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A glimpse into the curricular format of comprehensive care clinics in Brazilian dental schools

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Abstract

Objective. This study aimed to describe some curricular aspects of comprehensive dental care clinics in Brazil. ***Materials and methods.*** An email survey was sent to all academic affairs deans of Brazilian undergraduate dental programmes. It contained questions regarding the (1) curricular format and (2) characteristics of comprehensive dental care clinics. ***Results.*** Sixty-seven dental schools agreed to participate. It was observed that curricular changes have contributed to modify the structure of these clinics in 88.1% of the schools surveyed. The main alteration was related to an increase in credit hours and offer of this type of care at different levels of the dental curriculum. In 95.5% of the schools, clinical procedures were prioritized according to level of complexity. Inter-disciplinarity (37.3%) and teaching innovation (58.2%) were frequent challenges in the process of change. Progress in combining teaching and clinical services was reported by 50.8% of schools. In 32.8%, clinical procedures were still being performed intra-murally. ***Conclusions.*** Changes in the curriculum of Brazilian comprehensive dental care clinics were observed by this survey.

Key Words: *comprehensive care clinics, curriculum, dental clinics, dental education*

Introduction

Dental education has been extensively debated in the last few decades [1,2]. This is particularly true with regard to preparing the newly graduated dentist for the labor market [2–16]. There have been efforts to improve the way dentistry is taugh and to deliver a better dental care as well as to reduce the prevalence and severity of oral diseases [5,9]. In Latin America, a more balanced curriculum, based on the European experience, has been encouraged since 2007 [1]. The Brazilian Board of Education published a national curriculum guideline in 2002 containing instructions to motivate interdisciplinarity in the healthcare setting [17,18]. According to this guideline, dental care professionals shall receive education on general humanistic themes as well as training to become more critical and reflective [17,18]. In addition, newly graduated dentists ought to be prepared to work in accordance with ethical and legal principles, not to mention the need to fully understand the way society is organized [17].

Comprehensive care clinics are now being regarded as an ideal environment to train and educate a general dental practitioner. The magnitude with which this statement holds true depends on how the clinics are structured to continuously maintain the skills and abilities expected from a general dental practitioner. For quite a long time, comprehensive care clinics have been considered a mandatory component of Brazilian undergraduate dental curricula [19,20]. In 2004, a study showed that the primary goals of such type of clinics had been neglected due to the existence of an alternative 'unofficial' curriculum [19].

Comprehensive care clinics in Brazil may have been extensively affected by recent curricular changes. However, there is limited data regarding the consolidation process of the curriculum reform in Brazilian dental schools. Such information could contribute to further improve the education of general practitioners and perhaps serve as a reference for curricular changes elsewhere. This study aimed to describe selected

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Table I. Descriptive data on Brazilian comprehensive care clinics.

Response	*n*	%
Number of hours		
Up to 500	14	20.9
501–1000	27	40.3
1001–1500	22	32.8
Over 1501	4	6.0
Type of offer		
Course	31	46.2
Training	17	25.4
Course and training	16	23.9
Modular	2	3.0
Modular and training	1	1.5
Changes		
Increased hours	11	16.4
Increased offer	19	28.4
Increased hours and offer	29	43.3
No change	8	11.9
Priority in delivering care		
Procedure complexity	48	71.6
Life cycles	2	2.9
Priority groups	3	4.5
Complexity and life cycles	7	10.3
Complexity and priority groups	4	6.2
Complexity, life cycles and priority	3	4.5
Priority groups		
Not applicable	61	91.0
Children	4	6.0
Elderly	4	6.0
Special needs	4	6.0
Adolescent	2	3.0
Adult	2	3.0
Mother-infant	2	3.0

curricular aspects of comprehensive care clinics in Brazilian dental schools.

Materials and methods

This sectional study was approved by the Ethics Committee at Potiguar University (Laureate International Universities) in 2009. It was registered under number 154/2009. Within a period of 1 year (2009–2010), an email questionnaire was sent to the academic affairs dean of 161 undergraduate dental programmes in Brazil. The survey contained questions about (1) the curricular format of undergraduate programmes and (2) the curricular aspects of comprehensive care clinics. The structure and content of the email were based on questionnaires which had been previously used to assess dental curricula [3,4,20].

