

Analysis of dental education in Brazil

Análise da educação odontológica no Brasil

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Abstract

The aim of this article was to evaluate the teaching of dentistry in Brazil, regarding its administrative category of their educational institutions, besides the evaluation in Provão and ENADE, to improve the direction of the profession's understanding, guiding the professional performance. To achieve those goals, data was collected from Federal Council of Dentistry, of the Brazilian Institute of Geography and Statistics, and of National Institute of Educational Study and Searches Anísio Teixeira. The majority (71%) of the education institutes in Brazil have private character, the distribution of the administrative category of the public institutions of education are 50% Federal, 35% State and, only 15% Municipal; It was concluded that, the majority of the institutions of education are concentrated in the southeast region of Brazil, with 49,47%, followed by south (16,49%) and northeast region (16,49%). There were significant difference in all years evaluated, except in 1998 and 1999, between the types of Higher institutions of education; a statistically difference to the public institutions was found between the years of 2004 and 2007.

Key words: Dentistry. Education, Dental. Schools, Dental. History of dentistry.

Introduction

In the beginning of the XIX century, the dentists (DDS) left behind the poor idea of being “extractio-nists” or “artificial teeth’s manufacturers”, forgetting the empiric training and the mechanic work. The practitioners of dental art took the moment to organize themselves as professionals, and then they began a struggle for a growing market. That was the beginning of the science in this profession, linked to its education, legitimized by the inauguration of the first school of dentistry, in Baltimore, United States, in 1839. In Brazil, the dentistry was acknowledged as a profession in the health area in 4/19/1979, with the creation of the Dental Surgery course, next to the Faculty of Medicine and has evolved for his own course, with various specialties¹.

With time, the profession gets through modifications and, the dental labor market had considerable changes, mainly in the 90's, due to economical changes in the country which resulted in unemployment and decline in purchasing power. The private dental clinic was no longer seen as a good business for professionals, due to the impoverishment of the population and the large number of professionals launched in the labor market every year. With the constitution of 1988 and the implementation of SUS – Sistema Único de Saúde (Unique System of Health), the dentistry was understood as integral general health of population¹. It has the implementation of diagnostic in collective health and epi-

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demiological surveys. From this assumption, the graduation courses must prepare the future professionals to ensure and emphasize the importance of the dental care in all levels, with the predominant factor for the people's general health.

In inelastic form, the educational supply was increasing until nowadays, and, in the last years, has a commodification of the profession, providing a process of exhaustion of the traditional model of higher education, mainly in the whole health area. The decrease on the interest of dentistry courses is not more than an individual choice, but a sum of problems like the lost of social prestige and the low payment of the profession, which reflects the Professional profile, which usually is the result of their training. All that and added the scarcity of jobs, the rates for professional regulation, and the professional market, that is more competitive each day.

For approximately seven years, 12.000 dentists were launched in the labor market each year²⁻⁴, and today, are launched approximately 9.000 professionals, added to the 223.112 Surgeon Dentists that already exists, distributed in a irregularly way throught Brazilian territory, mainly in the southeast region, that counts with 58,40% of the DDS in Brazil⁵. This bad distribution added to the unfair and unethical competition between the professionals is one of the factors that corrupt the raising and retention of patients in dental clinics.

The continuing education is indispensable in fact for the Professional, because it provides an opportunity for continuous recycling, improving the technical, scientific and practical acuirements. However, the specialization fragments the knowledge, requiring changes in pedagogic projects to promote the interdisciplinary training. Besides, the continuing education and the graduate courses must fits to new educational projects looking for a new professional's profile egress with the labor market needs.

The future professionals must attend disciplines that give them content, making them effectively involved and co responsible by the process that they are inserted, whether in public or private institutions, including the work in clinics and the management of private or public clinics, accompanying the structural changes that are occurring in society as a whole.

So, this work aimed to evaluate the dentistry teaching in Brazil, concerning its administrative category of the educational institutions, besides the evaluation in Provão and ENADE, to improve the understanding direction of the profession, guiding the professional performance.

