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Entrustable professional activities in nursing education: a scoping review protocol

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ABSTRACT

Introduction: Entrustable Professional Activities were introduced in medical education more than 15 years ago. Entrustable Professional Activities define units of professional practice that can be fully entrusted to sufficiently competent professionals. Today, entrustable professional activities have been developed and implemented in many health professions, as the concept is useful in bridging the gap between competency-based education and the daily tasks health professions have to deal with in the workplace. While some evidence exists in medical education, the role of EPAs in nursing education is not yet fully understood. Therefore, the overall aim of this scoping review is to describe the current body of evidence regarding EPA implementation in nursing education.

Methods and analysis: A two-stage screening process will be used during the search phase, in order to screen retrieved abstracts and titles that focus primarily on the discussion of EPA in nursing education in all languages within the last two decades. The electronic databases, OVID (Embase and PubMed combined), and EBSCOhost (CINHAL and ERIC combined), as well as grey literature will be searched. The search period will be up until 31.12.2021. Data will be extracted according to study design, context (geographical location and type of nursing program), details of EPAs mentioned (title, specifications, limitations, and competency domains), as well as evidence of implementation, outcomes, and effect sizes.

Ethics and dissemination: Ethical approval is not required as this review will be using previously collected data. Review findings will be published in a peer-reviewed journal and presented at scientific conferences.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Scoping reviews are a helpful method to gauge the state of literature on a previously unknown field of interest with broad review questions.
- The PRISMA extension for scoping reviews ensures rigorous methodological reporting and provides clear replication steps for others.
- It is possible that evidence may be missed due to the search strategy
- Within scoping reviews critical appraisal on the quality of evidence is not planned

INTRODUCTION

Entrustable Professional Activities (EPAs) were introduced in medical education more than 15 years ago.[1] EPAs define observable units of professional practice that can be fully entrusted to sufficiently competent professionals in the workplace.[2] They require an integration of various competencies that

come from knowledge, skills, and attitudes accrued with achievable tasks that are not time-dependent, but have clearly defined beginning and end.

These learned tasks closely resemble daily work tasks and help achieve a measurable synthesis of various competency roles that would otherwise be difficult to measure or observe.[2] In doing so, EPAs not only offer a way to integrate competency-based education in a given field, but they also provide trainees with the groundwork to master particular practices that they need upon graduation, while also helping curriculum developers identify and define the outcomes of their training programs.

Furthermore, with EPAs, work-based tasks can be carried out by individuals across a spectrum of experience and do not exclude those who have just begun their training or those about to complete theirs. Each individual is adequately trusted to carry out tasks safely, according to a supervisory assessment by their trainers. EPAs can therefore standardize a means to transfer competencies from experienced supervisors/faculty to trainees in a clear, succinct form that is transparent for all parties, rather than following a general checklist of time-based achievements.[3]

With such an innovation, the implementation of EPAs in medical education has resulted in a mass adoption across diverse health professions with clear training outcomes for trainees, supervisors and programs themselves[4, 5]. However, this innovation is not without its setbacks that could arise due to failure to include the experts with appropriate skills to balance the focus of broader versus finer details or not having a flexible enough environment to adapt and improve up the EPAs or the limited availability of literature on EPAs in highly-specific fields[6]. Nevertheless, the aforementioned challenges have not quelled the strong adoption over such a short time frame.

Even though EPAs have gained popularity in many health professions, it is unclear how much has been proposed in this form for academic nursing programs. The most well-known of these are the Quality and Safety Education in Nursing project, which proposed two groups of competencies for nurses from undergraduate and postgraduate level education as proto EPAs[7, 8]; and the possible inclusion of EPAs in nursing curricula proposed by a think tank in 2014.[9]

When developing higher education programs for nursing qualification, it is important to note that nursing trainees have to be fully equipped from the time they begin their professional careers to care for patients of various age groups, conditions, as well as in different settings.[4] In essence, the EPAs needed for nursing education need to account for a wide array of skills and competencies. Nursing educators, likewise, have to therefore constantly evaluate and improve their programs to help equip nurses with the skills and knowledge to practice safe and high-quality care in various settings.[7, 10]

Up until recently, most nursing programs incorporated a time-based milestone checklist to assess the development and competencies of learners.[8] But not many have taken into account the evolving reflection and evaluation needed for the transference of competencies from supervisors to trainees.[11] As such, an up-to-date overview is needed to gain better insight into the current state of development and implementation of EPAs in nursing education programs. Therefore, this scoping review will be conducted.

