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Entrustable professional activities in nursing education: a scoping review

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ABSTRACT

Objectives Entrustable professional activities (EPAs) have been used in undergraduate and graduate medical education and in other health professions for a long time. They are regarded as a suitable way for bridging the gap between competency-based education and actual work tasks in the workplace. In nursing education, EPA development started later, and it is unclear which EPAs have been developed and implemented yet. This scoping review aims to identify which EPAs have been developed in nursing education, which of these have even been implemented and what the empirical evidence supports any effects of implementation.

Design Scoping review using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews.

Data sources MEDLINE and EMBASE via OVID, CINAHL and ERIC via EBSCOhost were searched for the period 1 January 1995 to 31 December 2023.

Eligibility criteria Publication period from the first mention of EPAs in 1995 to 2023, no language restrictions, all types of literature if they had a clear mention of EPAs, all academic nursing education fields, EPAs had to be mentioned in the title or abstract.

Data extraction and synthesis Screening was conducted in a two-stage process with two authors. 13 suitable articles were included which describe either the development, implementation or assessment of EPAs.

Results Results indicated that EPAs have been developed in 16 areas of nursing education, including special areas such as palliative care or emergency/intensive care. The activities health status assessment, care measures, leadership/management, diagnoses, care plans and protocols, emergency care measures and participation in diagnostics and/or therapy were described most often. In 4 out of 13 cases, EPAs were implemented. Described evidence indicated that the use of EPAs improved critical thinking, promoted flexibility in teaching and led to a mindset change.

Conclusions EPAs are increasingly developed and implemented in nursing education. There seem to be overlaps between EPAs mainly covering the steps of the nursing care process.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews was followed.
⇒ A comprehensive and systematic map of entrustable professional activities (EPAs) is presented.
⇒ Articles might have been missed because EPAs were not clearly designated as such.
⇒ A critical appraisal of the quality of the evidence was not conducted.

INTRODUCTION

Entrustable professional activities (EPAs) already found their way into medical education a long time ago and were first described by ten Cate and Scheele.[1] They can be defined as units of professional practice that healthcare supervisors can fully entrust to trainees once they achieve sufficient levels of competency.[2] Since a competence describes the capability of a trainee and an EPA a workplace-based task, EPAs always require the integration of several competences. EPAs thus provide the opportunity to integrate competency-based education into the real clinical environment and to teach abstract competencies in this environment in a lively way.[3]

Complete EPAs typically consist of the following elements, as proposed by ten Cate *et al*:[4]

1. EPA title: a short, informative description of the activity.
2. Specification and limitations: a clear indication of what is included in the EPA and what is not, as well as the context.
3. Information on potential risks in case of failure.
4. Most relevant domains of competence: relation of the EPA to the competency framework used.
5. Required experience, knowledge, skills, attitude and behaviour: tools and behaviours needed before being trusted to perform the EPA.
6. Assessment information sources to assess progress and ground a summative entrustment decision: sources of information to determine progress.
7. Entrustment for which level of supervision is to be reached at which stage of training: levels of training at which trainees can be trusted to carry out tasks in direct or indirect supervision.

8. Expiration date: regular practice of EPA is needed, otherwise entrustment should drop.

Meanwhile, EPAs are not only used in graduate medical education but also in undergraduate medical education and by many other health professional students such as dentistry, global health, physiotherapy or pharmaceutical education.[5–8] EPAs are also becoming more and more important in nursing education, and EPA-sets are increasingly being developed in undergraduate nursing.[9 10] Because of the ability of EPAs to frame competences in the context of clinical workplace activities, they set an appropriate standard for entry into undergraduate clinical placements.[11] This ultimately leads to better assessability, and the transitions between different training stages can be better mapped. This creates a more accurate picture of the progress of the training stages. However, for academic nursing programmes, it is unclear how many EPAs have been developed so far. Therefore, an overview of the current status regarding the development and implementation of EPAs in nursing education programmes is necessary.

