

# Thematic overview of medical education in Latin America (2020–2025): a scoping review of scientific production.

## Panorama temático de la educación médica en América Latina (2020–2025): una revisión de alcance sobre producción científica.

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**Abstract:** Research in medical education is an essential component for improving the education of future health professionals, which strengthens the world's health and healthcare systems. This exploratory systematic review examined the main thematic areas of publications by Latin American medical education research journals indexed between 2020 and 2025. To this end, PRISMA guidelines were followed, in which pertinent articles were collected from SciELO, Scopus, Web of Science, LILACS, Redalyc, or other relevant databases. After selection according to our eligibility criteria, 1,118 articles were submitted, and a thematic analysis was performed using ATLAS.ti. The predominant topics were assessment, competencies, mental health, and academic performance, while areas such as active methodologies and simulation remain underexplored. A decreasing trend in scientific production in medical education was identified, in contrast to the general increase in publications in the region, possibly related to limitations in funding and academic structure. Furthermore, national differences in thematic priorities were evident, with Brazil focusing on mental health, Mexico on academic performance, and Cuba and Chile on teaching methodologies. These findings highlight the urgent need to expand the regional research agenda to strengthen medical education from a more contextual, equitable, and innovative perspective in order to enhance the training of future health professionals.

**Keywords:** Medical education, Latin America, Review, Scientific production, Predominant themes.

**Resumen:** La investigación en la educación médica es un componente esencial para la mejora de la educación de los futuros profesionales de salud, que fortalece el sistema de salud y sanitario del mundo. En esta revisión sistemática exploratoria se examinaron las principales áreas temáticas de publicaciones realizadas por revistas latinoamericanas de investigación en la educación médica indexadas entre los años 2020 a 2025. Para esto, se siguieron las guías PRISMA, en el cual se recopilaban los artículos pertinentes en SciELO, Scopus, Web of Science, LILACS, Redalyc u otras bases relevantes. Tras la selección de acuerdo a nuestros criterios de elegibilidad, se presentaron 1118 artículos y se realizó un análisis temático con ATLAS.ti. Como resultados, los temas predominantes fueron evaluación, competencias, salud mental y rendimiento académico, mientras que áreas como metodologías activas y simulación permanecen subexploradas. Se identificó una tendencia decreciente en la producción científica de educación médica, en contraste con el aumento general de publicaciones en la región, posiblemente relacionado con limitaciones en financiamiento y estructura académica. Además, se evidenciaron diferencias nacionales en prioridades temáticas, con Brasil centrado en salud mental, México en rendimiento académico, y Cuba y Chile en metodologías de enseñanza. Estos hallazgos evidencian la urgencia de ampliar la agenda investigativa regional para fortalecer la educación médica desde una perspectiva más contextual,

equitativa e innovadora con el fin de potenciar el proceso de formación de los futuros profesionales de salud.

**Palabras clave:** Educación médica, América Latina, Revisión, Producción científica, Temas predominantes.

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## 1. Introduction

Medical education is an essential component in the training of future physicians and constitutes one of the pillars for strengthening healthcare systems worldwide. Its evolution has been marked by changes in societal needs, scientific advances, and pedagogical transformations that have influenced the teaching and learning models used in different medical schools. In recent decades, there has been a transition from traditional teacher-centered models to more comprehensive, participatory, and student-centered approaches that incorporate competencies, humanistic values, and problem-based learning (1).

At the international level, research in medical education has shown sustained growth and remarkable thematic diversity. Recent studies address, among other areas, the development and assessment of clinical competencies using objective methods such as OSCEs (2), the integration of educational technologies and advanced simulation (3-4), interprofessional education and collaborative learning (1), as well as training in communication skills and leadership (5). Furthermore, a growing trend towards interdisciplinarity has been evidenced, with an expansion of the traditional boundaries of medical education to fields such as management, social sciences, and linguistics. A recent biometric analysis of more than 31,000 articles in specialized journals shows how these new disciplines are increasingly present in the international literature, broadening the understanding of the field and its contemporary challenges (6).

