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Incorporation of bioethics and gender perspective in undergraduate medical curriculum in Northern Chile

Abstract

The incorporation of bioethics and gender perspectives into undergraduate medical education constitutes a critical component in the training of physicians capable of addressing complex clinical, social, and cultural challenges. In emerging medical programs, particularly in geographically and socially diverse regions, the structuring of curricula represents a key opportunity to integrate these dimensions from the outset. This study analyzes the degree of incorporation of bioethics and gender within the undergraduate medical curriculum of the Faculty of Medicine at the University of Tarapacá, located in northern Chile, and compares it with reference medical programs at the national level. A qualitative-descriptive design was implemented, combining documentary analysis of the official curriculum, course syllabi, and institutional documents with a comparative review of curricula from other Chilean medical schools.

Additionally, focal groups were conducted with key stakeholders, including program directors, faculty members, and medical students, in order to explore perceptions regarding the presence, depth, and relevance of bioethical and gender-related content in the training process. The findings reveal that the incorporation of bioethics and gender is present but fragmented, primarily concentrated in early-stage courses and lacking longitudinal integration throughout the curriculum. Comparative analysis indicates similar structural limitations across national programs. Participants identified significant gaps in the articulation between theoretical content and clinical application, as well as the absence of explicit institutional strategies to ensure transversal integration of these perspectives. These results highlight the need to strengthen curricular design through the systematic and longitudinal incorporation of bioethics and gender, ensuring their integration into both theoretical and clinical training as essential components of comprehensive medical education.

Keywords: bioethics, gender perspective, medical education, curriculum analysis, undergraduate training, Chile, higher education

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Abbreviations: AI, artificial intelligence; UTA, Universidad de Tarapacá

Introduction

The incorporation of bioethics and gender perspectives into undergraduate medical education has become an increasingly relevant topic in contemporary academic and clinical discussions, particularly in the context of rapidly evolving healthcare systems and changing sociocultural dynamics.[1] Medical training is no longer limited to the acquisition of biomedical knowledge and technical competencies; it also requires the development of ethical reasoning, critical reflection, and sensitivity to social determinants of health. In this context, bioethics provides a structured framework for analyzing moral dilemmas arising in clinical practice, while the gender perspective contributes to understanding how health, disease, and access to care are shaped by socially constructed roles, identities, and power relations.[2]

Over recent decades, international literature has emphasized the importance of integrating bioethics into medical curricula as a core component of professional formation. This integration is often justified by the increasing complexity of clinical decision-making, particularly in areas such as end-of-life care, reproductive health, and emerging biomedical technologies.[3] At the same time, the gender perspective has gained recognition as a necessary analytical tool to address inequalities in healthcare delivery and outcomes. Studies have shown that the absence of gender-sensitive approaches in medical education can perpetuate biases in diagnosis, treatment, and patient interaction, ultimately affecting the quality and equity of care.[4]

Despite these advances, the incorporation of bioethics and gender into medical education remains uneven across different regions and institutional contexts. In Latin America, the development of medical curricula has historically been influenced by biomedical and technocratic models, which tend to prioritize scientific and clinical content over ethical and social dimensions.[5] Although some institutions have introduced courses or modules related to bioethics, these are often limited in scope and lack integration with clinical training. Similarly, the inclusion of gender perspectives is frequently fragmented, with limited articulation across different stages of the educational process.[6] In Chile, medical education has undergone significant transformations in recent years, including the expansion of new medical programs in regional universities.[7] These developments present both opportunities and challenges for curriculum design. On one hand, newly established programs have the potential to incorporate contemporary educational approaches from their inception, including the integration of bioethics and gender as transversal components.[8] On the other hand, the absence of consolidated institutional traditions and standardized frameworks may result in inconsistencies in how these topics are addressed.[9]

