

Knowledge of undergraduates from a private university in Northeast Brazil regarding dental office management: an observational study

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Abstract In a competitive job market in which professionals must reinvent themselves to add value to their clients, the major challenge lies in the ability of dentists to develop both clinical skills and management techniques to minimize the risk of failure. This study assessed the knowledge of final-year dental students regarding dental office management. An observational, descriptive study with a quantitative approach was conducted in a private university in the Northeast region of Brazil. Data collection was performed by a questionnaire addressing aspects of knowledge in dental office management, measured using a Likert scale. From a census sample of 140 students in the year 2022, a total of 95 participated in the research. More than 50% of participants had knowledge about the physical structure of the dental clinic. The highest level of knowledge concerned the maintenance of patient records (83.2%) and the requirement of a technical responsible person (81.1%). However, 51.5% of participants do not feel comfortable managing their own business, and only 12.6% believe they have acquired the necessary knowledge about dental marketing during the course. It is concluded that some management aspects are unknown to the students. The incorporation or utilization of new pedagogical approaches in the teaching strategy may facilitate greater knowledge of students about dental office management.

Descriptors: Education, Dental. Health Management. Dental Clinics.

Conocimientos de estudiantes de una universidad privada de la Región Nordeste de Brasil sobre la gestión del consultorio odontológico: estudio observacional

Resumen En un mercado laboral competitivo donde es vital que los profesionales se reinventen para aportar valor a sus clientes, el gran reto reside en la capacidad del odontólogo para desarrollar tanto habilidades clínicas como técnicas de gestión para minimizar el riesgo de fracaso. Esta investigación tuvo como objetivo evaluar el conocimiento de los estudiantes de último año de Odontología sobre la gestión del consultorio odontológico. Se realizó un estudio observacional, descriptivo, con enfoque cuantitativo, ambientado en una universidad privada de la Región Nordeste de Brasil. La recolección de datos se realizó mediante un cuestionario, que aborda aspectos del conocimiento en la gestión de la práctica odontológica, medidos mediante una escala Likert. De una muestra censal de 140 estudiantes en el año 2022, un total de 95 participaron en la investigación. Más del 50% de los participantes indicaron tener conocimiento sobre la estructura física de la oficina. El mayor nivel de conocimiento fue sobre la conservación de la historia clínica (83,2%) y la obligación de contar con un técnico responsable (81,1%). Sin embargo, el 51,5% de los participantes no se sienten cómodos gestionando su propia empresa y sólo el 12,6% cree haber obtenido los conocimientos necesarios sobre marketing dental durante el curso. Se concluye que algunos aspectos de la gestión son desconocidos por los estudiantes. La inclusión o uso de nuevos enfoques pedagógicos en la estrategia de enseñanza puede facilitar un mayor conocimiento de los estudiantes sobre la gestión de la práctica.

Descritpores: Educación en Odontología. Gestión en Salud. Clínicas Odontológicas.

Conhecimento de graduandos de uma universidade privada da Região Nordeste do Brasil sobre gestão de consultório odontológico: estudo observacional

Resumo Em um mercado de trabalho competitivo onde é vital que os profissionais se reinventem para agregar valor aos seus clientes, o grande desafio está na capacidade

do cirurgião-dentista desenvolver tanto competências clínicas quanto técnicas de gestão para minimizar o risco de insucesso. Esta pesquisa teve como objetivo avaliar o conhecimento de estudantes do último ano do curso de Odontologia sobre gestão de consultório odontológico. Foi realizado estudo do tipo observacional, descritivo com abordagem quantitativa, que teve como cenário uma universidade privada na Região Nordeste do Brasil. A coleta de dados foi realizada por meio de questionário, abordando aspectos do conhecimento em gestão de consultório odontológico, mensurado por meio de Escala Likert. A partir de uma amostra censitária de 140 estudantes no ano de 2022, um total de 95 participaram da pesquisa. Mais de 50% dos participantes indicaram ter conhecimento sobre estruturação física do consultório. O nível de conhecimento mais elevado foi quanto à preservação dos prontuários (83,2%) e obrigatoriedade de ter um responsável técnico (81,1%). No entanto, 51,5% dos participantes não se sentem confortáveis para administrar uma empresa própria e apenas 12,6% julgam ter obtido o conhecimento necessário sobre *marketing* odontológico durante o curso. Conclui-se que alguns aspectos gerenciais são desconhecidos pelos estudantes. A inserção ou utilização de novas abordagens pedagógicas na estratégia de ensino pode facilitar um maior conhecimento dos estudantes sobre gestão de consultório.