This panorama contrasts significantly with the situation observed in Latin America. In the region, the development of medical education has followed a more heterogeneous path, strongly influenced by structural inequalities between countries, resource availability, and national health priorities. While significant progress has been made in access to medical training, scientific production in this field remains limited in both volume and thematic diversity. Previous studies have shown a concentration of publications in certain areas, while other key topics—such as global health, innovative methodologies, and interpersonal skills training—remain underexplored (7-8). This disconnect between research and practice makes it difficult for curricular and educational policy decisions in the region to be based on robust and contextualized evidence.

The limited systematization of scientific production hinders a comprehensive understanding of the current state of medical education research in Latin America. Although previous efforts have partially described thematic trends in previous years, there is no updated and comprehensive overview that allows for the precise identification of priority areas, emerging topics, and persistent gaps between 2020 and 2025. This absence limits not only the strengthening of academic communities but also the ability of decision-makers to guide evidence-based curriculum reforms and public policies.

Scoping reviews, as a methodological approach, allow for systematic mapping of a body of literature, identifying knowledge gaps, and visually representing the structure of a field of study (9-10). In this context, this review seeks to fill this gap by analyzing more than a thousand recent publications using software-assisted qualitative analysis techniques. This study aims to describe and compare the main thematic areas addressed by Latin American medical education journals between 2020 and 2025.

The overall objective of this paper is to identify and analyze the main subject areas used in medical education publications in indexed Latin American journals between 2020 and 2025. The specific objectives are to classify the predominant research topics in medical education in Latin America, compare the distribution of topics across countries and subregions, and identify gaps in medical education research in Latin America.

## 2. Methods

### *Study design*

A scoping review was conducted, based on the methodological framework of Arksey and O'Malley (11) with the updates suggested by Levac et al. (10), and following the PRISMA-ScR guide (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews).

- Stage 1: Identify the research question. The following research question is addressed: What are the main thematic areas of medical education publications in indexed Latin American journals between 2020 and 2025?
- Stage 2: Identify relevant literature. A systematic manual search was conducted in April 2025 in the following databases: SciELO, Scopus, Web of Science, LILACS, Redalyc, and Latindex. MeSH and DeCS descriptors related to medical education and Latin America were combined using Boolean operators. The search strategy was designed to maximize sensitivity, considering relevant synonyms and adapting the syntax to each database.
  - The terms used were Medical Education (MeSH: Medical Education), Latin America (MeSH: Latin America), and Subject Combination. Examples of search strings were: ("medical education" OR "medical training"), ("Latin America" OR "Latin America"), ("medical education" OR "medical training") AND ("Latin America" OR "Latin America").
  - *Inclusion Criteria*
    - Articles published between 2020 and 2025. This range allows for the inclusion of both initial responses to the impact of the pandemic and subsequent adaptations and consolidations in educational models, thus providing a more representative, diverse, and methodologically sound overview.
    - Articles written in English, Spanish and Portuguese.
    - Original empirical studies with qualitative, quantitative or mixed methodology reviewed by peers.
    - Articles from Latin American medical education journals indexed in SciELO, Scopus, Web of Science, LILACS, Redalyc, and Latindex.
    - Studies focused on teaching and training in medical education at the undergraduate, graduate, and continuing education levels, including educational innovation and program evaluation.
  - *Exclusion criteria*
    - Articles outside the study period.
    - Publications not related to medical education.
    - Opinion pieces, editorials, clinical case reports, and non-peer-reviewed gray literature.
    - Systematic reviews and meta-analyses with a similar thematic focus were not included, to avoid duplication bias in the analysis of trends, as the objective was to identify thematic areas from original studies.
- Stage 3: Selection of appropriate articles. The identified articles were reviewed by three reviewers using the aforementioned criteria and recorded in the ZOTERO reference management system. Articles with discrepancies were separated and analyzed by the team as a whole.
- Stage 4: Data extraction, mapping, and graphing. References are exported to an Excel template, and the following categories are implemented: Title, Year of publication, Journal of publication, and abstract. Documents are grouped by year of publication (2020 to 2021, 2022 to 2025) to facilitate comparative analysis of thematic evolution over the past five years. A thematic analysis is then performed using the Atlas.ti tool for coding.

