

Knowledge of dentistry's students on traumatism in deciduous teeth

Conhecimento dos acadêmicos de odontologia sobre traumatismos em dentes decíduos

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RESUMO | INTRODUÇÃO: O trauma dentário é o conjunto de impactos que afeta os dentes e suas estruturas de suporte desde fratura em esmalte até a perda definitiva do elemento dentário. Entre os principais fatores etiológicos de traumatismo dentário na infância encontram-se as práticas desportivas, acidentes automobilísticos, atividades pertinentes à infância, agressões e fatores predisponentes individuais. O prognóstico das lesões traumáticas é influenciado pelo tipo e gravidade da lesão, intervalo de tempo entre o episódio do trauma e o tratamento inicial. **OBJETIVO:** Analisar o conhecimento dos acadêmicos de odontologia de uma instituição de ensino superior sobre trauma dentário em dentes decíduos. **MATERIAIS E MÉTODOS:** Trata-se de uma pesquisa transversal. Os dados foram coletados através da aplicação de um questionário, com perguntas sobre conhecimento em trauma dental e a conduta frente a situações de traumatismo dentário, realizado com alunos que cursaram a disciplina de Clínica Integrada Infantil I, II e III. Foi realizada análise descritiva dos dados e aplicado o Teste de Tendência Linear, considerando valor de $p < 0,05$. **RESULTADOS:** Observou-se um baixo nível de conhecimento dos acadêmicos sobre o tema abordado, apenas 8% acertaram todas as questões, com a menor quantidade de acertos em casos de subluxação (37,3% de acertos) e avulsão (41,2% de acertos). Não houve associação do período com nível de conhecimento (valor de $p > 0,05$). **CONCLUSÃO:** O conhecimento dos alunos sobre traumatismo dentário é baixo, principalmente sobre tratamento de casos de trauma como subluxação e avulsão.

PALAVRAS-CHAVE: Conhecimento. Traumatismo dentário. Odontopediatria.

ABSTRACT | INTRODUCTION: Dental trauma is the set of impacts that affect the teeth and their supporting structures from enamel fracture to the definitive loss of the dental element. Among the main etiological factors of childhood dental trauma are sports practices, car accidents, child-related activities, aggressions and individual predisposing factors. The prognosis of traumatic lesions is influenced by the type and severity of the injury, the time interval between the trauma episode and the initial treatment. **OBJECTIVE:** To analyze the knowledge of dentistry academics of a higher education institution on dental trauma in primary teeth. **MATERIAL AND METHODS:** This is a transversal research. The data were collected through the application of a questionnaire, with questions about knowledge in dental trauma and the conduct of dental trauma, carried out with students who attended the discipline of Integrated Children's Clinic I, II and III. A descriptive analysis of the data was performed and the Linear Trend Test was applied, considering p value < 0.05 . **RESULTS:** A low level of academic knowledge about the subject was observed, only 8% answered all questions, with the least amount of correct answers in cases of subluxation (37.3% of correct answers) and avulsion (41.2% of correct answers). There was no association of the period with level of knowledge (p value > 0.05). **CONCLUSION:** The students' knowledge about dental trauma is low, mainly in the treatment of cases of trauma, such as subluxation and avulsion.

KEYWORDS: Knowledge. Tooth injuries. Pediatric dentistry.

Introduction

Traumatic injuries are highly prevalent among lesions that affect the oral tissues. Tooth injury is considered any thermal, chemical, or physical injury affecting a tooth. Dental trauma interferes with the quality of life of affected individuals, whether due to speech problems or aesthetic impairment, factors that can lead to psychological and social problems¹. The extent and complexity of traumatic injuries are known to depend on the nature, intensity, and characteristics of the tooth involved².

Traumatic injuries to the supporting tissues are involved in most injuries to deciduous dentition, as there is a high prevalence of dental dislocations due to the higher resilience of the alveolar bone in young children and the smaller, cuneiform root anatomy. Some of these have few signs and symptoms, such as subluxation and lateral dislocation. Intrusive, extrusive, and avulsion dislocations are considered more serious injuries. Lesions of bone structures are characterized by rupture or fractures of the alveolar walls, alveolar process, mandibular fracture, and maxillary fracture³.

