# The impact of training and education programs for healthcare professionals on video and text-based meetings in ensuring healthcare quality: A Scoping review protocol

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Submitted to: JMIR Research Protocols
on: December 11, 2024

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## *Abstract*

**Background:** The use of digital technologies, such as computers, the Internet, and mobile phones, has surged and emerged as a critical tool in healthcare. These tools enable remote access through video meetings and text-based meetings. They help in patient pre-screening, counselling services such as nutrition and mental health, remote patient tracking, and patient monitoring. With the increasing demand for technologies, tools, and applications, healthcare professionals require training and educational competency development to sustain in the modern digital age. Therefore, there is a need to synthesise the evidence about the existing types of training programmes in arranging and regulating such meetings and how they were implemented, providing reassurance about the effectiveness of these digital health solutions.

**Objective:** This scoping review aims to compile and synthesise the best available evidence regarding the training of healthcare professionals in conducting video and text-based meetings with patients, such as email, chat, and web portals. The synthesis will also uncover what training programs are available and, if so, how they were implemented and what their impacts are from the perspectives of the organisation, the staff, and the patients.

**Methods:** The review will follow the Joanna Briggs Institute (JBI) methodology. The published studies will be searched through PsychInfo, APA PsycInfo, PUBMED, and CINAHL and the unpublished studies through Mednar, Trove, OCLC WorldCat, and Dissertations and Theses. Studies published in English from 2003 will be considered. This review will include studies of healthcare professionals trained to communicate online with patients or service users, healthcare professionals and healthcare organisations. The concept will involve online communication, such as conducting video and text-based meetings (emails, chats, web portals), and the context will consider studies based on healthcare, hospitals or clinics, and primary care. A broad scope of evidence, including quantitative, qualitative, text and opinion studies, will be considered. Two independent reviewers will screen the titles and abstracts and review the full text. Data will be extracted from the included studies using a data extraction tool developed for this study.

**Results:** The results will be presented in a PRISMA flow diagram. A draft charting table will be developed as a data extraction tool. The results will be presented as a 'map' of the data in a logical, diagrammatic, or tabular form and a descriptive format. This protocol was first developed by the principal author at Linnaeus University in April 2022; however, a full search was undertaken in August 2024 as part of research development at the University of Bradford.

**Conclusions:** The evidence synthesis is expected to uncover evidence about the existing training programmes for arranging and regulating online meetings, how they were implemented, and the training's results from the perspectives of the organisation, the staff, and the patients. The review will identify the knowledge gaps, clarify the concepts, examine emerging evidence, and thus make recommendations for future research on video consultation and text-based meetings.

(JMIR Preprints 11/12/2024:69963)
DOI: https://doi.org/10.2196/preprints.69963

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# Original Manuscript

# Scoping Review Protocol

## The impact of training and education programs for healthcare professionals on video and text-based meetings in ensuring healthcare quality: A Scoping review protocol


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## Abstract

**Background:** The use of digital technologies, such as computers, the Internet, and mobile phones, has surged and emerged as a critical tool in healthcare. These tools enable remote access through video meetings and text-based meetings. They help in patient pre-screening, counselling services such as nutrition and mental health, remote patient tracking, and patient monitoring. With the increasing demand for technologies, tools, and applications, healthcare professionals require training and educational competency development to sustain in the modern digital age. Therefore, there is a need to synthesise the evidence about the existing types of training programmes in arranging and regulating such meetings and how they were implemented, providing reassurance about the effectiveness of these digital health solutions.

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**Results:** The results will be presented in a PRISMA flow diagram. A draft charting table will be developed as a data extraction tool. The results will be presented as a 'map' of the data in a logical, diagrammatic, or tabular form and a descriptive format. This protocol was first developed by the principal author at Linnaeus University in April 2022; however, a full search was undertaken in August 2024 as part of research development at the University of Bradford.

**Conclusion:** The evidence synthesis is expected to uncover evidence about the existing training programmes for arranging and regulating online meetings, how they were implemented, and the training's results from the perspectives of the organisation, the staff, and the patients. The review will identify the knowledge gaps, clarify the concepts, examine emerging evidence, and thus make recommendations for future research on video consultation and text-based meetings.

