

Ethics and Bioethics as a research topic in dentistry: a gap in the scientific knowledge

Ética e Bioética como tema de investigação na Odontologia: uma lacuna no conhecimento científico

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Content

- [1. Introduction](#)
- [2. Methodology](#)
- [3. Results](#)
- [4. Discussion](#)
- [5. Conclusions](#)

[Bibliographic references](#)

ABSTRACT:

Bibliometric quantitative investigation in the website files of the International Association for Dental Research (IADR), through a search of the term/fragment "ethic". The presence of Ethics and Bioethics as a subject of dental research was negligible during the study period. There is a large gap in the production of scientific knowledge within this area, which may lead to repercussion both in academic as well as in performance of dental professionals.

Keywords: Ethics, Bioethics, Dentistry, Research.

RESUMO:

Trata-se de estudo bibliométrico quantitativo nos arquivos do site da Associação Internacional de Pesquisa Odontológica (IADR), através de uma busca do termo/fragmento "ético". Observou-se que a presença da Ética e da Bioética como tema de pesquisa odontológica foi mínima durante o período do estudo. Há uma grande lacuna na produção de conhecimentos científicos nesta área, o que pode levar a repercussões tanto na formação acadêmica como no desempenho dos profissionais de Odontologia.

Palavras-Chave Ética, Bioética, Odontologia, Pesquisa.

1. Introduction

The etymological conception of the word profession stems from the action of "professing" which means one's willingness to express an important statement. The first profession of doctors, clerics and lawyers represented a divine vocation originally separating them from the remaining of the society. With the advent of the scientific and industrial revolution in the eighteenth and nineteenth centuries, the term profession took on a new connotation related to employment, such as professional occupation and/or service. However, in order for this new social division of labor to achieve professional status, a complex process of social

recognition related to the relevance of practices in society became necessary, built through training in educational, production, scientific publication and ethical accountability systems (Rule y Veatch, 2004, Gracia, 2004).

In this context, the creation of so-called "codes of ethics" is considered one of the most important sociological attributes in the definition of the profession. Such ethical regulations should foster a critical and reflective professional practice, based on guiding values of the relationship between professionals and society. However, they are often focused on professionals and not on patients (corporatism nature) (Pyrrho, Prado, Cordon, y Garrafa, 2009). They determine rules previously established by the professional bodies (generalist) and their respective penalties (legalistic nature), usually without an ethical foundation (reductionist nature to conceive ethics as the pursuit for the right). Still, the ethical codes were used as a basis for ethics education in dentistry for decades. It is not surprising, that despite the continued emphasis on dental ethics education (Odom, Beemsterboer, Pate, y Haden, 2000) the impact of our ethics curricula on the students should be regarded as minimal: "our ethics courses are inadequate in content and form to the extent that they do not cultivate an introspective orientation to one's professional life... no one's behavior changes as a result" (Bertolami, 2004).

The daily corruption practiced by health professionals is growing and undeniable, especially when the medicalization of life and the incorporation of high technology in the therapeutic processes have assumed consumption and marketing characteristics (Hortal, 2000, Gomes y Ramos, 2014). In Dentistry, there are many reported cases which include ethical issues related not only to the professional daily exercise, but also vocational training (Rule y Veatch, 2004, Bertolami, 2004, Chattopadhyay, 2013, McCabe, 2001, Finkler, Caetano, y Ramos, 2011, 2014). In addition, consistent problems in universal health systems such as in Brazil (SUS), in the context of deep economic-social and cultural disparity, place ethics/bioethics beyond interpersonal relationships. Is it to answer questions such as: Are dentists able to build dialogic relationships with their patients and communities? Do they participate in the collective deliberation forums that exist in SUS? Are they eligible for a co-managed oral health team job? Do they involve with the oral health situation of vulnerable populations? Dentistry is challenged to build new dialogical, democratic and citizen relations, strengthened in values such as solidarity and justice (Gomes, y Ramos, 2014).

