



Intensivist nursing and permanent education: an integrative literature review

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ABSTRACT

OBJECTIVE

To describe the current scientific literature about permanent and continuing nursing education in intensive care units worldwide.

METHODS

This is an integrative literature review, using the *Cumulative Index to Nursing and Allied Health Literature*, the Regional Portal of the Virtual Health Library, and the *PubMed* Portal, carrying out the data analysis based on Laurence Bardin's theory of Content.

RESULTS

In total, 26 articles were divided into four categories denominated - Permanent Education in Health Contemplating Nursing Learning Needs; Effects of Permanent Education in Health on Professional Practice and Quality of Care, Perceptions on Permanent Education and its Importance in Intensivist Nursing; and Strategies and Results of Permanent Health Education in Intensive Care.

CONCLUSIONS

There are few studies published specifically on nursing health education in intensive care, and many works suggest that more research and education actions should be carried out for this audience, aimed at improving evidence-based practices and quality of intensivist nursing management.

DESCRIPTORS

Critical care nursing, Continuing education, Intensive care units.

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INTRODUCTION

Commitment, proactivity, and constant scientific updating are part of the profile of contemporary nursing professionals. Seeking new knowledge becomes, in the job market, important for expanding the quality and safety of care and management in nursing. Thus, strategies of organization and education in service, which aim to transform the subjects to a different, reflective, integral, and resolute action, are necessary, and in this context, permanent education in health is born (PEH)¹.

It is highlighted that the PEH is seen as a public policy of the Brazilian health system that constitutes a means of reflective learning at and for work, through exposure and criticism of the reality experienced by subjects, uniting health care and management to teaching areas, promoting evidence-based health practices, while continuing education (CE) is education in which there are formal theoretical-practical activities for workers in a given space-time, although it is contained in the PEH universe².

Both are important for health work processes, present in multiple areas. The intensive care unit (ICU) is highlighted in this context, being an environment of critical nursing care, of continuous specialized care, with a nursing team, responsible for the promotion, protection, recovery, and reduction of health risks, constantly updated in care and management processes, for planning interventions and identification of modifiable risk factors. The PEH of intensive nursing, is the key to changing contexts that aim at the quality of health services and institutions³⁻⁵.

Given the circumstances, knowledge about current scientific publications is very important, considering that a synthesis of studies will provide a perspective of what has been discussed about PEH in critical care worldwide, based on a public policy for professional qualification, with an impact on popular health, as well as providing an insight into the demands of future research. Thus, an integrative literature review that demonstrates the current state of the scientific art is justified to promote future studies, supporting the idea of evidence-based health practices, since such a review model has great potential for building science in nursing in addition to a broader understanding of the phenomena studied⁶.

Thus, the main objective is to describe the content of the current scientific literature with respect to permanent and continuing nursing education in intensive care units worldwide.

METHODS

This is an integrative review of the literature based on the structuring of *Whittemore* and *Knafl*, which explains the difference between this review and the other existing review methods, establishing the integrative review as a method that enables greater understanding of the state of contemporary science, and allowing new perspectives for the elaboration of future research⁷. Within this context, the present study follows the steps related to the intended review model, systematically divided between: problem identification, literary search, data evaluation, data analysis, and research presentation.

The bibliographic survey, carried out between March and October 2020, took place in the *Cumulative Index to Nursing and Allied Health Literature (CINAHL)*, the Regional Portal of the Virtual Health Library (VHL), and the Portal *PubMed* developed by the *National Library of Medicine and National Center of Biotechnology Information*, using the descriptors Critical Care Nursing, Continuing Education, and Intensive Care Units, consulted in the Health Sciences Descriptors and in the *Medical Subject Headings (Decs/Mesh)*.

The discrimination of articles comprised the pre-established inclusion criteria, with scientific articles found published in full from and in the year 2015, related to the research topic

and problem, responding to the main objective of the study. Books, theses, duplicate articles, those established outside the predetermined time range, those not found in full, and those not related to the topic or research problem were excluded.

After reading the 164 articles initially found according to the pre-established criteria, only 26 articles were selected. The articles were randomly numbered, in a second reading, with the elaboration of summary records and data transcription to a table prepared by the authors, using the Microsoft Excel program, which contained a more detailed description in order to organize the data collected for further categorization of the articles.

