DEVELOPMENT OF LEADERSHIP SKILLS IN MEDICAL EDUCATION: A SCOPING REVIEW PROTOCOL. Abstract Background: Leadership is recognized as an essential competency in health care and science, being central for professionals to face health challenges. Few physicians feel prepared to serve as leaders in the health care environment, and few receive training in the leadership skills needed to be successful. Teaching leadership skills together with extensive longitudinal clinical education in an authentic and nurturing environment can effectively develop students for leadership in medicine. Studies on the subject still do not show the best way to implement it in medical education, and an updated review is necessary. A scoping review on leadership in

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Table of Contents

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Abstract

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Methods: This is a scoping review that will consider studies on leadership skills in medical and health undergraduate courses. Primary studies published in English, Spanish, and Portuguese since 2019 will also be considered. The search will be performed in six databases, and reference lists will be searched for additional studies. Duplicates will be removed, and two independent reviewers will examine the titles, abstracts, and full texts of the selected studies. Data extraction will be performed using a tool developed by the researchers. This scoping review protocol was registered in the Open Science Framework (https://osf.io/yexkb).

Results: This is a scoping review that will consider studies on leadership skills in medical and health undergraduate courses. Primary studies published in English, Spanish, and Portuguese since 2019 will also be considered. The search will be performed in six databases, and reference lists will be searched for additional studies. Duplicates will be removed, and two independent reviewers will examine the titles, abstracts, and full texts of the selected studies. Data extraction will be performed using a tool developed by the researchers. This scoping review protocol was registered in the Open Science Framework (https://osf.io/yexkb). The preliminary result of the scoping review showed an extensive range of articles, highlighting articles found in Science Direct (404), Web of Science (183), DOAJ (190), and other databases. This scoping review on leadership in the medical curriculum can significantly contribute to the literature by organizing and synthesizing the available evidence on teaching leadership skills in undergraduate courses in the health area. Furthermore, by analyzing evidence and identifying knowledge gaps, the study can provide valuable insights to develop more efficient and comprehensive medical education programs, thus preparing students to take on leadership roles in the complex environment of health care.

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DEVELOPMENT OF LEADERSHIP SKILLS IN MEDICAL EDUCATION: A SCOPING REVIEW PROTOCOL

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Abstract

Background: Leadership is recognized as an essential competency in health care and science, being central for professionals to face health challenges. Few physicians feel prepared to serve as leaders in the health care environment, and few receive training in the leadership skills needed to be successful. Teaching leadership skills together with extensive longitudinal clinical education in an authentic and nurturing environment can effectively develop students for leadership in medicine. Studies on the subject still do not show the best way to implement it in medical education, and an updated review is necessary. A scoping review on leadership in the medical curriculum should improve and organize what is already available in the literature.

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Results: The preliminary result of the scoping review showed an extensive range of articles, highlighting articles found in Science Direct (404), Web of Science (183), DOAJ (190), and other

databases.
Conclusions: This scoping review on leadership in the medical curriculum can significantly contribute to the literature by organizing and synthesizing the available evidence on teaching leadership skills in undergraduate courses in the health area. Furthermore, by analyzing evidence and identifying knowledge gaps, the study can provide valuable insights to develop more efficient and comprehensive medical education programs, thus preparing students to take on leadership roles in the complex environment of health care.
Keywords: Leadership, medical education, Abilities.

Introduction

Background:

Leadership is recognized as an essential competency in health care and science [1], being fundamental for professionals to face important health challenges. For this reason, the preparation of health professionals for leadership roles and responsibilities has become increasingly important [2]. Effective leadership through ethical decision-making, communication, teamwork, and flexibility are necessary skills during health crises, having been given greater prominence after the stress inflicted on our health system by the COVID-19 pandemic [3].

There is more talk about leadership in medical education. Thus, "Medical leadership and management" describes the involvement of physicians in the leadership and management of individual patient care and the departments, organizations, and systems where they work [4]. Therefore, the future of medical leadership and management development has great potential to improve patient care. However, it must be longitudinally integrated throughout physicians' careers. Furthermore, the development of undergraduate courses is a critical step in increasing awareness, creating professional identity, and thus helping physicians in training to recognize and understand their broader responsibility to the system and patients [4].

