

# Analysis of the Bioethics subject offer in Brazilian undergraduate Dentistry courses

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**Abstract** The aim of this study was to verify the offer of the Bioethics course in the curricular matrices of Brazilian dentistry schools. For this purpose, a review of all curricular matrices available on the Ministry of Education website was conducted from February to April 2019. The search was carried out individually in the matrix of each course, seeking information about the presence of the Bioethics course, the course load, the semester, and the regime (optional or mandatory) of the course offering in the curricular matrix. In the survey, 41 (17.67%) courses were found to offer the Bioethics course singly, and 36 (15.52%) offered it in the associated form, totaling 77 (33.19%) with an offer of the courses. It was concluded that, in 2019, the majority of courses did not provide the Bioethics subject, inferring the need for its inclusion in all courses as a way to comply with the existing national curricular guidelines and provide adequate humanistic education to future professionals.

**Descriptors:** Ethics, Dental. Bioethics. Education, Dental.

## Análisis de la oferta de la disciplina de Bioética en los cursos brasileños de pregrado en Odontología

**Resumen** El objetivo de este estudio fue verificar la oferta de la asignatura de Bioética en los planes de estudio de los cursos de odontología brasileños. Para eso fue realizado una revisión de todas las matrices curriculares disponibles en el sitio del Ministerio de Educación de Brasil, de febrero a abril de 2019. La búsqueda fue realizada de forma individualizada en la matriz de cada curso buscando las informaciones sobre: presencia de la asignatura de Bioética, la carga horaria de la asignatura, el semestre y el régimen (obligatoria u optativa) que era ofertada. En la búsqueda encontramos que 41 (17,67%) cursos ofrecían la asignatura de Bioética de forma aislada y 36 (15,52%) en forma asociada, totalizando 77 (33,19%) con oferta de la asignatura. Se concluyó que, en 2019, la mayoría de los cursos no proporcionaban la asignatura de Bioética, infiriendo la necesidad de ser incluida en todos los cursos como una forma de cumplir con las directrices curriculares existentes y proporcionar capacitación humanística adecuada para los futuros profesionales.

**Descriptor:** Ética Odontológica. Bioética. Educación en Odontología.

## Análise da oferta da disciplina de Bioética nos cursos de graduação em Odontologia brasileiros

**Resumo** O objetivo deste estudo foi verificar a oferta da disciplina de Bioética nos currículos dos cursos de odontologia brasileiros. Para isso foi realizado a revisão de todas as matrizes curriculares disponíveis no site do Ministério de Educação, no período de fevereiro a abril de 2019. A busca foi realizada individualmente na matriz de cada curso buscando informações sobre: a presença da disciplina de Bioética, a carga horária da disciplina, o semestre e o regime (optativa ou obrigatória) de oferta na matriz curricular. No levantamento realizado encontrou-se 41 (17,67%) cursos que ofertavam a disciplina de Bioética de forma isolada e 36 (15,52%) na forma associada, totalizando 77 (33,19%) com oferta da disciplina. Concluiu-se que, no ano de 2019, a maioria dos cursos não disponibilizava a disciplina de Bioética, inferindo-se a necessidade de haver sua inclusão em todos os cursos como forma de cumprir as diretrizes curriculares nacionais existentes e proporcionar adequada formação humanística aos futuros profissionais.

**Descritores:** Ética Odontológica. Bioética. Educação em Odontologia.

## INTRODUCTION

Encouraging the understanding of ethical implications inherent to the exercise of professions, especially among young people, is one of the recommendations of the Universal Declaration on Bioethics and Human Rights<sup>1</sup>. Bioethics is the course that deals with professional conduct in relation to moral principles and values, as already established in the first definition elaborated by Professor Warren Reich in 1978<sup>2</sup>. In this sense, the inclusion of Bioethics education in undergraduate courses provides future professionals with humanistic knowledge and skills in deliberating moral conflicts to be used competently during clinical activity<sup>3</sup>. Moral conflicts, understood as the difficulty of deciding between two alternatives with unacceptable aspects for oneself or for the patient, are part of dental care, and consequently, professional conduct is closely involved with Bioethics, highlighting the importance of teaching it during undergraduate courses.