Materials and method

The collected data to elaborate this work was obtained from the website of the *Conselho Federal de Odontologia - CFO*⁵ (Federal Council of Dentistry), *Instituto Brasileiro de Geografia e Estatística - IBGE*⁶ (Brazilian Institute of Geography and Statistics) and *Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira - INEP*⁷ (Institute of Educational Study and Searches Anísio Teixeira). From the CFO's⁵ website, it was obtained the number of all surgeon dentists subscribed in Brazil. The data from the Colleges was obtained in the INEP's⁷ site.

On the IBGE's⁶ website (Census 2007) was harvested the information's of resident population on different Brazilian States. From the data collected were calculated the relations of DDS/Residents and College/Residents, compared with the recommended index from the World Health Organization (WHO), evaluating the Dental professional market.

For comparison of the means between the two types of school the Analysis of Variance and the Turkey test were used, and adopted a significance level of 5% ($p < 0, 05$).

Results

The character of Educational Institutions in Brazil is shown on Figure 1. The administrative category of Public Education Institutions is shown on Figure 2. The percentage of educational institutions distribution in Brazil (Fig. 3) and the relation DDS/Residents and College/Residents, and the proportion of surgeon dentists *per capita* in Brazilian regions are tabulated in Table 1.

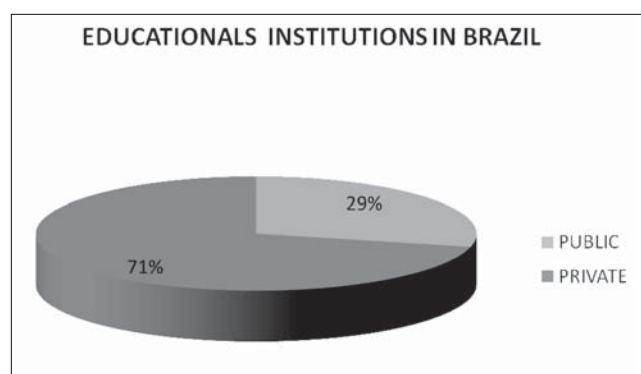


Figure 1 - Distribution of educational institutions in Brazil by administrative category

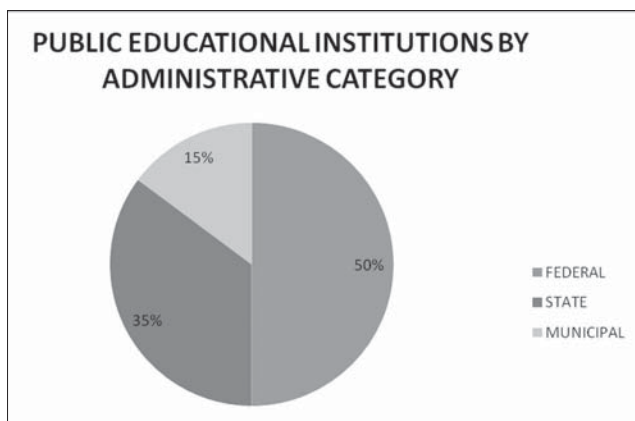


Figure 2 - Distribution of public educational institutions in Brazil by administrative category

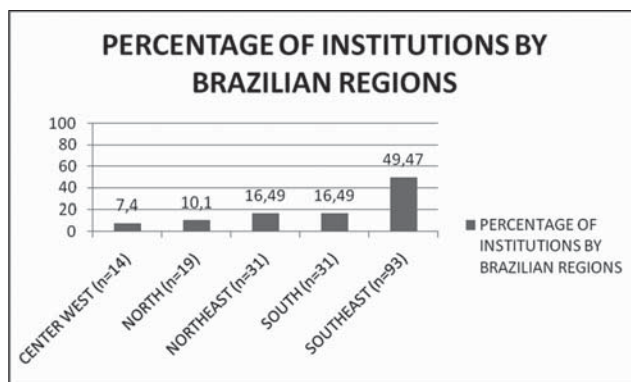


Figure 3 - Distribution percentage of educational institutions in Brazilian territory