The existing gap due to the absence of leadership education leads to the question of whether students develop skills to handle and resolve conflicts, learn to share leadership, prepare others to help and replace them, assume mutual responsibility, and discuss their actions [5]. Informal leadership preparation coupled with extensive longitudinal clinical education in an authentic and nurturing environment can effectively develop students for leadership in medicine [6]. Medical knowledge alone is insufficient to provide excellent medical care [7].

In the healthcare system, leadership has never been more crucial. In underdeveloped countries, the lack of management capacity leads to frequent failures in initiatives to improve health care even with clinical knowledge and public health. Some barriers to implementing full leadership

development are alleged at any career level [8]. Then, this scoping review aims to fill the following gaps: difficulty in introducing specific programs of leadership training into the medical school curriculum; the existence of curricula filled with other priority topics; and how leaders' performance should be evaluated during the medical course [9].

Despite the growing effort for physician leadership education to begin earlier and continue throughout their careers [5], and verification that leadership training must be longitudinally integrated throughout the clinician's career [10], the best way to implement it into medical education is not yet known. A scoping review can provide a comprehensive, detailed, and unbiased view of this subject. Therefore, a scoping review will be used to address different perspectives and evidence. The results of this study should allow for a more deep and informed understanding of leadership teaching in medical courses.

Justification

Leadership is an education area and the basic training for the development of physicians, but few medical school curricula provide formal training in this area. From an individual student perspective, the inclusion of leadership in the curriculum helps provide a more holistic and realistic preparation for professional practice and development [3,11,12].

Effective leadership is fundamental to generating high-quality care for patients in addition to improving their safety through a collective leadership style. Throughout clinicians' careers, growing evidence indicates that leadership skills must be taught and vertically integrated into interprofessional education [10]. In the same sense, it was observed that the teaching of leadership in the medical course should be based on a relevant health context. Thus, the urgent need to adapt the current medical curricula is evident, implementing leadership teaching into their curriculum to meet such evolving needs. This raises questions about the appropriate context, time, and pedagogy for teaching this competency to medical students. Then, the routine use of the Objective Structured Clinical Examination (OSCE) as an evaluation method in medical courses would bring undeniable benefits for both the training of students in the practice of leadership and possible assessment of communication, time management, conflict mediation, empathy, and emotional intelligence skills [1,10,11].

Despite increasing efforts for leadership education for medical students to start earlier (and continue throughout their careers) and evidence that training in leadership skills needs to be longitudinally integrated across the physicians' trajectory, it is not known whether Brazilian medical

schools promote leadership education and what is the best way to implement it. Therefore, it is justified that the present project is performed [4,7,8,10].

Prior work:

Although the benefits of physician leadership are well established according to the Harvard Business Review Home, few physicians feel prepared to act as leaders in the complex environment of health care and/or receive training for the leadership skills needed to be successful [11]. Therefore, acquiring leadership should not be different from acquiring the necessary knowledge to become a competent physician [3].

However, studies on the subject greatly differ in methodology, population, context, and objective, making their clear understanding even more difficult. Among all methodologies of knowledge synthesis, scoping reviews are the best way to present a broad view of evidence in heterogeneous scenarios, summarizing and promoting a better understanding [12]. Furthermore, a preliminary search showed that few scoping reviews were found despite the relevance of the topic. How to evaluate leaders' performance during medical school is also a major gap. In medical school, leaders' performance appears to be a set of skills different from academic performance although both types of knowledge can be taught and developed [9]. Therefore, a scoping review on this topic will allow for a more deep and informed understanding of teaching leadership in medical education.

