



## **Perception of dentistry professors and students at a public university in the interior of the Northeast region regarding the collection and loan of human teeth for curricular activities**

*Perception of dentistry professors and students from a public university in the interior of the northwest regarding the acquisition and provision of human patients for curricular activities*

Iasmim Dantas de Souza – State University of Feira de Santana

Giovanna Maria Novais Silva – State University of Feira de Santana

Angelo Ray de Oliveira Santos – State University of Feira de Santana

Laleska Brunelle Queiroz Lima – State University of Feira de Santana

Dayliz Quinto Pereira – State University of Feira de Santana

### **SUMMARY**

The Human Tooth Bank of the State University of Feira de Santana (BDH-UEFS) is a non-profit institution that provides teeth for laboratory use by dentistry students, research students, and extension students. The objective of this study was to analyze the perceptions of dentistry faculty and students at a public university in the interior of Northeast Brazil regarding the processes of collecting and lending human teeth for curricular activities. Two online questionnaires were administered: one to students from the fourth to sixth semesters of the Feira de Santana State University Dentistry program and the other to faculty from the same institution, both in the aforementioned semesters. Analysis of the results revealed a partial lack of awareness of the BDH-UEFS and the difficulty in accessing teeth. Finally, it was possible to identify the need for greater awareness of the BDH's importance and purpose for the university, in addition to its educational role.

**Keywords:** Tissue banks. Organ donation. Teeth. Students. Teachers

### **ABSTRACT**

The Human Disease Bank of the State University of Feira de Santana (BDH-UEFS) is a profit-free institution whose objective is to provide patients for use in laboratories by students of the Dentistry, research and extension course.

The objective of this study was to analyze the perception of dentistry teachers and students from a public university in the interior of the northeastern region of Brazil regarding the processes of obtaining and providing human patients for curricular activities. To carry out this investigation, two online questionnaires were applied, one aimed at students at the State University of Feira de Santana in the fourth semester of the Dentistry course and the other applied to teachers at the same institution and semesters mentioned. The analysis of the results revealed a partial lack of knowledge about the BDH-UEFS and the difficulty in accessing them. Finally, the need for a greater diffusion of the importance and objective of the BDH for the University was confirmed, in addition to its educational role.

**Keywords:** Tissue banks. Obtaining Tissues and Organs. Dent. Students. Teachers

## 1. INTRODUCTION

The Human Tooth Bank of the State University of Feira de Santana (BDH-UEFS) is a non-profit institution that aims to provide teeth for laboratory use by students of the Dentistry course, contributing to the reduction of commercialization, illegal use of teeth and the risk of cross-infection that this carries, due to their manipulation inappropriate. The BDH makes teeth originating from proven and properly sanitized, sterilized and stored for use without threat biological, since teeth are considered human organs and, like any organ, can be a source of pathogens for those who handle them (Pereira, 2012).

Supported by ethical and legal principles, the BDH establishes that to obtain the concession of tooth donation, it is necessary to sign the Free and Informed Consent Form (TCLE), in which the donor or their legal guardian allows and legalizes the donation, aware of that the tooth will be used in the academic sphere and/or in scientific research. In this way, the BDH operates under legal precepts, in opposition to clandestine acquisition, based on law no. 9,434 of February 4, 1997, which considers the use of organs or tissues a crime humans without proven origin, regulating and minimizing these reckless habits still very common in the academic environment (Brazil, 1997).

The limitation of public knowledge about the existence and function of the Banks of Human teeth constitute an obstacle to its effectiveness. In an observational study and prospective, Leite *et al.* (2017) found that 86% of the lay people interviewed were unaware these institutions, highlighting the need for broader outreach strategies. The promoting this awareness is essential for the population to understand the role of BDH and recognize the importance of donations for maintaining its stock and adequate management of biological material.