## Keywords

Video meetings, video conferences, patient encounters, text-based meetings, emails, chats, web portals

## Introduction

### Overview

The development of Telehealth goes back over 60 years; when in 1964, the University of Nebraska, a pioneer in the field, first established a two-way communication (CCTV) to transmit medical information to a psychiatric hospital [1]. This early initiative, still in its infancy, paved the way for the evolution of telehealth. Telehealth began to gain traction in rural areas in the 1960s through the use of television (CCTV) and radio, giving those living in isolated areas access to vital healthcare [2]. The advent of wireless networking technology (WIFI) in 1983 was a game-changer, enabling devices like computers to communicate without cables. This breakthrough led to a surge in internet-based telehealth. The year 1999 marked another milestone with the integration of WIFI into laptops, enhancing two-way communications [3] and fostering the widespread use of telehealth over the internet [4]. The year 2004 witnessed a revolution in telehealth with the emergence of internet-based mobile technology. This development, which included mobile phones and Personal Digital Assistants, made the Internet more accessible than ever before [5]. It provided cost-effective ways to access internet-based technology and facilitated two-way communications from a wider range of locations, thereby democratising telehealth practice [6].
In the wake of the COVID-19 pandemic, the role of digital technologies in healthcare has been amplified. The use of computers, the Internet, and mobile phones has surged, enabling remote access through video meetings and other digital tools. This surge is a direct response to the social distancing and travel restrictions imposed by the pandemic, underscoring the vital role of digital technology in maintaining healthcare services. [7]. This form of communication, including text-based meetings in the form of emails, chats, and web portals, has become essential to ensure that patient-related and other care-related activities can continue uninterruptedly in an unfamiliar environment [7, 8]. After the COVID-19 pandemic, videoconferencing has become a cornerstone of modern healthcare. Its easy accessibility, economic efficiency, and comfort to patients, healthcare professionals, and the organisation make it an indispensable tool in the new healthcare landscape. [7].
Video meetings have emerged as a critical tool in healthcare, facilitating family members' virtual visits to the intensive care unit. This not only reduces the risk of infection but also ensures social distancing, thereby enhancing patient safety. [9]. These meetings can also help pre-screen patients,

for example, those who have flu symptoms and are required to be referred to a hospital, providing counselling services virtually, such as mental health [10] and behavioural health counselling [11, 12], nutrition counselling and weight management [13]. The patients can also be followed up after a hospital stay or surgery, requiring regular checks, patient monitoring, offering advance care directives, planning and/or further counselling to patients and their families. This not only ensures continuous care but also reduces the need for frequent hospital visits, thereby minimising the risk of infection [14]. Video meetings have the potential to revolutionise healthcare by enabling remote patient tracking, thereby reducing the likelihood of hospital readmissions after discharge. This innovative use of technology holds great promise for the future of healthcare. [15]. This service application can even benefit social care, for example, by providing a bedside doctor's visit to a nursing home, care home or any assisted living residence without risking the patient or doctor spreading any infection [16].

With the increasing demand for technologies, tools, and applications, healthcare professionals are at the forefront of the digital transformation of healthcare. Their ability to effectively and efficiently practice medicine in the digital age is crucial [17, 18]. Healthcare professionals, including nurses, physicians, specialists, clinicians, and practitioners, have a moral obligation to consider the consequences holistically, both intended and unintended, of digital health applications in routine clinical practice to uphold the oaths of providing patient care [19, 20]. This demand further necessitates training and educational competency development for healthcare professionals to sustain in the modern digital age [12, 21]. Conducting video meetings and conferences to develop digital health-related skills and competencies at any stage for healthcare professionals is essential. The impacts of such training and education programs from the perspectives of patients, healthcare professionals, and the organisation are of the utmost importance.

Such skills and competencies could, for instance, consider educational approaches, frameworks, or pedagogy related to understanding, applying, implementing, and evaluating the use and applications of video and text-based meetings at an individual, community, population, or society level to benefit human health and well-being. This would also answer the questions related to the ethical, legal, or social implications of healthcare personnel's digital skills and competencies development. Emphasis will be placed on assessing and evaluating the effectiveness and cost efficiencies of those tools and applications associated with video conferencing and how they improve healthcare quality.

To shape this review, we will focus on healthcare professionals undergoing training and education programmes to conduct video and text-based meetings with patients, such as email, chat, and web portals. This evidence synthesis will inform us about the existing types of training programmes in arranging and regulating such meetings, how they were implemented, and the results of the training from the perspectives of the organisation, the staff, and the patients. This proposed scoping review aligns with the strategic direction of the NHS to understand the current trends and needs of healthcare professionals, patients, and service users. It has the potential to significantly improve the quality of healthcare services, potentially transforming the way healthcare is delivered. [22]. Therefore, with their potential for widespread acceptance and adoption, the review results promise to meet today's societal need—developing optimised guidance for providing information about personal and confidential patient information that can be used during a video consultation. The guidance can also inform us of the types of tools used for video consultations, specific considerations for using such tools more safely with patients and service users, data protection impact assessments, etc. Given that the topic of video consultation and text-based meetings is an emerging area that needs immediate attention, a scoping review is crucial to identify the knowledge gaps, clarify the concepts, examine emerging evidence, and thus make recommendations for future research. The potential impact of these results on healthcare delivery is significant, underlining the urgency and importance of our work.

