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Education and training programs for health professionals' competence in virtual consultations: a scoping review protocol

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ABSTRACT

Objective: The objective of this scoping review is to explore, report, and map the evidence on education and training programs for current and future health professionals' competence in virtual consultations.

Introduction: Digital solutions, telemedicine, and technologies are increasingly becoming a part of the health system, requiring current and future health professionals to master skills in these domains.

Inclusion criteria: This review will consider any studies on education and training programs designed to optimize current and future health professionals' competence in virtual consultations in any setting, such as faculties, universities, university colleges, hospitals, or community locations.

Methods: This review will be guided by the JBI methodology for scoping reviews. Published and unpublished sources of information will be searched for in MEDLINE (PubMed), CINAHL Complete (EBSCOhost), and Scopus. Studies written in English, German, Danish, Swedish, and Norwegian will be considered, with no geographical or cultural limitations. Two independent reviewers will screen retrieved papers, and a standardized tool will be used to extract data from each included source. The results of the extracted data will be presented in tabular format, together with a narrative summary of the evidence.

Review registration: Open Science Framework https://osf.io/bsmuy

Keywords: education; health professionals; professional competence; program development; virtual consultation

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Introduction

The economic and demographic development of society, new knowledge about treatment options, and more older people with multiple comorbidities have increased pressure on the health care system. It is expected that the proportion of individuals aged 75 years or older will witness a remarkable surge, exceeding 30% by 2030.[1] In the future, telemedicine solutions, such as virtual consultations, will have to be used to a much greater extent in the health care system to address this development.[2] Consequently, the Danish Government, in the latest digitization strategy from the Ministry of Finance, will aim to convert 30% of physical consultations into virtual consultations.[1,3]

As virtual consultations increasingly become a part of the health care system, current and future health professionals, such as doctors, nurses, occupational therapists, and physiotherapists, will need education and training to gain competencies in this domain. *Education* refers to theoretical and academic aspects of gaining knowledge. *Training* refers to practical and hands-on components of programs for acquiring skills in virtual consultations.[4] Several national and international projects have identified a need for

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increased digital competence.[5,6] *Digital competence* is a combination of abilities and attitudes allowing an individual to perform tasks, solve problems, communicate, handle information, and create and share content using technology. However, there is little evidence about how health professionals can acquire such competencies.[7,8]

Today, knowledge is constantly changing and, as a result, there is a need to review and renew previously acquired competencies.[8] New technologies will fundamentally affect all workflows in the health care system, requiring the ability to communicate and collaborate with different patients, relatives, or the general public. Thus, health professionals are expected to acquire new competencies in these technologies.[9]

Virtual consultations are meetings mediated over a screen, providing an alternative to face-to-face consultations between patients and health professionals. Such consultations allow health professionals to provide services through video-conferencing.[7] Health professionals and patients interact differently in virtual consultations, potentially making these consultations more patient-centered and effective. However, how to become competent in conducting virtual consultations is sparsely researched in the literature.[7] Teaching competence in digital solutions seems to be strongly under-represented in both bachelor's degree and postgraduate medical education.[10–13] Curricula would need to be revised to ensure that students acquire a minimum level of digital competence in a professional context as part of their education.[14] Two new studies have shown that co-creating an educational program with health professionals enabled them to acquire new competence to perform virtual consultations.[15,16]

A scoping review from 2020 provided an overview of the evidence on digital health competence for primary health professionals.[17] The results were based on all types of research, and 28 articles were included; however, most of these studies (54%) were published before 2005. The authors concluded that there were important knowledge gaps in relation to digital health education and curriculum integration, with a need to update the area of digital competence in primary care. The proposed review will differ, in that, apart from primary care, it will include every setting, such as faculties, universities, university colleges, hospitals, and community locations.

