

# Study on the training of Brazilian dentists and physicians who treat patients with chronic pain

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## Abstract

**Aim:** To describe the characteristics of the professional training of dentists and physicians who treat patients with pain. **Methods:** A sample of 87 dentists and 63 physicians, selected at random and based on a stratified strategy, responded to a questionnaire with questions about training in pain. The statistical analysis of the data was done by the chi-square test and the Student's t-test at a 5% significance level. **Results:** The mean age was 45 years. There was no gender prevalence among the dentists and a male predominance among physicians; 80.20% had worked professionally for more than ten years; 81.61% of the dentists and 79.37% of the physicians were specialists. Residence training was reported by 55.56% of the physicians and 12% of the dentists; 48.27% of the dentists and 34.92% of the physicians had a master's and/or doctorate degree; 69.33% declared sufficient knowledge in pain; both physicians and dentists prioritized their own areas regarding the study of pain. The doctor/patient relationship was more valued by physicians, while the technical training was more valued by dentists. Dentists reported more difficulties in prescribing medications and physicians had more difficulties with the patient's behavior. **Conclusions:** Dentists and physicians had different professional experience and had valued specific aspects of their specialty. There is a need for a uniform curriculum designed for training in pain.

**Keywords:** pain, orofacial pain, chronic pain, health education, professional-patient relations.

## Introduction

There is currently a progressive increase in the prevalence of chronic pain. It is considered an important problem in public health and produces a substantial negative impact on people's lives<sup>1,2</sup>. Among the types of pain prevalent in the general population, chronic orofacial pain stands out<sup>3</sup>. Although it involves a small segment of the human body, chronic orofacial pain has multiple origins and its diagnosis is a real challenge for healthcare professionals<sup>4-6</sup>. The practice of differential nosological diagnosis of headaches and craniofacial pain frequently requires efforts on the part of physicians and dentists<sup>7-8</sup>.

Despite this and the extensive scientific literature on the subject, there still are some aspects that need more studies, as in the case of the training of the healthcare professional who treat patients with chronic pain<sup>4,9-10</sup>. In this aspect, the scientific literature is lacking with respect to the training of dentists and physicians who practice in this complex area. When the quality of care rendered to patients with chronic orofacial pain is examined, signs of theoretical-technical deficiencies are noted, which question the professional training in dealing with pain, among other aspects<sup>2,11-14</sup>.

From an academic point of view, literature emphasizes the curriculum deficiencies in medical and dental training, which do not address adequately the subject in all its breadth and complexity. The same can be said of the technical training of future professionals in the diagnostics and therapeutics of many clinical pictures that comprise orofacial pain, which

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should not dispense the humanistic view that helps understanding patient suffering<sup>15-16</sup>, even though there is a concern of international associations with respect to the need for an appropriate curriculum aimed at professional training in pain, including the distinction between acute and chronic pain<sup>4,11,17</sup>.

The signs of deficiency in academic and professional training are evidenced by the fragmented view of pain, with excessive focus on medical and dental specialization, difficulties in the practice of differential diagnosis, in the perception of chronic pain as a complex phenomenon and the lack of information with respect to methods and appropriate care for the patient with pain that considers important concepts such as prevention and interdisciplinary management<sup>17</sup>.

Moreover, the lack of information by the clinicians with respect to the differences between acute and chronic pain, methods of assessing pain, and insistence on the utilization of empirical and inadequate medications, also contributes to the difficulties in the diagnosis and treatment of orofacial pain<sup>12-13</sup>, in addition to the difficulties and barriers in the relationship between professionals and patients with pain<sup>18</sup>.

It is known that the number of dentists and physicians has grown significantly in the Brazilian work force, mainly in the large urban centers of the South and Southeast regions<sup>19-20</sup>. A study published in 2004 by the Brazilian Federal Council of Medicine points out that, among the 12 universities that train most of the doctors in the country, six are in the Southeast region<sup>21</sup>. Specialization among physicians has also increased over the years. A survey conducted in 1996 by the Federal Council of Medicine pointed out that 40.7% of physicians were specialists. In 2004, this number increased to 66.5% of the medical specialists<sup>8</sup>.