For the good performance of the Human Tooth Bank (BDH), it is essential to maintain strict control over its internal procedures, such as collection, separation, cataloging of stock, loan and archiving of donor or beneficiary records (Pinto *et al.*, 2009). In this context, it becomes equally important that students understand not only the academic and scientific relevance of the BDH, but also the procedures

legal and bureaucratic rules governing the donation and loan of human teeth. This knowledge contributes to future professional practices being guided by principles ethical and biosafety standards, avoiding inappropriate behavior that could compromise the process integrity. Understanding the documentation requirements and necessary authorizations and responsibility in handling biological material strengthens the student's role as an agent multiplier of correct information, promoting the appreciation and responsible use of this resource in teaching and research.

The topic is of great relevance to the academic community, as disciplines laboratory and research activities of the Dentistry course require dental units. In order for the For the Human Tooth Bank (BDH) to achieve greater recognition, it is essential that teachers and students receive information on the correct and ethical way of collecting funds, avoiding illegal practices and biological risks. As opinion leaders, teachers and students can encourage patients to donate teeth indicated for extraction, contributing to the maintenance of stock and meeting academic demands, as highlighted by Nassif *et al.* (2003). The lack of knowledge about appropriate procedures favors the spread of misinformation and the unethical use of human teeth.

The objective of this study was to analyze the perception of teachers and students of the Dentistry at a public university in the interior of the Northeast region of Brazil about the processes of collecting and lending human teeth for curricular activities, aiming understand the level of knowledge and promote the strengthening of the relationship between these audiences with the institution's Human Tooth Bank.

## 2. MATERIAL AND METHOD

This is a cross-sectional study that was carried out with two online questionnaires self-administered on the Google Forms platform, in 2022 at the State University of Feira de Santana, in Feira de Santana, Bahia. Both contained the Free and Informed Consent Form Informed Consent (TCLE) to be noted, and were made available via social networks, and in cases specific, via email. The research has been approved by CEP-UEFS, with Certificate of Presentation of Ethical Appreciation (CAAE) 21939419.1.0000.0053.

The questionnaires had objective answers, for the most part, allowing for respondents responded with “yes”, “no” or “the acquisition of teeth/I do not request the acquisition of teeth in the curricular component”.

The first questionnaire was administered to students at the State University of Feira from Santana of the fourth, fifth and sixth semesters of the Dentistry course, containing 14 questions, of which one is open. The choice of semesters is justified by the fact that they are the main ones periods with subjects that use teeth in practical activities. The second questionnaire was applied to teachers from the same institution and semesters mentioned, containing 15 questions, two of which are open and one is multiple choice.

The first block of questions in the student questionnaire asked for name, registration number and the semester the student attended during the period studied. For teachers, the first question it was about the semesters he teaches, since most of him is present in more than a semester researched; while the second question was open, about the specialty dentistry taught.

The second block of questions referred to knowledge about the existence of the BDH-UEFS; access to informational materials; tooth donation and the importance of using the units dental procedures in laboratories. The third block asked whether there had ever been an indication, request or acquisition of dental units through BDH-UEFS or not; the difficulties encountered for access to dental units; the use of Personal Protective Equipment (PPE); handling of teeth; sterilization/disinfection measures; and whether it is considered relevant to existence of the BDH-UEFS to support academic activities and the reduction of trade illegal teeth

Students duly enrolled in all classes were included in the study. subjects of the semesters researched, accounting for a total of 59 students, of which, 48 responded to the questionnaire. All teachers who were providing services were included. in the period researched, totaling 30 teachers, of which 19 responded to the questionnaire. Students not enrolled in semesters and teachers on leave were not included in the semester 2022.2. The use of virtual tools, such as Google Forms, provided a means easy access to questionnaires, with automatic creation of graphs for analysis of results obtained.

### 3. RESULTS AND DISCUSSION

A total of 68 responses were obtained, of the 59 students eligible to participate in the survey, 48 responded to the questionnaire. Regarding the teachers, of the 30 eligible, 20 responded to the questionnaire. 31.3% of the students were in the fourth semester; 33.3% in the fifth semester and 35.4% of the sixth semester.