• Stage 5: Results synthesis and description. Document coding was performed by Atlas.ti using the “AI-intentional coding” tool, which presented the following intention: “What are the main thematic areas and methodological approaches in medical education publications in Latin American journals indexed between 2020 and 2025?” General objective: To identify and analyze the main thematic areas and methodologies used in medical education publications in Latin American journals indexed between 2020 and 2025.” The following questions were subsequently selected: “What are the main thematic areas in medical education publications in Latin American journals?” and “How have the thematic areas evolved in publications from 2020 to 2025?” The codes generated by Atlas.ti were ordered in decreasing order of frequency. This information was used to construct graphs and tables representing the predominant, emerging, and lagging thematic areas in the reviewed literature. A PRISMA-ScR flow diagram is presented that summarizes the process of searching, selecting and including articles (Figure 1).

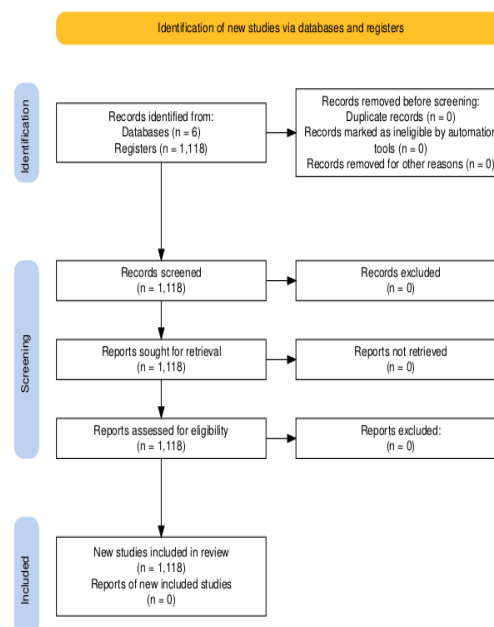


Figure 1. PRISMA flowchart of medical education articles in Latin American journals.

### 3. Results

#### 3.1 General characteristics of the results

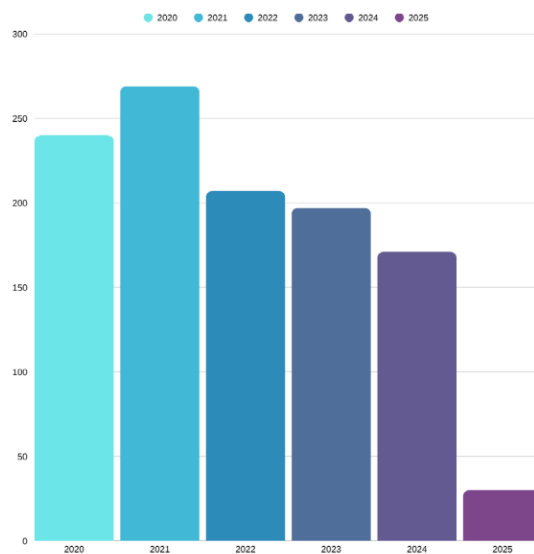
A total of 1,118 articles published between 2020 and 2025 in indexed Latin American journals that met the inclusion and exclusion criteria were included. Data collection took place in April 2025, acknowledging a possible underrepresentation of publications from that year due to the natural lag in the editorial and indexing processes. The distribution of articles by year of publication is shown in Figure 2.

The distribution by journal is presented in Figure 3, where a concentration of publications in a small group of specialized journals can be observed.

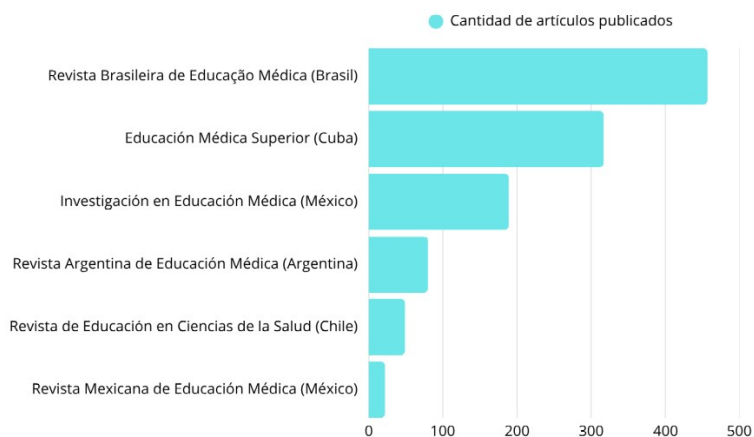
In the encoding given by Atlas.ti, a total of 1,910 thematic units were identified and coded, with a total of 6,274 values embedded within them. The units were maintained in an emergent and inductive manner, without establishing predefined thematic hierarchies or grouping them artificially, with the exception of eliminating generic terms such as *medical education*, *medical training*, *medical students*, or *research*, which did not provide substantive differentiation for the thematic analysis. From this basis, the 10 most frequent codes were selected.