Dental trauma accounts for about 5% of all injuries leading to outpatient or hospital treatment, with the sixth most frequently affected oral region of the body, especially at the age of 0 to 6 years⁴. Therefore, because cases of dental trauma to deciduous teeth are very frequent, it is essential that the dental surgeon be able to attend to these cases in order to give peace of mind to patients and their family members⁵.

Thus, it is important that dental professionals are evaluated regarding their behavior in the face of dental trauma in order to identify the main deficiencies related to this issue, so that it is possible to develop strategies to improve professionals' knowledge in these cases⁶. In this context, the general objective of this study was to identify the knowledge of dental students of a higher education institution (HEI) about dental trauma in primary teeth. In addition, the objective was to verify students' knowledge about dental injuries correlating with the type of trauma in

order to characterize socioeconomic variables and to identify the period of the course in which students have the highest level of knowledge on the subject.

Material and Method

Ethical Procedures

The study was developed in accordance with the requirements of National Health Council Resolutions No. 466/2012 and No. 510/2016, which deal with research on human beings, keeping confidential information that may identify the research participants.

The research was submitted to the FACID/Wyden Research Ethics Committee (CEP) via Plataforma Brasil and obtained a favorable opinion of No. 67049317.8.0000.5211. Data were collected after CEP approval. The participants were duly informed of the research and signed two copies of an informed consent form (FICF).

There was minimal risk with the development of the research related to the embarrassment of the participants for not knowing how to answer the questions. To minimize this risk, the questionnaire was applied individually.

Research Method

This is a cross-sectional study with a quantitative and descriptive approach to objectives.

Scenario and Study Participants

Teresina is the capital of Piauí. It has five colleges of dentistry, one federal public college, and four private universities. The research was conducted in a private HEI in Teresina-PI. The sample consisted of a census type composed of 102 students from the 8th, 9th, and 10th period, who were attending Integrated Child Clinic I (n = 50), II (n = 42), or III (n = 41) (Table 1).

Data Collection

Data were collected between February and March 2018 through the application of a structured and standardized questionnaire prepared by the researchers in a Teresina HEI, based on The Management of Traumatic Dental Injuries Guide: 3. Injuries in the Primary Dentition, published by the International Association for Dental Traumatology (IADT), with questions about knowledge of dental trauma and treatment regarding dental trauma situations⁷.

Students were approached individually; no time to answer the questionnaire was established. The questionnaires were administered by a single person at the students' own educational institution.

Data Organization and Analysis

Data were analyzed using Statistical Package for Social Sciences (R) (SPSS (R), Chicago, IL, USA), Version 20.0.

Descriptive data analysis was performed, presenting frequencies and percentages. The linear trend test was performed to associate dependent variables with independent variables. Values of $p < 0.05$ were considered significant.