The data were entered into a free online survey tool and later organized into tables in the form of frequency distribution.

Results

Curricular aspects of undergraduate programmes

Out of 161 schools, 67 (41.6%) responded. Of these, 38.8% were in the southeast, 23.9% in the northeast, 20.9% in the south, 11.9% in the midwest and 4.5% in the north of the country; 56.7% were private whilst 43.3% were public schools.

Only 1.5% of the schools did not follow any of the national curriculum guidelines; 29.9% followed them partially while 68.6% expressed a wish to fully enforce them; 14.9% still practiced traditional learning methods. An integration between the courses was still being implemented in 85.1% of the programmes, with the majority of the schools offering a few inter-connected courses. In others (4.5%), the courses were quite inter-connected and organized into learning modules.

The length of the undergraduate programme varied between 3800–6000 h. Only one programme (1.5%) required a minimum of 4000 h; 50.8% required between 4000–4500 h, 31.3% between 4500–5000 h and 16.4% more than 5000 h. Regarding the number of years to complete the programme, 35.8% could be completed in 4 years, 22.4% after 4.5 years and 41.8% after 5 years.

Curricular aspects of comprehensive dental care clinics

A considerable number of schools (40.3%) required between 501–1000 h of dedication to comprehensive care clinics (see Table I). The most common type of offer was in the form of a pre-doctoral course (46.2%). Following the implementation of the current national curriculum guidelines, 43.3% of the undergraduate programs reported an increase in the number of hours required in this type of clinic. In most schools, comprehensive care clinics are organized by procedure complexity (71.6%). Time to start attending comprehensive care clinics was also quite variable. Most schools (53.7%) provided entry only in the third year of the program, whereas 10.4% in the last year only. In 1.5%, students had free access to these clinics from the very beginning.

Comprehensive care clinics encompassed both theoretical and clinical activities in 80.6% of the schools. In 19.4% only clinical procedures were reported. Clinical procedures were found to be fully integrated in only 46.3% of the schools surveyed (see Table II). Of comprehensive care clinics, 88.1% had undergone structural change in order to comply with current national curriculum guidelines. In most schools (76.1%), pre-clinical procedures were still being taught as part of isolated pre-doctoral courses

Table II. Integration of Brazilian comprehensive care clinics.

Response	*n*	%
Pre-clinical procedures		
Isolated	51	76.1
Integrated	14	20.9
Modular	2	3.0
Total	67	100
Clinical procedures		
Isolated and integrated	36	53.7
Fully integrated	31	46.3
Total	67	100
Inter-school integration		
None	42	62.7
With nursing	12	17.9
With speech therapy	9	13.4
With medicine	7	10.4
With kinesiology	7	10.4
With nutrition	6	9.0
With psychology	6	9.0
With pharmacy	5	7.5
With biomedicine	2	3.0
With physical education	2	3.0
With social service	2	3.0
With occupational therapy	1	1.5
Joint activities		
None	42	62.7
Clinical procedures	14	20.9
Care of special need patients	5	7.5
Community outreach	4	6.0
Education and prevention	4	6.0
Hospital-based	2	3.0
Seminars	2	3.0
Elderly care	2	3.0
Infant care	1	1.5
Workershealth	1	1.5
TMD treatment	1	1.5
Central sterilization	1	1.5
Imaging diagnosis	1	1.5

(see Table II). Most pre-doctoral programs (62.7%) had no interaction with other programs at the same university (see Table II). Innovative experiences involving team work as well as the design of a multidisciplinary scenario to enhance learning skills were reported by the remaining 37.3% of the schools.

Case-reinforced learning (CRL) was also a popular approach in the comprehensive care clinics of 77.6% of the schools. The majority reported the use of audiovisual resources (85.1%) and scientific manuscripts (70.5%) (see Table III); 37.3% reported the utilization of some sort of innovative methodology as a way to stimulate debate during clinical case presentations (see Table III). Clinical records were the most utilized form of examination method (94%).