The Faculty of Medicine at the University of Tarapacá, located in northern Chile, represents a particularly relevant case for analysis due to its geographic, cultural, and social context.[10] The region is characterized by significant ethnic diversity, migratory dynamics, and socioeconomic disparities, all of which have direct implications for healthcare delivery and medical training. In such settings, the incorporation of bioethics and gender perspectives is not only an academic requirement but also a practical necessity to ensure culturally competent and socially responsive medical practice.[11] However, preliminary observations suggest that the integration of these perspectives within the curriculum may be limited or unevenly distributed. In many cases, bioethical content is concentrated in specific courses, often during the early years of training, without clear continuity throughout the clinical phases.[12] Similarly, gender-related topics may be addressed in isolated instances, without a coherent framework that connects them to broader issues of health equity and professional practice. This fragmentation raises concerns regarding the effectiveness of current curricular approaches in preparing students to consider complex ethical and social challenges in their future careers.[13]

Another relevant issue concerns the relationship between formal and hidden curricula. While official program documents may include references to ethical principles and social responsibility, the actual teaching practices and institutional culture may not consistently reinforce these values. This discrepancy can lead to gaps between theoretical knowledge and practical application, limiting the development of critical competencies among students. Furthermore, the lack of explicit evaluation mechanisms for bioethics and gender content makes it difficult to assess their impact on learning outcomes.[14] In addition to curricular structure, the perceptions of key stakeholders play a crucial role in understanding how bioethics and gender are integrated into medical education. Faculty members, program directors, and students may have differing views regarding the relevance, depth, and adequacy of these topics within the curriculum. Exploring these perspectives can provide valuable insights into existing strengths and weaknesses, as well as potential areas for improvement.[15]

Current literature also indicates that there is a lack of systematic analyses focusing on the incorporation of bioethics and gender in newly established medical programs, particularly in regional contexts. Most available studies tend to focus on traditional institutions or on specific aspects of ethical education, without addressing the broader curricular structure. This gap highlights the need for empirical research that examines how these dimensions are integrated in emerging educational settings and how they compare with established programs at the national level.[16] Given these considerations, it becomes necessary to conduct a comprehensive analysis that combines documentary review with the perspectives of those directly involved in the educational process. Such an approach allows for a more nuanced understanding of both formal curricular design and its practical implementation. The objective of this study is to analyze the incorporation of bioethics and gender perspectives within the undergraduate medical curriculum of the Faculty of Medicine at the University of Tarapacá, and to compare its structure with selected Chilean medical programs. Additionally, the study seeks to explore the perceptions of academic and student stakeholders regarding the presence, integration, and relevance of these dimensions in medical training, with the aim of identifying gaps and proposing strategies for curricular improvement.

Material and methods

A qualitative-descriptive study design was implemented to analyze the incorporation of bioethics and gender perspectives within the undergraduate medical curriculum of the Faculty of Medicine at the University of Tarapacá (UTA), located in northern Chile. The methodological approach combined documentary analysis, comparative curricular review, and qualitative data collection through focal groups, allowing for a comprehensive assessment of both formal curricular structure and stakeholder perceptions.

The documentary analysis focused on the official curriculum of the UTA medical program, including the study plan, course syllabi, and institutional documents available at the time of analysis. Each course was systematically reviewed to identify explicit and implicit content related to bioethics and gender. The analysis considered the distribution of these topics across the curriculum, their depth of development, and their articulation with clinical training stages. Courses were categorized according to their level (basic, preclinical, or clinical) and the presence of relevant thematic components was recorded using a structured matrix. In parallel, a comparative analysis was conducted using publicly available curricula from selected Chilean medical schools, considered as reference programs due to their academic trajectory and accreditation status. The same analytical criteria were applied to these programs in order to evaluate similarities and differences in the incorporation of bioethics and gender. This comparison allowed for the identification of structural patterns and potential gaps at the national level.

For the qualitative component, focal groups were conducted with key stakeholders involved in the medical training process at UTA. Participants included program directors, faculty members responsible for relevant courses, and undergraduate medical students from different academic levels. The selection of participants followed a purposive sampling strategy, ensuring representation of diverse perspectives within the institution. Each focal group was guided by a semi-structured script designed to explore perceptions regarding the presence, integration, and relevance of bioethics and gender within the curriculum, as well as perceived strengths, limitations, and opportunities for improvement. The focal group sessions were conducted in a controlled academic setting and were recorded with prior informed consent from participants. The collected data were transcribed and subjected to thematic analysis, allowing for the identification of recurrent categories and patterns related to curricular integration, teaching practices, and perceived educational outcomes. The analysis was performed iteratively, combining inductive and deductive approaches to ensure a comprehensive interpretation of the data.