Despite a thorough search of reputable databases such as Campbell Systematic Reviews, the Cochrane Database of Systematic Reviews, PROSPERO, and JBI Evidence Synthesis, no existing

systematic reviews or scoping reviews on this specific topic were found. This underscores the unique and pioneering nature of our proposed scoping review, which promises to break new ground in the field of digital health education.

## Aim and review questions

This scoping review aims to compile and synthesise the best available evidence regarding the training of healthcare professionals in conducting video meetings and text-based meetings with patients, such as email, chat, and web portals. We would like to know if there are any training programs out there and, if so, how they were implemented and what their impacts are from the perspectives of the organisation, the staff, and the patients.
Specifically, the review questions are:

- What training and education programs are used to train healthcare professionals in conducting video and text-based meetings (emails, chats, web portals)?
- How are those training and education programs implemented to improve the quality of care and ensure healthcare quality?
- What are the impacts of such training and education programs from the perspectives of patients, healthcare professionals, and the healthcare organisation?

# Methods

The proposed scoping review will be conducted following the Joanna Briggs Institute (JBI) methodology for scoping reviews [23].

## Search strategy

Databases will be searched for both published and unpublished studies. The approach to searching for studies for a scoping review will follow the standard three-step method (See Table 1). The first step will be an initial limited search of relevant databases, followed by an analysis of text words in the title and abstract and the index terms used to describe the article. The search for published studies will include a two-way search strategy. One is to search the journal and reference databases, such as PsychInfo, PUBMED, CINAHL, and Web of Science. Another is to search article-based (journal) databases, such as ACM digital library, IEEE Xplore, and BMJ Journals. The search for unpublished studies will include Mednar, Trove, OCLC WorldCat, and Dissertations and Theses. A second search using all identified keywords (see Box 1) and index terms will be undertaken across all included databases. Additional search strategies, i.e., citation search – specific researcher or article (for example, gold-standard article), and chain search – review reference list of the systematically selected articles will be included to complement the search for published and unpublished papers. Studies, such as reviews (systematic, scoping, umbrella) and letters to editors, will be excluded. Any studies that lack ethical concerns will also be excluded. Studies published in English will be considered. Studies published from 2003 onward will be considered as the initial start for all searches to keep the dates consistent.
*Box 1: A list of keywords for search strategy*

*Box 1: A list of keywords for search strategy*
**Participants**: healthcare professional, health worker, healthcare staff, healthcare provider, clinician, resident doctors”
**Concept:** video consultation, video call, telemedicine, telehealth, e-consultation, text-based meeting, email, chat, web portal, online communication, digital communication, digital encounter
**Context:** training, coaching, instruction, competenc*, knowledge, skill, educational program*

## Eligibility criteria

This scoping review will include the following PCC mnemonics– **P**opulation, Concept, and Context. These mnemonics will be used as a guide (not policy); therefore, the inclusion criteria of this systematic review will include a detailed description of types of participants, concepts and context, as well as search strategies, data extraction, charting, analysis and presenting the results. The eligibility criteria are listed in Table 1 and described in detail as follows.

**Table 1: Inclusion and exclusion criteria**

| Feature | Inclusion criteria | Exclusion criteria |
|---|---|---|
| Article type | · Conference paper<br>· Grey literature<br>· Early Access | · Review articles<br>. Meeting abstracts<br>· Editorial materials<br>· Book chapters |
| Language | · English | · All other languages |
| Participants | · Studies involving healthcare staff being trained to communicate online with service users.<br>· Studies that include implementation of training programs to train healthcare professionals to use online methods of communicating with service users. | Studies that do not involve healthcare professionals (such as university students), and studies that pertain to training healthcare staff using video |
| Concept | Studies evaluate the impact of being trained to use online methods of communicating with patients on service users, healthcare professionals and healthcare organisations. | Studies that do not focus on the evaluation of the training impact |
| Year | Studies from 2003 through 2023 | Studies from 2002 and earlier |
| Context | Studies pertaining to healthcare, hospitals or clinics, primary care | · Studies not in the context of healthcare |

## Participants

This review will include studies of healthcare professionals, workers, or providers being trained to communicate online with service users, other healthcare professionals and healthcare organisations.