Bioethics education is in development in university courses in healthcare professions in Brazil. Its availability presents important variations regarding the chronology and rate of inclusion during undergraduate courses among professions. In Medicine, for example, in the early 1990s, it was not present in the curricular matrix of Brazilian courses, but there was significant evolution during the first and second decades of this century, as it is possible to observe its inclusion in the curricular matrices of most courses<sup>4-6</sup>. However, in other professions, this inclusion occurs more slowly, with records placing Nursing in second place and Dentistry in third, followed in descending order by Veterinary Medicine and Physiotherapy, denoting how incipient it is<sup>7-9</sup>.

Thus, the tendency of increasing the offer of this curricular component in Brazilian undergraduate courses in health professions seems evident. However, no recent study has been found on the inclusion of Bioethics in Dentistry courses, highlighting the need for its implementation. This initiative is also based on its importance for future dental surgeons who will deal daily with moral conflicts inherent to the profession, especially in the relationship with the patient, in advertising, in research, and in their relationships with society<sup>10,11</sup>.

Given this panorama, there is a need to advance both in the construction of an integrated curricular matrix and in its continuous reconstruction from the review process, recommending that a careful analysis be carried out to avoid the use of old practices with new denominations<sup>12,13</sup>. The National Curricular Guidelines (DCN) show the concern of including in the curricular matrix of undergraduate courses competencies and skills that emphasize the humanistic issue in the teaching and clinical practice of Dentistry, especially in Ethics and Bioethics<sup>14</sup>. This inclusion allows for the discussion about ethics in its essence as a purpose of the study and a guide for interpersonal relationships during the professional practice<sup>15</sup>.

Aware of the importance and need for ethical approach and training in dental practice, the Federal Council of Dentistry (CFO) established standards for specialization courses, approved by Resolution 22 of December 27, 2001, which increased the workload of the Dental Ethics and Legislation course from 15 to 30 class hours and included, among the mandatory courses in any curricular matrix, the Bioethics course, with a workload of 15 class hours<sup>16</sup>. However, this inclusion may not be occurring in undergraduate courses, whose monitoring responsibility is the Ministry of Education's. It should be emphasized that, currently, the teaching of Bioethics in Dentistry stands out in the training of new professionals, appearing as a new concept of ethics applied to a series of innovative circumstances, such as the use of dental stem cells, often unnecessary aesthetic treatments, which are considered over-treatments, experienced by the evolution of biomedical sciences, offering students the ability to reflect on ethical issues and make ethical decisions<sup>17</sup>.

Given the need to adapt dental education to the National Curricular Guidelines (DCN), the Universal Declaration on Bioethics and Human Rights of UNESCO and the ethical needs of dental surgeons, this study was designed to identify the offer of the Bioethics course in Brazilian undergraduate Dentistry courses in 2019.

## METHODS

The research is a cross-sectional study using documentary analysis, aimed at evaluating Dentistry courses registered on the Ministry of Education's website (MEC – <http://emec.mec.gov.br>). The listed institutions were individually accessed

to locate and examine the curriculum matrix of the courses. The search was conducted by three trained researchers between February and April 2019.

The online availability of the curriculum matrix was the main inclusion criterion for the study. After obtaining the matrix, a search was conducted for "Bioethics," as well as the number of hours, the semester, and the delivery mode throughout the course. Since this is a curricular component with its own foundations, justifications, and objectives, only courses that used the term "Bioethics" in their denomination, taught singly or in association with Ethics, were considered.

At the time of data collection, there was a total of 259 registered Dentistry courses on MEC's website. Of these, 27 did not provide their curricular matrices and were excluded from the study. Therefore, the sample consisted of 232 courses.

The data were tabulated in a spreadsheet and presented in the form of descriptive statistics, with absolute and relative frequencies. The totals and percentages for the country, states, and regions were also calculated. The research project was approved by the CEP-UNOESC under number 3.054.370.