Results

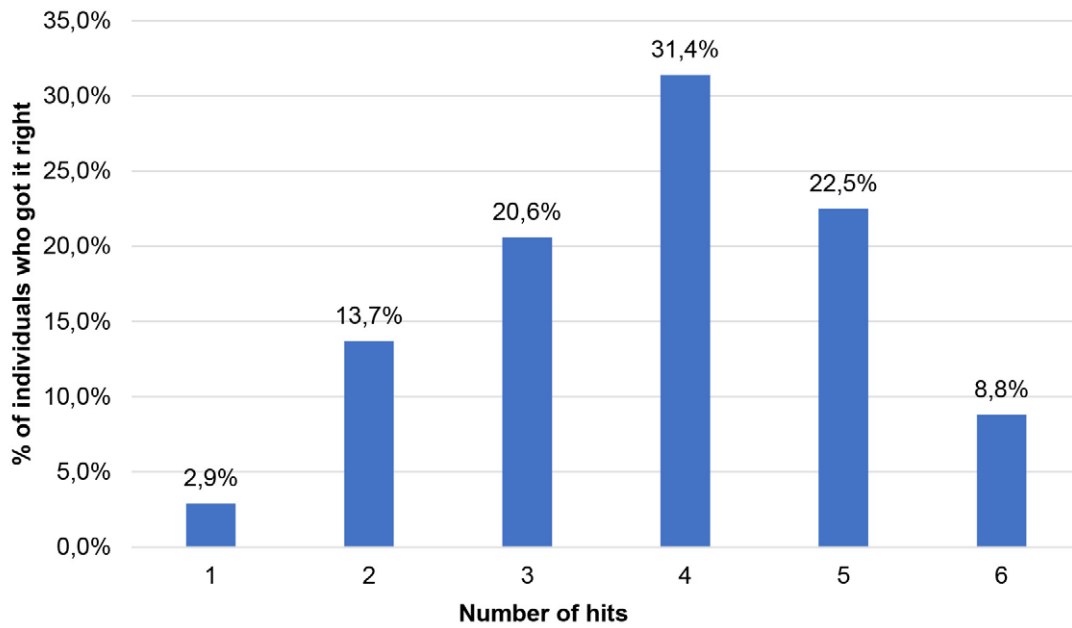
This study was conducted with 102 students. All guests (100.0%) agreed to participate in the research. Table 1 presents the sociodemographic profile of the participants. According to the results obtained, 62.7% of the students who attend the last three periods of the dentistry course are women, have family income between three and four minimum wages (51%), attend the 8th period (36.3%), and are 22 years old (32.4%), with a minimum of 19 years and a maximum of 38 years.

Table 1. Socioeconomic description of dental students from the 8th to the 10th period (n = 102)

		n	%
Sex	Male	38	37.3
	Female	64	62.7
Income	1 A 2 SM	9	8.8
	3 A 4 SM	52	51.0
	≥5 SM	41	40.2
Period	8	37	36.3
	9	35	34.3
	10	30	29.4
	19	1	1.0
	20	9	8.8
Age (years)	21	22	21.6
	22	33	32.4
	23	15	14.7
	24	12	11.8
	≥25 years	10	9.8
	Total	102	100.0

Graph 1 shows the level of knowledge about primary teeth dental trauma obtained by academics who have already attended or are attending the integrated children's clinic discipline. According to the data obtained, only 8.8% of the students have full knowledge about dental trauma in primary teeth, and 2.9% of the students answered only one question on the subject.

Graph 1. Percentage of students who correctly answered the questions about dental trauma in primary teeth



The students' levels of correctness considering the subject addressed in each question are shown in Graph 2. Among the subjects covered, subluxation and avulsion had a lower frequency of knowledge of 37.3% and 41.2%, respectively.

Graph 2. Percentage of dental students who gave the correct answers about dental trauma in primary teeth, distributed by question