METHODS AND ANALYSIS

The scoping review will follow the structure of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) as well as the refined scoping review approach proposed by Levac et al.[12] The review will be conducted according to the following steps:

Review questions

The main aim is to describe and to summarize the existence and possible effects of EPAs in nursing education and empirical evidence supporting their use. Further objectives are to understand if such EPAs have been fully implemented in any educational programs or are only discussed. Therefore, the specific review questions to be answered are:

(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?

Information sources and searches

The following electronic databases will be searched: MEDLINE and EMBASE databases via OVID, CINAHL and ERIC via EBSCO host, as well as Google Scholar for grey literature. Search strategies were developed and refined iteratively using free text keywords relating to nursing education and EPAs, which were combined by Boolean operators. If MeSH terms are available in databases, these will also be used to include associated search terms. All search strings are listed in table 1. In addition, reference lists from relevant articles will be screened for additional literature.

Table 1: Search strings for electronic databases (01.01.1995-31.21.2021)

Databases	Searches	Number of hits
Medline and Embase combined search via OVID	((entrustable professional activit* or epa or epas) and (nursing education or nursing student* or nurs*)).ti,ab.	279 hits including duplicates
ERIC und CINAHL combined search via EBSCOhost	TI (("entrustable professional activit*" or epa or epas)) AND AB (("nursing education" or "nursing student*" or nurs*))	17 hits including duplicates
Google Scholar	("nursing education" OR “nursing student* OR nurs*) AND (entrustable professional activit* OR epa OR epas)	3570 hits

Eligibility criteria

Any articles or studies relating to EPAs and nursing will be considered addressing any of the review questions. Specifically, articles or studies should meet the following criteria 1) Publication period includes the first mention of EPAs up until 2021 (01.01.1995-31.21.2021) 2) Language: No language restrictions 3) Types of literature: All types of literature will be searched including but not limited to descriptive studies, interventional studies, and reviews 4) All academic nursing education fields including undergraduate, postgraduate, student nurses, nursing education, and Bachelor of Science in Nursing 5) EPAs must be mentioned either in the title or abstract.

Study screening and selection

Study screening will be conducted in a two-stage process. The first author will screen all databases and select the literature based on title and abstract, using the keywords and searches mentioned above. Duplicate screening will occur via a preselected settings in OVID, as well as EBSCOhost. Thereafter, all electronic results will be exported into EndNote reference manager and, if necessary, further deletion of duplicates will be done.

Upon completion of the first stage screening, the full texts will be screened for eligibility. A second reviewer will independently screen the retrieved articles and these will be compared and consolidated

with the first reviewer's screening.[13] Any articles that are not clearly considered eligible by both reviewers will be discussed with a third reviewer.

Data charting and items

Data extraction forms will be used to extract the relevant information and evidence. The data items are described in table 2.

Table 2: Data charting variables and domains relating to article description

Item/domain	Description
Article details	
Year	Year of publication
Author/s	List of all authors
Publication type	Review, commentary, empirical study, other
Study design	If it is an empirical study, what design was used (descriptive, experimental)?
Geographical location	On which continent and in which country is the institution located?
Setting	Type of school/institute
Type of nursing program	Is this an undergraduate, postgraduate, BSN or other type of academic program?
EPA details	
EPAs characteristics	What are the listed EPAs and how are they characterized?
Title	Title of the EPA[2]
Specifications	Clear listing of what is included in the activity[2]
Limitations	Clear listing of what is excluded in the activity[2]
Most relevant competency domains	Refers to competency framework used to develop the EPAs[2]
Implementation	Were the EPAs that were proposed included in the local academic nursing program(s)? If so, when and how were they implemented?
Effects	If any effects are reported, which ones were described using which outcomes?
Evidence supporting effects	Effect sizes described in empirical studies

Synthesis of results

Extracted information will be described qualitatively and using frequencies. Described EPAs will be summarized inductively into overarching domains. The number of proposed EPAs will be compared with the number of implemented EPAs per institution type and/or nursing program. Empirical evidence supporting effects of EPA use will be summarized and outcomes measuring effects will be listed.

Patient and public involvement

There was no involvement of the public or patients regarding the design of this scoping review.

DISCUSSION

EPAs have gained popularity in medical and other health professions education programs. This scoping review will map the existing body of evidence about EPAs in nursing education. Review results will help to evaluate the current status of EPA dissemination and implementation. Innovations in education and

curriculum development are needed, but it is also necessary to evaluate the impact of introducing new concepts on programs and learning outcomes.