## RESULTS

The 232 Dentistry courses that provided their curriculum matrix on the institution's website were distributed across regions as follows: 40.52% in the Southeast region, mostly in the states of São Paulo (18.1%), Minas Gerais (12.5%), Espírito Santo (3.89%), and Rio de Janeiro (6.03%); 24.14% in the South region; 19.4% in the Northeast region; 8.19% in the Central-West region, and 7.75% in the North region (Table 1).

A total of 77 (33.19%) courses offered the Bioethics curricular component, with 41 (17.67%) offering it singly and 36 (15.52%) offering it in an associated form (Figure 1). Of the 77 courses, 68 (88.31%) classified it as mandatory.

To simplify the understanding of the results, the data will be presented for each Brazilian region. There was no significant difference between regions ( $p=0.2418$ ).

In the Southeast region, 33 (42.9%) courses offered the Bioethics curricular component, with 20 (60.61%) of them located in São Paulo, 7 (21.21%) in Rio de Janeiro, 5 (15.15%) in Minas Gerais, and 1 (3.03%) in Espírito Santo. Of the 33 courses, 16 (48.48%) offered Bioethics singly, and 17 (51.51%) in an associated form.

In the South region, 16 (20.8%) programs offered the Bioethics curricular component, with 6 (37.50%) of those located in Rio Grande do Sul, 5 (31.25%) in Paraná, and 5 (31.25%) in Santa Catarina. Of the 16 courses, 9 (56.25%) offered Bioethics singly and 7 (43.75%) in an associated form.

Regarding the Northeast region, 14 (18.2%) courses offered the Bioethics curricular component, with 3 (21.43%) located in Bahia, 4 (28.57%) in Paraíba, 1 (7.14%) in Piauí, 2 (14.29%) in Pernambuco, 1 (7.14%) in Sergipe, 2 (14.29%) in Alagoas, and 1 (7.14%) in Maranhão, while no offerings were found in the states of Ceará and Rio Grande do Norte. Of the 14 courses, 8 (57.14%) offered Bioethics singly, and 6 (42.86%) in an associated form.

In the North region, 9 (11.6%) courses offered Bioethics, and of those, 3 (33.33%) were located in the state of Amazonas, 3 (33.33%) in Pará, 2 (22.22%) in Tocantins, and 1 (11.11%) in Roraima, with no record of the course in the states of Acre, Amapá, and Rondônia. Bioethics was offered as a standalone subject in 4 (28.57%) courses and in combination with other subjects in 5 (35.71%) courses.

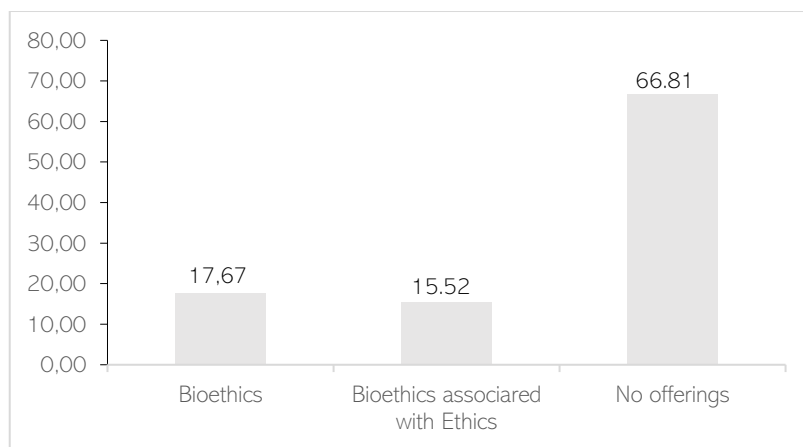
In the Central-West region, 5 (6.5%) courses offering Bioethics were found, with 2 (40.00%) located in the Federal District, 2 (40.00%) in the state of Goiás, and 1 (20.00%) in Mato Grosso do Sul, with no record in the state of Mato Grosso. Of these, 4 (80.00%) courses offered Bioethics as a standalone subject, and 1 (20.00%) as an associated subject.