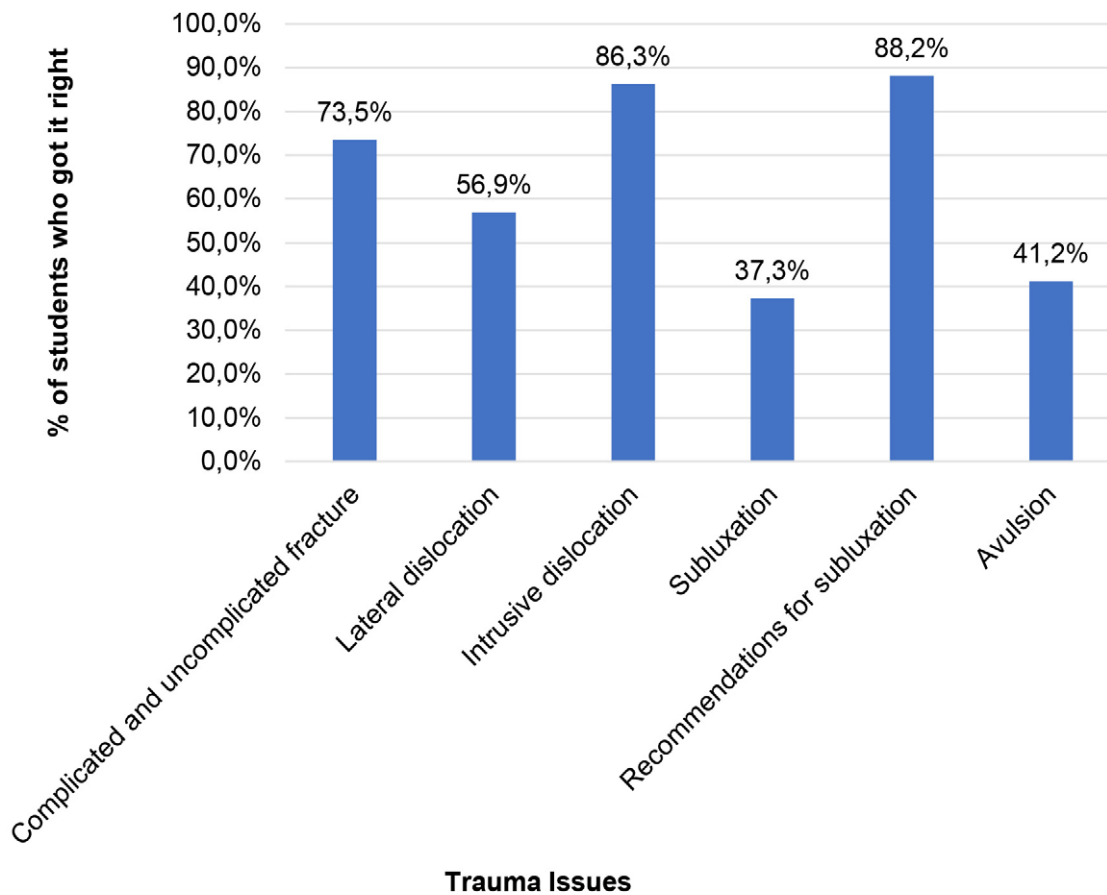


Table 2 displays the presence of association between questions answered correctly with the variables gender, income, and period of the students participating in the research. According to the results identified in the study of the students who answered all the questions about dental trauma in primary teeth, 66.7% were from the 8th period, 55.6% had a family income greater than or equal to five minimum wages, and 66.7% of the students were female. However, there was no association between number of right questions about primary teeth dental trauma and gender, income, or period (p value > 0.05).

Table 2. Association between number of right answers about dental trauma of primary teeth and gender, income, and period (n = 102)

	Total of right answers						p-value *
	1	2	3	4	5	6	
Sex							
Male	2 66.7%	5 35.7%	7 33.3%	13 40.6%	8 34.8%	3 33.3%	0.686
Female	1 33.3%	9 64.3%	14 66.7%	19 59.4%	15 65.2%	6 66.7%	
Family income							
1 A 2 MW	0 0.0%	1 7.1%	3 14.3%	4 12.5%	0 0.0%	1 11.1%	0.532
3 A 4 MW	1 33.3%	10 71.4%	8 38.1%	16 50.0%	14 60.9%	3 33.3%	
≥5 MW	2 66.7%	3 21.4%	10 47.6%	12 37.5%	9 39.1%	5 55.6%	
Period							
8	1 33.3%	4 28.6%	7 33.3%	10 31.2%	9 39.1%	6 66.7%	0.244
9	1 33.3%	6 42.9%	7 33.3%	13 40.6%	6 26.1%	2 22.2%	
10	1 33.3%	4 28.6%	7 33.3%	9 28.1%	8 34.8%	1 11.1%	
Total	3 100.0%	14 100.0%	21 100.0%	32 100.0%	23 100.0%	9 100.0%	

MW=minimum wage

* linear trend test

Discussion

The study was developed in HEI with students from the last periods of the dentistry course. According to the results, there was a higher frequency of female participants, family income between three and four salaries, and participants who are 22 years of age.