Like other aspects in evidence-based nursing education, it is of great interest to understand if EPAs can also have positive effects on trainees, supervisors, as well as the curriculum. Some evidence suggests that EPAs can be feasible as an effective work-based assessment tool in e-portfolios for both trainees and supervisors.[14] This would suggest a great opportunity to help digitalize lots of paperwork and improve the flexibility of assessment.

It also remains to be seen whether EPAs can have the same appeal throughout various nursing training programs from undergraduate to postgraduate and if the implementation process can be easily adopted by faculty in differing settings. If such evidence is missing, it is important to prioritize research in this area in order to improve on patient safety and quality healthcare.

ETHICS AND DISSEMINATION

An ethics approval is not required as this protocol will be using previously collected data. The application of a transparent and rigorous search process means that future research on this topic can be replicated and help guide other researchers in similar reviews, as well as inform new EPA implementations in nursing programs.

Contributorship statement

Conceptualisation and design of study: NA, JK, AM
Collected and reviewed data: NA, JK, AM
Wrote the manuscript: NA, JK, HP
All authors revised and approved the manuscript

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Competing interests

None declared

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ABSTRACT

Introduction: Entrustable Professional Activities were introduced in medical education more than 15 years ago. Entrustable Professional Activities define units of professional practice that can be fully entrusted to sufficiently competent professionals. Today, entrustable professional activities have been developed and implemented in many health professions, as the concept is useful in bridging the gap between competency-based education and the daily tasks health professions have to deal with in the workplace. While some evidence exists in medical education, the role of EPAs in nursing education is not yet fully understood. Therefore, the overall aim of this scoping review is to describe the current body of evidence regarding EPA implementation in nursing education.

Methods and analysis: A two-stage screening process will be used during the search phase, in order to screen retrieved abstracts and titles that focus primarily on the discussion of EPA in nursing education in all languages within the last two decades. The electronic databases, OVID (Embase and PubMed combined), and EBSCOhost (CINHAL and ERIC combined), as well as grey literature will be searched. The search period ranges from 01.01.1995 up until 31.12.2021. Data will be extracted according to study design, context (geographical location and type of nursing program), details of EPAs mentioned (title, specifications, limitations, and competency domains), as well as evidence of implementation, outcomes, and effect sizes.

Ethics and dissemination: Ethical approval is not required as this review will be using previously collected data. Review findings will be published in a peer-reviewed journal and presented at scientific conferences.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Scoping reviews are a helpful method to gauge the state of literature on a previously unknown field of interest with broad review questions.
- The PRISMA extension for scoping reviews ensures rigorous methodological reporting and provides clear replication steps for others.
- EPAs may help innovate nursing education by focusing on workplace-based practices and competency-based education
- It is possible that evidence may be missed if not indexed in the selected databases
- Within scoping reviews critical appraisal on the quality of evidence is not planned

INTRODUCTION

Entrustable Professional Activities (EPAs) were introduced in medical education more than 15 years ago.[1] Since the introduction of competency-based medical education activities in the mid-90s and the conceptualization of EPAs in the 2000s, medical educators have sought a means to propose clear steps and pathways to guide trainees in competency-based medical education.[2] They can be defined as observable units of professional practice that can be fully entrusted to sufficiently competent professionals in the workplace.[3] Additionally, they require an integration of various competencies that

come from knowledge, skills, and attitudes accrued with achievable tasks that are not time-dependent, but have clearly defined beginning and end.

These learned tasks closely resemble daily work tasks and help achieve a measurable synthesis of various competency roles that would otherwise be difficult to measure or observe.[3] In doing so, EPAs not only offer a way to integrate competency-based education in a given field, but they also provide trainees with the groundwork to master particular practices that they need upon graduation, while also helping curriculum developers identify and define the outcomes of their training programs.

Furthermore, with EPAs, work-based tasks can be carried out by individuals across a spectrum of experience and do not exclude those who have just begun their training or those about to complete theirs. Each individual is adequately trusted to carry out tasks safely, according to a supervisory assessment by their trainers. EPAs can therefore standardize a means to transfer competencies from experienced supervisors/faculty to trainees in a clear, succinct form that is transparent for all parties, rather than following a general checklist of time-based achievements.[4]

Complete EPAs typically consist of the following elements, as proposed by ten Cate & Taylor[3] :