Of the 77 courses offering Bioethics, 58 specified the teaching semester, with 13 (22.41%) offering it in the 1st semester, 8 (13.79%) in the 2nd semester, 9 (15.52%) in the 3rd semester, 11 (18.96%) in the 4th semester, 6 (10.34%) in the 5th semester, 3 (5.17%) in the 6th semester, 3 (5.17%) in the 7th semester, 3 (5.17%) in the 8th semester, and 2 (3.45%) in the 10th semester, with only the 9th semester not mentioned (Figure 2).

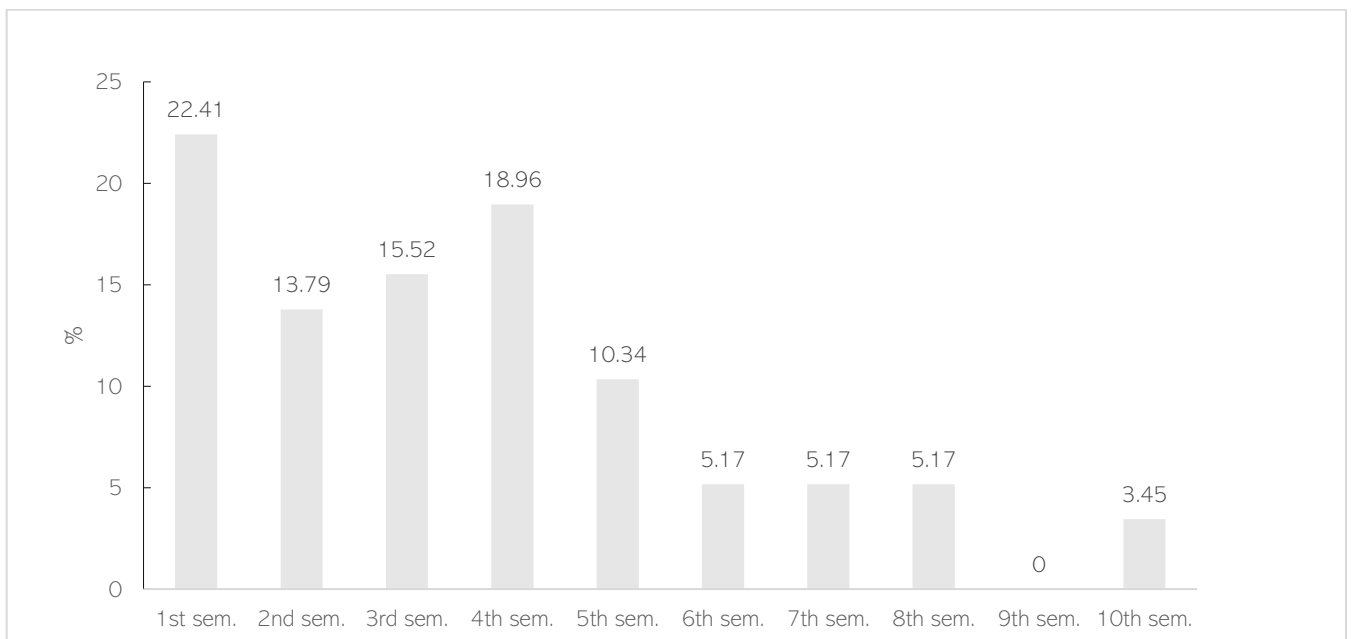
Among the 41 courses offering Bioethics as a standalone subject, 32 (78.04%) provided the workload. The teaching hours were distributed as follows in relation to the number of courses: 28 hours (1), 30 hours (4), 32 hours (1), 34 hours (1), 36 hours (1), 40 hours (12), 50 hours (1), 51 hours (1), 54 hours (1), 60 hours (4), 80 hours (4), 136 hours (1). When grouped by range of hours, there were 20 (62.5%) courses offering up to 40 hours of Bioethics teaching, 7 (21.9%) offering 50 to 60 hours, and 5 (15.6%) offering more than 60 hours. The curricular component was offered as a mandatory subject by 29 (90.62%) of these courses.