Table 1 - Proportion of DDS/resident and college/resident in Brazilian regions

Regions	DDS Total	% General DDS - Brazil	Population IBGE (2007)	Number of Colleges	Colleges/ Resident	DDS / Resident
Center West	18.209	8%	13.222.854	14	1:944.489,57	1 / 726,17
North	8.483	4%	14.623.316	19	1:769.648,21	1 / 1.723,83
Northeast	30.444	13,64%	51.534.406	31	1:1.662.400,1	1 / 1.692,76
South	35.633	15,97%	26.733.595	31	1:862.374,03	1 / 750,24
Southeast	130.371	58,43%	77.873.120	93	1:837.345,37	1 / 597,31
Total Brazil	223.140	100%	183.987.291	188	1:978.655,80	1 / 824,53

Comparison between types of college

The Table 2 shows the comparison of public and private institutions of higher education (n = 149), and the mean scores of the notes obtained are demonstrated in Figure 4. Table 3, compares only the notes of Institutions that suffered evaluation in all years of study. The Figure 5 shows the mean scores of notes from those institutions.

Table 2 - Comparison between public and private colleges notes. Total of colleges evaluated was 149

Year	Public				Private				P
	Average	Dp	Median	n	Average	dp	Median	n	
1997	3,6	1,1	4,0	41	2,4	1,0	2,0	41	0,001 *
1998	3,4	1,3	3,0	40	2,6	1,0	3,0	40	0,055 ^{ns}
1999	3,4	1,3	3,0	42	2,7	0,9	3,0	43	0,116 ^{ns}
2000	3,6	1,3	4,0	42	2,7	0,8	3,0	48	0,006 *
2001	3,8	1,1	4,0	43	2,5	1,1	3,0	59	0,001 *
2002	3,8	1,1	4,0	45	2,5	1,2	2,0	67	0,018 *
2003	3,6	1,1	3,5	48	2,7	1,3	3,0	76	0,001 *
2004	4,5	0,7	5,0	44	3,9	0,5	4,0	80	0,001 *
2007	4,3	0,6	4,0	44	2,8	0,7	3,0	91	0,001 *

* - statistically significant difference (p < 0,05). ns - Difference statistically not significant.

Comparison over the years

Table 3 - Comparison of notes over the time, for the 34 public colleges and the 37 private colleges that was evaluated in all the years of the study

Year	Public				Private			
	Average	Dp	Median	N	Average	dp	Median	n
1997	3,5 ^a	1,1	3,5	34	2,4 ^a	1,0	2,0	37
1998	3,2 ^a	1,3	3,0	34	2,6 ^a	1,0	3,0	37
1999	3,1 ^a	1,3	3,0	34	2,7 ^a	0,9	3,0	37
2000	3,4 ^a	1,3	3,0	34	2,7 ^a	0,7	3,0	37
2001	3,6 ^a	1,1	3,0	34	2,6 ^a	1,0	3,0	37
2002	3,6 ^a	1,1	3,0	34	2,9 ^a	1,2	3,0	37
2003	3,5 ^a	1,0	3,5	34	2,7 ^a	1,1	3,0	37
2004	4,5 ^b	0,8	5,0	34	3,9 ^b	0,3	4,0	37
2007	4,4 ^b	0,6	4,0	34	2,6 ^a	0,7	3,0	37

Years with same letters have no statistically significant difference between them.

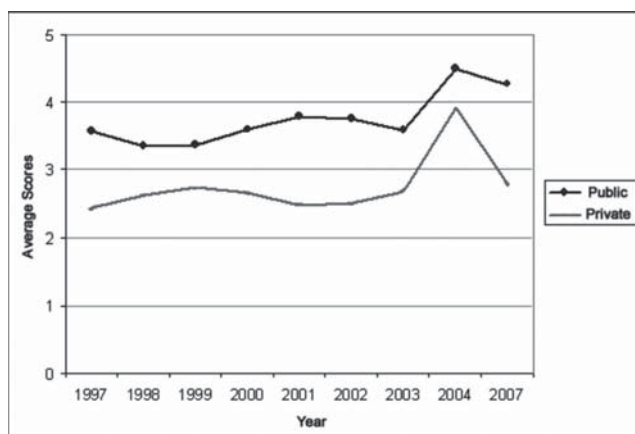


Figure 4 - Average scores notes obtained by public and private colleges. Description of all the 149 colleges evaluated