## Concept

In this scoping review, the key concept is to evaluate the impact of online training methods of communicating, such as conducting video and text-based meetings (emails, chats, web portals) with patients or service users, healthcare professionals and healthcare organisations.

## Context

The systematic review will consider studies based in healthcare, hospitals or clinics, and primary care.

## Types of Sources

This scoping review will consider experimental and quasi-experimental study designs, including randomised controlled trials, non-randomised 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 for inclusion. This review will also consider descriptive observational study designs, including case series, individual case reports and descriptive cross-sectional studies for inclusion. Qualitative studies focusing on qualitative data will also be considered, including, but not limited to, designs such as phenomenology, grounded theory, ethnography, qualitative description, and action research. Text and opinion papers will also be considered since scoping reviews include a broad scope of evidence.

## Study/Source of Evidence Selection

Following the search, all identified citations will be collated and uploaded into EndNote 20 (Clarivate Analytics), and duplicates will be removed. A pilot test, which is conducted to ensure the effectiveness and consistency of the screening process, will be carried out. Titles and abstracts will then be screened by two or more independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant sources will be retrieved in full, and their citation details will be imported into the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI) [24] Two or more independent reviewers will assess the full text of selected citations in detail against the inclusion criteria. Reasons for excluding sources of evidence in full text that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through open and inclusive discussion or with an additional reviewer/s. The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram [25].

## Data Extraction

Two or more independent reviewers will meticulously extract data from papers included in the scoping review using a data extraction tool they developed. The data extracted will include specific details about the participants, concept, context, study methods, and key findings relevant to the review questions, ensuring a comprehensive and thorough review. This rigorous process instils confidence in the reliability of the results.

A draft charting table, designed to be adaptable, will be developed as a data extraction tool. The charting table will be modified and revised as necessary while extracting data from each included evidence source, ensuring the review remains flexible and responsive to the data. This adaptability ensures that the review process is responsive to the nuances of the data, providing a comprehensive and accurate review.

## Results

The results will be presented as a 'map' of the data extracted from the included papers in a logical, diagrammatic, or tabular (as necessary) form and in a descriptive format that aligns with the objective and scope of the review. Some critical information that the charting table will include are

(but are not limited to): year of publication, country of origin for the study, aims, study population and sample size, methodology/methods, type of intervention/ comparator, duration of the intervention, and type of outcomes and how they were measured (if applicable). A clear explanation for each category will be provided, accompanied by a narrative summary describing how the results relate to the review objective and questions.

The principal author first developed this scoping review protocol as part of research development at the University of Bradford, which has been undertaking a full search since July 2024. We expect the analysis to be completed by March 2025 and the final scoping review manuscript to be submitted by August 2025, providing a clear timeline for the review's completion. This timeline ensures the audience is informed and prepared for the review process.

## Discussion

With the continuous rise of the application of digital technology, healthcare professionals have transformed their way of delivering patient care, collaborating and following up on staying connected. Among all digital healthcare services, the most prominent advancement in recent years is the widespread usage of video conferencing. This high-powered tool has become an absolute necessity for almost all healthcare professionals, offering a range of benefits. These benefits, including better patient outcomes, improved communication, and streamlined healthcare processes, are a testament to the optimistic future that digital technology promises in patient care. The positive impact of digital technology on patient care is a reason for hope and optimism in the healthcare field. [26].

The improved patient outcomes may include behavioural telehealth competency improvement [27], behaviour technician skills, patient engagement, and skill acquisition [28], and patient activation and satisfaction [29]. Improved communication may involve connecting with patients virtually, breaking geographical barriers, and providing better accessibility for patients living in remote or underserved areas [29]. Such accessibility can minimise the need for extensive travel and enhance patient satisfaction with timely dimension and preventive care [26]. This powerful video consultation tool can also provide a platform for interdisciplinary collaboration among healthcare professionals, thus ensuring a streamlined healthcare process. This process may include a multidisciplinary approach– discussing complex cases, sharing insights, and making decisions for more comprehensive and patient-centric treatment plans [30].