To enhance the reliability of the findings, triangulation was applied by integrating results from documentary analysis, comparative review, and focal group data. Additionally, the coding process was reviewed by the researcher with expertise in bioethics and medical education. This procedure ensured consistency in the interpretation of qualitative data and strengthened the validity of the results. The study adhered to ethical standards for research involving human participants. Participation in focal groups was voluntary, and confidentiality of responses was guaranteed throughout the research process. Given the nature of the study, which involved curricular analysis and non-interventional qualitative data collection, no risk to participants was identified.

Results

The documentary analysis of the undergraduate medical curriculum at the University of Tarapacá (UTA) revealed a heterogeneous and fragmented incorporation of bioethics and gender-related content across the different stages of training. The review of the study plan and course syllabi identified that these topics were present in

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specific courses; however, their distribution was not longitudinally structured throughout the curriculum. At the basic and preclinical levels, bioethical content was primarily concentrated in introductory or foundational courses, where general principles such as autonomy, beneficence, non-maleficence, and justice were addressed in a theoretical manner. These contents were typically presented during the early semesters, without clear continuity in subsequent academic years. In contrast, the integration of gender-related topics was less explicit, often appearing indirectly within broader discussions on public health, social determinants of health, or community medicine, rather than as a defined analytical framework.

The analysis of clinical-level courses indicated a limited explicit incorporation of bioethics and gender perspectives. While certain clinical disciplines included implicit references to ethical decision-making or patient-centered care, these elements were not systematically formalized within course objectives or evaluation criteria. As a result, the articulation between theoretical ethical training and its application in clinical settings was identified as non-continuous. The (Table 1) presents the number and proportion (%) of courses at basic, preclinical, and clinical levels that include explicit or implicit bioethics and gender content, based on the documentary analysis of each course syllabus from the curriculum.

Table 1 Presence of bioethics and gender content across in sections of the programs for the undergraduate medical curriculum at UTA

Course title	**Current topic**	**Section** Description	**Section** Competencies	**Section** Learning Outcomes	**Section** Learning Units	**Percentage of the curriculum**
Anatomy and Embryology I	Gender	0	0	0	2	2,27
Cell and Molecular Biology	*Bioethics*	1	0	0	0	2,27
Obstetrics and Gynecology	Gender	1	0	0	1	2,27
Bioethics	*Bioethics*	0	0	*3*	*3*	2,27
Total						9,09

The comparative analysis with selected Chilean medical schools demonstrated that similar patterns were observed at the national level. Although all reviewed programs included some form of bioethics education, this was frequently limited to isolated courses or modules, without evidence of transversal integration across the entire curriculum. The inclusion of gender perspectives was even more limited, with few programs incorporating explicit content beyond public health or epidemiological contexts.

The (Figure 1) illustrates the relative presence of bioethics and gender-related topics across curricular levels in UTA compared to reference institutions, highlighting similarities and structural gaps.

