






# The teaching of bioethics in Medicine courses in Brazil

*O ensino da bioética nos cursos de Medicina do Brasil*

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## ABSTRACT

**Introduction:** Scientific, technological and social progress in different areas of knowledge, notably in biological sciences and health care, gives rise to moral conflicts in medicine and increases the relevance of bioethics in relation to new interfaces in the doctor-patient relationship, raising the need for improvements in ethical training during undergraduate medical school.

**Objective:** The objective of this study was to verify the availability of curricular contents that addresses the content of bioethics in the curricular matrices of undergraduate medical courses in Brazil.

**Method:** This was a documentary study. Data collection was carried out on the website of each medical course. The curricular matrices of each course were analyzed, verifying information on the availability of curricular components or the presence of curricular content with the content of bioethics in the matrix. When present, the workload, cycle and modality (whether associated, isolated, throughout the course, in other disciplines or optional) were verified.

**Result:** It was observed that bioethics was offered by 61.85% of the courses, with the majority offering it in the basic cycle, associated with another curricular component, with an average of 53 hours. The courses in the southern region offered the curricular component at a higher percentage and with a greater number of hours.

**Conclusion:** It was concluded that the teaching of bioethics, despite its importance, is still not offered by all medical courses in Brazil, contrary to the national curricular guidelines of the Ministry of Education and the recommendations of UNESCO.

**Keywords:** Pre-Medical Education; Teaching; Bioethics; Medical Ethics.

## RESUMO

**Introdução:** O progresso científico, tecnológico e social nas diferentes áreas do conhecimento, notadamente nas ciências biológicas e no cuidado em saúde, provoca o surgimento de conflitos morais em medicina e impulsiona a relevância da bioética no que se refere às novas interfaces da relação médico-paciente, suscitando a necessidade de aprimoramento na formação ética durante a graduação em Medicina.

**Objetivo:** O objetivo deste estudo foi verificar a oferta de conteúdos curriculares que tratam do teor da bioética nas matrizes curriculares dos cursos de graduação em Medicina do Brasil.

**Método:** Trata-se de um estudo documental. A coleta dos dados foi realizada no site de cada curso de Medicina. Analisaram-se as matrizes curriculares de cada curso com o intuito de averiguar as informações sobre a oferta de componente curricular ou a presença de conteúdos curriculares com o teor da bioética na matriz. Quando presente, verificaram-se a carga horária, o ciclo e a modalidade (se associada, isolada, ao longo do curso, em outras disciplinas ou optativa).

**Resultado:** Constatou-se que a bioética era ofertada por 61,85% dos cursos, e a maioria a oferecia no ciclo básico, associada a outro componente curricular, com média de 53 horas. Os cursos da Região Sul ofereciam o componente curricular em maior porcentagem e com maior número de horas.

**Conclusão:** O ensino da bioética, a despeito de sua importância, ainda não é ofertado por todos os cursos de Medicina do Brasil, contrariando as Diretrizes Curriculares Nacionais do Ministério da Educação e as recomendações da Unesco.

**Palavras-chave:** Educação Pré-Médica; Ensino; Bioética; Ética Médica.

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## INTRODUCTION

The ethical training of medical professionals is one of the fundamental pillars for the responsible and humane practice of the profession. In this context, the discipline of bioethics plays a crucial role in providing future doctors with the tools, competencies and knowledge necessary to deal with the increasingly complex ethical problems that arise in clinical practice and scientific research.

Bioethics has gained prominence worldwide, as technological, social and scientific advances have increasingly challenged the boundaries between what is possible and what is ethical in medicine. In this scenario, the training of future doctors cannot be limited to technical capacity but must also prioritize critical reflection on ethical and moral issues that are inherent to the medical profession. Bioethics encompasses the approach of the humanistic factor, which is an essential part of the medical profession, and there are several virtues necessary for those who will practice it, among which prudence, compassion and respect stand out<sup>1</sup>.