#### 3.2 Thematic categories

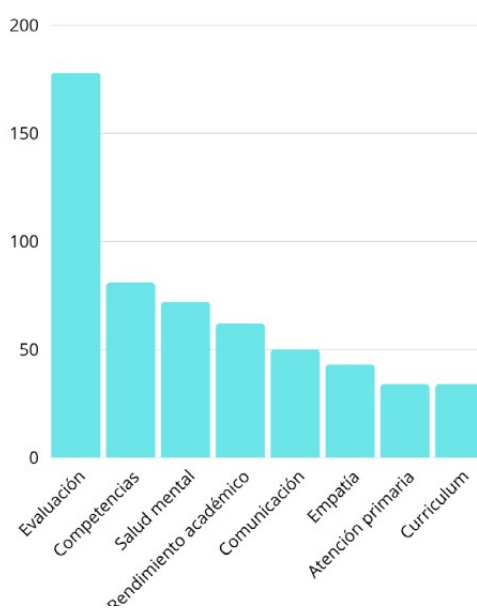
The thematic categorization according to the most frequent codes identified in the reviewed articles are shown in figure 4. These reflect the predominant themes within the studies conducted by Latin American medical education journals extracted from the content analysis process. A strong presence of topics such as assessment, competencies, mental health, and academic performance is noted. On the other hand, institutionally promoted topics such as clinical simulation or active teaching-learning methodologies appear less frequently than expected. This discrepancy may be due to a lower installed capacity for their implementation or to limitations in the publication of empirical research on these practices, which raises relevant questions for discussion.



**Figure 2.** Annual distribution of articles included in the thematic analysis.



**Figure 3.** Number of articles identified per journal in the corpus analyzed.



**Figure 4.** Frequency of appearance of the main themes identified through thematic analysis .

### 3.3 Detection of Research Gaps

Similarly, less prevalent themes were identified and categorized. These themes received more than 25 mentions in the analysis, but were not included in the main categories because they were not among the most frequently occurring themes. However, their repeated presence suggests emerging or underexplored areas that could constitute relevant gaps in current research. The results are summarized in Table 1.

**Table 1.** Emerging or underexplored themes identified in the thematic analysis.

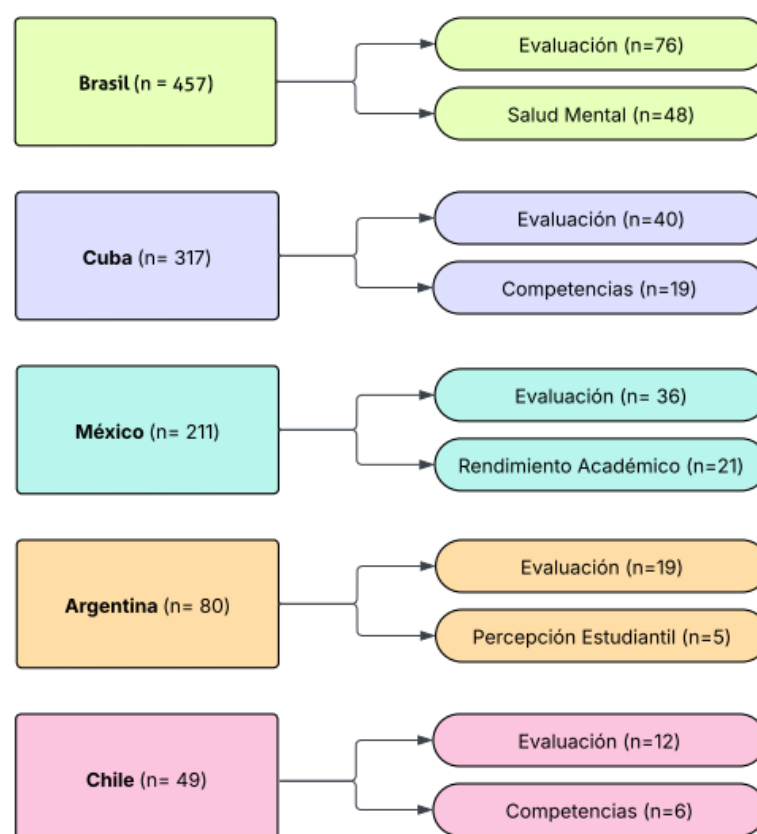
Topics	Mentions
Active methodologies	31
Anxiety	28
Satisfaction	28
Learning	27
Methodologies	27
Student perception	27
Simulation	27
Motivation	25

