

Nursing Services in the ICU Room: A Scoping Review

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Abstract

The purpose of this study was to identify nursing services in the ICU. This research method uses a Scoping Review design, using four databases namely PubMed, ScienceDirect, Wiley Online Library, and Eric using keywords based on the PCC method (Population, Concept, Context). The results of the scoping review are all articles explaining that the implementation of nursing services in the ICU room, namely the importance of nursing education, experienced nurses, increasing nursing resources, the importance of monitoring vital signs of critical patients in the ICU room, and communicating well to patients and families in the ICU room to improve the quality of nursing services in the ICU room are the implications of our findings. Conclusion: Our review is the first to explore ICU nursing care in a world country setting. Our findings show that the research sample is nurses working in the ICU rooms of hospitals around the world. Further research is recommended to enhance and facilitate monitoring to further improve patient safety.

Keywords: Nurses, Nursing Services, Intensive Care Unit.

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Introduction

Nursing services have a very strategic function in determining the quality of service. Because the largest number of nurses are from other professions, have the longest contact with clients, are closest to the suffering, pain experienced by patients and their families (Mawikere et al., 2021). To ensure a patient's safety, hospitals are increasingly surveying staff about perceived working conditions and safety culture. At the same time, data routines are used to manage resources and performance (Sturm et al., 2019). Therefore, a patient's satisfaction is increasingly being used as a measure of quality and performance for healthcare organizations. Patient perceptions of engagement and information are critical to patient satisfaction (Kullberg et al., 2017). Therefore, nurses must improve the quality of nursing services to achieve patient satisfaction.

The service for patients in the ICU is different from patients in regular wards, because ICU patients have a very high degree of dependence on nurses. In the ICU room, critical patients lose consciousness or are paralyzed, and everything that happens to the patient can only be known through good and regular monitoring, because every change that occurs must be carefully analyzed to get fast and appropriate action. (Saragih, 2019). A result of study conducted by Pardede (2020) the mortality rate in the ICU is 25.6% and the mortality rate tends to be higher at the age of less than 10 years and over 50 years of age. Therefore, nursing services in the ICU room need to be improved appropriately and with quality.

The high demands of the community to get quality services, the quality indicators of ICU nursing must be increased through nursing services. Patients need play a major role in making

informed decisions about safe nursing care and staffing requirements (Caron et al., 2021). The ICU is a specialized room and functions as an emergency room, intensive care unit, and pre- and post-operative room, which is devoted to serving patients with life-threatening illnesses, injuries, complications, as well as monitoring potentially life-threatening conditions. (Hybinette et al., 2021). However, there is no integrated ICU nursing quality standard in China, the quality of ICU nursing is not going well, which greatly affects the quality of the hospital (Zhang & Zhu, 2021). Therefore, it is necessary to improve the quality of nursing services in the ICU room. Based on this, we will identify scoping review studies by synthesizing relevant articles with the aim of mapping nursing services in the ICU room.

Methods

The review was carried out using the Scoping Review guidelines (Irwan et al., 2022). The literature review was obtained by searching the results of scientific publications in the period 2017-2022 (the last 5 years), using searches of four databases namely PubMed, ScienceDirect, Wiley Online Library, and Eric using keywords based on the PCC (Population, Concept, Context) method. A total of 535 articles were identified in the four databases used. Article exclusion results based on 2017-2022 (n=535), not research results and not in accordance with research questions (n = 518), eligible articles (n=17), according to research questions (n = 10).

Stage 1: Research Questions

The research question posed by this Scoping Review is: How is the implementation of nursing services in the ICU room?

Stage 2: Relevant studies and search terms

This review explores the state of practice of nursing services in the ICU performed by nurses based on evidence from the existing scientific literature. Special emphasis is focused on the application of nursing service practices in the ICU room.

We use the four databases used in this Scoping Review. An initial search was conducted to retrieve titles, abstracts, and content to identify terms and keywords including alternatives across languages and cultures.