Other humanistic factors that constitute human rights were listed by UNESCO in its Universal Declaration on Bioethics and Human Rights, including autonomy, respect, dignity and confidentiality, ethical aspects addressed with greater emphasis in the context of bioethics<sup>2</sup>. To this end, UNESCO recommended that the topics of its Resolution be included in a Bioethics course lasting at least 30 hours during undergraduate studies<sup>3</sup>. The Brazilian Ministry of Education defined, in its national curricular guidelines (DCN, *Diretrizes Curriculares Nacionais*) for undergraduate medical courses, the need to teach ethics and bioethics<sup>4</sup>.

Studies that have faced the challenge of investigating the teaching and learning of bioethics in all courses in Brazil are not frequent<sup>5-7</sup>. A study that evaluated courses at federal universities, although it does not present explicit data, found that there was little content on bioethics<sup>8</sup>. However, a more recent study, involving only medical courses with higher scores on the National Student Performance Exam (Enade, *Exame Nacional de Desempenho de Estudantes*), yielded more encouraging results, since almost all of the courses surveyed offered bioethics content among their curricular content<sup>9</sup>. This result seems to indicate a possible relationship between the improvement of bioethics teaching and better results on the Enade, but it does not reflect the national reality.

As a hypothesis, it is estimated that some medical courses in Brazil do not offer bioethics content in their curricula and that courses at federal universities have improved their offerings, but no recent studies were found to confirm this. Therefore, both because of its intrinsic importance for medical training and because of the recommendation of UNESCO<sup>3</sup>

and the national curricular guidelines (DCN) of the Ministry of Education<sup>4</sup> on the need for teaching and learning bioethics, the present study is justified.

Knowledge of how bioethics is currently being included, if ethical and legal guidelines on its provision are not being followed, may provide valuable insights to improve the ethical training of future health professionals, contributing to more humanized care and awareness of its ethical implications. Therefore, the main objective of this research was to describe how medical courses in Brazil have included bioethics in their curricula, exploring aspects such as the supply cycle, workload and type of inclusion.

## METHOD

This was a cross-sectional, quantitative, documentary analysis study that assessed the curricular matrices of medical courses registered on the website of the Ministry of Education and Medical Schools (<http://emec.mec.gov.br> and <https://www.escolasmedicas.com.br>). As complementary data collection instruments, the course pedagogical projects (CPP) were consulted, when available or made available upon request.

As a research guide, the curricular matrix was used to determine whether the subject or content on bioethics was offered, the course cycle in which it was offered (basic, clinical, internship), the discipline modality (isolated, associated, throughout the course, in the content of other disciplines or optional), the number of hours and whether the course was a federal public course. When the information was not included in the matrix, nor was the pedagogical plan available, the institutions were contacted by telephone and/or email to obtain clarifications.

For statistical analysis of the collected data, descriptive statistics techniques were used through analysis of frequency and mean. The Chi-Square test was used to compare the offer of the bioethics discipline in relation to the institution category variables (federal public and non-federal public) and region.

Regarding the variable workload of the discipline, the Shapiro Francia test was used, which indicated that it is not a variable with normal distribution ( $Z = 2.839$  |  $p\text{-value} = 0.002$ ). Thus, the nonparametric Kruskal-Wallis test was applied to verify the existence of a difference in the average of hours made available in the matrix by region and Wilcoxon test in relation to the institution category. Differences in which the test result showed a  $p\text{-value} \leq 0.05$  were considered. The data were analyzed using the Stata® software.

Regarding the ethical aspects, this research is exempt from the Research Ethics Committee (REC) opinion because it does not use data from human beings. The necessary information about the curricular matrix was available on the websites of

most medical courses. However, when it was not available, the request was made through the contact information provided on the institution website. The researchers were careful to respect the confidentiality of the institutions, regardless of whether they offered or refused to provide the data.

RESULTS

Of the 357 medical courses that were included in the assessed platforms, 91% (n=325) had or made available, upon request, the data that allowed the analysis. The remaining courses did not have data on their platforms, did not make their data available when requested, or did not respond to contacts made by telephone and/or electronic message. Of these, 206 (62.4%) courses are offered at non-public federal universities and 119 (36.6%) at public federal universities. A total of 201 (61.85%) medical courses that offered bioethics were identified. Among the 206 non-public federal courses, 116 (56%) offered bioethics, and among the 119 public federal courses, 85 (71.4%) offered bioethics. The results are shown in Table 1.