Facing these problems, and as an alternative to the traditional teaching of professional ethics, bioethics emerges as a theoretical and methodological reference able to contribute to the necessary education. Education, whose objective is to search for autonomy, responsibility and deliberation among all subjects, makes them, moving from heteronomous and autonomous subjects, from obedient people to critical and mature citizens, able to lead themselves morally. Therefore, it is not about solely teaching bioethics, but employing it as an instrument for training values (Gracia, 2014).

Assuming that scientific and academic production provide feedback and reflect each other, the aim of this study was to analyze the dental scientific production related to ethics and bioethics in the last 16 years. Knowing such production can give us clues about the quality of the ethical dimension of vocational training that is being held. It may help one to analyze whether the extraordinary technical and scientific progress of dentistry has been ethically grounded. And can ultimately help us to reflect on the social responsibility of the university: to identify health problems and drive teaching and research for impact actions that enable better living conditions in society.

2. Methodology

Bibliometrics was used as method to know the state of the art scientific production of ethics and bioethics in Dentistry. As a result, this type of quantitative methodology provides a panorama of the knowledge body in a given scenario and time frame. It basically consists in analyzing a sample of secondary data from indexed journals, conference proceedings and other bibliographic document sources related to scientific production. It allows data variables such as subject, authors, research groups and institutions to comply with information related to the progress and the state of the art of a particular topic (De Bellis, 2009, Thompson

Reuters, 2008).

“IADR Abstracts Archive” database, available at International Association for Dental Research (IADR) website was used for this research. This is because this Association constitutes a nonprofit organization with almost 11,000 members worldwide, reflecting the scientific production in the field of dentistry, at the international level. The base currently has 86,283 abstracts of researches published, workshops presented and symposiums held since 2001 in the proceedings of their events and events of the affiliated associations (International Association for Dental Research, 2018a).

The sample was comprised of the abstracts published in the proceedings of the IADR General Sessions, as it is the greatest scientific research dental event, with participation from 4 to 6 thousand researchers in each edition (International Association for Dental Research, 2018b). The period of analysis was determined according to the first event (2001) whose abstracts were available online since the start of data collection until 2016 (International Association for Dental Research, 2018a), thus totalizing 16 years. In this period, eight General Sessions were held in the USA and the rest in other countries. It can be concluded that even though researchers are from different countries, most of them should be American.

During data collection, the search platform has been modified, changing the searches from word or word fragments by only keywords. Thus, data collection from 2001 to 2013 was performed using the fragment "ethic"; and data collection for the years 2014 to 2016 was performed using the keywords suggested by the website containing the fragment "ethic" (Ethics; Ethical Issues; Ethic & law; Dental Ethics; and Bioethics). To preserve the methodological rigor of the data collection, to facilitate comparisons between them, and to keep the wealth of data collected in the search for fragments, the search for keywords was also carried out between 2001 and 2013.

The developed protocol followed a three-step sequence:

At the Phase I (P-I) data was accessed on the aforementioned base, separately for each of the 16 General Sessions of the IADR, as the searches explained above.

In Phase II (PII) initial data were submitted to the inclusion criteria (thematic on ethics and /or bioethics) and exclusion criteria (search titles without abstract and abstracts with irrelevant content to the theme, such as works which were solely submitted for approval by a committee of research ethics).

In Phase III (PIII) the included abstracts were read by three researchers (two graduate students and a professor expert in the subject). From this first reading, the researchers decided on the themes that emerge from the perceived data, namely: Research and Scientific Publication, Professional Education, Bioethics Teaching, Bioethic Themes, Deontology, Public Health. The abstracts were then read again and classified in those thematic categories.

3. Results

A total of 357 abstracts were identified in searches for snippets during PI and 26 abstracts in the keyword search. In PII, 344 abstracts were excluded, and 32 abstracts were included in the research (Figure 1), corresponding to .059% of the total (54,115) abstracts published in the analyzed period.