Another scoping review from 2020 explored the evidence on a digitally competent health workforce.[12] The results were based on 30 frameworks wherein thematic analysis uncovered 28 domains for digital health competency. The authors concluded that the findings could inform and guide digital health training initiatives. Thus, the 2020 scoping review may serve as a guide for certain aspects of education and training programs; however, it does not specify how to educate and train health professionals in virtual consultations.

A preliminary search of MEDLINE, the Cochrane Database of Systematic Reviews, and *JBI Evidence Synthesis* was conducted in March 2023, and no current or in-progress systematic or scoping reviews on the topic were identified. This preliminary search was performed to avoid duplication of evidence, following the recommendations of Peters *et al.*[18]

The proposed scoping review will differ from previous reviews in that it will conduct a more comprehensive and exhaustive literature search. Thus, the overall aim of this scoping review will be to explore, report, and map the breadth of evidence for education and training programs on virtual consultations, with the purpose of developing a curriculum for current and future health professionals. The review will cover all types of education and training programs in relation to virtual consultations in all settings.

Review question

What education and training programs on competence in virtual consultations are available for current and future health professionals?

Inclusion criteria

Participants

This scoping review will consider studies on the education or training of all health professionals at both undergraduate and postgraduate level, including but not limited to, doctors, nurses, occupational therapists, and physiotherapists.

Concept

The core concept is to explore, report, and map the evidence on education or training programs intended to improve health professionals' competencies in virtual consultations.

There will be a particular focus on content, methods, structure, and didactic or pedagogical organization, with the purpose of developing a curriculum.

Context

The context will be studies conducted in any professional or academic setting, regardless of duration, related to education and training in health care, including clinical settings. All settings, including hospital and community locations, will be considered in this review, with no restrictions placed on the geographical location or culture.

Types of sources

This scoping review will consider both experimental and quasi experimental study designs, including randomized controlled trials, non-randomized controlled trials, before-and-after studies, and interrupted time-series studies. In addition, analytical observational studies, including prospective and retrospective cohort studies, case-control studies, and analytical cross-sectional studies, will be considered. This review will also consider descriptive observational study designs, including case series, individual case reports, and descriptive cross-sectional studies. Qualitative studies, including, but not limited to designs such as phenomenology, grounded theory, ethnography, qualitative description, action research, and feminist research, will also be considered. Systematic reviews that meet the inclusion criteria will also be considered, depending on the research question. Lastly, text and opinion papers will be considered for inclusion in this scoping review.

Methods

This scoping review will follow the JBI methodology for scoping reviews[18,19] and will be reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).[20]

Search strategy

A 3-stage search strategy will be used in this review.[18] In the first stage, an initial limited search was conducted of MEDLINE (PubMed), CINAHL Complete (EBSCOhost), and Scopus. This was followed by an analysis of the text words contained in the titles and abstracts of the retrieved papers, as well as the index terms describing the articles. In the second stage, all identified keywords and index terms will be used and adapted for each database and information source. In the third stage, the reference lists of all sources selected for full-text review will be examined for additional papers. An information specialist has been involved in the 3 steps of the search strategy. A sample search strategy for PubMed is provided in Appendix I.

Studies published in English, German, Danish, Swedish, and Norwegian will be considered for inclusion. The reviewers are familiar with the predominant languages in Europe, and this is considered useful in the search for gray literature. Data from non-English studies will be translated into English by the reviewers before presentation in the final scoping review, and the original text will be provided in brackets. Thus, the translation will be provided side-by-side with the original to minimize translation errors. If necessary, a professional translator will be consulted.

Databases will be searched from inception, with no date limitations, to ensure that the search is as broad as possible. A final search will be conducted prior to publication of the scoping review. If relevant, reviewers will contact authors of primary studies or reviews once for further information. The databases to be searched will include MEDLINE (PubMed), CINAHL Complete (EBSCOhost), and Scopus. The searches will be guided by the PRISMA-S checklist.[21] Sources of unpublished studies and gray literature will include MedNar, OpenGrey, NICE Evidence Search, Google Scholar, and SIGN.