For each course, the following strata were also analyzed: 1) offer by region; 2) course cycle in which it is offered; 3) modality of offer; and 4) number of hours offered.

Analysis of the offer of bioethics education by region

The distribution of the 325 medical courses by region was as follows: 129 (39.69%) of the courses were located in the southeast region of the country, 78 (24%) in the northeast

region, 58 (17.85%) in the south region, 32 (9.85%) in the midwest region and 28 (8.62%) in the north region.

In the southeast region, of the 129 medical courses analyzed, 87 (67%) offered the subject of bioethics; in the northeast region, of the 78 courses, 46 (59%) offered it; in the south region, of the 58 courses, 44 (76%) offered it; in the midwest region, of the 32 courses, 5 (15.62%) offered it; and in the north region, of the 28 courses, 19 (68%) offered it.

The result of the chi-square test shows that there is a statistically significant difference (p<0.05) in the offer of the bioethics discipline between public federal institutions and non-public federal institutions. Observing the total numbers and the highest number of institutions, there was a predominance of offer of the discipline by federal public institutions in three regions: midwest, northeast and north, as shown in Table 2.

Analysis of the course cycle in which bioethics is offered

Regarding the course cycle in which bioethics is offered, 25.54% (n=83) of the analyzed institutions offered the discipline in the basic cycle and 14.46% (n=47) in the clinical cycle. The complete results are shown in Table 3.

When comparing the offer of the bioethics discipline in the course cycles by public federal and non-public federal institutions, a predominance of its offer in the basic cycle was observed in both. Regarding the offer in other cycles, 19.33% (n=23) of public federal institutions offer bioethics in the clinical

Table 1. General results on bioethics teaching.

Offer of bioethics	All medical courses	%	Public federal institutions	%	Non-public federal institutions	%	p-value
Offer	201	61.85	85	71.4	116	56	p<0.05
Do not offer	124	38,15	34	28,6	90	44	
Total	325	100	119	100	206	100	

Source: prepared by the authors.

Table 2. Comparison of the offer of bioethics courses between public federal and non-federal institutions by region of Brazil.

Region	Non-public federal		Public federal		Total		p-value
	n	%	n	%	n	%	
Midwest	1	20.00%	4	80.00%	5	100.00%	p< 0.05
Northeast	15	32.61%	31	67.39%	46	100.00%	
North	8	42.11%	11	57.89%	19	100.00%	
Southeast	65	74.71%	22	25.29%	87	100.00%	
South	27	61.36%	17	38.64%	44	100.00%	
Total	116	57.71%	85	42.29%	201	100.00%	

Source: prepared by the authors.

cycle, while 13.11% (n=27) of non-public federal institutions offer it in both the basic and clinical cycles. Statistically, the differences between the groups were not significant (p=0.100).

Modality of bioethics offer

Among the institutions that offer the bioethics discipline, the predominant modality is the offer associated with another discipline (33.54%, n=109), as shown in Table 4.

The chi-square test showed that there is no significant difference in relation to the course cycle when the discipline is offered and the fact that the institution is public federal or non-public federal ( $\chi^2(4) = 7.7806$ ;  $p > 0.05$ ).

Number of hours of bioethics offered per course

Regarding the hours dedicated to bioethics, the overall average was 53 hours per course. In the analysis by cycles: in the basic cycle, the average number of hours offered was 43

hours; in the clinical cycle, 47 hours; in the basic and clinical cycles, 85 hours; in the internship, 30 hours. In the regional analysis, the southeast and midwest regions have the highest average number of hours dedicated to bioethics. The Kruskal-Wallis test showed no significant difference in the workload allocated to the bioethics discipline between the analyzed regions ( $\chi^2(4) = 9.106$ ;  $p > 0.05$ ).