The same tendency in the increased pursuit of master's and doctorate degrees was observed among dentists and physicians. In 1996, 11% of dentists were registered with official master's or doctorate degrees. The number increased, in 2002, to 20.8% but in 2003, a survey made by the Brazilian Institute for Socioeconomic Research revealed only 14.4% of dentists with such titles<sup>8</sup>.

The task of treating patients with pain, especially chronic, with a humanistic focus, presumes a special condition by the clinicians. They need to work with all the personal concerns of their patients, by establishing a true process of interpersonal relationship that values empathy. Thus, it is possible to establish verbal and non-verbal communication with the patients and their family members and to offer availability and time to dedicate themselves to this relationship. Such conditions stimulate the formation of an important affective link between these two, which contribute positively to the clinical work<sup>22</sup>. However, medical and dental education shows a tendency of techniques and has not prioritized questions relative to the relationship between doctor and patient<sup>23-24</sup>. Despite the difficulties observed in the work routine of physicians and dentists who treat persons with pain, there is a lack of studies on this population of professionals.

Given the progressive increase in the prevalence of chronic pain in Brazil and its adverse impact on people's lives, the deficiencies in

academic training of this kind of professionals, the difficulties in their clinical practice and the lack of studies on this population of professionals, the aim of this study was to describe the characteristics of the theoretical-technical training and clinical practice of Brazilian dentists and physicians who treat patients with chronic pain. It is expected that the findings of this study may contribute to a better understanding of the difficulties inherent in the clinical practice of professionals of different specialties who treat patients with pain.

## Material and methods

The study followed the ethics principles recommended in Resolution 196/96 of the Brazilian National Health Council and was approved by the Research Ethics Committee of Faculdade de Odontologia de Piracicaba da Universidade Estadual de Campinas (FOP/Unicamp). A total of 150 healthcare professionals (87 dentists and 63 physicians) who treat patients with orofacial pain were investigated. The following three categories of specialists were included. 1) Dentists and physicians who are active members of at least one of the following associations involved in the study of pain: Sociedade Brasileira para o Estudo da Dor – SBED (Brazilian Chapter of International Association for Study of Pain – IASP); Sociedade Brasileira de Dor Orofacial (Sobrad); Sociedade Brasileira de Cefaleia (SBCE) and Academia Brasileira de Fisiopatologia Crânio-Oro-Cervical (ABFCOC); 2) dentists with the title of specialist in temporomandibular dysfunction and orofacial pain granted by the Brazilian Federal Council of Dentistry; 3) physicians with clinical experience in the area of orofacial pain. Those with no current clinical practice in orofacial pain, despite being a member of the above-mentioned professional associations were excluded as participants.

The volunteers were investigated by means of a self-administered, research questionnaire composed by 46 questions about sociodemographic data of dentists and physicians related to the various aspects of the theoretical-technical training in the area of pain, which had been previously validated in a pilot-study of ten volunteers with a profile compatible to the sample to be studied. The questionnaires were sent by mail or delivered personally to the volunteers in an envelope identified as “for research purposes”.

Regarding the composition of the sample, the sample size was carried out based on the lists of active members provided by the offices of the associations involved in the study of pain mentioned above, in the first quarter of 2006. The level of significance was 5% and the confidence interval, 12%. Initially, the official number of members of each association was obtained. Then, the names were listed and numbered for random drawing. The final list of volunteers was composed from the statistical analysis system's (SAS) function of generating pseudorandom numbers with a uniform distribution. Thus, it was a universe sample that allowed the composition of a random sample, rather than a convenience. The power analysis was 0.818 for comparison of the two groups, with mean difference of four and standard deviation of eight. The distribution of the volunteers,

based on the criteria for inclusion in the sample, corresponded to 14 states, five regions and 52 cities in Brazil.