The aim of this review is to provide an overview of EPAs in nursing education. The specific review questions are as follows:

1. Which EPAs have been developed/proposed for nursing education?
2. Which EPAs have been implemented in nursing education?
3. What is the empirical evidence supporting any effects of implementing EPAs in nursing education programmes?

METHODS

Protocol and registration

The corresponding scoping review protocol was published previously.[12] The PCC framework (population, context, concept) was used to develop the three review questions mentioned above. The PCC framework makes it possible to formulate precise review questions in a methodologically clear way.[13] The reporting of this scoping review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews.[14]

Eligibility criteria

All articles or studies relating to EPAs and nursing were considered. In addition, the following inclusion criteria were applied:

1. Publication period from the first mention of EPAs in 1995 to 2023 (1 January 1995 to 31 December 2023).
2. All languages.
3. All types of literature including descriptive studies, interventional studies, reviews and opinions if they clearly described EPAs.
4. All academic nursing education fields including undergraduate, postgraduate, nursing education and bachelor of science in nursing. Clinically based programmes if they present any EPAs used to train nursing students.

Table 1 Search strings for electronic databases (1 January 1995 to 31 December 2023)

Databases	Searches
Medline and Embase combined search via OVID	((entrustable professional activit* or epa or epas) and (nursing education or nursing student* or nurs*)).ti, ab.
ERIC and CINAHL combined search via EBSCOhost	TI ((“entrustable professional activit*” or epa or epas)) AND AB ((“nursing education” or “nursing student*” or nurs*))

5. EPAs must be mentioned in the title or abstract.

Information sources

Search strategies for the various databases were developed based on keywords relating to nursing education and EPAs, which were linked by Boolean operators. The search strategies were designed to cover the PCC framework with all acronyms and synonyms. After this, the following electronic databases were searched: MEDLINE and EMBASE via OVID, CINAHL and ERIC via EBSCO host.[12] The most recent search was executed on 22 March 2024.

Search

All search strings used are listed in table 1.

Selection of sources of evidence

Screening was conducted in a two-stage process. The first author screened all databases following the electronic search strategy. Duplicates were removed using the predefined settings in OVID and EBSCOhost. After this, all results were imported into EndNote and manually screened. The first author looked at all full texts and checked their suitability. All unsuitable articles were removed. A second reviewer looked at all articles independently and also removed all unsuitable articles. The result between the two was compared. In case of disagreement, a third reviewer was consulted.

Data charting process

Relevant article characteristics were extracted according to predefined criteria, as shown in table 2. Identified EPAs were described separately in greater detail in a second table.

Data items

Extracted data are shown in table 2.

Critical appraisal of individual sources of evidence

A critical appraisal and risk of bias assessment was not conducted.

Synthesis of results

A matrix was created in which the individual EPAs were compared with the subject areas and publications.

Table 2 Data charting variables/domains, according to the PCC Framework and best practice guidance and reporting items for the development of scoping review protocols[13]

PCC elements	Item/domain	Description
	Year	Year of publication
	Author/s	List of all authors
	Publication type	Review, commentary, empirical study, other
	Study design	Descriptive, experimental
	Geographical location	Continent, country
Population	Setting	Type of school/ institute/educational clinic
Context	Type of nursing programme	Undergraduate, postgraduate, bachelor of science in nursing or other type of academic programme/clinic
Concept	EPAs characteristics	What are the EPAs described and how are they characterised?
	Title	Title of the EPA[4]
	Specifications	Included activities[4]
	Limitations	Excluded in the activity[4]
	Most relevant competency domains	Competency framework used to develop the EPAs[4]
	Implementation	Yes/no. If 'yes', when and how?
	Effects	Outcomes and effects
	Evidence supporting effects	Effect sizes

EPAs, entrustable professional activities.

Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

RESULTS

Selection of sources of evidence

The search via Ovid initially resulted in 336 hits including duplicates, while EBSCOhost resulted in 26 hits including and excluding duplicates. After removing the duplicates, 224 hits remained for Ovid. Of these hits, 13 suitable articles remained (figure 1). After completing the search, another article from 2024 was found to be suitable, which was included in addition. This resulted in a total of 14 included articles.

Characteristics of sources of evidence

Six articles described EPAs addressing general nursing.[9 10 15–18] Seven articles described EPAs addressing specialties including critical care, surgical nursing, family nursing, hospice care, emergency care nursing, nursing telehealth and adult gerontology primary care.[19–25] Most EPAs were from general nursing by far. Most studies used qualitative designs.[9 10 15–18 20 22 23 25] Three studies used both qualitative and quantitative designs.[19 21 24] A detailed description of the included articles can be seen in the online supplemental material.

Critical appraisal within sources of evidence

Not applicable.

Results of individual sources of evidence

The general nursing EPAs included topics such as 'gather information and perform physical examination',[10] 'prioritise a differential diagnosis following a clinical encounter' and 'document a clinical encounter in the patient record',[15] 'interprofessional collaboration',[9] 'recognise and manage patients requiring urgent care'[17] or 'provide health education and nursing consultation'.[18] The described special nursing EPAs included topics such as 'performs manual opening and insertion of temporary airway maintenance devices',[20] 'assessing and managing patients with acute medical presentations'[24] and 'integrated immediate postmortem and acute bereavement care'.[25]

Most EPAs were not implemented.[10 15 17–21 23 25] When EPAs were implemented, the following effects of implementation were described: EPAs are helping as a systematic assessment, fostering teamwork and critical thinking as well as providing flexibility in assessments. On the other hand, unclear assessment criteria, a lack of standardisation and manpower, and a change of mindset needed to adapt to EPA skills was reported.[9] Details of proposed EPAs are described in the online supplemental file 1.

Synthesis of results

In total, EPAs have been developed in 16 areas of nursing education (see table 3).

Most EPAs have been developed in the areas health status assessment (n=12), care measures, leadership/management, diagnoses, care plans and protocols, emergency care measures and participation in diagnostics and/or therapy. The fewest EPAs were developed in the areas joint decision making, evidence-based work and palliative care. EPAs were implemented in the following areas: health status assessment (including nursing admissions), care measures, emergency/intensive care measures, patient education and guidance, prevention and health promotion, communication (including patient handover and presentation), interprofessional work (including ward rounds, discharges), leadership/management, palliative care.