Table 1. Keywords for Database

NO	Data Base	Key words	Articles	Date Accessed
1.	Pubmed	((Nurse*) AND (Service quality)) AND (Intensive Care Unit)	127	7 October 2022
2.	ScienceDirect	((Nurse) AND (Service quality)) AND (Intensive Care Unit)	105	20 October 2022
3.	Wiley	((Nurse*) AND (Service quality)) AND (Intensive Care Unit)	298	24 October 2022
4.	ERIC	Nurse Service Quality Intensive Care Unit	5	15 November 2022

The inclusion and exclusion criteria for the scoping review were based on the Population, Concept, Context (PCC) model.

Table 2. Article eligibility criteria

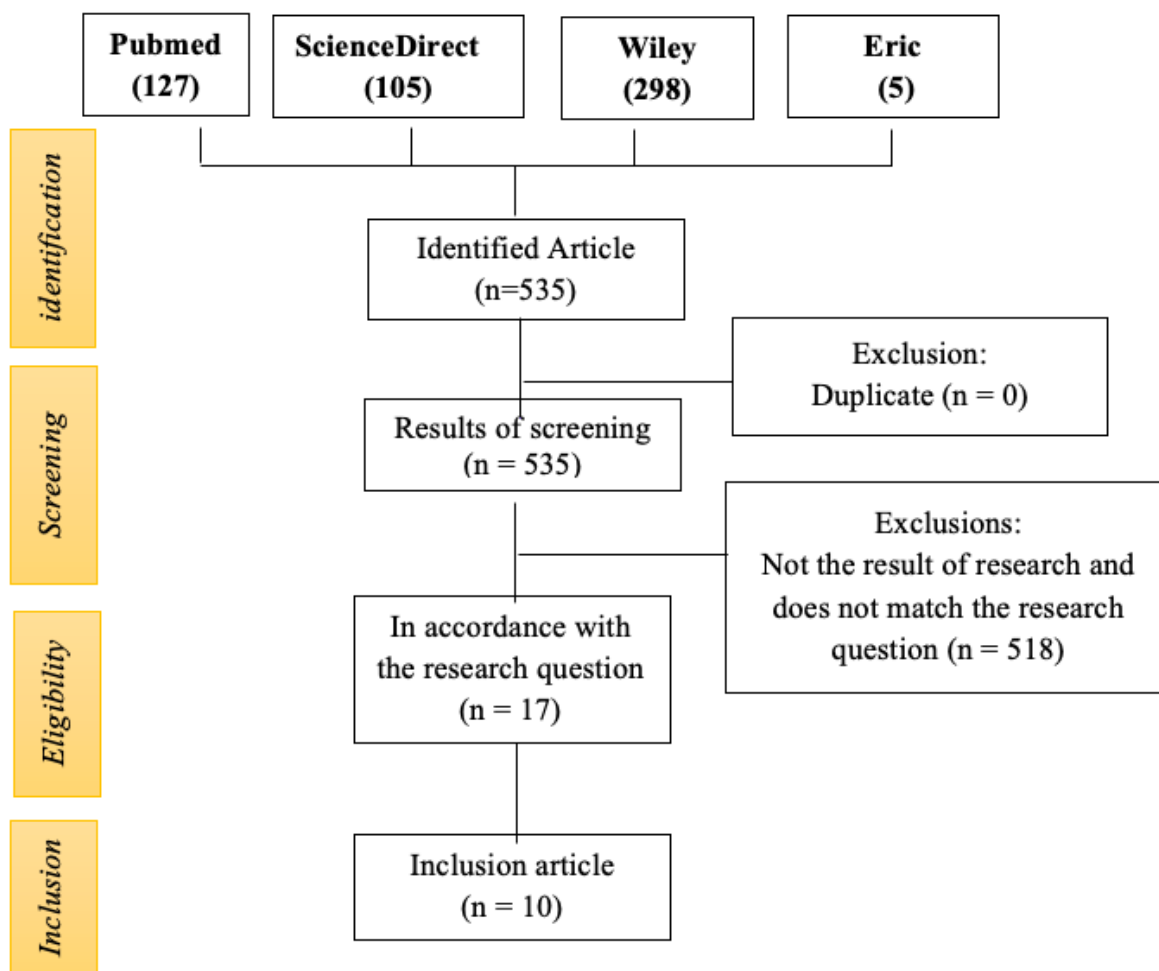
Criteria	Statement
Population	Study focused on Nurses
Concept	Nursing service method
Contact	Performed in the Intensive Care Unit (ICU)

Both qualitative and quantitative primary data studies. Reviews, interventions, study protocol papers, and non-ICU nurse population were not included. The search was limited to full-text articles published in English and other languages from 2017 to 2022. The last five years were chosen as the search time to see the development of nursing services in the ICU.