The data were entered by a person trained in the use of software specially developed for research in Visual Basic, version 6.0, called DOF Data, analyzed by a specialist in systems analysis and a technician in informatics who incorporated routines of data storage and applied consistency during digitization. The chi-square test was used for comparison of the proportions and the association, for rows and columns of tables. The Student's t-test was used for comparison of the characteristics, the specialties of the two professionals evaluated in the study. In all the analyses, a level of significance of 5% was adopted.

## Results

The study involved dentists and physicians who practice in the area of pain in various regions of Brazil. The distribution of the volunteers

**Table 1.** Sociodemographic data of dentists and physicians who responded to the questionnaire

Sociodemographic data	Dentists (%)	Physicians (%)
Profession (n = 150 – p value = 0.0500)	87 (58.00) <sup>A</sup>	63 (42.00) <sup>B</sup>
Gender		
Male	37 (42.53) <sup>a</sup>	48 (76.19) <sup>a</sup>
Female	50 (57.47) <sup>a</sup>	15 (23.81) <sup>b</sup>
p-value	0.1634	< 0.0001
Mean age (p = 0.8325)	45.63 (10.60) <sup>A</sup>	45.24 (12.09) <sup>A</sup>
Civil status (married – p value = 0.5050)	66 (75.86) <sup>a</sup>	43 (68.26) <sup>a</sup>

Profession, gender and civil status were analyzed by the chi-square test and mean age by the Student's t-test. The lowercase letters indicate the comparison of data from the same professional group. The uppercase letters indicate the comparison of data between dentists and physicians.

**Table 2.** Characterization of the academic training of the sample by profession, type of institution, time of professional activity and of practice in the area of pain

	Dentists	Physicians
<b>Graduation study</b>		
Public	52 (59.77%) <sup>a</sup>	46 (73.02%) <sup>a</sup>
Private	35 (40.23%) <sup>a</sup>	17 (26.98%) <sup>b</sup>
P value	0.0684	0.0003
<b>Post-graduation study</b>		
No post-graduate course	06 (6.90%) <sup>c</sup>	06 (9.52%) <sup>c</sup>
<i>Lato sensu</i>	71 (81.61%) <sup>a</sup>	50 (79.37%) <sup>a</sup>
<i>Stricto sensu</i>	42 (48.27%) <sup>b</sup>	22 (34.92%) <sup>b</sup>
p value – no post. vs <i>lato sensu</i>	< 0.0001	< 0.0001
p value – no vs <i>stricto sensu</i>	< 0.0001	0.0025
p value – <i>lato sensu</i> vs <i>stricto sensu</i>	0.0064	0.0010
<b>Time of professional activity</b>		
Less than 10 years	12 (13.79%) <sup>b</sup>	16 (25.80%) <sup>b</sup>
More than 10 years	74 (86.20%) <sup>a</sup>	47 (74.19%) <sup>a</sup>
P value	< 0.0001	< 0.0001
<b>Time of practice in the area of pain</b>		
Less than 10 years	12 (13.79%) <sup>b</sup>	40 (64.51%) <sup>a</sup>
More than 10 years	74 (86.20%) <sup>a</sup>	22 (35.48%) <sup>b</sup>
P value	< 0.0001	0.0223
<b>Often treats chronic pain</b> (p value < 0.0001)	68 (77%)	63 (100%)

P value calculated based on the chi-squared test. The lowercase letters indicate the comparison of data from the same professional group. The uppercase letters indicate the comparison of data between dentists and physicians.

showed a greater concentration of professionals in the capitals of seven states in the South and Southeast regions of the country (91.36%), particularly in the state of São Paulo (64.67%).

The distribution of the dentists by gender was statistically similar, but the group of physicians was predominantly male. With respect to civil status, there was a predominance of married dentists and physicians in the sample. The sociodemographic characteristics of the sample are described in **Table 1**.