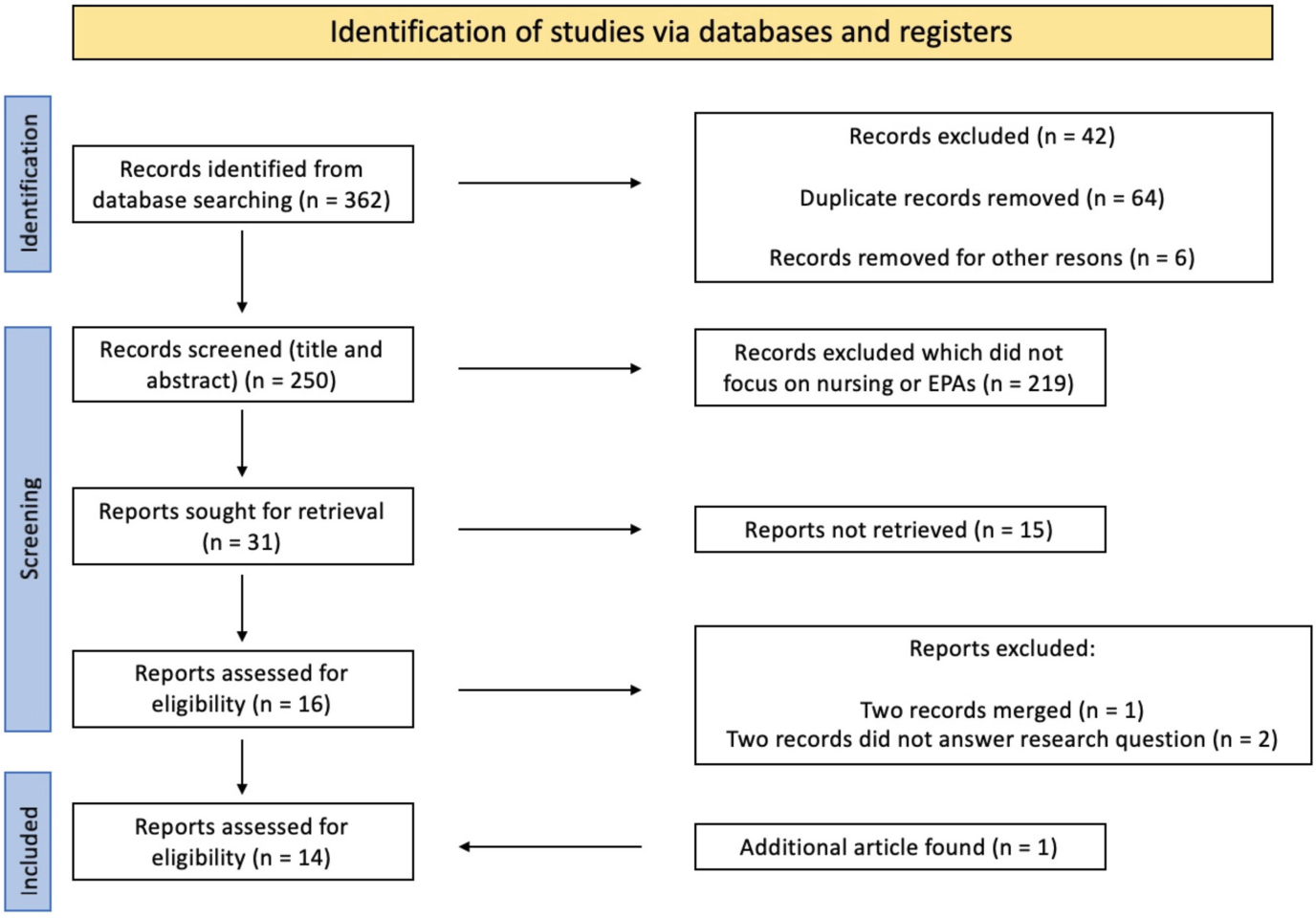

Figure 1 Flow diagram on the results of the screening process. EPAs, entrustable professional activities.

DISCUSSION

Summary of evidence

Our scoping review results indicate that EPAs have been developed for 16 different areas of the care process. There are considerable similarities within the EPAs health status assessment, care measures, leadership/management, diagnoses, care plans and protocols, emergency care measures and participation in diagnostics and/or therapy across different studies. This indicates that there seems to be some kind of agreement about core EPAs in nursing education which is similar to the widely used nursing process consisting of the components assessing, diagnosing, planning, implementing and evaluating.[26] Thus, the development of EPAs so far clearly follows the internationally established care process, which includes nursing care in the narrower sense and medical interventions. Both positive experiences and challenges are described during the implementation process. Nursing education appears to follow medical education, where a large number of EPAs exist today.[27]

However, although EPAs seem to offer advantages compared with competency-based frameworks,[28] empirical evidence supporting these assumptions is low. EPAs seem to offer a good opportunity to facilitate the process of transferring competencies into clinical practice. However, when looking closely at the extracted EPA characteristics and competency domains, there seem to be overlaps between less and more complex competencies defining the EPAs. In addition, it is still unclear whether EPAs actually lead to better clinical performance outcomes compared with competency-based training. We were unable to identify robust evidence or study designs evaluating the effects of EPAs.