**Table 1.** Frequency of Dentistry courses by region.

Region	n (%)
Southeast	94 (40.52)
South	56 (24.14)
Northeast	45 (19.40)
Central-West	19 (8.19)
North	18 (7.75)
Brazil	232 (100.00)



**Figure 1.** The offer of the Bioethics curricular component by Brazilian Dentistry courses.



**Figure 2.** The offer of the Bioethics curricular component (singly or associated) by semesters of the course.

## DISCUSSION

This study showed that, in 2019, the Bioethics curricular component was offered by 33.19% of the Brazilian Dentistry courses. A study carried out in the state of São Paulo and published in 2007 showed its presence in only 4 undergraduate Dentistry courses, which represents about 8% of the courses, both public ( $n=2$ ) and private ( $n=2$ )<sup>22</sup>. Another study conducted in 2010 evaluated 182 Dentistry courses and found the offer of Bioethics in 31.3% of them<sup>18</sup>. A study published in 2014 investigated the teaching of Bioethics in Dentistry courses at federal universities in Brazil and found that only 5 of them presented the Bioethics curricular component; in two of them, it was offered as optional<sup>23</sup>. Despite the observed increase in the offer, this percentage is still low. In over a decade, the increase was below 2%, and most courses still did not offer Bioethics in their curricular matrix.

This result, both in terms of the inclusion of Bioethics and the evolution in recent years, signals non-compliance with the guidelines of the DCN<sup>14</sup> by most courses. Furthermore, the guidelines of the Universal Declaration on Bioethics and Human Rights of the United Nations Educational, Scientific and Cultural Organization (UNESCO), which also recommends its inclusion in education, are not fully complied with<sup>1</sup>. However, it should be noted that the content may be being worked on in other curricular components, since syllabi are not always available for consultation.

This slowness has not occurred only in Dentistry courses. It was also found by a study carried out in 2002, which considered 10 Medicine courses of federal universities, which made their curricular matrix available online, and verified that only one of them offered Bioethics<sup>19</sup>. However, a later study comparing Brazil and Spain found the offer of Bioethics in 37.5% of Brazilian Medicine courses, even lower than the 60.7% found in Spain<sup>5</sup>. Even so, this percentage in Brazil was much higher than the two similar studies previously conducted. The first, published in 1993, did not find any courses offering Bioethics, and the second, published in 2003, found that 26.7% offered it as a standalone subject<sup>4</sup>. The inclusion of Bioethics in Medicine courses is much higher than in Dentistry ones. In 2005, the presence of Bioethics was already observed in 37.5% of Brazilian Medicine courses<sup>5</sup>, compared to this study, which identified it in 33.19% of Dentistry courses in 2019.

However, some research conducted in courses of other professions found an even lower inclusion rate. A study conducted in 234 Physiotherapy courses found Bioethics in only 13.82%<sup>9</sup>. A recent study conducted in Veterinary Medicine courses in Brazil, in 2018, found that only 19.62% offered Bioethics<sup>8</sup>. On the other hand, a study conducted in 2013 found that 16 (50%) of the federal Nursing courses had Bioethics in their curricular matrix<sup>7</sup>, showing a tendency to be in second place in offering, right after Medicine.

In this context, it becomes evident that the interest in Bioethics in higher education courses is recent and variable among professions. When looking at publications on Bioethics, it is found that most of the literature coincidentally emerges from the medical field, with Dentistry appearing in second place, and the other publications are found distributed among the areas of Nursing, Biological Sciences, Philosophy, Psychology, and Physical Education<sup>20</sup>. However, in relation to the set of publications, a survey of abstracts presented at the Brazilian Society for Dental Research (SBPqO) Meetings, from 2004 to 2015, found that only 0.19% was related to Ethics or Bioethics, a number that would be even lower if only Bioethics was considered<sup>21</sup>.