Table III. Pedagogical aspects of Brazilian comprehensive care clinics.

Response	*n*	%
Teaching strategies		
Case-reinforced learning (CRL)	52	77.6
Seminar	31	46.3
Community prevention program	28	41.8
Theoretical lecture	23	34.3
Research	11	16.4
Other	5	7.5
Teaching resources		
Audiovisual	57	85.1
Scientific paper	47	70.5
Book	32	47.8
Lab	31	46.3
Text	16	23.9
Simulation	4	6.0
Portfolio	4	6.0
Clinical record	2	3.0
Innovative teaching methods		
None	28	41.8
Case-reinforced learning (CRL)	25	37.3
Distance learning and video conferencing	7	10.4
Shared seminars	6	9.0
PBL and mock scenario	4	6.0
Portfolio	4	6.0
Problematization	2	3.0
Discussion panel	2	3.0
Workshop	2	3.0
Simulation and skills development	2	3.0
Simulated panel of examiner	1	1.5
Dental showcase	1	1.5
Discussion group	1	1.5
Scavenger hunt	1	1.5
Integrated treatment planning	1	1.5
Theater	1	1.5
Interactive activity	1	1.5
Evidence-based study	1	1.5
Hands-on procedure	1	1.5
Most common examination methods		
Clinical record	63	94.0
Interview	50	74.6
Report	38	56.7
Portfolio	4	6.0
Logbook	1	1.5

Table IV. Partnerships in Brazilian comprehensive care clinics.

Response	*n*	%
Partners		
None	11	16.4
National health system—intake of its referrals	29	43.9
National health system—attendance to its clinics	34	50.7
Hospitals	7	10.4
Entities (shelters, associations and support groups)	3	4.5
Schools	2	3.0
Police, firefighters	2	3.0
Enterprises	1	1.5
Type of partnership		
Accreditation of attendance to extra-mural clinics	27	40.4
Financial support from the national health system	22	32.8
Combination of both	7	10.4
None	11	16.4

Partnership with the national health service was reported by 83.6% of the schools (see Table IV). However, this can hardly qualify to be considered a full partnership since insurance covered procedures were available in 32.8% of such schools and the care was being delivered intra-murally. The remaining16.4% reported no partnership whatsoever with the national health service.

In 58.2% of the programmes, the majority of dental procedures performed by students were being supervised by clinical faculty members (see Table V). In 67.2%, the faculty was comprised of specialist academic members and dentists who had received their postgraduate training in comprehensive dental care. Most of them (94%) relied on clinical records to assess students' development.

Discussion

The questionnaire used in this study contained 27 objective questions, of which 14 of them were open-ended. Although these questions were meant to identify innovative initiatives, they demanded more time to be answered. The electronic system detected 108 accesses to the questionnaire, of which 67 of these led to full compliance. In other words, 41.6% of the schools accepted to participate. They were representative of all five regions in the country. As the process of curricular reform and implementation of national curriculum guidelines were both found to be still quite undeveloped, this factor may have contributed to inhibit participation, especially because the survey was aimed at identifying innovative innitiatives in comprehensive care clinics.

Table V. Characteristics of faculty members in Brazilian comprehensive care clinics.

Response	*n*	%
Faculty member duties		
Supervise procedures related to own field of expertise	17	25.4
Supervise all procedures	11	16.4
Supervise most procedures	39	58.2
Faculty qualification		
Specialist	14	20.9
Post-graduation in general dentistry	8	11.9
Both	45	67.2

In practice, the concept of a new curriculum containing a reasonable amount of integrated courses has been exceedingly challenging [2,3,5,6,18]. We observed that most schools (85.1%) have been making a tremendous effort to promote curriculum integration. However, all such changes seem to occur at a very slow pace [2–6]. In a study where 48 Brazilian undergraduate programs were evaluated in 2005–2006, Zilbovicius et al. [6] reported an incipient degree of innovation in the curricula, with the great majority of schools maintaining a pedagogical approach centered on dental disease and technique rather than oral health promotion [5]. Our results showed that such a situation has indeed changed, yet at a very low pace.