Aim of this study:

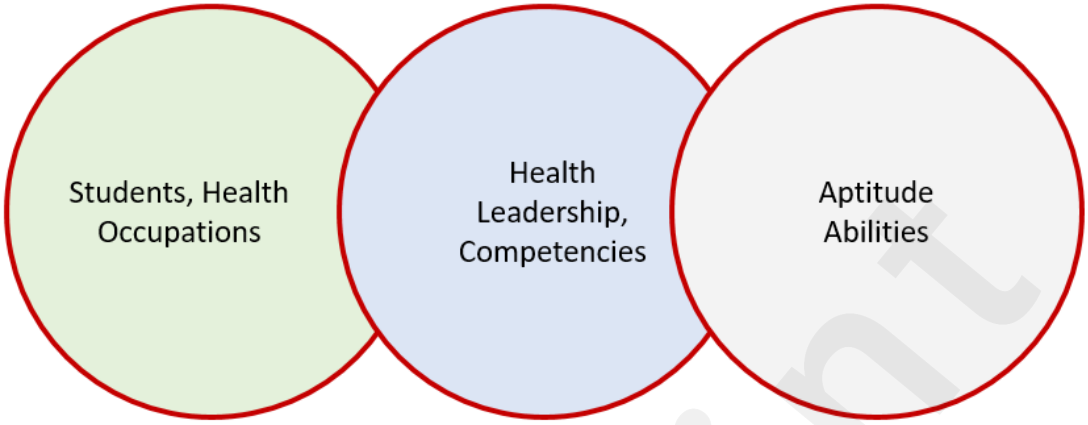
The objective of this scoping review protocol is to identify the types of evidence available on the teaching of leadership skills in undergraduate courses in the health area, analyze them, and determine gaps of knowledge.

Methods

The literature search process was conducted using various search databases and strategies in English, Portuguese, and Spanish. Databases included Directory of Open Access Scholarly Resources (ROAD), Medline, Directory of Open Access Journals (DOAJ), PubMed, Science Direct, SCOPUS, and Web of Science for the searches in English. For searches in Portuguese, Scientific Electronic Library Online (SCIELO) was used whereas for searches in Spanish, SCIELO was also used along with Latindex.

The search strategy consisted of combining key terms related to students in the health area, healthcare leadership competencies, and skills. For searches in English, the terms "Students, Health

Occupations" and "Health Leadership, Competencies", along with the synonyms "Aptitude", and "Abilities", and their variations were used. Figure 1 shows concepts explained in this review.



Research question

The research question was formulated in line with the review objective using the mnemonic conceptual model Population, Concept, and Context (PCC) as follows:

P: Students enrolled in health courses.

C: Leadership.

C: Development of leadership skills.

Based on the structure of the PCC model, the following research question was outlined: "What is the literature overview regarding leadership skills that can be cultivated during the training of students in the health area?"

Inclusion criteria

For inclusion in this review, studies whose target population was students in the health area will be considered, specifically addressing leadership skills, regardless of the types of teaching and methodology used to train students.

Participants:

Studies whose population consists of students medical and age group who were attending any year of graduation.

Concept:

Studies approaching the population mentioned Leadership Development in Medical Curricula, will be included, regardless of the type Leadership behaviours, and the way the perceptions were measured.

Context:

Eligible studies will be those related to teaching leadership in the health area in any educational context regardless of the country of origin of the study.

Types of sources:

Studies with qualitative and quantitative approaches will be included in the review, including primary studies, systematic reviews, meta-analyses, and/or meta-syntheses, as well as books and guidelines published in indexed sources. For inclusion in this review, opinion, consensus, retraction, editorials, websites, and media advertisement publications will not be considered.

Exclusion criteria

It will be considered exclusion criteria: not meeting the eligibility criteria, not being published in indexed sources, being publications of opinions, consensuses, retractions, editorials, websites, and advertisements published in the media.

Search strategy

In Portuguese, the corresponding terms were the following: "Health Sciences Students", "Health Leadership Competence", and "Aptitude", "Ability", and their variations. For searches in Spanish, the terms "Estudiantes del Area de la Salud", "Competencia de Liderazgo en Salud" and "Apitud" were used. (textbox1 1).