The types of institution in which the volunteers had their academic training, as well the time of professional training and practice in the area of pain, are presented in **Table 2**. The majority of professionals in the sample were trained more than ten years ago. However, the proportion of professionals with more than ten years of practice in the area of pain is significantly higher among dentists (86.20%), than physicians (35.48%).

The proportion of physicians and dentists with specialist titles reached 79.37% and 81.61%, respectively. These findings can be seen as one of the indicators of changes in the professional profile of dentists and physicians, observed in Brazil. In the present study, 34.92% of physicians had a master's or doctorate degree. Among the dentists, 48.27% had such degrees and some post-doctoral training. Only 16.42% of the volunteers did not have a graduate degree beyond medical or dental degree. Thus, it appears that the sample of this study was composed of a significant number of professionals dedicated to professional advancement.

The self-assessment of the volunteers on their theoretical-technical knowledge in the field of pain, and on their need to improve this knowledge showed that 64.37% of the dentists and 78.69% of the physicians declared having sufficient understanding in the area of pain. It even showed that 37.93% of the dentists and 43.54% of the physicians did not recognize the necessity to enhance their knowledge in pain.

The study also investigated how the topic of pain was studied during medical/dental school courses of the volunteers. The reduced number of citations presented by the volunteers suggests that this topic was not covered substantially in the professional education of both the dentists and physicians surveyed. While the most frequently cited disciplines by dentists were endodontics (13 citations), surgery (12), pharmacology (7) and occlusion (8), physicians cited more often anesthesiology (11), neurology (10), physiology (5) and clinical medicine (4). The disciplines most cited by the physicians appeared to be linked to their specialties. It is noted that the discipline regarding pain treatment was referred to by only two dentists and two physicians.

In addition, the main topics linked to pain studied by the volunteers over the course of their professional career were inquired in this study. A substantially varied field of interests was noted. Dentists referred to a greater number of topics of interest, than did the physicians (321 citations from the dentists and 187 from the physicians). The topics most cited by the two groups of volunteers were neuroanatomy, neurophysiology, physiopathology, categories of pain, treatments in various areas, semiology, diagnoses, clini-

cal practice, headache, neuropathies, pharmacology, specific diseases and musculoskeletal pain. None of the physicians referred to temporomandibular disorder, trigeminal neuralgia and bruxism. Dentists made only 13 citations of the themes neck and musculoskeletal pain, neuropathies and fibromyalgia topics. Among the less cited subjects by the general sample were psychological aspects, pain behavior, depression, interdisciplinary relationship and physician-patient relationship.

The greatest majority of volunteers (88.50%), being all physicians and 77% of the dentists, reported treating patients with chronic pain. Also in large numbers, 92.66% of the volunteers declared adopting an interdisciplinary approach in their work.

Figures 1 and 2 illustrate the aspects considered most important for working in the area of pain and the principal difficulties faced by the volunteers in their daily work routine.

## Discussion

Although in the last decades the number of dentists and physicians has increased in the Brazilian work force, no changes in the distribution of these professionals have been observed in the country. The concentration of professionals is mainly in the large urban centers, that is, in the South and Southeast regions of the country<sup>19-20</sup>. This scenario was also seen in the present study, since the absolute majority of professionals was from the Southeast region, particularly from the state of São Paulo.

The present study confirms the increase in the prevalence of men among physicians (76.19%); the mean percentage of male physicians in Brazil was 60.40% in 2000 and 69.80%, in 2004<sup>19,21</sup>. With respect to dentists, women prevailed, which confirms the slight prevalence

of this gender among Brazilian dentists<sup>20</sup>. Married professionals predominated in the present study, which is a higher prevalence than that found in the Brazilian work force<sup>20</sup>.