Figure 1

Results of the methodological process of composition of the sample by event, location and year.

Event, location and year	Fragment search	Keyword search	Excluded abstracts	Included Abstracts
IADR General Session & Exhibition 94th Edition Seoul, Republic of Korea – June 2016	0	0	0	0

IADR General Session & Exhibition 93th Edition Boston, Massachusetts –March 2015	0	5	1	4
IADR General Session & Exhibition 92nd Edition Cape Town, South Africa – June 2014	0	0	0	0
IADR General Session & Exhibition 91st Edition Seattle/ Washington - USA –March 2013	50	2	49	3
IADR General Session & Exhibition 90th Edition Iguaçu Falls Brasil - June 2012	77	2	77	2
IADR General Session & Exhibition 89th Edition San Diego, California USA - March 2011	45	6	39	6
IADR General Session & Exhibition 88th Edition Barcelona Espanha - April 2010	59	2	59	2
IADR General Session & Exhibition 87th Edition Miami Florida - April 2009	33	1	32	2
IADR General Session & Exhibition 81th Edition Toronto Ontario Canada - July 2008	17	2	14	5
IADR General Session & Exhibition 85th Edition New Orleans LA - March 2007	12	0	12	0
IADR General Session & Exhibition 84h Edition Brisbane AUS - March 2006	16	2	15	3
IADR General Session & Exhibition 83th Edition Baltimore, MD - March 2005	7	1	8	0
IADR General Session & Exhibition 82nd Edition Honolulu, Hawaii - March 2004	25	2	25	2
IADR General Session & Exhibition 81st Edition Gothenburg, Sweden - June 2003	12	1	9	3
IADR General Session & Exhibition 80th Edition San Diego - March 2002	4	0	4	0
IADR General Session & Exhibition 79th Edition Chiba, Japan - June 2001	0	0	0	0
TOTAL	357	26	344	32

The results obtained by PIII are shown in Figure 2, detailing the titles of the abstracts and their respective years of publication. There has been a concentration of researches where

ethics and/ or bioethics were linked to research questions and scientific publications (13 abstracts).

Figure 2

Abstract titles and year of publication by thematic categories/total of abstracts.

Research and Scientific Publication (13)	Davenport E. International Bioethics and Human Rights in Relation to Dental Research. 81st General Session of the International Association for Dental Research ; July 2003; Goteborg, Sweden.	2003
	Dworkin SF. Ethical Dilemmas in International Collaborative Oral Health Research: Case Studies. 81st General Session of the International Association for Dental Research ; July 2003; Goteborg, Sweden.	2003
	Broughton J. An Indigenous Component of Health Research in New Zealand (Aotearoa). IADR/AADR/CADR 82nd General Session; March, 2004; Honolulu-Hawaii, USA	2004
	Introduction to the Revision of the IADR Code of Ethics	2006
	Education Research, EBDN, Davenport E. Strategic Research Training Initiatives, International Perspectives. 81st General Session of the International Association for Dental Research; June 2008; Toronto, Ontario, Canada.	2008
	Building Ethics Models for Global Research	2009
	IADR Code of Ethics Revision	2009
	Naidoo, S. Developing Informed Consent Guidelines for Photography in Research and Publication. IADR/LAR General Session 89th; March, 2011; San Diego, California, USA.	2011
	Davenport E, Giannobile W, Holland R, Bayne S, Eaton K. Ethical Issues and Considerations Facing Scholarly Journals in Oral Health Research. IADR/LAR General Session 89th; March, 2011; San Diego, California, USA.	2011
	Noel J, Vieira A. African Americans More Often Decline Participation in Dental Research. IADR/LAR General Session 89th; March, 2011; San Diego, California, USA.	2011
	IADR and AADR Ethics Committee. Global Perspective of Research Ethics Dilemmas. IADR/LAR General Session 89th; March, 2011; San Diego, California, USA.	2011
	Boothman NJ, Pretiy IA .Evaluation Of The Consent Procedure Of A Dental Epidemiological Study. IADR/AADR/CADR General Session and Exhibition 91h Edition; March, 2013; Seattle, Whashington, USA.	2013
Rebello M. Ethics and Bioethics as Research Topics on Dentistry: Gap in the Production of Scientific Knowledge. IADR/AADR/CADR General Session & Exhibition March, 2015; Boston, Massachusetts, USA.	2015	
Professional Education (6)	Beemsterboer P, Salveson CA, Adams KE. Interdisciplinary Ethics Course for Dental, Medical, and Baccalaureate Nursing Students in the First Year of	2003

