencies (CSANE) Ferreira et al., 2023 (17)	+	+	+	?	+
Competence Scale of Actions of Nurses in Emergencies (CSANE) Jesus & Balsanelli, 2023 (18)	+	+	+	?	+
Emergency Core Nursing Competency Tool (ECNCT) AlRashedi et al., 2022 (19)	+	+	+	?	+
Competence Scale of Actions of Nurses in Emergencies (CSANE) Holanda et al., 2019b (20)	+	+	+	?	+

*The assessment of measurement properties follows Cosmin's criteria for good instruments. The category (+) means sufficient, (-) means insufficient, and (?) means uncertain. ED = emergency department.

Table 3 presents the results of the evaluation of the measurement properties of self-assessment instruments for the clinical competence of emergency nurses, based on the COSMIN criteria. Most instruments showed adequate to excellent content validity, particularly through the involvement of expert panels and cross-cultural adaptation processes. Structural validity was generally reported to be adequate, with some instruments showing a strong factor structure through exploratory factor analysis. Excellent internal consistency was reported by almost all instruments, as indicated by Cronbach's alpha values above 0.80. In contrast, reliability was rarely tested; only one study reported a test-retest test. Construct validity was mostly categorized as adequate, although some instruments presented only limited evidence. Overall, the evaluation

results indicate that most instruments fall into the low to moderate risk of bias category; one instrument is still in the initial stages of development, and it is considered to be at a high risk of bias.

Certainty of evidence

Using the modified COSMIN-GRADE approach, the certainty of the evidence for the included instruments ranged from very low to high. Instruments with repeated psychometric evaluations and more complete reporting, such as the NCS and CSANE, demonstrated moderate to high certainty of evidence. The Clinical Competency Questionnaire also showed relatively strong evidence, particularly for its structural validity and internal consistency. In contrast, instruments with limited validation data or incomplete reporting were assigned a low or very low certainty of evidence.

The Lilalva Scale had the lowest certainty because of its preliminary methodological stage and limited evidence of key measurement properties. Instruments such as the Emergency Nurse Professional Competency Instrument and the ECNCT were judged to have moderate certainty, reflecting promising but incomplete psychometric support. The detailed evidence grading is presented in Table 4.

Table 4
Grading of Evidence Certainty for Self-assessment Tools Evaluating Emergency Nurses' Clinical Competence (Adapted COSMIN GRADE Criteria)

Instrument Name	Certainty of Evidence
Self-assessment instrument for clinical competency, together with a demographic information form Siam et al., 2022 (10)	Low
Nurse Competence Scale (NCS) Tamadoni et al., 2020 (11)	Moderate-High
Clinical competency questionnaire subjected to Q methodology and exploratory factor analysis for validation Ghanbari et al., 2017 (12)	High
Emergency Nurse Professional Competency Instrument Holanda et al., 2018 (13)	Moderate
Nurse Competence Scale (NCS) Salonen et al., 2007 (14)	High
The content validity of the identification questions was established using the Matrix and Profile of Competence Holanda et al., 2019a (15)	Low Moderate
Lilalva Scale Holanda et al., 2022 (16)	Very Low
Competence Scale of Actions of Nurses in Emergencies (CSANE) Ferreira et al., 2023 (17)	High
Competence Scale of Actions of Nurses in Emergencies (CSANE) Jesus & Balsanelli, 2023 (18)	Moderate-High
Emergency Core Nursing Competency Tool (ECNCT) AlRashedi et al., 2022 (19)	Moderate
Competence Scale of Actions of Nurses in Emergencies (CSANE) Holanda et al., 2019b (20)	High

Table 4 presents the degree of certainty of the evidence levels for self-assessment instruments that measure the clinical competency of emergency nurses, according to the modified GRADE-COSMIN approach. Long-used instruments, such as the Nurse Competence Scale (NCS) and CSANE, also demonstrate high certainty of evidence, given consistent findings in content validity, structure, and internal consistency. Several other instruments, including the Emergency Nurse Professional Competency Instrument and ECNCT, are categorized as having moderate certainty of evidence, mainly due to limitations in reporting on reliability aspects. New instruments, such as the Lilalva Scale, are still in the very low category, given that the available methodological evidence remains limited and does not yet include comprehensive reliability and construct validity tests. Overall, these results show that most instruments have fairly strong certainty of evidence, although there is variation among measurement tools, with established instruments outperforming those still in development.