Descritores: Educação em Odontologia. Gestão em Saúde. Clínicas Odontológicas.

INTRODUCTION

Undergraduate Dentistry courses focus on developing skills based on various aspects, including leadership and health management, allowing graduates to build collaborative relationships and encourage the development of actions that enable improved work processes. Also, it must prepare the new dental professional to perform the structural, organizational, financial and tax management of offices, clinics and other health services¹. Therefore, these are essential skills for future professionals who decide to structure and manage their own dental practice.

According to the American Dental Association, in the future, the dentist's role in promoting the population's health will require skills to integrate new technologies, present a team leadership profile and respond to the expectations of individuals seeking dental treatment². These aspects differentiate the professional from competitors, with increasingly competent services, so that there is added value to the services provided, also enabling the attraction and retention of customers³.

In an increasingly demanding scenario on the quality of care provided, data from the Federal Dental Council indicate that there are more than 371,000 dental professionals in Brazil, being considered the country with the largest number of such professionals in the world. Only in 2021, more than 20,000 graduates started in the field, saturating the job market and making it highly competitive⁴, with a proportion of inhabitants per dental surgeons lower than the adequate⁵.

With the increasing number of graduates and, consequently, the greater availability of access to dental treatment for the population, increasingly improved preparation is necessary to stand out in the job market in the long term. Knowledge about management aspects, based on the National Curricular Guidelines for Dentistry courses (DCN)¹, constitutes a differentiator in the job market, especially for graduates who direct their efforts in structuring a private practice. Although this can be achieved by technical aspects related to good practice and clinical care of the profession, it is extremely important to increase the administrative knowledge for efficient planning and management of the office⁶.

Office management is a subject of constant frustration for Dentistry graduates⁷, and the role of dental professionals as managers is considered unsatisfactory, evidencing the need to enhance the course curricula⁸.

In this context, the following guiding question is presented: Do final-year undergraduate Dentistry students know general aspects about managing a dental office? Although the term "management" may be applied with different definitions also in the field of public health, in this study it will be considered within the context of the dental office or clinic. This study

aimed to evaluate the knowledge of Dentistry graduates from a private university in the Northeast Region of Brazil about dental office management.

METHODS

This was an observational, descriptive study with a quantitative approach, approved by the Institutional Review Board of the University of Fortaleza (UNIFOR) under report n. 5.672.887.

The research setting was UNIFOR, a private Brazilian university. Located in the city of Fortaleza, Ceará, it was officially established in 1973. In its five decades, it has enabled the training of countless leaders and professionals of excellence, impacting the scientific, cultural and economic scenario⁹. In the 2022 British ranking by *Times Higher Education*, it was considered the best among both public and private universities in the state, and the best private university in North and Northeast Brazilian regions¹⁰.

The several courses offered at the university include Dentistry. Lasting five years, it has a structure of classrooms, laboratories and clinics with cutting-edge equipment, besides a team of academically qualified professors to provide the best experience in the teaching-learning process to almost 800 enrolled students. According to the university's website, throughout the course they develop skills and abilities aiming at working autonomously, individually or as part of a team, in healthcare establishments such as offices, clinics, hospitals, and even in private companies or higher education institutions⁹.

The population of this study was composed of students in the final year of the undergraduate Dentistry course at UNIFOR. A census sample was considered with the inclusion of all 140 students enrolled in the 9th and 10th semesters of 2022. Students who were not enrolled in at least one discipline of the last year were excluded from the study. For reference, in the semester, the disciplines of Integrated Clinic III and Integrated Clinic IV were used as criteria, since they represent the highest workload of the course in the last year.