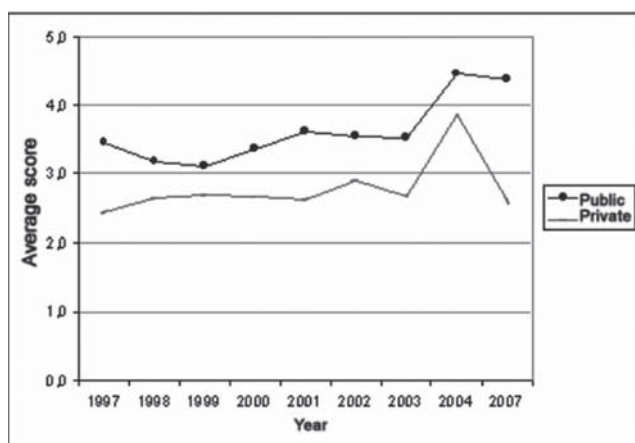


Figure 5 - Mean scores of the notes obtained by the public and private colleges. The graphic shows the 34 public schools and the 37 private schools that were assessed in all the years of the analysis

Discussion

Evaluation methods of education

The actual education process provides to the student bases to the development of knowledge, from a teacher that understands your role as agent of a social transformation. This agent has the main objective to execute a constant motivation to the student to achieve his full potential, creating possibilities of learning.

Thinking on that, the *Ministério da Educação e Cultura – MEC* (Ministry of Education and Culture) has created The *Exame Nacional de Cursos – ENC* (National Exam Courses), popularly known as *Provão* (The Big Test) that was an evaluation instrument for measurement of quality and efficiency of graduate courses. Had as objective the diagnostic of education in Brazil, analysis of the performance of students, in addition to evaluate the level and coverage of knowledge and the conditions of teaching-learning in different courses⁷. This method checked as well the skills of logic reasoning and the critic analysis of students and the capacity of diagnostic and treatment plans execution as well. The evaluation was made annually since 1996 until 2003 for students in the last year of the graduation course on the application year. The process began in 1995 with the Law n° 9.131⁸. The *Provão* was economically unviable and concentrate their efforts in regulatory aspects⁹.

The *Exame Nacional de desempenho de Estudantes – ENADE* (National Examination Performance of Students), created on April 14 of 2004 with the Law n° 10.861¹⁰, is part of the *Sistema Nacional de Avaliação da Educação Superior – SINAES* (National System of Evaluation of Higher Education) and are designed to measure the performance of students in various courses of higher education,

monitoring their learning process according to the academic programming, helping in creation of projects and actions for the increasement of quality in higher education, their skills and competence⁷.

It's an obligatory method and the participation will appear in the student's school history. It is conducted by *INEP*, supervised by the *Ministério da Educação e Cultura*. The dentistry courses were evaluated in 2004 and 2007, and will be evaluate again in 2010.

The dentistry courses

The creation of an Institution of a Private Higher Education in the Dentistry area occurred on the 70's resulting in an increasing number of formed professionals every year¹. Nowadays, the most part of educational institutions of Dentistry in Brazil have private character, as seen on Figure 1. The administrative categories of Public Institutions are divided in Federal, State and Municipal (Fig. 2).

It is suggested that a difference factor in market labor for heath professionals may be the numbers of Higher Education Institutions, which in Dentistry is 188, been considerably higher than Medicine (n = 125), showing a saturation to the surgeon dentist.

The opening of new dentistry's courses had a big growth close to the 90's, and, actually, have 188 courses, in the most part concentrated on southeast region of Brazil (49,47%), specially in São Paulo's State (26,59%), and followed by the south and northeast region, with both 16,49% of the courses in the whole country, as seen on Figure 3.

The bad distribution of education in Brazil is one of the factors responsible for the present relation DDS/Resident. Both the south as the northeast region show the same numbers on dentistry colleges⁵ (Fig. 3), however, the number of residents on the northeast region is almost the double⁶, while in number of professionals the south region have approximately five thousands DDSs further⁵, and higher rates that is recommended by WHO (1:1.500) (Board 1) in its States, suggests a field of professional activity more saturated in comparison with the Brazilian northeast.