Textbox – Descriptor Structure

SUBJECT	SUBJECT AND SYNONYMS IN PORTUGUESE (DeCS)	SUBJECT AND SYNONYMS IN ENGLISH (MeSH)	SUBJECT AND SYNONYMS IN SPANISH (DeCS)
SUBJECT 1	“Estudantes de Ciências da Saúde”	“Students, Health Occupations”	“**Estudiantes del Área de la Salud”**
SUBJECT 2	“Competência de Liderança em Saúde”	“Health Leadership, Competencies”	“Competencia de Liderazgo en Salud”
SUBJECT 3	“Aptidão” OR “Habilidade” OR “Habilidade Pessoal”	“Aptitude” OR“abilities” OR “Aptitudes” OR “Ability”	“Aptitud”

The number of articles found in each database varied and preliminary results were as follows: PubMed (65), Scopus (9), Web of Science (183), Medline (50), Science Direct (404), ROAD (175), DOAJ (190), Scielo (90), Latindex (47) (textbox 2). After the question was prepared, the keywords that managed to capture articles referring to the theme of this research were identified: Knowledge Translation [Title] OR Translational Medical Research [Title /Abstract]. The search was performed using descriptors and/or their synonyms, according to the Descriptors in Health Sciences (DeCS) and Medical Subject Headings (MeSH) for each strategy item. To combine descriptors, the AND, OR, and

NOT Boolean terms were used.

This diversity of databases and search strategies provided a broad coverage of the available literature, contributing to the comprehensiveness and relevance of the review.

textbox 2 – Structuring search performance

DATABASE	STRATEGY	SEARCH DATE AND TIME	THE NUMBER OF ARTICLES FOUND
Search Strategies IN ENGLISH: - Directory of Opens Access Scholary Resources (ROAD); Medline; Directory of Open Access Journal (DOAJ; Pubmed Science Direct; SCOPUS e Web of Science.	(“Students, Health Occupations”) and (“Health Leadership, Competencies”) AND (“Aptitude” OR “abilities” OR “Aptitudes” OR “Ability”)	19/07/2022 11:58H 12:13h 12:32h 12:54h 20:11h 20:18h 20:23h	 PubMed - 65 Scopus - 9 Web of Science - 183 Medline - 50 Science Direct - 404 ROAD - 175 DOAJ - 190
Search Strategies IN PORTUGUESE: Scientific Electronic Library Online (SCIELO)	(“Estudantes de Ciências da Saúde”) AND (“Competência de Liderança em Saúde”) AND (“Aptidão” OR “Habilidade” OR “Habilidade Pessoal”)	19/07/2022 20:16h	 Scielo - 90
Search Strategies IN SPANISH: Scientific Electronic Library Online (SCIELO); Latindex	(“Estudiantes del Área de la Salud) AND (“Competencia de Liderazgo en Salud”) AND (“Apitud”)	19/07/2022 12:50h 20:20h	 Latindex - 47 Scielo -47

Study/Source of evidence selection

To select studies that meet the inclusion criteria, duplicate articles will initially be removed from the analysis process. Then, two researchers will independently analyze the titles and abstracts of the remaining articles using the previously established eligibility criteria. If a disagreement between them occurs regarding the inclusion of a study at this stage, the final decision will be made by a third researcher who will be consulted to resolve the divergence and determine the relevance of the article to the research question. Additionally, a manual search for relevant sources not captured in the initial search strategy may complement the review, as long as they meet the eligibility criteria and significantly contribute to the conclusion of the study.

Next, the main researcher will evaluate the full texts of the previously selected articles, ensuring they are aligned with the inclusion criteria. The reasons for excluding any studies after full reading will be appropriately documented and presented in the context of the scoping review. At any stage of the selection process, any disagreements that may arise between members of the research team will be resolved either through a consensual discussion or with the intervention of additional researchers to reach a consensus if necessary.