Overall, EPAs covering essential and fundamental aspects of the nursing process (eg, health status assessment, care measures, care plans) are developed independently by different authors. On the other hand, there are special EPAs such as those for palliative care that seem to be unique. However, it is also shown that EPAs are not always named as such. For example, Ramirez *et al* list 'Knowledge and Task Practice Standards for the Emergency Nurse Practitioner', which are similar to EPAs.[29] The partly inconsistent naming of EPAs must surely be regarded as an impeding factor in the further dissemination and implementation of nursing EPAs.

Our review results indicate that not all of the eight elements of a complete EPA (see introduction) described by ten Cate *et al*[4] are always fully specified in published EPAs. In most cases, the title, specifications and competency domains are given, whereas in particular the

Table 3 Matrix of synthesis of results

	General nursing						Special nursing							
	Al-Moteri, *et al*[10]	Anthamatten *et al*[15]	Lau *et al*[9]	Mihaljevic *et al*[16]	Zhou *et al*[17]	Yang Yang *et al*[18]	Li *et al*[19]	Miranda *et al*[20]	Moore *et al*[21]	Surjadi, Sax *et al*[22]	van Houwelingen *et al*[23]	Chiang *et al*[24]	Lai *et al*[25]	Sum
Health status assessment (including nursing admissions)	1	1	1	1	1	1	1	1	1	1	1	1	0	12
Diagnoses (prioritise nursing diagnoses, differential diagnoses)	1	1	0	0	0	1	1	0	1	1	1	0	0	7
Care measures	1	1	1	0	1	1	1	1	1	1	0	1	0	10
Care documentation	1	1	0	0	0	0	0	0	1	1	0	0	0	4
Care plans, protocols	1	0	0	1	1	1	1	0	0	1	1	0	0	7
Emergency/intensive care measures	1	1	1	0	1	1	1	1	0	0	0	0	0	7
(Psychological) support	1	0	1	0	0	0	0	0	0	0	1	0	0	3
Patient education, guidance	0	0	1	0	0	1	0	0	0	0	1	0	0	3
Joint decision-making	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Prevention and health promotion	1	0	0	0	1	0	0	0	0	0	1	0	0	3
Participation in diagnostics and/or therapy	0	1	0	0	1	1	1	1	1	0	1	0	0	7
Evidence-based work	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Communication (including patient handover and presentation)	0	1	0	0	0	1	1	0	1	1	0	1	0	6
Interprofessional work (including ward rounds, discharges)	0	1	1	1	0	1	1	1	0	0	0	0	0	6
Leadership/ management	0	0	1	0	1	1	1	1	0	1	1	1	0	8
Palliative care	0	0	1	0	0	0	0	0	0	0	0	0	1	2

The articles were divided into general nursing and special nursing and mapped to the 16 areas of nursing education on the left. Number 1 means that EPAs have been developed in the respective area of nursing education, number 0 that none have been developed.
EPAs, entrustable professional activities.

supervision level and assessment information are rarely listed. This is currently leading to an emerging discrepancy between the ideal depth of an EPA and the actual quality of developed nursing EPAs. To counteract this development, the 'EQual' scoring rubric[30] has been established in medicine for some time now. This provides a standardised opportunity for internal validation and for identifying EPAs that are insufficiently developed with regard to, among other aspects, the propagated EPA elements. This structured evaluation might be useful to develop and validate state-of-the-art EPAs in nursing education in the future.

Limitations

Since not all published EPAs are clearly designated as such, we may have missed other published frameworks similar to EPAs. In addition, maybe other search strings should have been used such as 'nurse education'. Furthermore, no risk of bias assessment was conducted and no information about individual study limitations was extracted because scoping reviews systematically identify and map the breadth of evidence available on a particular topic.[31] Evaluation of the quality of evidence requires a systematic review approach.

Conclusions

EPAs become more and more popular in nursing education. They largely cover the key steps of the nursing process but also address advanced and specialty topics.

The fact that EPAs are now increasingly being used and implemented in nursing curricula raises the question of whether EPAs actually improve nursing education. In addition, the extent to which the achievement of objectives in nursing education is actually improved by EPAs should be further investigated as well.

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