COSMIN recommendation categories

Based on the overall COSMIN assessment, the included instruments were grouped into recommendations. The Nurse Competence Scale (NCS) and Competence Scale of Actions of Nurses in Emergencies (CSANE) emerged as the most strongly supported instruments and were considered Category A instruments, meaning they are recommended for use in emergency nursing practice, education, and research.

Several other instruments, including the Clinical Competency Questionnaire, Emergency Nurse Professional Competency Instrument, and Emergency Core Nursing Competency Tool, were placed in Category B, indicating that they are potentially useful but require further validation, especially for underreported measurement properties such as reliability and cross-context consistency. Instruments with limited psychometric support, particularly those still in early development, such as the Lilalva Scale, fall into Category C or remain not recommended for routine use until further validation is undertaken. This categorization supports a more evidence-based selection of competence assessment tools in emergency nursing contexts.

Table 5

Recommendations for Self-Assessment Instruments for the Clinical Competence of Emergency Nurses Based on the COSMIN Categories

Instrument Name	Category	Recommendation
Self-assessment instrument for clinical competency, together with a demographic information form Siam et al., 2022 (10)	C	Not recommended, limited evidence
Nurse Competence Scale (NCS) Tamadoni et al., 2020 (11)	A	Recommended, with cross-cultural adaptation
Clinical competency questionnaire subjected to Q methodology and exploratory factor analysis for validation Ghanbari et al., 2017 (12)	B	Can be used, but requires additional research
Emergency Nurse Professional Competency Instrument Holanda et al., 2018 (13)	B	Can be used with caution, moderate evidence
Nurse Competence Scale (NCS) Salonen et al., 2007 (14)	A	Recommended
The content validity of the identification questions was established using the Matrix and Profile of Competence Holanda et al., 2019a (15)	C	Not recommended, construct validity questionable
Lilalva Scale Holanda et al., 2022 (16)	C	Not recommended, still in early stages of development
Competence Scale of Actions of Nurses in Emergencies (CSANE) Ferreira et al., 2023 (17)	A	Recommended, high quality of evidence
Competence Scale of Actions of Nurses in Emergencies (CSANE) Jesus & Balsanelli, 2023 (18)	A	Recommended, excellent internal consistency
Emergency Core Nursing Competency Tool (ECNCT) AlRashedi et al., 2022 (19)	B	Can be used, further confirmation needed
Competence Scale of Actions of Nurses in Emergencies (CSANE) Holanda et al., 2019b (20)	A	Recommended as a valid and reliable instrument
*		

Based on the COSMIN guidelines, instruments are placed in Category A if they are recommended, while Category B includes potential instruments that require additional research to strengthen the evidence of their validity.

Recommendations for self-assessment instruments for emergency nurses' clinical competency in each COSMIN category are provided in Table 5. Established instruments, such as NCS and CSANE, are designated as A and endorsed as they have strong methodological evidence. Instruments with moderate evidence, including the Clinical Competency Questionnaire, Emergency Nurse Professional Competency Instrument, and ECNCT,

are classified in category B and can be used with caution. Meanwhile, instruments with limited evidence, such as the Clinical Competency Self-Assessment Questionnaire, Identifying Issues Instrument, and Lilalva Scale, are in category C and are not recommended for routine use.

Discussion

This COSMIN-based systematic review evaluates self-report instruments to evaluate the clinical competency of emergency nurses in non-disaster situations. This result demonstrates progress in the development of measurement tools, but they also reveal key shortcomings that still hinder confidence in instrument choice and implementation in education, research, and emergency nursing practice. Based on the eligibility criteria, 11 studies using self-report instruments were included.

Interpretation of the Evidence Base

We have shown that self-assessment tools for emergency nurses' clinical competence vary in evidence quality in this review. Conventional, well-established indices, such as the Nurse Competence Scale (NCS) and CSANE, have high methodological consistency and represent the most reliable instruments for measurement purposes. This is consistent with the principle of transparency in systematic reviews as outlined in PRISMA 2020 guidelines⁽²¹⁾.