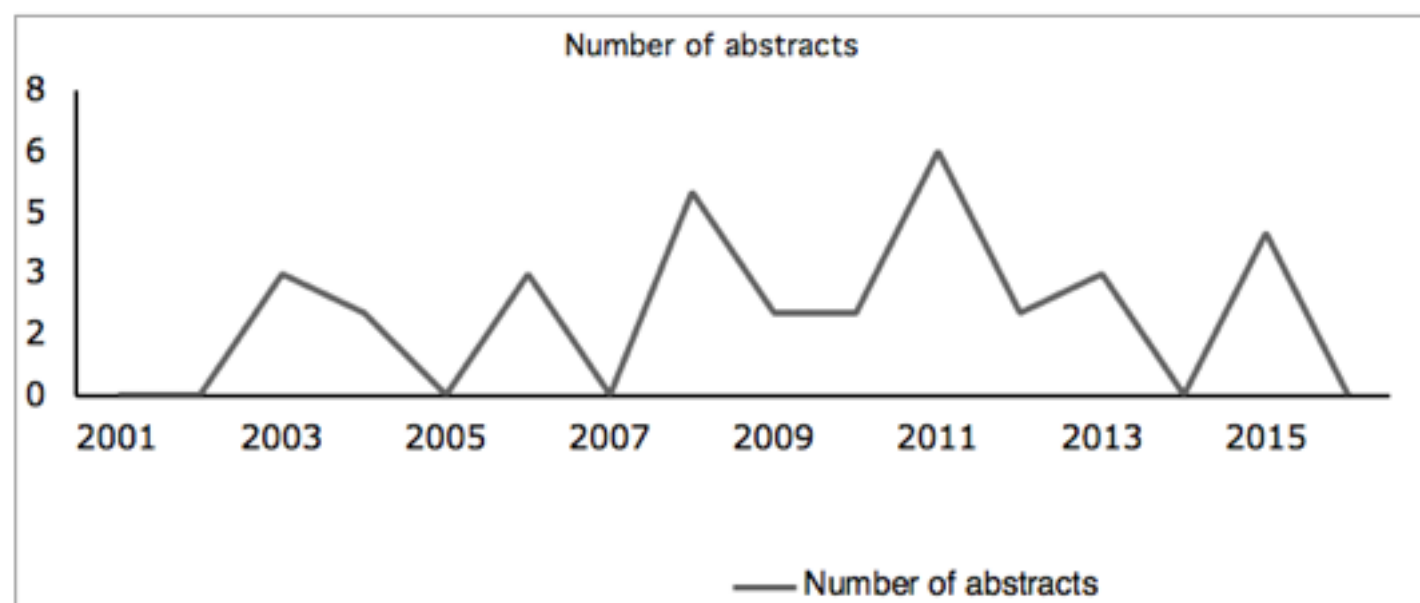
	Professional Training. 81st General Session of the International Association for Dental Research ; July 2003; Goteborg, Sweden.	
	Pegon-Machat E, Tubert-Jeannin S Ethical approach of the patient in dental university clinics. IADR/LAR General Session 86h edition; July 2008; Toronto, Ontario, Canada.	2008
	Khatami S, Macentee MI. Searching for Clinical Reasoning in a Dental Curriculum. IADR/LAR General Session 86h edition; July 2008; Toronto, Ontario, Canada.	2008
	Piovesan S. Dilemmatic Situations Perceived by Dental Students in Clinical Practices IADR/AADR/CADR General Session & Exhibition. March, 2015; Boston, Massachusetts, USA.	2015
	Rangel M. Bio-psycho-social Model Approach in Dental Clinical Education: A Bio-ethical View. IADR/AADR/CADR General Session & Exhibition March, 2015; Boston, Massachusetts, USA.	2015
	Finkler M, Caetano JC, Ramos F. Professional Training Ethics: Paternalism of Professor-Student Relationship Reflected in the Clinical Relation. IADR/AADR/CADR General Session & Exhibition. March, 2015; Boston, Massachusetts, USA.	2015
Bioethics Teaching (4)	Kim MK, Kim KK, Lee JI. Development and Implementation of Professional Ethics Course in Dentistry. IADR/LAR General Session 84h edition; MARCH 2006; Brisbane AUS.	2006