Curricular changes in Brazil have turned comprehensive care clinics into an important source of experiences for dental students. This has been confirmed given the increased number of hours and greater offer of this type of service throughout the entire length of pre-doctoral programs (see Table I). According to Padilha [20], most programs (82%), in 1998, required a total of 500 h of dedication to comprehensive care clinics. Currently, only 20.9% recommend such reduced short attendance. Our study also diverged in terms of program length. Whereas a range between 0–1100 h was previously reported [20], we detected a variation between 220–3132 h. The number of hours devoted to treat patients has also increased in comparison with the number of hours reserved for theoretical traditional lectures. In 19.4% of the programs that we surveyed, theoretical lectures were not in the scope of comprehensive care clinics.

Padilha [20] also observed that comprehensive care clinics were usually offered only in the final year (63.07%). We found them being offered earlier, from the second or third (53.7%) year. US schools have also been advised to expose their students to patients since the very beginning of the program [3]. The change has led students to experience real life situations earlier, thereby contributing to constant motivation and learning consolidation. With the noticeable increase in offer and number of hours, any change to comprehensive care clinics needs to be a reason of concern as they can promote either a

positive or negative impact on dental education. According to the national curriculum guidelines, we ought to be offering clinics that provide a holistic care rather than an integration between the courses. Bengmark et al. [12] corroborate this idea by stating that the patient shall be considered as a whole and not only according to quantitative data. Differently from what was seen in the past [20], the priority in delivering dental care at comprehensive care clinics now relies on attributes such as life cycles and special needs which demonstrates more concern on the overall general health of the patient rather than on clinical dental procedures alone (see Table I). This definitely suggests a change towards a more holistic approach.

Despite all this, early specialization is still an issue in Brazilian dental programmes. Zilbovicius et al. [5] reported that, in 56.9% of the schools surveyed, the majority of procedures were performed in discipline-based clinics. We obtained a similar result with only 46.3% of school clinics being indeed comprehensive. However, this by no way guarantees that a holistic approach is being practiced. In most schools, comprehensive care clinics have been structured according to the level of complexity of dental procedures, not according to life cycles and special needs. In other words, their operational system does not seem to prioritize a holistic approach, but rather a mere integration between the specialties. Nevertheless, it is not impossible that some of the programs are capable to articulate both situations concomitantly. Further studies containing a more in-depth analysis of this problem should be encouraged.

As seen in previous studies [2–6,9,15,20], only a few programs have taken advantage of comprehensive care clinics to develop multidisciplinary skills. This certainly compromises the formation of dental practitioners with a team-oriented profile such as advised by the national curriculum guidelines. Teamwork is the ability to communicate and collaborate with other health professionals and to lead the oral health team. It comprises an important principle of the curricular model [12].

The inter-relationship between education and clinical service has also remained quite narrow. Even though the majority of the schools reported some linkage between education and dental care, their procedures were usually carried out within intra-mural limits. This corroborates a previous observation [10] that, in government-subsidized Brazilian universities, the traditional model is normally abundant in intra-mural activities. Conversely, Kassebaum et al. [3] called the attention to the fact that North American schools are now requiring that students participate in community-based clinical treatment experiences. Haden et al. [4] stated that the most important curriculum change ever seen was an increase in the percentage of schools requiring some clinical experience in the community, from 64–91%. Such type of experience provides students with a close look into the reality of health services and the oral health status of the population.