Rooms and times were mapped to identify where it would be possible to meet the participants in person at the university. An individual, direct approach to the student was performed, outside the classroom or clinic in the Dentistry block. Participants who voluntarily agreed to respond to the survey read and signed an Informed Consent Form.

Data collection was performed using a structured questionnaire with questions aimed at investigating the participants' knowledge about management aspects of a dental office. Questions involving regulatory-sanitary aspects, taxation, marketing and leadership were included.

The questions were prepared based on Ordinance n. 906/2019 from the Municipal Health Department, which regulates the provision of health services in dental clinics and offices in the city of Fortaleza¹¹; the competencies foreseen in the DCN1 that were related to the study objectives; as well as the experience of researchers.

The questionnaires were provided to participants in printed format with a ballpoint pen. This technique, using a less technological resource, was justified to increase the response rate of potential participants. The researcher did not interfere with the responses to the questionnaire.

Besides data to characterize the participants regarding age, gender and semester, the only possible answers to the questions were based on the Likert-type scale with five options: Fully agree; Agree; Do not agree nor disagree; Disagree; and Fully disagree.

Data were analyzed by descriptive statistics, using absolute and relative frequencies.

RESULTS

A total of 95 students (68%) participated in this study. Table 1 presents the profile of participants concerning age,

gender and semester. It was observed that the majority of participants were up to 23 years old (72.6%), females (72.6%), and in the 9th semester of the course (85.3%).

Table 1. Profile of research participants, Fortaleza, 2023.

Variable	n	%
Age		
Up to 23 years	69	72.6
24 years or older	26	27.4
Sex		
Female	69	72.6
Male	26	27.4
Semester		
9 th	81	85.3
10 th	14	14.7

Data in Table 2 indicates the participants' responses regarding knowledge on regulatory-sanitary aspects. Most participants indicated that they had knowledge (agree or fully agree) about requirements related to structuring of the dental office: types of materials allowed (62.1%), organization of the waiting room (55.8%), organization of the clinical room (62.1%) and air conditioning (59%). The best knowledge among participants concerned the normative-sanitary aspects about the preservation of medical records (n=79; 83.2%) and the mandatory presence of a technical responsible for the dental office (n=77; 81.1%).

The majority were unaware (n=55; 57.8%) of the need for standard operative procedures. Considering the sum of neutral or negative responses regarding knowledge of the solid waste management plan, the lack of knowledge of participants was high (n=50; 52.6%). More than 1/3 of participants (n=37; 39%) are unaware of the necessary documents to structure a practice that performs radiographic examinations.

Table 2. Responses of participants regarding the knowledge of regulatory-sanitary aspects related to dental office management, Fortaleza, 2023.

Aspects of knowledge	n (%)				
	Fully agree	Agree	Do not agree nor disagree	Disagree	Fully disagree
Requirements for structure materials (floor, wall, ceiling) allowed for office building	19(20)	40(42.1)	21(22.1)	15(15.8)	-
Requirements regarding the dental office waiting room	17(17.9)	36(37.9)	23(24.2)	14(14.7)	5(5.3)
Requirements on organization of the clinical room	19(20)	40(42.1)	14(14.7)	22(23.2)	-
Climate requirements	30(31.6)	26(27.4)	25(26.3)	14(14.7)	-
Supporting documents on water and sanitation	22(23.2)	28(29.4)	15(15.8)	30(31.6)	-
Standard operative procedures (SOP)	3(3.2)	37(39)	29(30.5)	12(12.6)	14(14.7)
Solid Waste Management Plan	14(14.7)	31(32.7)	25(26.3)	25(26.3)	-
Guidelines related to Occupational Health	20(21.1)	41(43.2)	29(30.5)	4(4.2)	1(1.0)
Care and maintenance of dental records	41(43.2)	38(40)	12(12.6)	3(3.2)	1(1.0)
Mandatory presence of a technical person responsible for the office	41(43.2)	36(37.9)	13(13.7)	5(5.3)	-
Documents required to perform radiographic examinations	13(13.7)	22(23.2)	23(24.1)	24(25.3)	13(13.7)
Management of materials	11(11.6)	39(41.1)	16(16.8)	27(28.4)	2(2.1)