Regarding the regions of Brazil, it was found that Southeast (42.9%) and South (20.8%) present the highest Bioethics offer rates. Regarding the Southeast, the progress of inclusion is evident when compared to a previous survey in 47 Dentistry courses in São Paulo, which found Bioethics in only 4 (8.52%) of them<sup>22</sup>. In 2014, in the Northeast Region, only two HEIs offered the Bioethics curricular component (on an optional basis), but the offer was greater in the Southeast Region<sup>23</sup>. The results indicate that, overall, there is a deficiency in offer, which is more accentuated in some regions, demanding attention from the responsible regulatory body.

Regarding the timing of teaching, the first semester was the preferred stage for offering Bioethics, followed by the fourth semester, with 36.1% of Bioethics offered in the first year, similar to a study conducted in 2010 (28.6%)<sup>18</sup>. On the other hand, another study, conducted in 2014, showed a predominance of the offer between the 7th and 8th semesters of the program<sup>23</sup>. This difference may be related to the fact that many courses offer Bioethics in association with Ethics at the beginning of the course and work on content related to professional ethics at the end. In a study

with Medicine courses conducted in 2005, it was found that, in Brazil, most courses offered Bioethics in the first cycle, corresponding to the first three years, while in Spain, it was more common in the second cycle. However, Bioethics should be considered a cross-sectional content of the course, striving to avoid the students' moral deterioration that can occur at the end of the course, as shown in the review conducted by Kottow (2009)<sup>3</sup>. In this regard, although there are a large number of publications on Bioethics, few of them address the timing of teaching in Brazilian schools, making analysis difficult<sup>20</sup>.

In Brazil, it is possible to verify the occurrence of studies similar to this one, both in undergraduate and *stricto sensu* postgraduate programs. A study published in 2006 shows that about 50% of *stricto sensu* postgraduate programs in Dentistry in Brazil offer the course of Bioethics or Ethics<sup>24</sup>, showing that even in postgraduate programs, Bioethics is not widely studied. As for undergraduate courses, some studies have already been published, and the most recent of them, with data collected between December 2021 and January 2022 on the websites of 430 institutions, pointed out that 345 (80.2%) provided curricular matrices, and in 139 (40.3%) of these, there was a curricular component with the name Bioethics, mainly taught in the first two years (69%)<sup>25</sup>. A study by the same authors published in 2022 reviews the literature on the inclusion and teaching of Bioethics in Dentistry courses in Brazil after the publication of the 2022 DCNs, showing that in many courses, the inclusion of Bioethics has not yet occurred, and when it did, it was predominantly theoretical and disconnected from the other curricular components<sup>26</sup>.

As for the number of teaching hours, the majority (62.5%) of courses adopted a workload of up to 40 hours. This number differs from the study conducted in 2005 with Medicine courses in Brazil and Spain, which found 44.4% and 40% with this workload, respectively, showing the tendency of teaching for more hours<sup>5</sup>. Some studies conducted in Latin America generically confirm the deficiency of teaching, but not the timing and number of hours<sup>27-29</sup>. Guerra, in 2006<sup>27</sup>, found a shortage of content on Bioethics in dental curricular matrices. . Another study conducted in Chile found that students perceived that the curricular matrix did not promote ethical commitment to people and society, and the authors concluded that there was a need for curricular revision<sup>28</sup>. In a study conducted in Peru, it was found that it is uncommon to find curricular components such as Ethics or Bioethics in Dentistry courses, and subjects related to dental ethics are included in Legal Dentistry and Deontology<sup>29</sup>.

For greater effectiveness in teaching, Problem-Based Learning (PBL) and Case-Based Learning (CBL) can be used.<sup>30,31</sup> When evaluating students using Bloom's Taxonomy, the ability to analyze a problem and the development of judgments are knowledge situated almost at the top of its pyramid, valuing its use.<sup>32</sup> In this regard, specifically in the field of Dentistry, a study on the perception of undergraduate students found that PBL and CBL, with a dental surgeon trained in Bioethics as the professor, constitute the ideal forms of teaching<sup>34,35</sup>. A variation is learning through debate, a strategy that was also well evaluated by students in higher education<sup>35</sup>. Another study showed that the use of active methodologies brings more positive results.<sup>26</sup> However, these methodologies require more teaching hours.