In the comparison between public federal and non-public federal institutions, Figure 1 shows that the average number of course hours dedicated to bioethics is 54 hours in public federal institutions and 52 hours in non-public federal institutions. In the analysis by region, except for the south region, in all other regions the public federal institutions offered a higher average number of hours of bioethics during the course. The region with the highest average number of hours dedicated to bioethics is the southeast region, with 75 hours in public federal institutions and 58 hours in non-

Table 3. Course cycle in which bioethics content is offered.

Cycle	n	%
Basic	83	25.54%
Clinical	47	14.46%
Basic and Clinical	45	13.85%
Internship	4	1.23%
Not identified	22	6.77%
Not offered	124	38.15%
Total	325	100.00%

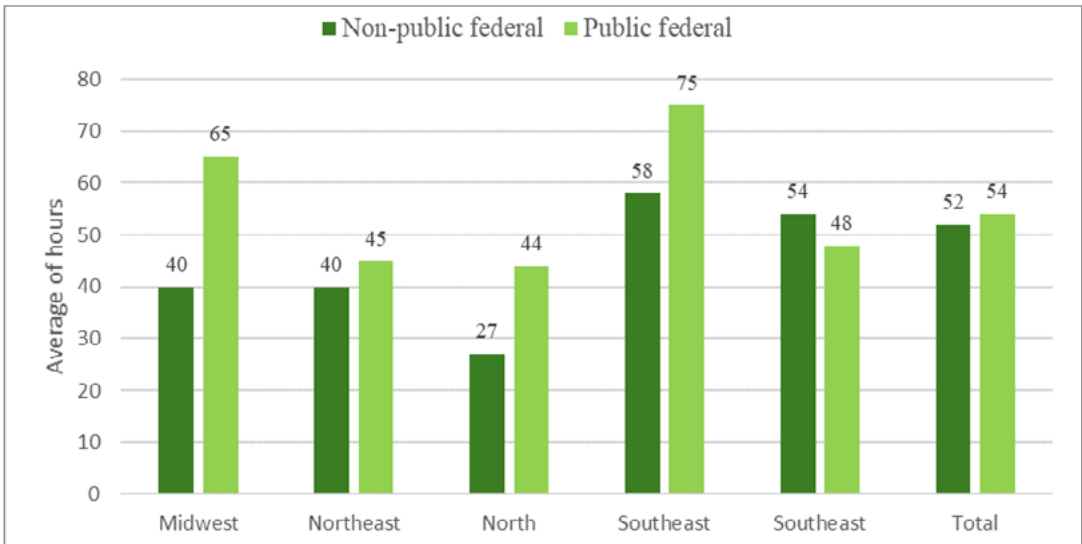
Source: prepared by the authors.

Table 4. Distribution of the modalities of courses offered for the bioethics discipline.

Modality	n	%
Associate	109	33.54%
Isolated	54	16.62%
Throughout the course	12	3.69%
Other	17	5.23%
Optional	9	2.77%
Does not offer	124	38.15%
Overall total	325	100.00%

Source: prepared by the authors.

Figure 1. Average number of hours dedicated to bioethics between public federal institutions and non-public federal institutions in different regions of Brazil.



Source: prepared by the authors.

public federal institutions, followed by the midwest region, with 65 hours in public federal institutions. Among non-public federal institutions, the southeast and south regions have the highest average number of hours dedicated to bioethics in the courses. However, the Mann-Whitney test showed that there is no significant difference between the number of hours of bioethics offered by public federal institutions and non-public federal institutions ( $Z(2) = 1.883$ ;  $p > 0.05$ ).

## DISCUSSION

The number of medical courses included in the study ( $n=325$  – 91% of existing courses) was high. However, recent changes in the curricula of some courses or their unavailability online made it difficult to obtain information, unlike what occurred in another study conducted in 2005<sup>7</sup>. This difficulty was also observed by the authors in a study on the teaching and learning of bioethics carried out in psychology courses at federal universities, since a number of them did not make their data available online<sup>10</sup>.