	Brondani M, Rossof L. The "Hot Seat": Introducing Ethics in a DMD Curriculum. IADR/LAR General Session; April 2010; Barcelona, Espanha.	2010
	Verma M, Puttaiah R, Roongta R, Dubey S, Shluman J. An Exploratory Study Of Understanding Ethics in Dentistry. IADR/LAR General Session; March 2011; San Diego, California, USA .	2011
	Miguel R, Salveraglio I, Zemel M, et al. Training in Health Rights in Two Faculties of Dentistry. IADR/LAR General Session 90h edition; junho 2012; Iguacu Falls, Brasil.	2012
Bioethics Themes (3)	Al-Saleh M, Al-Othaibi SM, Behbehani E. Cross Sectional Survey of Consent in Oral Surgery. IADR/LAR General Session 84h edition; March, 2006; Brisbane, AUS.	2006
	Pegon-Machat E, Tubert-Jeannin S. Evaluation of an Information Leaflet for University Clinics' Patients. IADR/LAR General Session 88h Editon; April, 2010; Barcelona Espanha.	2010
	Saha S, Kashi A. Radiation exposure in dentistry. IADR/AADR/CADR General Session and Exhibition 91h Edition; March, 2013; Seattle, Whashington, USA.	2013
Deontology (3)	Lai B, Lebus A, Emami E, Feine J. New Technologies in Health Care – A Legal and Ethical Dilemma. 81st General Session of the International Association for Dental Research; June 2008; Toronto Ontario Canada.	2008