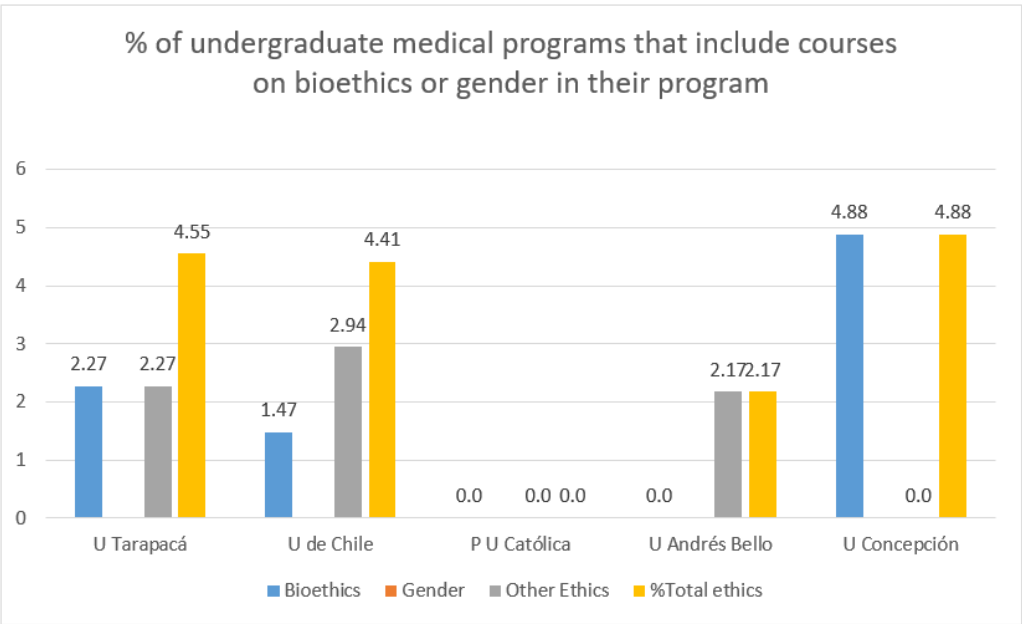

Figure 1 Comparative distribution of bioethics and gender content in UTA and selected Chilean medical programs.

The focal group analysis provided complementary insights into how these curricular elements are perceived by key stakeholders. Participants consistently identified the presence of bioethics in early-stage training; however, they emphasized the lack of continuity and integration in advanced stages, particularly during clinical rotations. Students reported that ethical discussions were often dependent on individual instructors rather than being systematically embedded in the curriculum. Regarding the gender perspective, participants noted a significant absence of explicit training. Faculty members acknowledged that gender-related topics were not consistently addressed and, when present, were treated in a superficial or incidental manner. Students expressed the need for more structured and practical approaches that would allow them to understand the implications of gender in clinical practice, including its impact on diagnosis, treatment, and patient

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interaction. Additionally, both faculty and students highlighted a disconnect between formal curricular content and real-world clinical scenarios. Ethical dilemmas and gender-related issues encountered during clinical practice were not always supported by prior structured training, leading to uncertainty in decision-making processes.

The (Figure 2) summarizes the main categories and subcategories derived from thematic analysis of focal group data, including perceptions of curricular presence or integration to evidence gaps in the curriculum. Overall, the triangulation of documentary, comparative, and qualitative findings indicates that, although bioethics and gender are present within the curriculum, their incorporation lacks coherence, depth, and longitudinal continuity. These limitations were consistently identified across all sources of analysis.