Healthcare professionals need to be equipped with the skills to conduct virtual patient encounters. This involves understanding the ethical, legal, and social implications of digital health applications, particularly video and text-based meetings [26. It also includes considerations of patient privacy and data security, the potential for increased access to care, and the impact on the doctor-patient relationship. It also involves understanding the potential for digital health to exacerbate existing health disparities or create new ones, as well as the ethical considerations of using digital tools to monitor and manage patient health. However, with time and resources constrained on the operative level in the busy socio-technical healthcare environment, healthcare professionals cannot dedicate themselves outside their regular working hours. Their heavy workload also adds complexity to engaging and retaining skilled staff and experts within the healthcare organisation [31]. Therefore, it is essential to set up an initial and ongoing training process on how to skilfully conduct virtual patient encounters skilfully, ideally in association with the vendors, and set aside sufficient paid time for healthcare professionals to be properly trained [22, 32].

Telehealth, with its roots stretching back to the early 1900s, has a rich history that forms the foundation of our modern understanding. However, the transformative impact of internet-based communication for healthcare purposes, which was yet to come, is a fascinating evolution that enlightens us about the modern communication styles in healthcare [2, 4]. The internet, which was first used in 1983, gained popularity and usage in 1999 with the introduction of WIFI on laptops, and

further in 2004 with the emergence of internet-based mobile technology. These milestones significantly increased the accessibility and reach of telehealth. The role of wireless internet-based technologies, such as mobile phones and Personal Digital Assistants, in the establishment of telehealth practices, is of paramount importance, marking a significant shift in healthcare delivery [1, 3]. This systematic review, aiming to capture the modern-day use of telehealth, will consider studies published from the early 2000s to the present. The significance of this review lies in its comprehensive coverage of the evolution of telehealth, providing valuable insights for healthcare professionals, researchers, and academics.

## Strengths and limitations

This initiative is a significant part of an international collaboration with the Region Kalmar Län, Sweden. Together, we aim to create a digital learning environment for training healthcare professionals on how to communicate with patients using only short text messages. The role of face-to-face workshops is crucial in this initiative, as they will not only enhance the digital learning environment but also foster a sense of community and promote the exchange of experiences among healthcare professionals.

The findings of our review, while requiring caution due to our search limitations in terms of language and publication period, are of significant value. These findings are the result of a transparent and comprehensive strategy, which includes the standard three-step method and grey literature for additional insights [33]. The systematic review is a crucial step in understanding the evolution of telehealth. Each database had different publishing dates for their earliest research related to the keywords. CINAHL's earliest relevant publication was in 1990, while the earliest publication on APA psych articles was in 2003 – the latest among the four databases used. To maintain consistency, 2003 was chosen as the initial start for all searches, ensuring the relevance and timeliness of the research.

We acknowledge the possibility of a limited number of included studies, which may introduce bias, and we are committed to following the Evidence-based Practice Center (EPC) Methods Guide proposed by the Agency for Healthcare Research and Quality (AHRQ) to minimise this risk. [34]. The scope of the review is of utmost importance, as it guides our search and interpretation of results. We must exercise caution, as most of the hits in the search may focus on training healthcare staff using video rather than training them on how to conduct video meetings with patients. It's also worth noting that articles on training healthcare staff in patient encounters may have been more prevalent during the pandemic (2020-22) when digital encounters were at their peak.

We are committed to inclusivity to ensure the systematic scoping review generates generalisable findings. To support the interpretation of findings and the dissemination of the review, we will hold discussions with healthcare professionals, patients and the relevant public. Their perspectives are invaluable and will be integral to the review process.

## Conclusion

No current or underway systematic reviews or scoping reviews on the topic were identified. This evidence synthesis, a collaborative effort involving researchers and practitioners, will inform us about the existing types of training programmes for arranging and regulating online meetings, how they were implemented, and the training's results from the perspectives of the organisation, the staff, and the patients. This review will uncover the shreds of evidence requiring diligent attention to address to identify the knowledge gaps, clarify the concepts, examine emerging evidence, and thus make recommendations for future research on video consultation and text-based meetings.

# Acknowledgements

The authors would like to thank Evalill Nilsson and the librarians from Linnaeus University and the

University of Bradford for their guidance and assistance in this research.

## Data Availability

All supporting data will be reported in the manuscript. Any raw data sets that support the results will be made available by the authors as a supplementary file.

## Funding

This study is being undertaken without external funding. Two publishing grants have been received; one from Linnaeus University as a part of the University Library's research support, and another is the Brad-Attain Summer Internship for students working in this project from the University of Bradford, Brad-Attain team.

## Conflicts of interest

There is no conflict of interest in this project.

## Abbreviations

JBI – Joanna Briggs Institute
JBI SUMARI – JBI System for the Unified Management, Assessment and Review of Information
PRISMA-ScR – Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review
EPC – Evidence-based Practice Center
AHRQ – Agency for Healthcare Research and Quality

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