Among the institutions with an available curricula, the majority (61.85%) offered bioethics content. When comparing the offer between public federal institutions, whose tradition of teaching medicine goes back more than a century compared to the others, and non-public federal institutions, there was a higher percentage of offer by public federal institutions, but still far from reaching the totality. However, the guidelines of the Ministry of Health<sup>4</sup> and UNESCO<sup>3</sup> on the teaching of bioethics apply to all medical courses. Therefore, this guideline deserves greater attention from institutions that offer these courses.

In Brazil, the evolution in the offer of the bioethics discipline can be monitored through four surveys. In 1992, no medical courses were found that offered the bioethics discipline<sup>5</sup>. In 2002, 26.7% of courses offered it<sup>6</sup>, increasing to 36.7% in 2005<sup>7</sup>. In 2016, the rate was 86.8% of courses offered, but only the 76 schools with the highest Enade scores (scores 4 and 5) were analyzed, which does not reflect the reality of all courses<sup>9</sup>. The rate found in this study shows that there was an increase in the number of courses offering bioethics in relation to previous studies with the same scope, although below what was expected, considering the current guidelines of the Ministry of Education<sup>4</sup> and UNESCO<sup>3</sup>.

The other courses in the health area have even less favorable rates. A recent study of psychology courses offered at federal universities showed that only 13.51% address bioethics, with more emphasis being placed on deontology<sup>10</sup>. In physical therapy, a study showed that only 13.8% of the courses offered bioethics<sup>11</sup>. In veterinary medicine, the rate was 19.6%<sup>12</sup>; in federal nursing courses, 50%<sup>13</sup>; and in dentistry, 33.19%<sup>14</sup>. However, these data on dentistry

courses were published in 2023 but collected in 2019<sup>14</sup>. Yet, a study collected two years later showed a higher percentage (40.3%)<sup>15</sup>. Thus, the number of courses offering Bioethics in nursing and dentistry has shown favorable growth in recent years, in line with the trend seen in medical courses.

The concern for the ethical training of future health professionals is directly reflected in patient care and decision-making. However, interest in teaching and learning varies greatly among medical courses in Brazil. One example clearly demonstrated this reality: while some courses mention the word bioethics dozens of times in their pedagogical plan, in others it is not mentioned at all.

The present study showed that bioethics content is offered more frequently in the basic cycle, followed by the clinical cycle. A recent study, which analyzed and compared some courses in Brazil with those in Portugal, found that, in Brazil, it is offered mainly in the first year (52.9%), in the basic cycle, therefore; whereas, in Portugal it is offered mainly in the third year<sup>16</sup>. However, a review of previous studies found that it is offered mainly in the fourth year and in a single period, partially differing from the results of the present study<sup>17</sup>. Similarly, in a study conducted with 37 public health courses at public universities in Brazil, it was found that 30 (81%) offered content on bioethics, mainly in the first semester (basic cycle), followed by the fourth and fifth semesters<sup>18</sup>.

The subjects that motivate students the most to study bioethics are the discussion of clinical cases and learning the Spikes Protocol through active methodologies whose offer occurs with greater emphasis in the clinical cycle<sup>19</sup>. This finding shows that the offer of bioethics content at the end of the clinical cycle and continuing it throughout the internship are the times when students will be more motivated and will be the most effective in obtaining the competencies offered by the discipline.

As another approach, bioethics topics can be taught in the pre-clinical years and the analysis of practical interaction situations during the years of clinical practice<sup>7</sup>. Therefore, it is recommended not to limit the bioethics discipline to the first year, providing its content throughout the course<sup>20</sup>. Therefore, more learning is added when it is offered throughout the course or, at least, at the beginning of the practical study, which corresponds to the clinical cycle and internship. However, the present study showed that the majority of courses offer it in the basic cycle, a significant number offers it in the clinical cycle, and the minority of courses (3.69%) offers it throughout the course, given the greater difficulty in making it available.

Most courses offered the discipline in the associated modality, followed by the isolated modality and in the content of other disciplines. Few offered it as an optional course



and throughout the course. The tendency to teach it in an associated format has been present since its inception, when its connection to forensic medicine became evident, although the shared topics are not frequent<sup>17</sup>. However, a study of courses with Enade scores of 4 and 5 showed that almost half of the assessed courses (47%) offered bioethics independently, and the authors considered this to be an important development when compared to the results observed in previous studies<sup>9</sup>.