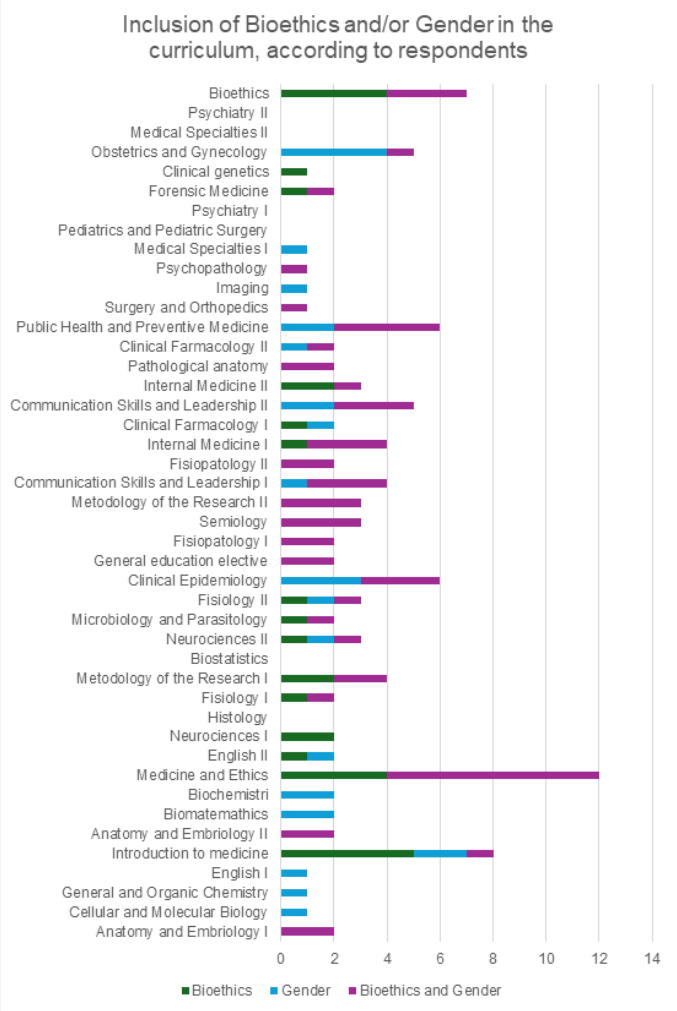

Figure 2 Categories identified in focal groups regarding the inclusion of bioethics and gender in medical training acording to respondents.

Discussion

The results obtained in this study reveal a structured but insufficient incorporation of bioethics and gender perspectives within the undergraduate medical curriculum analyzed, representing a relevant contribution to the current discussion on medical education in emerging institutional contexts. The identification of bioethical content concentrated in early stages of training, combined with the limited and mostly implicit inclusion of gender perspectives, constitutes a novel empirical finding in the context of newly established medical programs in northern Chile. While previous studies have highlighted the importance of integrating ethical competencies in medical training, the present analysis demonstrates that such integration remains predominantly compartmentalized and lacks longitudinal continuity, particularly in the transition toward clinical education.[17]

One of the most significant findings of this study is the fragmentation of bioethical education, which appears to be confined to introductory or foundational courses without systematic reinforcement in later stages. This structural limitation may contribute to a disconnection between theoretical knowledge and its practical application in clinical settings. From a pedagogical perspective, this suggests that current curricular models may not be effectively supporting the development of ethical reasoning as a continuous and progressive competency. Existing literature has emphasized that ethical decision-making in medicine requires iterative exposure to complex scenarios throughout training, allowing students to integrate principles with clinical judgment. The absence of such continuity, as identified in this study, may therefore limit the capacity of future physicians to navigate ethically complex situations in real-world practice.[18]

In relation to the gender perspective, the findings indicate an even more limited level of incorporation, often restricted to indirect references within broader public health or social medicine frameworks. This lack of explicit integration reflects a persistent gap in medical education, where gender is not consistently recognized as a critical determinant of health and healthcare delivery. Previous research has demonstrated that the absence of gender-sensitive training can lead to biases in clinical assessment and treatment, as well as to the reproduction of structural inequalities within healthcare systems. The results of this study align with these observations, suggesting that the marginalization of gender perspectives within the curriculum may have implications not only for educational outcomes but also for the quality and equity of medical care.[19]

The comparative analysis with other Chilean medical programs reinforces the notion that these limitations are not exclusive to the institution studied but rather reflect a broader structural pattern at the national level. Although most programs include some form of bioethics education, this is frequently implemented through isolated courses rather than as a transversal component of the curriculum. Similarly, the incorporation of gender perspectives remains inconsistent and underdeveloped across institutions. This finding is consistent with previous analyses of medical education in Latin America, which have identified a predominance of biomedical and technocratic approaches, with limited integration of social and ethical dimensions. The persistence of these patterns suggests the need for systemic changes in curricular design and policy frameworks.[20]

The qualitative findings derived from focal groups provide further insight into how these curricular structures are experienced by key stakeholders. The perception that bioethics is primarily theoretical and lacks practical articulation in clinical contexts highlights a critical gap between formal curriculum design and its implementation. This discrepancy may be associated with the influence of the hidden curriculum, where informal practices, institutional culture, and individual teaching styles play a significant role in shaping students' learning experiences. The reliance on individual instructors to introduce ethical discussions, as reported by participants, indicates a lack of standardized institutional strategies to ensure consistent training in this area.[21]