	Ehigiator O, Ojo AO, Azado CC, Ezeja E. Ethical Obligation of Dental Professionals In Patient Care-A Survey. IADR/LAR General Session 89th; March, 2011; San Diego California, USA.	2011
	Fausti OA, Ogunbodede EO. Respect for Patient 's Autonomy And Traditional Incursion Into Orthodox Care. IADR/AADR/CADR General Session and Exhibition 91h Edition; March, 2013; Seattle, Whashington , USA.	2013
Public Health (3)	Ethics, Research, and Social Values: Dental Research in Changing World	2004
	Ardenghi DM, Bedos C. Social Justice and Oral Health Care in Canada. 81st General Session of the International Association for Dental Research; June 2008; Toronto Ontario, Canada.	2008
	IADR Ethics Committee. Ethical Decision-making in Global Health Research. IADR/LAR General Session 90h Edition; July 2012; Iguacu Falls, Paraná, Brasil.	2012

Figure 3 shows the number of abstracts published annually, showing a significant fluctuation without denoting increasing or decreasing bias over the period investigated.

Figure 3

Variation in the number of abstracts published over the period examined.



4. Discussion

The results showed that dental research has attributed little value to ethics and bioethics. This is a disturbing result. Unsurprisingly dental research is predominantly geared towards life sciences, for developing materials and techniques with little social impact, with a predominance of laboratory studies and clinical trials of individualized nature (Finkler, Calvo, Caetano, y Ramos, 2009, Finkler y Verdi, 2014). The need for science and humanities, technical and ethical, is not new either, as pointed out by Potter in the 1970's with his original concept of bioethics. "His attention to the creation of human knowledge and incorporation of ecological concepts and values into medicine and health remain important, yet largely neglected" (Whitehouse, 2003, p. 26).

Originated by a social-cultural movement, bioethics became an academic discipline, when embracing the ethical issues applied in the healthcare field, seeking to contribute to the pursuit of prudent responses to the conflicts constantly present in the relationship between patients, professionals, science, State or environment. Its role in this century, considered by many to be the biotech century, is to be an important instrument of ethical reflection that, among other demands, gives researchers and society enough information to take a critical position regarding the fulfillment of scientific research (Finkler y Verdi, 2014). But Dentistry,

according to the results presented here, seems to remain somewhat undercommitted to this international agenda. This agenda that is worth remembering, was agreed between UNESCO member states through the Universal Declaration on Bioethics and Human Rights, adopted by acclamation at the General Conference in 2005 (United Nations Educational, Scientific and Cultural Organization, 2018).

Set away from the human sciences and its reflective knowledge, the biological sciences with their empirical knowledge lost its perception ability, self-criticism, and the ability to generate meaning to its very practices. The exceptional technical and scientific development over the last decades made us believe that its value is unquestionable, raising science to a level of an intrinsic value, when in fact, it has only an extrinsic value, an instrumental value.

The history of the twentieth century is full of examples of which, in terms of science, not everything that we do, we must do. It is the (bio) ethics reflection that makes us this alert. Why do we research what we research in Dentistry? What should be the profile of the dentist for working in universal health systems, such as SUS? What are the values that we give priority to in these elections? How do these choices influence the levels of health and disease in populations? What are our responsibilities over the consequences of these options?

Although the focus given to the scientific production can be understood by the direction taken in the historical building of the profession, there are unavoidable reflections on the adjustment of production to the academic and professional performance to local circumstances of health and life quality.¹⁷ One has to think for what and whom a technically laudable Dentistry would serve, if it does not impact epidemiological indices of oral diseases. It is necessary to reflect on the focus of scientific discoveries as a common good or a privilege for some: being scientific progress a conquest of mankind, its results should benefit everyone and not just those who hold the monopoly of the results in the advancement of science (Garrafa y Moysés, 1996).

Such questions arise from a critical-reflective, deliberative rationale that this is the path through which bioethics proposes making prudent decisions in uncertain situations, typical of ethical problems. Unlike what happened in its first 40 years of existence, when it was very accustomed to dramatic, generally individual situations, "Bioethics 2.0" focuses on issues that affect the society as a whole (Gracia, 2014). As a subject in undergraduate courses in the health area, it is designed to develop students' attitudes (Gracia, 2004), in contrast to most of the disciplines of Dentistry courses that emphasize cognitive (knowledge) and psychomotor (skills) learning. By this potential, an increase in the number of dental research on bioethical issues as well as on the teaching of this discipline is expected.

The categorization of abstracts with themes related to ethics / bioethics revealed a concentration of papers on the theme "research and scientific publication". The selection of preferably independent research subjects and their protection, the balance of risks and benefits for the research subjects, obtaining their consent, the guarantee of confidentiality and privacy, respect for vulnerable populations, rigor in the methodological design, the committees of research ethics, and some conflicts of interest are the most commonly found issues when one reviews the dental literature (Finkler y Verdi, 2014). Thus, the result shown in this study is not surprising. Rather, it was expected, since abstracts are from a researching society, and more because they included not only abstracts of research, but also from symposia and workshops. In fact, 7 out of the 11 abstracts included in this category were related to the latter two types of activities (6 symposia and 1 workshop). It should be noted therefore the IADR's efforts to promote the issue of ethics in scientific production in the various editions of its events.