The sample from the present study showed that 2/3 of the physicians evaluated received their education in public schools, which is in accordance with the findings of the Federal Council of Medicine<sup>21</sup>. On the other hand, 59.77% of the dentists who treated patients with chronic pain also received their education in public schools. This points out a higher percentage than that found in the Brazilian work force, in which the majority of dentists are educated in private schools<sup>20</sup>. Another important aspect is that the majority of the sample for both professions reported having some post-graduate title, in contrast to other studies that showed that less than half the dentists<sup>20</sup> and only 21.90% of the physicians had some post-graduate title<sup>21</sup>. The international scientific literature shows that the interest of dentists in getting a specialization is increasing. Taken altogether, the findings of this survey suggest that the majority of professionals involved with the treatment of pain, in the two professions, maintain a continuing interest in study and specialization. Although this finding is not conclusive, one possible reason is the difficulty that this field presents due to its complexity and lacking in the formal education system. It is possible that the growing search for technical advancement is intimately linked to the worsening standard of dental and medical schools in Brazil, observed in the last years, and by the need of entering a work force increasingly more competitive and demanding<sup>20-21</sup>.

Interestingly, with regard to professional specialization, our data show that at least a quarter of the dentists consider the physician-patient relationship important in caring for patients with pain *versus* half of the physicians. These findings suggest that theoretical-tech-

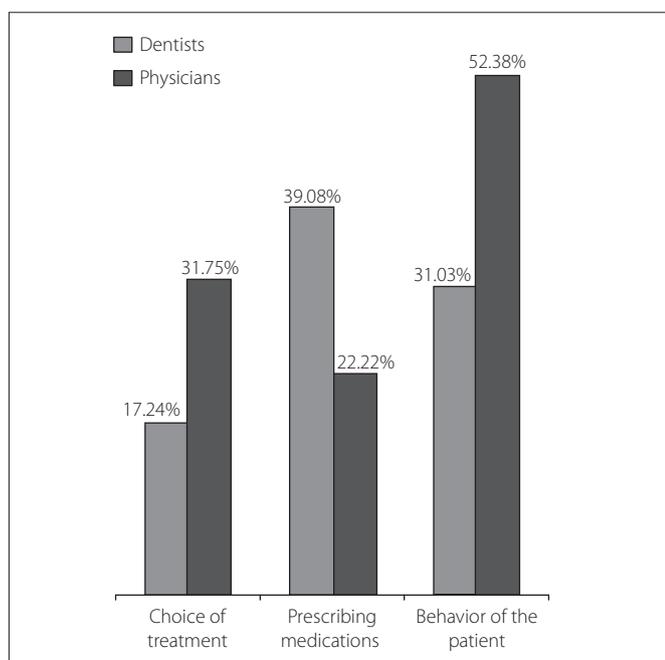


Figure 1. More important aspects for working in the pain field.

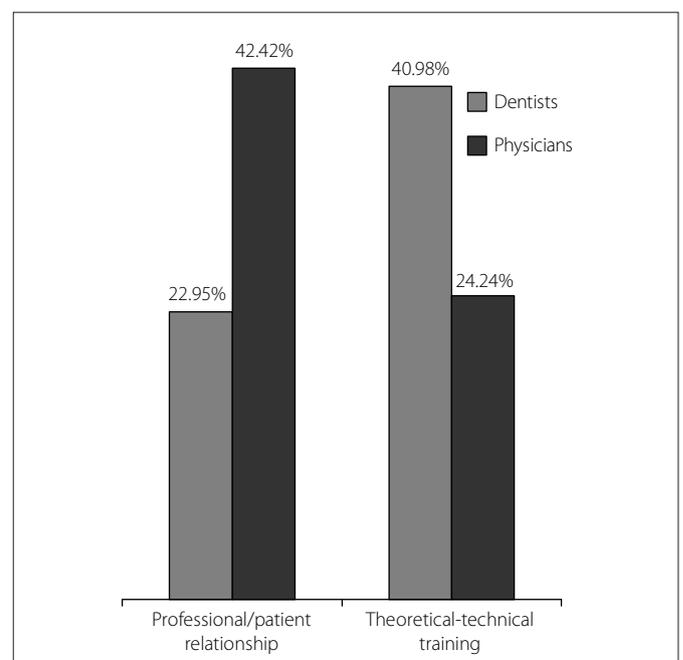


Figure 2. Main difficulties found in work routine in the pain field.