Table 3 presents four aspects related to financial, marketing and professional leadership issues. There is poor knowledge regarding taxation (60.1%); financial organization (43.2%); and marketing (50.5%). However, it is noteworthy that more than half of participants (n=52; 54.9%) stated that they had the knowledge to practice leadership in the dental office. The last question in the questionnaire aimed to assess if participants had enough knowledge to open their own dental office. Only 18 (18.9%) of participants responded that they fully agreed or agreed that they had sufficient knowledge.

Table 3. Knowledge of aspects related to taxes, marketing and leadership in dental practice management, Fortaleza, 2023.

Aspects of knowledge	n (%)				
	Fully agree	Agree	Do not agree nor disagree	Disagree	Fully disagree
Taxation (taxes)	5(5.3)	19(20)	13(13.7)	29(30.5)	29(30.5)
Financial organization of a dental office	14 (14.7)	16(16.8)	24(25.3)	26(27.4)	15(15.8)
Marketing for the dental office	0(0)	12(12.6)	48(50.5)	35(36.9)	0(0)
Practicing leadership in the dental office	22(23.3)	30(31.6)	27(28.4)	9(9.4)	7(7.3)

DISCUSSION

The responses from participants demonstrate a lack of knowledge or insecurity in mastering some aspects of dental office management. Even though each office has unique characteristics, health and legal regulations should be met, and the lack of knowledge about them can be decisive for a successful practice.

This can be even worse in the reality of northeastern Brazil. A study conducted on professionals from the Northeast Region¹² demonstrated that the vast majority of states exceed the recommended ratio between dentists and patients⁵, except for Paraíba and Rio Grande do Norte. Therefore, trained dental professionals who do not maintain continued education beyond technical knowledge will probably face greater difficulties when competing for market space, will have difficulties in maintaining the dental practice¹³, and may tend to become frustrated with their own professional career¹⁴.

However, part of the Dentistry training centers in Brazil still follow a technical, outdated, fragmented education system with lack of critical sense¹⁵, while the current scenario requires professionals with entrepreneurial skills, able of establishing, evolving and sustaining the practice as a company¹⁶. Although graduates have varied work possibilities after completing their degree, most choose to structure and manage their own practice^{17,18}, entering a highly competitive job market. To enter and be successful in the work market, the "dentist manager" should understand that the dental office functions as a company, which needs to ensure a quality service for the patients, who are their clients^{13,19}.

Regarding the knowledge of requirements for physical structuring of the dental office, one of the aspects valued by patients, most participants in this study indicated knowledge of requirements relating to building materials (n=59; 62.1%); organization of the waiting room (n=53; 55.8%); organization of the clinical room (n=59; 62.1%); and requirements regarding air conditioning (n=56; 59%). However, the option to structure a practice requires in-depth and specific study that should include partnerships for individualized planning, acquisition of quality equipment, instruments and materials, as well as attention to various details on aspects charged by public regulatory organizations, since dental care involves risk to the professional, their team and the patients they assist²⁰.

This study identified that more than 1/3 of participants (n=37; 39%) are unaware of the necessary documents to perform radiographic examinations in the dental office. It is important to highlight that it is essential to know the resolutions of the National Health Surveillance Agency (ANVISA) regarding the performance of radiological activities, preventing inherent risks, as well as the need for continued education associated with more educational supervision for the effective compliance of standards²¹. Knowledge and continuous development are expected general skills of dental professionals, who should be active in the permanent construction of their knowledge after graduation¹.

The lack of knowledge about the solid waste management plan (n=50; 52.6%) and the need to organize standard operative procedures (n=55; 57.8%), by neutral or negative responses from participants, was high. This points to the need to explore further about these themes by different modules and approaches in the context of health surveillance aimed at the dental office. A study on the ethical and legal perception of Dentistry students in Piauí identified that, although the acquisition of knowledge about clinical and ethical aspects of waste management was perceived, the level of knowledge is insufficient about legal aspects. Also, the approach to the topic in lectures was perceived as negative by most participants²².