Similarly, the perceived absence of structured gender training reflects not only curricular limitations but also broader institutional and cultural factors. Faculty acknowledgment of insufficient coverage

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of gender-related topics suggests that this dimension has not yet been fully institutionalized within the educational framework. This may be due to a lack of faculty training, limited availability of teaching resources, or the absence of clear guidelines for integrating gender into medical education. Addressing these challenges requires a comprehensive approach that includes curriculum redesign, faculty development, and the incorporation of gender-sensitive evaluation criteria.[22]

Another relevant aspect of the findings is the identified disconnect between formal curricular content and the ethical and social challenges encountered during clinical practice. Students reported facing situations involving ethical dilemmas and gender-related issues without having received adequate prior training to address them. This gap underscores the importance of aligning educational content with the realities of clinical environments, ensuring that students are equipped with the necessary tools to respond effectively to complex scenarios. From an educational standpoint, this alignment requires the integration of case-based learning, reflective practice, and interdisciplinary approaches that bridge theoretical knowledge with clinical application.[23]

Despite the strengths of this study, including the triangulation of multiple data sources and the incorporation of stakeholder perspectives, certain limitations must be acknowledged. First, the analysis was conducted within a single institutional context, which may limit the generalizability of the findings. Although the comparative component provides some degree of contextualization, further research involving a larger number of institutions would be necessary to confirm the observed patterns. Second, the qualitative component relied on focal groups, which, while valuable for capturing perceptions, may be influenced by group dynamics and subjective interpretations. Third, the study focused on formal curricular documents and reported experiences, without direct observation of teaching practices, which could provide additional insights into the implementation of bioethics and gender education.

In summary, the results of this study highlight a significant gap between the recognized importance of bioethics and gender in medical education and their actual incorporation within curricular structures. The findings suggest that current approaches remain insufficiently integrated, both in terms of content distribution and pedagogical articulation. Addressing these limitations requires a shift toward more comprehensive and longitudinal curricular models, supported by institutional policies and faculty development initiatives that ensure the effective integration of these critical dimensions into medical training.

Conclusion

The incorporation of bioethics and gender perspectives within the undergraduate medical curriculum analyzed is characterized by a fragmented and non-longitudinal structure, with a predominance of theoretical content in early stages and limited integration into clinical training. This configuration reflects a structural gap between curricular design and the development of competencies required for ethical and socially responsive medical practice. The findings of this study demonstrate that, although bioethics is formally present and gender is partially addressed, both dimensions lack systematic articulation across the curriculum, limiting their impact on the formation of medical professionals. This situation underscores the need to move from isolated and compartmentalized approaches toward a transversal and integrated curricular model that ensures continuity between theoretical instruction and clinical application.

The importance of these results lies in their contribution to the understanding of how emerging medical programs incorporate key ethical and social dimensions within their training processes, particularly in regional and socioculturally diverse contexts. Strengthening the integration of bioethics and gender is essential to ensure that future physicians are equipped to address complex clinical scenarios with ethical rigor and sensitivity to health inequalities. From a prospective perspective, it is necessary to promote curricular reforms that incorporate bioethics and gender as cross-cutting components throughout all stages of medical education, supported by clear institutional policies, faculty training, and evaluation mechanisms. Future research should expand the scope of analysis to multiple institutions and include direct observation of teaching practices, in order to further understand the processes through which these dimensions are effectively integrated into medical training.

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Conflicts of interest

The author declares that there are no conflicts of interest regarding the publication of this article. This study is derived from a postgraduate research project.

Ethical aspects

This study adhered to ethical standards for research. Participation in focal groups was voluntary and conducted under conditions of confidentiality and informed consent. Due to the qualitative and non-interventional nature of the study, formal approval by an ethics committee was not required.

Authors contribution

The author was responsible for the conceptualization, design, data collection, analysis, and writing of the manuscript.

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