1. EPA Title: a short, precise description of the activity
2. Specification and limitations: the scope of conditions for fulfilling the activity and elements the trainee is not yet qualified to undertake
3. Potential risks in case of failure: information for trainees and supervisors on what can possibly go wrong
4. Most relevant competency domains: based on roles taken from competency frameworks for education in each relevant health profession
5. Required knowledge, skills, attitudes and experiences: the tools and behaviors needed to allow for summative entrustment
6. Information sources to assess progress and support summative entrustment
7. Entrustment / supervision level: stages of training at which trainee can be trusted to carry out tasks in direct or indirect supervision
8. Time period to expiration if not practiced: regular practice of EPAs is needed to ensure safety

With such an innovation, the implementation of EPAs in medical education has resulted in a mass adoption across diverse health professions with clear training outcomes for trainees, supervisors and programs themselves[5, 6]. However, this innovation is not without its setbacks that could arise due to failure to include the experts with appropriate skills to balance the focus of broader versus finer details or not having a flexible enough environment to adapt and improve up the EPAs or the limited availability of literature on EPAs in highly-specific fields[7]. Nevertheless, the aforementioned challenges have not quelled the strong adoption over such a short time frame.

Even though EPAs have gained popularity in health professions such as, dentistry, physiotherapy, pharmaceutical education and global health, it is unclear how much has been proposed in this form for academic nursing programs.[8-13] The most well-known of these are the North American Quality and Safety Education in Nursing project, which proposed two groups of competencies for nurses from undergraduate and postgraduate level education as proto-EPAs; as well as the development of EPAs in a Delphi study for application in nursing telehealth in the Netherlands. [14, 15]

When developing higher education programs for nursing qualification, it is important to note that nursing trainees have to be fully equipped from the time they begin their professional careers to care for patients of various age groups, conditions, as well as in different settings.[5] In essence, the EPAs needed for nursing education need to account for a wide array of skills and competencies. Nursing educators,

likewise, have to therefore constantly evaluate and improve their programs to help equip nurses with the skills and knowledge to practice safe and high-quality care in various settings.[8, 16]

Up until recently, most nursing programs incorporated a time-based milestone checklist to assess the development and competencies of learners.[9] But not many have taken into account the evolving reflection and evaluation needed for the transference of competencies from supervisors to trainees.[17] As such, an up-to-date overview is needed to gain better insight into the current state of development and implementation of EPAs in nursing education programs. Therefore, this scoping review will be conducted to investigate all published literature since the earliest mention of EPAs and whether any of the results that reference any nursing education programs/settings have discussed or proposed any specific EPAs and their impacts on trainees and supervisors.

METHODS AND ANALYSIS

The scoping review will follow the structure of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) as well as the refined scoping review approach proposed by Levac et al.[18, 19] According to scoping review guidelines by the Joanna Briggs Institute, the main Population/Concept/Context (PCC) elements for this review are defined as follows:[20]

Population: All learning settings such as schools, institutes, or educational clinics

Concept: Entrustable Professional Activities or competency-based education activities

Context: Any nursing education programs, including undergraduate, postgraduate, Bachelor of Science in Nursing, and clinic-based programs

Review questions

The main aim is to describe and to summarize the existence and possible effects of EPAs in nursing education and empirical evidence supporting their use. Further objectives are to understand if such EPAs have been fully implemented in any educational programs or are only discussed. Therefore, the specific review questions to be answered are:

(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 programs?

Information sources and searches

A preliminary search on any existing scoping reviews relating to EPAs and nursing was conducted to confirm that no duplicate work is undertaken for the scoping review. The following electronic databases will be searched: MEDLINE and EMBASE databases via OVID, CINAHL and ERIC via EBSCO host, as well as Google Scholar for grey literature. Search strategies were developed and refined iteratively using free text keywords relating to nursing education and EPAs, which were combined by Boolean operators. If MeSH terms are available in databases, these will also be used to include associated search terms. All search strings are listed in table 1. In addition, reference lists from relevant articles will be screened for additional literature.

Table 1: Search strings for electronic databases (01.01.1995-31.21.2021)

Databases	Searches	Number of hits
Medline and Embase combined search via OVID	((entrustable professional activit* or epa or epas) and (nursing education or nursing student* or nurs*)).ti,ab.	279 hits including duplicates
ERIC und CINAHL combined search via EBSCOhost	TI (("entrustable professional activit*" or epa or epas)) AND AB (("nursing education" or "nursing student*" or nurs*))	17 hits including duplicates
Google Scholar	("nursing education" OR “nursing student* OR nurs*) AND (entrustable professional activit* OR epa OR epas)	3570 hits

Eligibility criteria

Any articles or studies relating to EPAs and nursing will be considered addressing any of the review questions. Specifically, articles or studies should meet the following criteria:
1) Publication period includes the first known mention of EPAs in 1995 up until 2021 (01.01.1995-31.21.2021). 2) Language: No language restrictions. 3) Types of literature: All types of literature will be searched including but not limited to descriptive studies, interventional studies, reviews. Opinions may also be included, as long as they have a clear mention of specific EPAs. 4) All academic nursing education fields including undergraduate, postgraduate, student nurses, nursing education, and Bachelor of Science in Nursing. Clinically-based programs may also be included if they present any EPAs used to train nursing students. 5) EPAs must be mentioned either in the title or abstract.