A study conducted in 2005, which compared Brazil and Spain, found that 36.5% of the 37.5% of medical courses in Brazil and 28.3% of the 60.7% of courses offered bioethics as a mandatory subject<sup>7</sup>. According to this study, the rate of the optional course offer remained low in Brazil, with preference being given to the mandatory course, a modality that contributes to improving the ethical training of physicians.

The present study showed that bioethics is offered more frequently in the south region. A study that compared the offer of the subject in dentistry courses found that the highest rates of offer are found in the southeast (42.9%) and south (20.8%) regions<sup>14</sup>. Although these are courses in different areas, the trends in the regions coincide. However, a study that compared the offer of the discipline of bioethics by region in veterinary medicine found that the midwest region of Brazil has the highest rate of the discipline offer, although the figures are too low to be a significant result<sup>12</sup>.

On October 19, 2005, the 33<sup>rd</sup> Session of the UNESCO General Conference adopted the Universal Declaration on Bioethics and Human Rights, incorporating a set of bioethical principles agreed upon by 191 UNESCO member states<sup>2</sup>. This content was later presented as a guide for the offer of topics in bioethics discipline, recommending that the duration should be at least 30 hours<sup>3</sup>.

In the present study, it was observed that the overall average number of hours devoted to bioethics in courses is 53 hours. Therefore, the schools that offer it comply with the minimum number of hours recommended by UNESCO. A recent study comparing Brazil and Portugal found that all medical courses in Portugal offer more than 30 hours of bioethics, but that this rate drops to 60.8% in Brazil<sup>16</sup>, similar to the results of the present study. Bioethics offers the opportunity to address the physical, psychological, emotional, social and family dimensions during patient care, and this teaching-learning process will allow society to have more competent doctors, both ethically and morally<sup>20</sup>.

In this study, no significant difference was observed between the total workload of Brazilian public federal and non-public federal courses, with the offer being slightly greater among public federal institutions, especially in the midwest, northeast and north regions. In 2003, a survey conducted in

public federal medical courses in Brazil showed that there was little workload for ethics and even less for bioethics<sup>8</sup>. A more recent study did not observe any difference between the total workload of Brazilian public and private schools, although private schools had a greater workload dedicated to the teaching of ethics and bioethics<sup>21</sup>.

## FINAL CONSIDERATIONS

It is concluded that the discipline of bioethics or its content in other disciplines is not offered by all medical courses in Brazil, failing to meet the current national and international guidelines. Among the medical courses that offer bioethics, the majority offer it in the basic cycle, generally associated with another discipline, with an average of 53 hours, and public federal courses offer it at a higher percentage.

ioethics is a crucial subject for the improvement of knowledge, skills and humanistic attitudes for future professionals, contributing to a better approach to the ethical issues of the profession, which are increasingly complex and constantly evolving. This research highlighted the need to encourage the teaching of bioethics in a number of the medical courses in Brazil that do not yet offer it.

This research was limited by the lack of complete information available in the curricular matrices of all medical courses in Brazil and the lack of availability of the pedagogical project, sometimes not even when requested, which made it difficult to obtain some results and may represent a bias regarding the finding of the high number of medical courses that do not offer the subject of bioethics or its respective content in other disciplines.

## AUTHORS' CONTRIBUTIONS

Willian Lorenson Pacheco participated in the research design, collection, analysis and interpretation of data, writing and critical review of the manuscript and approval of the final version. Günter Sauerbier participated in the research design, analysis and interpretation of data, critical review of the manuscript and approval of the final version. Erlo Lutz participated in the analysis and interpretation of data, critical review of the manuscript and approval of the final version. Cláudia Elisa Grasel participated in the analysis and interpretation of data, critical review of the manuscript and approval of the final version. Elcio Luiz Bonamigo, was the research advisor, participated in the research design, analysis and interpretation of data, critical review of the manuscript and approval of the final version.

## CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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