The responses with greatest indication of normative-sanitary knowledge were those related to care regarding the maintenance of medical records (n=79; 83.2%) and the mandatory presence of a technical responsible for the dental office (n=77; 81.1%). However, neutrality in responses (do not agree neither disagree) regarding other aspects in this research ranged from 12 (12.6%) to 29 (30.5%), revealing some uncertainty about the knowledge of these management aspects. A study that investigated the presence of management themes in the curricular component of public and private universities in Brazil identified that less than 30% of undergraduate Dentistry courses address dental office management. Among these, around 60% only included theoretical classes⁸.

It was observed that most participants consider themselves with deficient knowledge on taxation (n=58; 60.1%). It is also noteworthy that most participants consider that they have no knowledge about financial organization (n=41; 43.2%). Though not majority, it is worth highlighting the need for minimum knowledge about the principles that guide the financial organization, opting for tax guidance according to the work model and business plan, providing for efficient financial control of income and expenses, the latter especially regarding the expected cost for rent, acquisition of equipment and materials, fees, taxes and marketing²³.

Despite the technical mastery, the lack of knowledge about marketing can frustrate recently graduated professionals who are still looking to establish themselves in the job market. Knowledge about marketing for dental offices in this study presented the largest number of neutral responses (n=48; 50.5%). A recent literature review study demonstrated that, although many professionals use digital marketing to attract and retain patients on social networks, most do not use it due to insecurity, lack of knowledge or failure in establishing partnerships²⁴.

It is important to highlight that most patients do not have scientific or technical knowledge; thus, they are unable to evaluate the clinical results of the service provided. Therefore, it is extremely important for dentists to invest resources in the field of marketing to enhance the constant attraction of new patients, providing positive sensations experienced during the dental procedure²⁵.

This research highlights another important aspect of acquiring competence for future dental surgeons. Only slightly more than half of participants (n=52; 54.9%) stated that they had knowledge to practice leadership in the dental office. However, combined with technical capacity, the graduates should develop a leadership profile, being able to analyze situations, deal with disagreements²⁶, propose solutions and have the ability to manage services and multidisciplinary teams¹. In this scenario, the importance of approaching and working on the construction of this attitudinal domain in a more practical and in-depth manner is highlighted²⁷.

Another important aspect is that the professional should be able not only to lead and work in team, but also to hire a qualified assistant and/or receptionist and have basic knowledge of business administration. Almost two decades ago, a study conducted on public and private universities already indicated that more than 90% of Dentistry students considered the need to learn basic business management during their undergraduate studies²⁸.

This study identified that few participants (n=18; 18.9%) indicated that they had sufficient knowledge to open their own dental office. A survey conducted at the same university showed a high level of user satisfaction regarding the care provided by students at the dental clinic²⁹. Thus, it is possible to consider that aspects related to technical training in clinical-dental treatment and human relationships with patients are sufficient in the training of students, as opposed to the students' low knowledge of management aspects of the dental office. A study performed in Paraíba³⁰ reported

deficiencies in some of the students' skills and competencies, pointing to the need to create a curricular component aimed at deepening management, leadership and marketing.

This research had as limitation a low response rate to the questionnaires, besides the possibility that participants had difficulties understanding the question due to lack of knowledge of the content or even because they considered themselves to have vague knowledge about the topics covered. However, this limitation does not preclude the achievement of the study objective.

It is recommended that course coordinators should regularly evaluate the practice management approach in the modules of the curricular matrix, aiming at improving the ability of future professionals to maintain themselves in the job market. Further, more comprehensive qualitative research can deepen the topic, involving other actors in the teaching-learning process at the university.

CONCLUSION

The participants of this study presented knowledge on the structure of a dental office, yet they were insecure or unaware of essential management aspects, such as regulatory-sanitary, taxation and marketing issues. The results indicate the need to include these subjects or adopt new pedagogical approaches in the teaching strategy.

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