The national curriculum guidelines recommend an integration with the national health service, as this is known to be paramount to strengthen the entire system. The national health service is in need of professionals capable of dealing with the challenges of the service and are compliant with its principles, guidelines, needs and strategies to overcome the difficulties faced by the service and by the population. The care provider is also expected to be able to work as a team as well as maintain the general and specific skills expected from a dental practitioner. This way, an integration between education and service would contribute to the development of the skills recommended by the national curriculum guidelines. Zilbovicius [6] listed some of the main obstacles to curricular changes in Brazil: (1) wrong thinking that extra-mural activities are always in the form of community health outreach programs, (2) lack of knowledge about the national curriculum guidelines and the health system, (3) technique-oriented education and (4) lack of integration between the national health system and schools. In our survey, we observed that 43.2% of the schools had implemented some form of partnership with the national health system. In schools already undergoing a more advanced process of reform (40.4%), students were also being required to perform clinical procedures in premises of the national health system (see Table III).

In the study of Padilha [20], from 1998, comprehensive care clinics were regarded as a great opportunity to perform clinical procedures (94%) supplemented by traditional lectures (64%) and seminars (68%). According to this author, audiovisual equipment (86%), library (60%), brochures (32%) and laboratories (30%) were the most widely used teaching resources. This situation has not changed much and audiovisual resources still continue to be quite popular (85.1%) followed by scientific manuscripts (70.5%) and books (47.8%) (see Table IV). In terms of strategy, we observed that case-reinforced learning (CRL) (77.6%) in association with clinical procedures (100%) have been increasingly used.

The national curriculum guidelines recommend the utilization of active methodologies. CRL normally requires students to actively participate in the didactic process which contributes to develop dental practitioners with a reflexive and critical attitude and, in turn, more prepared to make right decisions.

Kassebaum et al. [3] highlighted that CRL was more utilized than problem-based learning (PBL). Haden et al. [4] observed a small increase from 45% to 51% in the utilization of PBL by US and Canadian dental schools. These authors also concluded that the frequency with which both methods (PBL and CRL) are elected has become quite steady

recently, with no sign of a significant change in the horizon. In Brazil, such active teaching strategies were found to be uncommon, being reported by only 3.8% of public and by 10.8% of private schools [5,6]. Computer-based learning is being increasingly used in education [3,4,7,10,14]. Kassebaum et al. [3] also observed this in 86% of US and Canadian schools.

Netterstrom et al. [7] observed important didactic changes following the implementation of electronic resources, especially with regards to an increase in both dialogue opportunity and students' critical reflection. In this context, the instructor plays the role of either a mentor or a coach instead of acting solely as an expert in the subject. In other words, the instructor must act as a mere facilitator in the process of learning [16].

In Brazil, we noted a progress in relation to the use of e-learning, video and teleconference. However, this was observed in only 17.9% of the schools that reported some familiarity with innovative teaching approaches. Former examination methods consisted of systematic evaluation (45%), assessment of clinical performance (68%) and the outcome of written exams (66%) [20]. Unfortunately, we observed that only 6% of current programs actually make use of innovative assessment methods such as portfolios in which students are supposed to keep records of their progress and reflect upon their achievements (see Table III). Examinations based on clinical records are still very common, thereby suggesting that there is still room for further improvement. Comprehensive care clinics can be the ideal scenario for the development of the competences and skills recommended by the national curriculum guidelines. However, appropriate assessment methods such as log books, portfolios, e-portfolios and so on are necessary to monitor students' professional development. In 1998, students at Brazilian comprehensive care clinics used to be supervised by discipline-oriented faculty members [20]. This approach created the misconception that an integrated team of professionals was available to advise the students. This was found to be one of the most common hindrances to advancements in comprehensive care clinics. Fortunately, we observed that most schools are no longer giving priority to the figure of the dental specialist. In fact, schools have been advertising positions for which candidates are expected to have a more general dentist profile. Surprisingly, we also noted that faculty members of comprehensive care clinics have been more frequently assigned to supervise a wider range of dental procedures rather than focusing on a given specialty (see Table V).

An increase in offer and in the number of hours were both observed. Inter-disciplinarity and teaching method innovation were found to be quite challenging goals and had been achieved by a few schools only. Some progress was observed in combining teaching and clinical service, but this was predominantly restricted to intra-mural activities in partnership with the public sector. The recruitment of faculty members capable of advising on a wider range of dental procedures was observed.

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