The fourth, fifth and sixth semesters have 15 curricular components, and at least one teacher from each subject responded to the questionnaire. They work in the following areas: Surgery, Endodontics, Public Health, Dentistry, Radiology, Stomatology, Pathology Oral, Periodontics, Psychology Applied to Health and Dental Prosthesis.

Table 1 – Percentage distribution of the teaching population studied according to knowledge about the BDH UEFS, and about the legal aspects of lending and trading illegal extraction of human teeth, UEFS, Feira de Santana, 2022

Variable	n (20)	%
<b>Do you know BDH-UEFS?</b>		
Yes	18	90%
No	2	10%
<b>Have you already had access to any informational material from BDH-UEFS?</b>		
Yes	16	80%
No	4	20%
<b>Have you already donated teeth to BDH-UEFS?</b>		
Yes	12	60%
No	8	40%
<b>Do you consider the use of human teeth important for practical activities in Dentistry?</b>		
Yes	20	100%
No	0	0%

Have you ever asked students for natural teeth for laboratory use or for undergraduate research?		
Yes	7	35%
No	13	65%
Do you consider the existence of the BDH-UEFS important to support academic and research activities?		
Yes	20	100%
No	0	0%
Do you think the existence of the BDH-UEFS is relevant to reducing the illegal trade in teeth?		
Yes	20	100%
No	0	0%

Source: Own

The results indicated that only two disciplines requested teeth for use in Laboratory: Integrated XIII – Oral Microbiology and Pre-Clinical Endodontics and Integrated XIX – Dental Materials and Fixed Prosthetics. Among the 20 participating teachers, only four teach these subjects, and of these, two stated that they requested the loan of human teeth exclusively to the BDH-UEFS. All teachers reported requiring disinfection and/or prior sterilization of dental elements, in addition to the mandatory use of equipment Personal Protection during handling. Only one teacher stated that he did not question the origin of the teeth used by the students, while three reported that students already mentioned difficulties in obtaining the necessary quantity of teeth for the practices laboratory.

All teachers interviewed in this study consider the use of teeth important humans in laboratory teaching activities. This result contrasts with Silva's study *et al.* (2020), who evaluated the perception of 38 dentistry professors about the use of teeth human and artificial. In that study, only 60.5% of teachers considered teeth superior humans, while 10.5% preferred artificial ones and 28.9% attributed performance equivalent to both. These data show differences in teachers' perceptions of the

materials used in practical teaching. Consequently, it is possible that the context institutional significantly influences these preferences.

Table 2 – Percentage distribution of the teaching population studied according to knowledge about the BDH UEFS and the legal aspects of donation, loan and illegal trade in human teeth, UEFS, Feira de Santana, 2022

Variable	n (48)	%
<b>Are you aware of the existence of BDH-UEFS?</b>		
Yes	48	100%
No	0	0%
<b>Have you already had access to any informational material from BDH-UEFS?</b>		
Yes	45	94%
No	3	6%
<b>Have you already donated teeth to BDH-UEFS?</b>		
Yes	23	48%
No	25	52%
<b>Do you consider the use of human teeth important for practical activities in Dentistry?</b>		
Yes	48	100%
No	0	0%
<b>Have you ever been asked to provide natural teeth for use in laboratories and/or undergraduate research?</b>		
Yes	38	79%
No	10	21%
<b>Do you consider the existence of the BDH-UEFS important to support academic and research activities?</b>		
Yes	48	100%
No	0	0%

<b>Do you think the existence of the BDH-UEFS is relevant to reducing the illegal trade in teeth?</b>		
Yes	48	100%
No	0	0%

Source: Own

Table 3 – Percentage distribution of the teaching population studied according to the knowledge about the aspects of acquiring and handling human teeth, UEFS, Feira de Santana, 2022