Source of evidence selection

After the search, all identified citations will be collated and uploaded into Covidence (Veritas Health Innovation, Melbourne, Australia), and duplicates will be removed. A pilot test will be conducted on a random sample of 25 title abstracts. Discrepancies regarding the eligibility criteria and definitions for exploratory documents will be discussed by the team until consensus is reached. When the team reaches agreement of 75% or more, the screening will begin. Titles and abstracts will be screened by 2 or more independent reviewers for assessment against the inclusion criteria. Potentially relevant studies will be retrieved in full, and their citation details will be available in Covidence. The full text of selected citations will then be assessed in detail against the inclusion criteria by 2 or more independent reviewers. Reasons for exclusion of full-

text studies that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between reviewers at any stage of the study selection process will be resolved through discussion or by involving a third reviewer. The results of the search and study inclusion process will be reported in full in the final scoping review according to the PRISMA guidelines to ensure methodological rigor and transparency.[22]

Data extraction

Data will be extracted by 2 or more independent reviewers using a data extraction tool developed by the reviewers. The extracted data will include specific details about the author(s), year of publication, country of origin, aims/purpose, population/sample size, study design, and conclusion with reference to the scoping review question. A draft data extraction form is provided in Appendix II. The reviewers will keep careful records to facilitate references and tracking in the identification of each source. The data extraction tool will be modified and revised, if necessary, during the process of data extraction and any modifications will be detailed in the scoping review.

At least 2 members will pilot-test the extraction form on 2 or 3 sources to ensure that all relevant results are extracted.[18] Any disagreements that arise between the reviewers will be resolved through discussion or with a third reviewer. If appropriate, reviewers will contact the corresponding authors of papers once to request missing or additional data.

Data analysis and presentation

Data will be presented in tabular format according to PRISMA-ScR guidelines, in a manner that aligns with the objective of the scoping review. This will be accompanied by a narrative summary of the data.[19] The results will be classified into main conceptual categories, in accordance with the PRISMA-ScR guidelines, with a clear explanation for each category.[18,22]

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Author contributions

LMWM, BEB, MBHP designed the study. LMWM, BEB, MBHP, SSG, MVN, DH wrote the manuscript.

Availability of data

The data are available from the corresponding author upon reasonable request.

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Appendix I: Search strategy

PubMed
Search conducted: June 6, 2024

#	Search terms and searches	Records retrieved
1	(("Telemedicine"[MeSH Terms] OR "Telemedicine"[Text Word] OR ("digital health"[MeSH Terms] OR "digital health"[Text Word]) OR ("Telecommunications"[MeSH Terms] OR "Telecommunications"[Text Word])) AND ("digital technology"[MeSH Terms] OR "digital technology"[Text Word] OR ("professional competence"[MeSH Terms] OR "professional competence"[Text Word]) OR ("clinical competence"[MeSH Terms] OR "clinical competence"[Text Word])) AND ("Education"[MeSH Subheading] OR "Education"[MeSH Terms] OR "Education"[Text Word] OR ("program development"[MeSH Terms] OR "program development"[Text Word]) OR ("simulation training"[MeSH Terms] OR "simulation training"[Text Word])) AND ("health personnel"[MeSH Terms] OR "health personnel"[Text Word] OR ("Nurses"[MeSH Terms] OR "Nurses"[Text Word]) OR ("physicians"[MeSH Terms] OR "doctor"[Text Word]) OR ("physical therapists"[MeSH Terms] OR "physical therapists"[Text Word]) OR ("occupational therapists"[MeSH Terms] OR "occupational therapist"[Text Word]))))	501
	Language limitations (English, Swedish, Danish, German, Norwegian)	

Appendix II: Draft data extraction tool

Authors, year, origin	Aims/purpose	Population/sample size	Study design	Conclusion	Authors' conclusion related to the research question