The effects of the lack of ethical training of professionals add to the poor working conditions, complicating professional practice. According to research data conducted by the Federal Council of Dentistry<sup>36</sup>, in the private dental care sector, 47.6% of the dental surgeons were hired or affiliated with dental plans, which has contributed to the precariousness of Dentistry and to the deregulation of the market, a condition worsened by the opening of new courses.

In some private dental services, work is precarious, which generates ethical conflicts in the exercise of the profession and raises the need for greater knowledge in Bioethics by professionals in order to reduce their vulnerability<sup>37</sup>. Additionally, dental surgeons who work exclusively in offices or clinics showed greater ignorance about ethical issues compared to professionals who take specialization courses and to final year undergraduate students<sup>38</sup>. Therefore, the current scenario requires changes motivated by various causes, including the judicialization of dental practice and the exponential increase in negligence cases<sup>30</sup>. These results demonstrate the need for the inclusion of Bioethics topics in courses and updating journals directed to dental surgeons, in order to reach those who still need to acquire more knowledge on this regard.

There is also no evidence that offering more hours of Bioethics throughout the course results in more effective teaching<sup>39</sup>. For better use of the reflection by students, Bioethics should be presented from the early semesters of



undergraduate courses, extending and deepening throughout the course and ensuring better preparation for students in facing the dilemmas experienced in professional practice<sup>7</sup>. The main ethical dilemmas are related to three categories: problems in the practice of colleagues, such as patient grooming, inadequate technical-scientific training for professional practice, and neglect in patient care; in the relationship with patients (users), such as disagreement about treatment choices and failure to communicate iatrogenic events caused by colleagues; and in work relations and health services, such as inadequate working conditions, devaluation of preventive and educational actions, among others<sup>40</sup>.

It should also be emphasized that Bioethics, being interdisciplinary, cannot be dissociated from other subjects. It is recommended that all professors live and teach the application of ethical values that guide human conduct regarding technological growth, scientific research, and the resolution of moral dilemmas<sup>39</sup>. In addition, they can promote a learning environment that results in an increase of moral autonomy and perception of values, including the discussion of sensitive subjects, such as gender issues, social inequality, and behavior and injustices in healthcare assistance<sup>41</sup>.

A commendable initiative was the meeting of professors promoted during the 52nd Meeting of the Brazilian Association of Dental Education, where action strategies were drawn up to improve the teaching of Bioethics in Dentistry courses<sup>42</sup>. In a subsequent meeting held in 2019, the need for interdisciplinary Bioethics taught by professors with the respective training was recommended<sup>43</sup>.

The current National Curriculum Guidelines (DCN) have enhanced the importance of Bioethics. The guidelines published in February 2002 only mentioned the competencies and skills required for health care, in which professionals should provide their services within the highest standards of quality and the principles of Ethics/Bioethics<sup>44</sup>. The current DCN not only provides for the competencies and skills necessary for health care, but also requires courses to include in their curricular matrices theoretical and practical contents related to understanding the social, cultural, behavioral, psychological, ecological, ethical, bioethical, and forensic determinants at both individual and collective levels of the health-disease process, since they are considered essential contents of the undergraduate course in Dentistry<sup>14</sup>.

For these goals to be achieved, it is necessary that the entire physical and human structure of the Dentistry course is aligned with the same framework of values and that humanistic training, especially provided by Bioethics, is offered to students during their undergraduate courses. It is understood that such incorporation should be a demand from professors to their departments, as well as from those responsible for educational institutions, and also an important item in the evaluation of courses.

## CONCLUSION

Although there are specific national and international guidelines, the offering of Bioethics by Dentistry courses is not satisfactory, as it is included in the curricular matrix of only one third of the courses and in the early stages, without any indication that its distribution occurs throughout the course.

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