Stage 3: Study selection

Extraction from Database

Figure 1 illustrates the process, screening results, and manuscript extraction criteria after the initial search was completed based on the study inclusion and exclusion criteria. As a summary, from 4 databases, 535 relevant abstracts were collected. Furthermore, not research results and not in accordance with research questions (n = 518) for further screening. Of these, 17 articles match the research questions, and are categorized as directly related to the research questions resulting from the inclusion of 10 articles.



Followed by reading the full article and studying the abstracts. The third stage of the search was also carried out by filtering the list of references from the selected articles by reading the full text. Articles were then issued that were not relevant to ICU nursing services, not nursing services, not in the ICU room, or were interventions, research protocols. This selection process resulted in the final inclusion of 10 main research studies in the analysis.

Reliability of Extraction Studies

All abstracts identified from the article search were downloaded to the Mendeley software reference manager. To ensure reliability among reviewers, articles were screened using exclusion and inclusion criteria for sampling titles, abstracts, and full text.

Stage 4: Data

Data was extracted to include important information, including study location, study design, objectives, sample, and main findings.

Stage 5: Thematic summary and key findings

Study Characteristics

Of the 10 included studies, three were conducted in Australia (Ros et al., 2021) (Riegel et al., 2021) (Tobiano et al., 2019), one in China (Qin et al., 2017), one in Belgium (Endacott et al., 2022), one in Sweden (Romare et al., 2022), one in the USA (Chapman et al., 2021), one in Egypt (Eltaybani et al., 2020), one in Korea (Yoo & Shim, 2020) and one in Saudi Arabia (Alhalal et al., 2020). The research design also varies, two are Mixed methods studies (Ros et al., 2021) (Yoo & Shim, 2020), two are descriptive statistics (Romare et al., 2022) (Tobiano et al., 2019), two are cross sectional (Riegel et al., 2021) (Alhalal et al., 2020), one is a descriptive case study (Qin et al., 2017), one is Delphi (Endacott et al., 2022), a single-center pre- and post-intervention design (Chapman et al., 2021) and one is qualitative (Eltaybani et al., 2020).

The findings of the Mixed methods study are presented in the table. Sample size of mixed methods studies (Ros et al., 2021) (Yoo & Shim, 2020) ranged from 8 to 45 participants. A study with the most research sites using 30 countries was conducted by (Endacott et al., 2022). And the research that used the largest sample of 255 participants was conducted in Saudi Arabia (Alhalal et al., 2020). For the study setting, all 10 studies were found to be carried out in the ICU rooms of hospitals in various countries around the world. Overall, the 10 studies were conducted by all nurses working in ICU hospitals in various countries. One study found that a sample of data from 2014 to 2020 was analyzed for a total of 3617 intensive care episodes and 29,165 work shifts. (Romare et al., 2022).

In a Mixed methods study (Yoo & Shim, 2020) the results of the study found the number of monthly electives canceled due to unavailability of ICU beds, staff perceptions of intervention, sustainable contributing factors (Ros et al., 2021) and most nurses find the importance of nursing through an honest relationship with the ICU patient's family (Yoo & Shim, 2020). The results of the research are descriptive statistical studies, namely monitoring documentation is reported to result in a prominent care burden during intensive care. Nearly all patients have continuous monitoring (Romare et al., 2022) and empirical clinical problems in which nurses decide on nursing care actions to address problems (Tobiano et al., 2019). The results of the cross-sectional study were that registered nurses reported lower scores related to knowing what to say to families in end-of-life care scenarios (Riegel et al., 2021) and together explain the significant difference (27.5%) in the provision of patient-centered care by nurses (Alhalal et al., 2020). The results of the descriptive case study research are the improvement of ward nursing performance as measured by ward management, routine nursing practice, disinfection