Junqueira et al.¹¹ (2005) affirmed that graduated professionals look for the big centers, or end up setting close to the place where they coursed the graduation, maybe for the easiness or the search of specialization. In fact, the specialization and the constant professional training are fundamental^{2,11,12} and a duty for the surgeon dentist provided in the Code of Dental Ethics¹³, then the professionals monitors the development of science providing a most appropriate treatment for the patient. Detach that, the DDS must not only be prepared technically, but, acquire abilities that is the goal of recent pedagogical approaches implemented in schools of Dentistry. On National Curriculum Guidelines¹⁴ (NCG) of Dentistry, the DDS must be capable of: thinking critically, be a leader, learn continuously, take deci-

sions, act in multidisciplinary teams, administrate and manage health services and, to plan strategically for continuous changes.

Several works shows this impairment lived by Odontology^{2,15-18}. The lost of interest for Dentistry, sum to the great offer of courses provides a decline of quality in efficiency of students, resulting in a deficit on evaluation of Education Institutions. The Graphs 4 and 5 shows that since the creation of *Prova* from 1997 until 2003 there were stability in the years evaluated. With the changes on the profile of National Exam of students performance from 2004, occurred a significant change in results of HEI publics and privates. However, in 2007, the difference in the student's performance between the HEI publics and privates increased considerably.

In all years evaluated, except in 1998 and 1999, there were significant difference between the Higher Institutions of Education (HIE), however the difference was not significant statistically in 1998 and 1999, being the averages higher to the public schools in all years. To public HIE, a statistically significant difference between the years of 2004 e 2007 was found to all others, becoming the average between these two years higher than the previous one. To private schools a statistically significant difference happened in 2004 only for all others years, and the average of 2004 were highest than the previous one.

Regarding to Post-graduation, in 2003, Peres et al.¹⁹ affirmed there was 287 specialization courses in southeast region and, in five years, this number has almost doubled, now reaching 588 courses, according to Federal Council of Dentistry⁵, showing one more time the bad distribution of education, also in the post-graduate level.

This rapid proliferation of *Lato* and *Stricto Sensu* courses occurred in all the Brazilian territory and today, distributed unequally, there is 397 specialization courses accredited (ongoing in class entities) and 433 specialization courses recognized (ongoing in colleges), in different Dentistry specialties⁵.

New technologies offer big opportunities for those who aimed and are capable to deal with the powerful instruments of computers. Nowadays it's been offered long distance courses, making easier, each time, the specialization and the professional capability. It is expected that, in future, the internet can work as a virtual school based on knowledge without borders, especially in the learning-teaching process.

Conclusions

From analyzes of the obtained results, it was verified that:

- the higher number of dentistry colleges are located in the southeast region with 49,47%, followed by south region (16,49%) and northeast (16,49%);

- there were a statistically significant difference in all years evaluated, except in 1998 and 1999, between the others types of Higher Educational Institutions;
- a statistically significant difference to the public HEI was found between the years 2004 and 2007. For private schools, in 2004 a statistically significant difference appeared only for all others years, and the 2004 average was higher than the previous ones.

Resumo

O objetivo do presente trabalho foi analisar o ensino da odontologia no Brasil quanto à categoria administrativa das instituições educacionais, além da avaliação no Provão e Enade, para melhorar a direção do entendimento da profissão, orientando o desempenho do profissional. Para alcançar esses objetivos foram coletados dados do Conselho Federal de Odontologia, do Instituto Brasileiro de Geografia e Estatística e do Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. A maior parte (71%) das instituições de ensino no Brasil tem caráter privado; a distribuição da categoria administrativa das instituições públicas de educação é 50% federal, 35% estatal e somente 15% municipal. Conclui-se que o maior número de faculdades de odontologia encontra-se na região Sudeste, com 49,47%, seguida das regiões Sul (16,49%) e Nordeste (16,49%). Houve diferença significativa em todos os anos avaliados, exceto em 1998 e 1999, entre os tipos de instituições de ensino superior; uma diferença estatisticamente significativa para as IES públicas foi encontrada entre os anos de 2004 e 2007.

Palavras-chave: Odontologia. Educação, Dental. Escolas, Dental. História da odontologia.

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