Data extraction

After the article selection phase, the main researcher will prepare a form for data extraction, which will be completed after a thorough analysis of each selected article. The data to be extracted will cover specific information related to participants, concept, context, and methodology of the study, in addition to relevant data for the research question such as method and model of leadership teaching adopted, strategies used, perceptions of the studied population, and identified impact. The initial draft of the form is presented in Text Box 2 and can be adapted and improved as necessary during the extraction of data from each bibliographic source included in the scoping review. Any adjustments made will be duly documented in the revision scope. Furthermore, the article authors will be contacted to clarify missing information when applicable or obtain additional data to ensure the integrity and accuracy of data analysis. The data extraction indicators are presented in Chart 3.

Chart 3 - Data extraction indicators developed by the researchers.

Publication details
• Journal • Year • Title • Authors • Country • Type of study

Inclusion/Exclusion Criteria

- Participants
- Concept
- Context
- Reason for exclusion

Findings

- Leadership Teaching Method
- Leadership Teaching Model
- Student perception
- Impact

Analysis of the evidence

The analysis of the results will be conducted following the objectives established in the study. Descriptive statistics such as absolute frequencies and percentages will be used to examine characteristics of publications (journal, year, title, authors, country, and type of study). In addition, qualitative content analysis will be performed to explore findings related to the method and model of teaching leadership, student perception, and identified impact. Data will be presented as figure and table and complemented by a text to describe the relationship of the results to the research question. This analysis will be enriched by a text describing how the results are related to the research question. The results should be published in a scientific journal.

Results

A scoping review on the development of leadership skills in medical education can have a substantial impact on the lives of professionals and students in the health area. Leadership is recognized as a core competency in health care and science to address the growing challenges in this area. However, many physicians feel unprepared to assume leadership roles due to a lack of adequate prior training. Thus, this scoping review can organize and synthesize the available evidence on teaching leadership skills in medical schools, identifying knowledge gaps, and providing insights for the development of more effective educational programs. This can prepare students to not only face the challenges present in healthcare but also to assume leadership roles and significantly contribute to advancement in the area.

The preliminary results of this review showed a wide range of articles with the potential to highlight the importance and need of addressing leadership in the context of medical education. By analyzing this evidence, we hope this study will provide a clear picture of the best teaching practices of leadership skills, allowing medical schools to develop more comprehensive and effective programs. In addition, the inclusion of leadership in the curriculum of medical courses can offer students a

more holistic and realistic preparation for professional practice, enabling them to lead interdisciplinary teams, promote positive changes in the system healthcare, and provide high-quality care to patients. Then, this scoping review will not only contribute to the literature but will also have a practical and tangible impact on the professional training and development of future health professionals.

Discussion

The recognized needs for effective succession planning and leadership training are well established with a current shortage of emerging leaders assuming leadership roles [13-15]. Effective leaders require support and guidance from the organizations where they were educated and trained, and where they work [16]. Leadership as a learned skill is gaining impulse as a fundamental curriculum item in medical education. Leadership development, assessment, and feedback are essential throughout the education and training of health professionals. Aspiring and current leaders can be identified, trained, and assessed through formal leadership development programs and organizational supportive cultures. This requires the incorporation of programs for leadership training, opportunities for leadership practice, and promotion of professional networks within and outside the organization. Mentoring in health education is recognized and important, and offers a means to further enhance leadership and engagement in the workforce [17,18].

Leadership is composed of a set of practices and skills that can be learned and can be developed by reading literature articles and participating in leadership courses [18]. Moreover, investment in the social capital of organizations, promoting interprofessional learning and communication in the workplace, and collaboration between organizations help develop leadership. The development of leadership skills is a lifelong process [19,20]. Resources and opportunities should be considered to help develop leadership skills through activities such as reading about leadership theories, attending leadership training workshops, engaging in mentoring programs, attending small-group seminars on leadership development, and accepting more responsibilities when necessary or when opportunities arise [21].

Effective leadership does not necessarily require an academic title. It can manifest itself in daily work and collaboration with other professionals in education and health systems, such as teaching, administration, research, and clinical practice [22]. Leadership functions include the important concepts of managing personal and professional practices, prioritizing tasks, time management, and

effective delegation [23].