After data evaluation, the data analysis stage was carried out, using, at this point, Laurence Bardin's content analysis method, composed of the Pre-analysis phases, which organize main ideas by systematic reading of the texts; Exploration of the material, which promotes logical construction of classification categories; and Treatment of results, inference, and interpretation⁸.

RESULTS

Of the 26 scientific articles included, four (15.39%) were found in the BVS Portal, six (23.08%) in CINAHL, and 16 (61.54%) were extracted from the PubMed Portal. These three resources contain few articles about PEH and nursing CE in the ICU, dated in recent years and available in full; of 164 articles found, 17 (10.37%) were excluded because they were duplicates.

Of the total number of studies, seven (26.92%) come from the United States of America, five (19.23%) are Brazilian, three (11.54%) from Finland, two (7.69%) are Canadian, two (7.69%) come from Jordan, and South Korea, France, Malaysia, Iran, Australia, India, and Italy have one article published from each nation (approximately 3.85% each).

Considering the years of publication, 2015, 2016, and 2018 appear with the same percentage with four articles in each year (approximately 15.38%), making a total of 12 articles for the three years, another 11 (42.31%) articles are dated in 2017, two (7.69%) in 2019, and one (3.85%) in 2020.

Of the articles included, only one refers to a literary review, covering 05 electronic databases and 12 selected studies, all the other studies were carried out in the practical context of the ICU.

With regard to the themes of PEH and CE found, eight (30.77%) of the studies address the axis of knowledge considered in this review, such as "Mechanical ventilation and relative care", another eight (30.77%) are related to the axis "Sedation, pain, analgesia, and neurological function", in the thematic axes "Issues related to PEH in the ICU, methods and perceptions" and "Specific cardiovascular care and assessments" there are three articles in each (11.54% each), in addition, the thematic axes "Kidney function and Renal Replacement Therapy procedures", "Palliative care", "Eye care", and "Care related to pressure injuries" each correspond to one publication (approximately 3.85% each).

Regarding the data analysis, four categories were determined; these are associated in Table 1 with the scientific articles, years of publication, and nationality for better delimitation of the profile found.

Table 1. Profile of the articles. São Paulo - SP, Brazil, 2020.

Category	Article	Nationality	Year
Permanent Education in Health Contemplating Nursing Learning Needs	A1	Brazil	2019
	A15	South Korea	2016
	A24	USA	2017
Effects of Permanent Education and its Importance in Intensivist Nursing	A2	Malaysia	2016
	A4	Brazil	2017
	A11	USA	2017
	A12	Jordan	2017
	A17	USA	2017
	A20	Iran	2020
	A26	USA	2015
Perceptions about Permanent Education and its Importance in Intensivist Nursing	A3	Brazil	2015
	A5	Brazil	2018
	A9	Australia	2018
	A14	India	2016
	A16	Jordan	2017
	A18	Canada	2017
	A22	Finland	2018
Strategies and Results of Permanent Health Education in Intensive Care	A6	Italy	2017
	A7	USA	2018
	A8	France	2019
	A10	Brazil	2017
	A13	Finland	2017
	A19	USA	2015
	A21	Canada	2015
	A23	Finland	2016
	A25	USA	2017

Legend: *USA - United States of America.

DISCUSSION

Taking into account Laurence Bardin's theory, which concerns the process of content analysis in qualitative research, four distinct but related categories emerge, this method of analysis by Bardin intends to analyze qualitative data in a systematically organized way through interpretation and objective analysis, it demands rigor and ethics in research when giving meaning to the discourses successively categorized with exhaustiveness and pertinence⁹.

Perceptions about permanent education and its importance in intensivist nursing

Articles point out the importance of PEH being seen by ICU nurses as a process of professional transformation and nursing care, although there are barriers to evidence-based nursing practice, associated with personal and educational issues, such as lack of knowledge, alienation of thought, years of professional experience, lack of training and motivation in service, with PEH having an important role in overcoming barriers that prevent the union between theory and practice in ICUs¹⁰.

The concept of PEH emerges as a mode of reflection-action that reorganizes existing health care models and forms an important part of the progress of health practices in intensive care, generating subsidies for the collective elaboration of in-service education programs, thinking about a PEH based on dialogue, argumentation, innovation, democracy, and autonomy of workers, building in the professional a critical awareness about work and the world; it is a philosophical perspective transformed into practice in the form of PEH¹¹.