### 3.4 Geographic distribution

Likewise, the most prevalent topics were categorized by geographic area. Intentional coding was conducted based on the question “What are the main thematic areas of the different publications?”, coding each country separately. The results are summarized in Table 2 and graphed in Figure 5.

**Table 2.** Distribution of prevalent themes according to country of publication.

Brazil	Cuba	Mexico	Argentina	Chili
Evaluation (n = 76)	Assessment (n = 40)	Assessment (n = 36)	Assessment (n = 19)	Assessment (n = 12)
Mental Health (n = 48)	Competencies (n = 19)	Academic Performance (n = 21)	Perception (n = 5)	Competencies (n = 6)
Empathy (n = 34)	Health (n = 16)	Mental Health (n = 12)	Learning (n = 5)	Self-efficacy (n = 5)
Depression (n = 27)	Technology (n = 16)	COVID-19 (n = 11)	Teaching (n = 5)	Curricular Innovation (n = 4)
Anxiety (n = 26)	Satisfaction (n = 13)	Stress (n = 9)	Health (n = 5)	Mental Health (n = 4)



**Figure 5.** Thematic distribution by country of origin of the publication.

## 4. Discussion

### 4.1 Thematic concentration and challenges in medical education research in Latin America

The results obtained show that medical education research in Latin America focuses primarily on assessment and competencies, confirming trends previously reported by Morán et al. (7). This thematic concentration indicates that, although these aspects are central to medical education, scientific production in the region shows limited diversification in its lines of research. This lack of variety may restrict the development of innovative approaches that comprehensively address the educational challenges specific to the region.

Likewise, the review of the regional literature reflects that, although efforts have been made to characterize scientific production in medical education, significant limitations persist in terms of volume, visibility, and thematic diversity. Previous studies (8) show a concentration on recurring themes and a low overall impact, which could be related to structural weaknesses in the development of strong and collaborative academic communities. These findings suggest an urgent need to foster research that broadens the thematic spectrum, including emerging areas such as curricular innovation, global health, and interprofessional training. Strengthening these fields would contribute to consolidating a more robust regional agenda that responds to the specific needs of medical education in Latin America and promotes quality training adapted to local contexts.

Similarly, significant gaps persist internationally in scientific production in medical education between high- and low-income countries, with Latin America among the regions with the lowest number of publications and authorships. This disparity is reflected not only in the volume of contributions but also in the diversity of topics addressed (12). In lower-income countries, there is a lower presence of studies on specialized training, practical training, clinical decision-making, contextualized clinical practices, and concerns associated with student workload. This poor representation of key topics suggests the existence of important gaps in the research agenda, which could have direct implications for the quality and relevance of medical education.

#### 4.2 National trends and regional dynamics in medical education

Regarding the distribution of topics by country, the findings allow for the interpretation of specific trends in national research agendas. Assessment is consolidated as a cross-cutting theme in the region, suggesting a widespread concern for quality assurance mechanisms and learning measurement in medical education. It would also be interesting to address which methodologies, curricula, or approaches are evaluated, providing a more in-depth look at the Latin American context.

Brazil, for its part, presents a high frequency of studies on mental health, including subtopics such as depression and anxiety, reflecting a growing concern for emotional well-being in medical training. Recent studies support this regional interest, showing that medical students in Brazil experience high rates of depression and anxiety throughout their academic career (13). On the other hand, in Cuba, there is an orientation toward continuous improvement in education, with topics such as competencies, technologies, and satisfaction, aligning with goals of quality assurance and modernization of medical education.