Measurement Properties of Emergency Nursing Competence Instruments

Content validity was adequate in most instruments, supported by expert panels or cross-cultural adaptation processes. Internal consistency is usually substantial: Cronbach's alpha > 0.80. But it is rarely tested for reliability; only a few instruments report test-retest tests. In terms of construct validity, it is generally considered moderate. This conclusion underscores the need for rigorous measurement principles in the healthcare industry⁽⁶⁾.

Comparison of Instruments and COSMIN-Based Recommendations

The NCS and CSANE fall into category A based on the COSMIN methodology, making them suitable for general use. Instruments with moderate evidence, such as The Clinical Competence Questionnaire, The Emergency Nurse Professional Competence Instruments, and The ECNCT, are classified into category B and should be used with caution. Instruments with weak evidence, such as The Clinical Competence Self-Assessment Questionnaire, The Problem Identification Instrument, and The Lilalva Scale, fall into category C and should be excluded⁽⁷⁾. These results align with previous research supporting the convergent validity of competency tools.

Implications for Emergency Nursing Practice and Education

Instruments with a high level of evidence-based certainty can contribute to the professional development of emergency nurses, both in identifying competency levels and as a basis for planning continuing education. This aligns with the conceptual framework for competency development from novice to expert, which emphasizes the importance of a valid measurement tool for charting clinical development instruments⁽²⁾. Furthermore, the use of well-known measurement tools such as the NCS, a well-established and psychometrically validated tool, can foster confidence in assessing competency⁽⁵⁾.

Implications for Future Research

Additional studies are needed on the reliability and construct validity of category B and C instruments. Longitudinal studies and cross-cultural tests are required to strengthen methodological evidence. In addition, future research must test the convergent validity between instruments to ensure consistency in clinical competency measurement⁽⁴⁾.

Strengths and Limitations

Strengths of the review include the use of a rigorous COSMIN methodology and reporting in accordance with the PRISMA 2020 guidelines in order to ensure transparency in the instrument selection and evaluation process^(21, 7). Established instruments like the NCS serve as important references in clinical competence assessment⁽⁵⁾. A major limitation, however, is that the quality of reporting in the primary studies varies, so that some measurement properties cannot be assessed comprehensively. Also, the reliability of most instruments has not been tested, so the results of this paper should be seen with caution.

Conclusion

Adopting the COSMIN methodology, this systematic review has evaluated self-report instruments for assessing the clinical competency of emergency nurses in non-disaster contexts. Evidence from the review indicates that well-established instruments, including the Nurse Competence Scale (NCS) and CSANE, possess robust methodological bases that warrant their continued use in practice and research^(5, 7). Moderate evidence is also provided by such instruments as the Clinical Competency Questionnaire, Emergency Nurse Professional Competency

Instrument, and ECNCT, but they should be validated for increased validity and reliability⁽⁴⁾. Instruments with limited evidence (e.g., Clinical Competency Self-Assessment Questionnaire, Identifying Issues Instrument, Lilalva Scale) are also not yet appropriate for general use.

On the whole, these findings confirm progress in developing clinical competency measurement tools for emergency nurses, while also providing insight into important gaps that may hinder confident selection of instruments. The practical implication is the need to use evidence-based tools to support clinical practice, education, and research, and to encourage the development of new instruments with more comprehensive validation. The model of competency development from novice to expert, and the principle of transparency in reporting for systematic reviews, is confirmed in PRISMA 2020^(2,7).