It is also noticed that the PEH needs to be continuous to maintain long-term progress on knowledge and care practices, without regular formal reinforcement the observed improvements are not maintained, noting that nursing educators need to incorporate CE within the ICU, with reinforcements of knowledge in order to effect more sustainable changes¹².

Still regarding the importance of PEH for intensivist nursing, there are descriptions of data that reveal an increase in knowledge after educational interventions; the average knowledge grew from 53.40% to 77.20% after an action of PEH, reinforcing

the importance of regular training programs to expand nursing knowledge, especially in developing countries¹³.

Although PEH is seen as fundamental for the construction of theoretical knowledge and the development of clinical reasoning, the efficiency of CE programs for intensivist nurses is questioned in one of the articles, which reports the failure of corroborative research, stating the limited existence of evidence and the need for more research on CE involving ICU nurses and a clear explanation of care results¹⁴.

The development of educational practices contributes to a qualified, comprehensive and problem-solving assistance, which seeks to promote not only the updating and transmission of new knowledge, but also to guide actions towards the mobilization of subjects to do something different, with emphasis on significant learning and the appreciation of previous professional knowledge. It has been observed that, as health care facilitators, PEH and CE must be supported by health managers, seeking to achieve evidence-based guidelines for expanding institutional capacities and quality of care provided¹⁵.

Effects of permanent health education on professional practice and quality of care

Regarding the relevance of PEH and CE actions, studies affirm the contribution of education in health services to the quality of critical care nursing, emphasizing that knowledge shapes attitudes. PEH can generate changes in work processes and quality of care, having a transforming potential on nursing, reducing the incidence of adverse events and helping to plan appropriate nursing interventions. It has been shown that trained intensivist nurses have more autonomy and potential to act on educational processes for families and the health team¹⁶.

In reference, pre- and post an in-service educational intervention survey showed significant increases in knowledge scores on ICU sedation management and consequent improvement in the quality of healthcare client care, with greater understanding and awareness of nursing care. The survey, however, referred to the need for more research to prove practical changes, stating that continuous assessments of knowledge are indispensable and help in the identification of professional updating needs, being able to predict future PEH interventions, and highlighting that knowledge and skills may decrease over time¹⁷.

In the same line of reasoning, multimodal education, which incorporates lectures, online education and discussions, along with the repetitive training of health professionals, proves to be useful for expanding learning, with PEH, when supported by health institutions, having the ability to make a difference in care practices and patient prognoses, impacting the quality of care¹⁸.

The literature demonstrates the need for institutional support, such as adequate sizing of nursing staff, to change practices in the ICU. The high workload is highlighted as an obstacle to positive actions of PEH and promotion of care quality, making it essential to reduce the workload of nurses to improve the effectiveness of education in critical care, and demonstrating a link between work issues and the non-positive results of PEH actions, when such factors are involved¹⁹.

Also regarding the quality of care, notes are found about its relationship with PEH strategies, due to the positive impact of the use of different teaching strategies and exposure of data on increased rates of knowledge and changes in care practice after educational actions through virtual teaching apps and themed lectures²⁰.

It should be noted that PEH is seen as valid even without statistical change in nurses' knowledge, due to evidence of improvement in self-confidence and changes in the daily practices of professionals after PEH programs²¹. In this way, PEH is a means of transforming not only knowledge, but also the

attitudes of care nurses, it is the progress of critical-reflexive scientific nursing²².

Permanent education in health contemplating nursing learning needs

Prior planning is important to achieve the intended goals of an action, so this is an aspect of the PEH that should be noted when it comes to the search for learning demands to support the PEH and CE of the intensivist nursing team. Early investigations of existing knowledge and what one wants to acquire, results in the identification of educational needs. When there is commitment to the learning process and interest of professionals, there is also dissemination of knowledge, transformation of health practices, and improvement of care indicators²³.

The lack of existing knowledge on a given subject, discovered from an investigation with the subjects, is an indicator for possible PEH actions, the health professionals involved are listed as active participants in their educational processes, since they are the ones who can best indicate their educational needs. Works cite the accomplishment of knowledge analysis questionnaires prior to the education actions, for an adequate direction of future educational strategies, focusing the PEH on the learning needs of the nursing team²⁴. Educational actions that address professional demands generate greater satisfaction and improve care quality through evidence-based nursing²⁵.