and isolation, infection rate and death rate (Qin et al., 2017). The results of the Delphi study research were participants producing 275 statements in 4 domains (knowledge skills and clinical performance, clinical leadership, teaching and supervision, personal effectiveness, safety management and systems). These are all preserved in the final set of competency statements (Endacott et al., 2022). The results of the single-center study of pre- and post-intervention design i.e., pre- and post-intervention measurements showed a benefit considering eight of the thirteen bundle items ($p < 0.0001$). And the results of qualitative study research are improvement and better organization of resources, modification of policies, education and training, minimization of similarities, use of technology and changes in the work environment (Eltaybani et al., 2020).

Table 2. Grid Synthesis

Author, Year	Objective	Method and Sample	Results	Conclusion
Ros et al., (2021) Australia	To see if the change is sustainable and to understand the contributing factors .	Mixed methods study(n : 12)	Lack of knowledge about the intervention and competitive interest in managing patient flow are believed to be barriers to the sustained effect of the original intervention.	Management commitment to support communication within and between microsystems, and to support healthcare staff understanding.
Qin et al., (2017) Beijing, Cina.	To fill this knowledge gap by researching the development and implementation of ICIS in Chinese hospitals, the use of the system by nurses, and the impact of using the system on critical nursing processes and outcomes.	Descriptive case study(n: 27)	Improved ward nursing performance as measured by ward management, routine nursing practice, disinfection and isolation, infection rate and death rate.	Collaboratively research and develop intelligent, user-centric ICU environments.
Riegel et al., (2021) Australia	To evaluate the value and experience of facilitating end-of-life care among intensive care professionals (registered nurses, medical practitioners, and social workers) to determine perceived educational and support needs.	Cross Sectional (n: 96)	Registered nurses reported lower scores related to knowing what to say to families in end-of-life care scenarios ($p = 0.01$).	Professionals report similar values of palliative care and the inclusion of patient and family preferences in care planning.
Endacott et al., (2022) Belgium, Europe.	To identify and define core competencies for advanced nursing roles in adult intensive care units across Europe.	Delphi (n: 200)	There were 3 rounds in this study all maintained in the last set of competency statements.	Modified the wording as a competency statement and refined at a consensus meeting which resulted in 230 statements in 30 sub-domains.
Romare et al., (2022) Sweden	To describe the care burden associated with monitoring the vital signs of intensive care	Descriptive statistics	Comparison of care burden related to “monitoring documentation”	Monitoring of patient vital signs is clearly visible during intensive care, thus having an

	unit patients in Swedish hospitals.		among age group, diagnosis group, and time of day resulted in statistically significant differences.	impact on the clinical practice of intensive care nurses.
Chapman et al.,(2021) United States of America	Intensive care improves practice consistency with respect to general considerations such as delirium prevention, device use, and indicated prophylaxis, among others.	Data from 2014 to 2020 were analyzed for a total of 3617 intensive care episodes and 29,165 work shifts.	Measurements before and after the intervention showed gain considering eight of the thirteen bundle items ($p < 0.0001$).	Implementation of collaborative patient care rounds with appropriate increases in consideration of selected practice items, verbalization of daily goals, and perceptions of collaboration
Tobiano et al., (2019) Australia	Evaluating the implementation of regular nursing rounds as an educational strategy for workplace learning in the intensive care unit.	Descriptive statistics (n:40)	The nurse decides on nursing care measures to address this problem	Nursing enables evidence-based learning that enhances interdisciplinary collaboration.
Eltaybani et al., (2020). Egypt	To obtain intensive care unit (ICU) nurse recommendations to prevent nursing errors.	Qualitative (n:112)	Improvement and better organization of resources, modification of policies, education and training, minimization of similarities, use of technology and changes in the work environment.	Nurse recommendations reflect the context of poor resources in developing countries.
Yoo & Shim, (2020) Korea	To identify nurse experiences and changes in person- and family-centered care (PFCC) after implementing a program of family visits in the intensive care unit (ICU).	Mixed methods (n:45)	Most nurses “find the importance of nursing through honest relationships with ICU patient families.”	Changes in perceptions of nurses and hospital organizations are needed, such as improving the ICU work environment, assigning appropriate health workers to provide care.
Alhalal et al., (2020) Arab Saudi	To assess predictors of patient-centered care provision among nurses working in acute care settings.	Cross-sectional (n:255)	Significant difference (27.5%) in the provision of patient-centered care by nurses.	lower burnout, higher affection satisfaction, and structural empowerment enhance the provision of patient-centered care by nurses.