About the categorization performed, it is worth highlighting that the six themes that emerged from the data reveal the different approaches that have been given to ethics in Dentistry, even though this division is more of an analytical theoretical effort than a formal division. Deontology or professional ethics, bioethics and its teaching, other ethical issues in education, ethics in research and scientific publication, and ethics in public health are issues that hold somewhat close relations, depending on the references that are adopted as fundamentals.

It is known that the perception of students and teachers of ethics in Dentistry is often

associated with ethical notions of ethical and legal bases, not having a broader conception of the ethical dimension of vocational training (Thompson Reuters, 2008). A reality pointing to the need for changes in Dentistry teaching, in the sense that students can effectively overcome the condition of being passive learners toward a level of critical thinkers, getting ready for the reality of professional life and for dealing with problems that arise in that relationship (Rule y Veatch, 2004).

A study on the awareness of college students on issues related to poverty and inequities of access to health services presented results which supported the idea of the need to develop this approach with dental students (Reis, Rodrigues, Macaulay, y Bedos, 2014). This is because the individual-liberal action still remains a social and professional image-representation of success in Dentistry and may be considered the cause and effect of the stereotype of the profession, as well as its deriving social charges, from the professional models more or less valued in the professional socialization and the educational formation - a fictional statement that affects vocational training. The management of more sophisticated technical tools that add market value associated with an overvaluation of technology, depreciates the work in the areas of knowledge considered "human" that emphasize social and collective rights of democracy and solidarity values (United Nations Educational, Scientific and Cultural Organization, 2018). The reflection of this reality can be perceived globally through epidemiological indices related to oral health, evidencing the strong inequality of access to dental services which still exists, even in developed countries, and the least connotation associated with collective oral health than other fields of Dentistry (Finkler, Calvo, Caetano, y Ramos, 2009).

The analysis of floating distribution of abstracts over the period assessed did not show any tendency to increase. It is necessary for the researchers, mostly professors and graduate students, to have knowledge about these results to rethink the investigative practices in Dentistry. It is because scientific research is the protagonist in academia and this role greatly influences the formation and professional practice that is not ethically justified unless to meet the demands of society. Thus, the responsibility implied in the election of the themes of scientific research assumes a core importance that ultimately affects individuals and collectivities.

In fact, this lack of scientific production is reflected in how current studies demonstrate that the development of the ethical dimension in dentistry is still precarious and ineffective. The recurring aspect of delegating responsibility for ethical development of students to the teaching of the code of ethics contributes to this. Current literature data demonstrate that although the students report that they are encouraged (informally) to make a constant reflection on their clinical practice, there is no formal activity that allows, in a didactic and specific way, development the ability of self-reflection (Jonas Dwyer, Abbott, y Boyd, 2014).

Despite the recognition of ethics as fundamental in modern dental training, it is still necessary for discipline to gain greater emphasis, both in the pedagogical aspect and in the cultural aspect of valuing this dimension within the profession. It is important for dentistry to develop dynamic methods for improving the reflective reasoning around moral aspects. Nonetheless, the cultural shift of the profession which overestimates technical skills to the detriment of human, psychological and behavioral skills, it focuses on the dentist and not on the patient, and thus cannot significantly influence epidemiological indicators of oral health worldwide. So far, research on dental ethics does not seem significant enough to reflect in undergraduate training students being able to influencing on the next dentist`s generation (Patrick, 2016).

5. Conclusions

The presence of ethics and bioethics as issues of dental research is minimal and it is not possible to observe a tendency to its increase. But if quantitatively there is a negligible production, the same cannot be said qualitatively, by the importance and variety of the researched themes, although there is an emphasis of the issues related to the research and scientific publication. There is, therefore, a big gap in this area of scientific knowledge

production, which may have repercussions both in academic as well as in performance of dental professionals, especially with regard to the social commitments as a profession in the area of human health.

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[Index]

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