Strategies and results of permanent health education in intensive care

Articles show that actions should be practical-theoretical, related to the current clinical context, and easily accessible and available to the nursing team, highlighting that PEH without learning practice generates professional dissatisfaction. In one study, nurses perceived video education as a positive way of learning, but requested additional interactions, such as training to reach the skills, stating that the union of theory and practice is necessary, drawing attention to barriers related to the performance of PEH, such as time restrictions, patient care obligations, financial constraints, and lack of support from higher levels²⁶.

Interactivity is seen as a departure from the traditional teaching model, being marked in studies that contemporary society continues to demand PEH that promotes the union between health theory and practice, as occurs in problem-based education, using clinical cases and audiovisual resources to change the quality of nursing care, a strategy described as extremely useful for 90% of nurses participating in a survey, with reported average knowledge increases of from 49% to 69%²⁷.

In the same sense, realistic simulations are listed by nurses as the most realistic way of learning and providing the development of skills such as confidence and clinical reasoning. Research reports that educating the nursing team is a challenging job, and although realistic simulation can facilitate this process, it is a modality of education focused more on practice to improve the experience and professional conduct of nurses²⁸.

Realistic simulation, with or without computerized mannequins, is highlighted, with positive results as a teaching strategy and with longer lasting learning compared to traditional methods and those that use audiovisual resources, providing cognitive, behavioral and psychomotor changes in the subjects involved. For example, the average score of nursing skills increased from 46.8% to 58.8% after intervention with intensivist nurses, however, in the long term the improvement observed was significantly different, reaffirming other studies that treat PEH as a process that must be continuous and updated over time²⁹.

Realistic simulation is highlighted as a strategy to improve

the quality of critical care in the context of frequent turnover of professionals, in order to confirm that health education actions act to improve care practice, being an important investment by institutions for the qualification of professionals. One study refers to simulation, in an intensive care setting with a mannequin and the aid of a computer-controlled simulator, as a differentiated form of contemporary CE³⁰.

Furthermore, the use of online technologies for PEH and CE actions is very frequent in scientific publications, resulting in a change in daily behavior in health services. Platforms for training in the use of clinical assessment scales are examples of the interaction between technology and health education, with the advantages of saving human and financial resources, as well as improving health care³¹.

Virtual environments emerge as promising ways of learning for the nursing team, however, the adversities of the use of technologies include problems of internet access, registration, and technological knowledge to use digital platforms. It is mentioned that hospitals in developing countries do not always recognize the importance of investing, valuing, encouraging, and offering basic conditions for their employees to build knowledge for free. It should also be noted that PEH needs to observe the differences in style, time, place, and learning pace of individuals, and differentiated education strategies must be considered³².

Online education is evidenced as a strategy to maximize the participation of nurses who work in different shifts, offering opportunities at convenient times for them. It is about the inclusion of new technologies in favor of care quality through distance education, resulting in changes in nursing practice after just one CE session³³.

Another format that education can take is through an online journal club, where evidence-based practice is encouraged, being a strategy with a wide reach of several people at the same time, that is more economical and more accepted by the participants, which has its individualities and particularities of time. It is a way of transmitting scientific information according to the needs of the subjects, however, future research on the impact of the use of journal clubs in practice is essential, since normally the evaluation made includes only the satisfaction of the participants³⁴.

CONCLUSION

PEH is notably important for the progress of evidence-based nursing in ICUs worldwide. The scientific literature reveals its potential in intensivist nursing, being seen as a way of reflection-action that reorganizes health care models, a process of professional and nursing care transformation, contributing to a qualified health system, overcoming barriers that prevent the union between theory and nursing experience. However, there is also evidence of the lack of studies to better prove specific practical changes and peculiarities that must be observed when planning CE and PEH actions.

PEH needs to be a continuous process to sustain lasting changes, and it is essential that the search for knowledge be supported and encouraged by managers and health institutions, reflected in the adequate dimensioning and nursing workload, evidencing that the low quality of services is also associated with the lack of adequate time-space PEH.

In recent years, few published studies have specifically focused on nursing PEH and CE in the context of intensive care, so that many of the studies found suggest that more research should be carried out, as well as more PEH actions for this public. This integrative literature review demonstrates what has been produced in the contemporary world scientific literature on PEH in critical care nursing, describing the past and aiming to direct the future of scientific research on the subject, sup-

porting an evidence-based nursing practice

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