<b>Variable</b>	<b>n (48)</b>	<b>%</b>
<b>Is it recommended for teachers to purchase teeth with the BDH-UEFS?</b>		
Yes	38	79.2%
No	1	2.1%
No teeth acquisition was requested.	9	18.8
<b>Did you have difficulty obtaining teeth?</b>		
Yes	14	29.1%
No	26	54.2%
No teeth acquisition was requested.	8	16.7%
<b>Did you use Personal Protective Equipment to handle the teeth in question?</b>		
Yes	39	81.2%
No	3	6.3%
No teeth acquisition was requested.	6	12.5%
<b>Have you ever acquired teeth in any way other than through the BDH?</b>		
Yes	31	64.6%
No	11	22.9%%

No teeth acquisition was requested. 6 12.5%

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Source: Own

The questionnaire administered to the students included an open question directed at those who answered “yes” to the question “Have you ever acquired teeth in any way other than through of the BDH”. The question sought to know whether the obtained teeth had undergone any process sterilization and/or disinfection. Students reported that the acquisition occurred, in their most, through dental surgeons. Regarding dental treatment, some stated that were sterilized in an autoclave, while others mentioned disinfection methods, such as immersion in sodium hypochlorite and washing with enzymatic detergent.

One of the students also reported acquisition through the purchase of dental units already sterile. This reality corroborates the study by Felipe *et al.* (2014) that evaluated the origin of human teeth used in laboratories by Dentistry students at University of Southern Santa Catarina. 182 students participated in the survey, 11% said have already purchased extracted human teeth, with 4.7% having made the purchase with others students, highlighting the presence of illegal trade in dental organs in other educational institutions.

Another important factor is that only 47.9% of students said they had already done tooth donations to the BDH-UEFS. This fact is noteworthy, since tooth banks depend directly on the donation received to maintain their stock available for loan. In addition, UEFS has outpatient clinics to care for patients who can receive various dental treatments, including the extraction of teeth. It is worth noting that all students who participated in the research had already completed some tooth extraction in university clinics, however, according to the data, not all teeth were donated to BDH-UEFS, and may have been disposed of incorrectly.

Of the students participating in this research, 81.2% stated that they used personal protective equipment (PPE) when handling extracted human teeth. In comparison, the study by Hashemipour *et al.* (2013), with 100 Iranian students, presented superior results: 97% considered the use of gloves essential, 96% recognized the need for glasses protective clothing and a lab coat, and 95% said the mask was essential. The data indicate that,

although most adopt PPE, there is room for improvement in compliance with safety standards biosafety among the students evaluated in this study.

Although the data proves that teachers and students know about the existence of BDH-UEFS, the analysis of the results allowed the perception that it is necessary to deepen the content that is produced and disseminated, exploring other ways of reaching the public-target. As Endo *et al.* (2017) point out, the BDH needs to expand its participation in congresses and lectures, educational activities, social networks, as well as explanatory folders encouraging tooth donations, always highlighting the cultural, social and bioethical importance of their existence. All these actions tend to minimize the main findings of this study, highlighting the perpetuation of the illegal purchase of dental units, the incorrect handling of the elements dental, the need to encourage compliance with bioethics and biosafety standards.

## FINAL CONSIDERATIONS

The present study revealed the need to emphasize the importance of the existence of tooth banks for the Higher Education Institution, and the subsidy offered for the realization of the proposed laboratory activities, as well as their relevance to combating trade illegal use of teeth and incorrect handling of dental units.

The BDH-UEFS has been implemented for thirteen years as an extension activity, resolution CONSEPE 100/2009, and five years as a research activity, CONSEPE resolution No. 123/2018, strengthening the principle of the inseparability of teaching, research and extension.

During the research, it was found that many teachers had doubts about the donation and loan processes of dental units by BDH-UEFS. This fact highlights the need to improve communication between teachers and the BDH-UEFS. Consequently, the educational role played by the BDH-UEFS must remain constant and be expanded, through different means of dissemination, in order to ensure that knowledge about the illegality and biological risks of acquiring teeth through another source other than the BDH is disseminated. In this way, it will be possible to make the relationship between the body teacher and student more harmonious and in line with the BDH.

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