nical training continues to be priority for the majority of dentists and some of physicians. Although these professionals demonstrated an interest in continuing education, the results of this study did not clearly showed the adoption of a clinical approach of chronic pain, as recommended by the modern literature and the institutions involved in the study and treatment of pain<sup>17,25-26</sup>. On the contrary, medical residency which is considered an excellent form of interdisciplinary learning and experience, is decreasing among physicians<sup>21</sup> and is rare among dentists, especially in the area of pain<sup>16</sup>.

Another explanation for the greater interest in post-graduate courses could be the fact that the majority of professionals in this sample, who treat chronic pain, is composed by those who were trained more than ten years ago. However, the period they work with patients with pain is less than ten years, especially among physicians (64.51%), which suggests that the topic of pain, as a specific area of interest and professional practice, is very recent in the practice of the volunteers. The time of practice in the area of pain was significantly higher among dentists (86.20%). However, the proportion of physicians (100%) that treat patients with chronic pain was significantly higher than dentists (77%).

Topics that approach pain were not much cited as part of the professional training of both professions, and dentists evaluated demonstrated a greater interest in disciplines concerning basic studies such as physiopathology of pain, although both groups considered themselves capable of treating patients with chronic pain. However, the low rate of citations that were considered important with regard to psychological aspects, pain behavior and interdisciplinary relationship, revealed a technique tendency in the training of the volunteers, and also questions the declarations of the great majority of the sample who stated having sufficient knowledge to work in the area of pain, particularly chronic pain. Pain is generally not much emphasized in medical/dental school courses. Moreover, it is not presented in a way that enables an integrated view of the subject<sup>25</sup>. Therefore, dentists and physicians are not much aware of this subject and conclude their schooling overlooking the importance and consequences of the lack of preparation to work in the area of pain, especially chronic pain<sup>27</sup>. Similarly, pharmacology was considered as deficient in professional training, which is in accordance with the experience of professors in the area<sup>28</sup>.

This study shows the little interest of the volunteers in issues related to other areas of health. Issues such as temporomandibular disorders and toothache were of little interest to physicians, although they affirmed that they treat chronic orofacial pain, while dentists had little interest in issues such as neck and musculoskeletal pain, neuropathies and fibromyalgia. Different forms of orofacial pain occur in the same body region, innervated by a complex system, namely the trigeminal<sup>29</sup>, which has multiple etiologies<sup>4</sup> and frequently cross borders of medicine and dentistry<sup>8</sup>, requiring an interdisciplinary management, including professionals such as psychologists and physical therapists. It is evident that professional training, as for dentists or physicians, in the area of orofacial pain, requires a curriculum appropriate for training and practice, respecting the respective areas of professional practice<sup>3,14</sup>.

Certainly, professional training in pain that enables a better care of patients cannot be viewed only as the result of theoretical-technical knowledge and many years of professional experience. It is much more than that. It has also to be considered factors of psychological and social nature, in addition to the personal skills of these professionals, which determine their pattern of behavior in the daily dealing with the suffering of patients with pain. It is the combination of these technical, humane and social factors that enable the training of persons adapted to their profession, satisfied with their work and eager to improve their knowledge and competence. This subject, however, needs to be better studied.

In conclusion, taken together and considering the applied methodology, the findings of this survey show that the majority of professionals in the studied population who treat patients with chronic pain: have more than ten years of training and have more post-graduate education, when compared to professionals in the work force; reveal a technique tendency in the professional training; consider the professional/patient relationship, emotional aspects of pain and pain behavior of little importance, based on the low rate of citation of these as important themes; and consider themselves competent in treating patients with chronic pain. The analysis of the theoretical-technical difficulties pointed out by professionals of this study confirms the deficiencies in quality of care to patients with pain in our country, and the need of reflection by clinicians, professors, scholars and public health associations linked to the study of pain.

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