Likewise, Mexico combines traditional approaches, such as academic performance and mental health, with emerging elements, such as the COVID-19 pandemic. The significant presence of studies on academic performance suggests a quantitative and results-oriented approach, possibly linked to quality assurance policies. At the same time, the interest in mental health and the pandemic demonstrates a capacity to respond to contemporary health challenges, in line with the evolution and transformation that Mexican medical education has undergone (14).

Chile and Argentina have a lower thematic concentration and a reduced volume of scientific production compared to other countries in the region, which could be more related to the availability of scientific journals than to the existence of a limited research agenda. In the case of Argentina, a greater thematic dispersion is observed without a clear dominant line, with topics such as perception, teaching, learning, and health standing out, all with equal frequency ( $n = 5$ ). While this thematic breadth can be considered a strength in terms of academic plurality, it could also hinder the consolidation of priority or sustained impact lines in the field of medical education.

In Chile, for its part, topics such as competencies are addressed, in line with regional trends, but also incorporate lines of research such as self-efficacy, curricular innovation, and mental health. This thematic configuration suggests a growing concern with subjective aspects of learning, such as the perception of one's own personal ability, as well as with institutional processes of curriculum reform and redesign.

#### 4.2 Production and financing gaps in health educational research

The findings of this research reflect a downward trend in scientific production related to medical education in Latin America in recent years. This decline contrasts with the overall volume of scientific publications in the region, which reached approximately 150,000 articles in 2020 (15). One possible explanation for this gap is the limited availability of specific funding for this field. It has been reported that an investment above \$20,000 has a moderately significant effect on the methodological quality of studies (16).

In the Latin American context, funding for medical education research comes largely from external sources, primarily from countries such as the United States and Canada. An example of this is the *NBME® Latin America Grant Program*, which provides up to \$50,000 for a maximum period of two years for initiatives aimed at innovation, collaboration, and sustainability in medical education. (17) While these funds are valuable, the dependence on external resources limits the autonomy and sustainability of regional scientific production.

Considering the above, it is essential to strengthen internal financing mechanisms by creating national or institutional competitive funds specifically targeted at research in medical education. Furthermore, the development of regional research networks is proposed to allow for the exchange of methodologies, tools, theoretical frameworks, and lessons learned, as well as the training of specialized editors and reviewers. This will contribute to raising the quality and visibility of local



scientific publications, in order to utilize available resources effectively. To this end, it is proposed that multilateral organizations such as PAHO, UNESCO, and the OEI assume a strategic and supportive role in the formulation of regional policies, channeling resources and fostering inter-institutional cooperation in educational research.

## 5. Conclusions

- This scoping review highlights the thematic concentration in publications on medical education in Latin America between 2020 and 2025, with approaches focused on assessment and competencies predominating. A lack of diversity in research lines is observed, which limits the comprehensive development of the field and restricts the capacity to respond to contemporary challenges in medical education.
- Research productivity is low compared to other areas of knowledge, possibly associated with weak funding for medical education, a lack of institutional incentives, and a lack of editorial policies that prioritize educational research. This situation reflects structural weaknesses in the consolidation of academic communities dedicated to medical education in the region.
- The country analysis reveals significant variations in thematic priorities, likely influenced by institutional, social, and health contexts. These differences should not be viewed as fragmentation, but rather as a strategic opportunity to promote regional collaborations focused on common and underrepresented topics, such as student well-being, teacher training, ethics, and the incorporation of active methodologies.
- This study provides an empirical basis for identifying gaps and guiding new lines of research in health education. It also demonstrates the need for resources specifically targeted to this area of research relevant to the training of future health professionals. Furthermore, it is necessary to move toward academic and editorial policies that actively encourage the exploration of emerging topics, facilitate access to research funding, and promote the publication of studies with innovative approaches.
- These findings encourage the development of a shared Latin American research agenda in medical education, with an emphasis on thematic diversification, regional collaboration, and contextualized innovation, as pillars for strengthening more sustainable and equitable academic development aligned with the realities of our health systems.

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