Facilitating and Inhibiting Factors

In reviewing the retrieved articles, we identified factors that facilitate and hinder nursing care in the ICU. The facilitating and inhibiting factors in the 10 articles are one in the study Ros et al., (2021) facilitating factors some participants reported that pressure for elective surgery had increased over the last 5 years and there was a need to allocate more ICU resources and hierarchical inhibiting factors created a negative place culture, good and bad leaders, lack of communication and high workload. Two on research Qin et al., (2017) facilitating factors improve the quality of nursing care and inhibiting factors in only one ICU were studied. Three in the study of Riegel et al., (2021) the facilitating factors there are potential opportunities for

improving education so as to provide high-quality end-of-life care and the inhibiting factors statistical analysis in this study was limited due to the sample size of medical practitioners and social workers. Four on research Endacott et al., (2022) ICU nursing practice facilitating factors maintain, broaden the contribution of experienced bedside nurses and inhibiting factors reflect the lack of experience in advanced practice roles for nursing. Five on research conducted by Romare et al., (2022) the facilitating factors of ICU nurses adhere to the importance of monitoring the vital signs of critical ICU patients and the inhibiting factors are data from only 1 hospital thereby limiting the generalizability of the findings. Six on research conducted by Chapman et al.,(2021) audit monitoring facilitating factors are recommended for long-term implementation and inhibiting factors reaching all nursing staff for education is a challenge due to the large number of staff, this study did not have a comparison group. Seven in the study of Tobiano et al., (2019) facilitating factors focus on discussing patient conditions, treatment and monitoring and inhibiting factors have a small response rate to surveys and the observations do not capture the way nurses weigh their options before deciding on action. Eight on research conducted by Eltaybani et al., (2020) the facilitating factors required action at the unit or organizational level and the inhibiting factors for reported errors were conducted in a narrow geographic area, all interviews were conducted by a single author which affected the nature of the data and the data only reflect the perspective of the nursing staff which may differ from that of the nursing managers. Nine on research conducted by Yoo & Shim, (2020) the facilitating factors of the nurses in this study received genuine praise from patients and families because they wholeheartedly participated in visits and encouraged care activities and the inhibiting factors were only a few ICU nurses. Ten on research conducted by Alhalal et al., (2020) factors that facilitate intensive nurses provide care to patients who cannot communicate and inhibiting factors intensive nurses have the lowest level of compassion satisfaction which can affect their perception of emotional giving.

The main objective of this review is to examine and map the state of ICU nursing services in world countries. The evidence presented shows a decrease in canceled elective surgeries in the first year after intervention, an increase in cancellations in subsequent years. ($\chi^2=16.38$, $p=0.003$). Nursing documentation is fully digitized and significantly improved in quality and efficiency. Registered nurses reported lower scores related to knowing what to say to families in end-of-life care scenarios ($p = 0.01$). Barriers to nurse's rounds, including difficulty attending nurse's rounds due to competing priorities. Six recommendation themes were identified, improvement and better organization of resources, modification of policies, education and training, minimization of similarities, use of technology and changes in work environment. Most nurses find the importance of nursing through an honest relationship with the ICU patient's family. Based on this, the importance of nursing education, experienced nurses, increasing nursing resources, the importance of monitoring vital signs of critical patients in the ICU room, and good communication with patients and families in the ICU room to improve the quality of nursing services in the ICU room are implications of our findings.

We report the various facilitators and inhibitors described across research that influence the management of nursing care. As this is a secondary finding of our review, further research is needed on the scope and complexity of factors affecting nursing care in the ICU

Conclusion

Our review is the first to explore ICU nursing care in a world country setting. Our findings show that the research sample is nurses working in the ICU rooms of hospitals around the world. Further research is recommended to enhance and facilitate monitoring to further improve patient safety.

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