Research indicates that, while students consider leadership an essential competency due to the responsibilities inherent to the medical profession, professors may not see the need to separately consider leadership as an essential competency due to the implicit training provided by the curriculum. However, both students and professors identify rigorous curricula as barriers to implementing leadership training. Students also highlight the feasibility of leadership training as a challenge, especially in clinical settings. However, lack of recognition seems to be the most influential obstacle [24-26].

Qualities such as emotional intelligence, confidence, and humility can be taught during medical courses along with skills in teamwork, communication, and management. As a result, medical institutions have introduced explicit leadership curricula and integrated leadership training into their programs to meet these needs [27].

The consistent themes behind the implementation of curricula and explicit leadership structures in medical schools emphasize the intention to actively embody and pursue leadership skills and competencies that can be naturally observed and taught. Integrating training with these principles in mind would be much more effective against the obstacles posed by overloaded curricula and would increase recognition or at least reduce disinterest in leadership training [28].

Implementing changes based on a curriculum model would be beneficial as it is described as one of the most comprehensive models for leadership education. However, incorporating leadership as a core objective and constructing or adapting a conceptual framework for medical curricula similar to the examples mentioned above, but considering student perceptions, would be prudent. Incorporating such training would be more effective if done through experiential learning, although additional small group sessions and classroom-based interactive seminars could also be used [29].

Finally, the methods used in residency training to develop leadership can be extended to medical schools. Providing formative feedback on leadership skills can be effective in improving leadership skills. Ultimately, training must be integrated and aligned with education rather than separate and isolated from clinical instruction. Curriculum planners must be flexible and engage with medical professionals to emphasize the importance of such a competency [30].

Limitations

The limitation of this research is the possible incompleteness or bias of the available data sources although an extensive search was conducted in several databases. Although the inclusion and

exclusion criteria have been carefully defined, omission or non-identification of some relevant studies during the search is possible. Due to the comprehensive nature of the scoping review, it may also not allow for a detailed analysis of each study, thus limiting the depth of assessment of available evidence. Then, recognizing that the interpretation of the results of this review must consider these possible limitations and be complemented by other sources of evidence when necessary is important for a more comprehensive and precise understanding.

Conclusions

In this research protocol, a scoping review on the development of leadership skills in medical education was outlined, recognizing the fundamental importance of leadership in clinical practice and health sciences. The proposed review aims to address the existing gap in the literature on the implementation of leadership education in healthcare colleges by highlighting the need to prepare students to assume leadership roles in the complex environment of healthcare. Preliminary results show a wide range of articles, pointing out the relevance and urgency of this topic. This review offers valuable insights to develop more comprehensive and effective educational programs, empowering students to lead interdisciplinary teams and promote positive change in the health system.

Furthermore, the inclusion of leadership in the medical courses curriculum can provide more holistic and realistic preparation for future healthcare professionals, equipping them with the necessary skills to provide high-quality care to patients and face emerging challenges in the health area. This scoping review will not only contribute to the literature but will also have a practical and tangible impact on students professional training and development, thus promoting significant advances in medical practice and education.

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Funding statement

This study will not receive any funding.

Data availability

All data generated in the scoping review, including the list of included articles, will be published in future work.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author contributions

EC is the main researcher and was responsible for the protocol conceptualization and will perform the data curation, Data curation, Project administration, Visualization, Writing – original draft, Writing – review & editing. CC will contribute to , Visualization, Validation and data curation. MN is specialized librarian and will perform the Formal Analysis. ES, AE, AC and TS, will contribute to the Validation, Visualization. HC, AQ, AL, VB contributed to the protocol conceptualization and will contribute to Writing – review & editing. FJ will contribute to the Conceptualization, Supervision, manuscript analysis. JA will contribute to the Supervision, Validation, Conceptualization, Project administration. All authors will contribute to the manuscript reading and the approval of the submitted version.

Abbreviations

JBI: The Joanna Briggs Institute's

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Supplementary Files

Figures

Concepts explained in this review.