Declarations

Ethics approval and consent to participate: Not Applicable

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Credit Authorship Contribution Statement

AM contributed to the study's concepts, design, and intellectual content. She is involved in manuscript preparation, editing, and review. She also served as a guarantor for the study. **SA** design and definition of intellectual content. He was involved in manuscript preparation, editing, and review, and served as a guarantor for the study. **RTAR** conducted a literature search. She was involved in formal analysis, writing, and editing. **IGNJ** conducted a literature search. **He conducts formal analysis, writing, and editing.** **IR** contributed to the study's concepts, design, and intellectual content. He was involved in manuscript preparation, editing, and review. He also served as a guarantor for the study.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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Figures

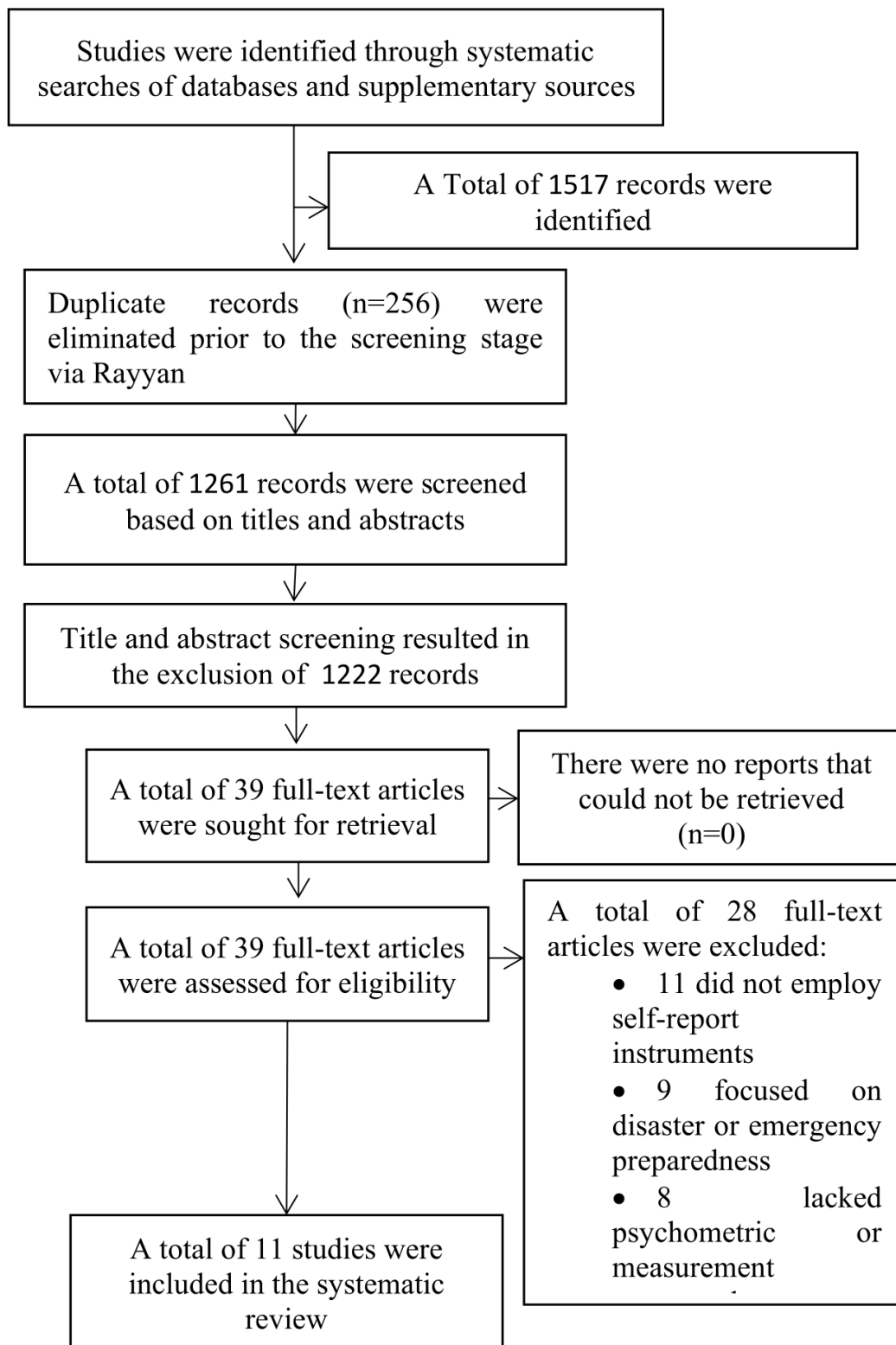


Figure 1

PRISMA 2020 Flow Diagram

Supplementary Files

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- [APPENDIX1.docx](#)