Study screening and selection

Study screening will be conducted in a two-stage process. The first author will screen all databases and select the literature based on title and abstract, using the keywords and searches mentioned above. Duplicate screening will occur via a preselected settings in OVID, as well as EBSCOhost. Thereafter, all electronic results will be exported into EndNote reference manager and, if necessary, further deletion of duplicates will be done.

Upon completion of the first stage screening, the full texts will be screened for eligibility. A second reviewer will independently screen the retrieved articles and these will be compared and consolidated with the first reviewer’s screening.[21] Any articles that are not clearly considered eligible by both reviewers will be discussed with a third reviewer.

Data charting and items

Data extraction forms will be used to extract the relevant information and evidence. The data items are described in table 2.

Table 2: Data charting variables and domains relating to article description

PCC elements	**Item/domain**	**Description**
	Year	Year of publication
	Author/s	List of all authors
	Publication type	Review, commentary, empirical study, other
	Study design	If it is an empirical study, what design was used (descriptive, experimental)?
	Geographical location	On which continent and in which country is the institution located?
Population	Setting	Type of school/institute/educational clinic

Context	Type of nursing program	Is this an undergraduate, postgraduate, BSN or other type of academic program/clinic?
Concept	EPAs characteristics	What are the listed EPAs and how are they characterized?
	Title	Title of the EPA[3]
	Specifications	Clear listing of what is included in the activity[3]
	Limitations	Clear listing of what is excluded in the activity[3]
	Most relevant competency domains	Refers to competency framework used to develop the EPAs[3]
	Implementation	Were the EPAs that were proposed included in the local academic nursing program(s)? If so, when and how were they implemented?
	Effects	If any effects are reported, which ones were described using which outcomes?
	Evidence supporting effects	Effect sizes described in empirical studies

Synthesis of results

Extracted information will be described qualitatively and using frequencies. Described EPAs will be summarized inductively into overarching domains. The number of proposed EPAs will be compared with the number of implemented EPAs per institution type and/or nursing program. Empirical evidence supporting effects of EPA use will be summarized and outcomes measuring effects will be listed.

Patient and public involvement

There was no involvement of the public or patients regarding the design of this scoping review.

ETHICS AND DISSEMINATION

An ethics approval is not required as this protocol will be using previously collected data. Review findings will be published in a peer-reviewed journal and presented at scientific conferences.

DISCUSSION

EPAs have gained popularity in medical and other health professions education programs. This scoping review will map the existing body of evidence about EPAs in nursing education. Review results will help to evaluate the current status of EPA development, dissemination and implementation in nursing education and to identify areas of future development. Innovations in education and curriculum development are needed, but it is also necessary to evaluate the impact of introducing new concepts on programs and learning outcomes.

The reporting of this review will follow the PRISMA extension for scoping reviews, which will ensure that the review objectives are met and that the review steps can be replicated.[19]

Even though rigorous reporting will be undertaken, it is possible that the search strategy may not be sensitive enough or that some keywords/mesh terms might be missing. This would lead to an incomplete evidence map. Furthermore, the risk of bias of research results and the quality of evidence will not be appraised.

Like other aspects in evidence-based nursing education, it is of great interest to understand if EPAs can also have positive effects on trainees, supervisors, as well as the curriculum. Some evidence suggests that EPAs can be feasible as an effective work-based assessment tool in e-portfolios for both trainees and supervisors.[22] This would suggest a great opportunity to help digitalize lots of paperwork and improve the flexibility of assessment.

It also remains to be seen whether EPAs can have the same appeal throughout various nursing training programs from undergraduate to postgraduate and if the implementation process can be easily adopted by faculty in differing settings. If such evidence is missing, it is important to prioritize research in this area in order to improve on patient safety and quality healthcare.

Contributorship statement

Conceptualisation and design of study: NA, JK, AM
Collected and reviewed data: NA, JK, AM
Wrote the manuscript: NA, JK, HP
All authors revised and approved the manuscript

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Competing interests

There are no competing interests for any author

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