Corroborating the results, in a study by Ferraz et al. (2018), which deals with the profile of students of the dentistry course, most are female (54%), and the predominant age group was between 20 and 30 years (60%)⁸. Regarding the socioeconomic status of the students' families, similar results were found by Querino et al. (2018), in which most of the families analyzed earn between three and five minimum wages (41.6%)⁹.

Dentistry has historically been characterized as a typically male profession. However, it has been argued that dentistry is undergoing a growing process of feminization, which usually refers to the growth of the female population in some professions that were historically performed by men, such as medicine and dentistry.¹⁰ Knowing the professional profile guides changes in the profession, new trends and needs in the labor market, and future decisions of course managers⁸.

This study found that knowledge about dental trauma in primary teeth was low, because few students answered all the questions correctly. A similar study, but conducted with dentists, showed a low level of knowledge regarding the urgent treatment of dental trauma injuries. According to the author, this can be explained because the traditional dental curriculum presents limited opportunities for students to evaluate and treat patients with dental trauma. As a result of this lack of exposure, most dentists are poorly prepared to manage dental trauma⁶.

The treatment of traumatic dental injury can be relatively complex and often requires different dental specialties. Such injuries are considered a serious public health problem due to the high prevalence rate among children (32.9%) and adolescents (28.2%) and their impact on oral health-related quality of life (35.5% and 34.9%, respectively)¹¹.

Deciduous teeth play an important role in proper alignment, spacing, and occlusion of permanent teeth¹². The prognosis of traumatic injuries is influenced by the type and severity of the injury, as well as the time interval between the trauma episode and the initial treatment. Injuries should be treated immediately to avoid pain and future complications. The dentist and parents should be aware of the importance of clinical and radiographic follow-up of dental trauma^{13,14}. Thus, it is a challenge for the professional who needs to have adequate patient management and technical-scientific knowledge to make a correct diagnosis in order to plan correct and effective treatment¹³.

Therefore, the knowledge deficiency observed in the students who participated in the study can be considered a problem, since dental trauma is a situation of dental urgency and requires knowledge on the part of the professional. It is essential to implement measures that improve training of academics about dental trauma.

The students' level of success considering the subject was considered low for the subluxation and avulsion themes and high for intrusive dislocation. A possible explanation for this result would be the students' confusion between the protocols of treatment of

avulsion and subluxation of primary teeth by the permanent teeth protocol. Avulsion treatment consists in not re-implanting the deciduous tooth due to the possibility of permanent tooth injury and prosthetic rehabilitation. For subluxation, dietary orientation should be performed, so that the use of pacifiers and bottles should be restricted, and in the case of marked mobility, flexible or semi-rigid restraint should be used for 10 to 14 days⁷.

In this study, there was no association between the number of right questions about primary teeth dental trauma and gender, income, or period (p value > 0.05). However, among the students who answered all the questions about dental trauma in primary teeth, the highest frequency was found in the 8th period, among those who had a family income greater than or equal to five minimum wages, and among females.

The subject of primary teeth trauma is seen as the last content in the 7th period. The trauma content of primary teeth in other periods takes a seminar form, also at the end of the semester. The questionnaire was applied shortly after the 8th grade students saw the 7th grade content. Thus, this may have been a reason for the higher frequency of students answering all questions in the 8th period.

According to Buldur and Kapdan (2018), the level of knowledge of dentists varies according to the type of traumatic dental injury. Dentists' low level of knowledge about dental trauma indicates the need for continuing education programs for professionals in this area¹⁵. As the management of traumatic injuries is important and knowledge on this subject is constantly changing, proper planning is necessary to update the knowledge of general dentists on the subject³.

The presence of professionals trained in traumatic dental injuries in institutions and polyclinics that provide emergency treatment services can improve the treatment prognosis, providing immediate and correct intervention to traumatized teeth¹⁵. The failure rate in treating simple crown fractures is a cause for concern because these are generally considered minor dental injuries. It is important that all tissues surrounding the trauma be examined (not

just the dental fracture) so that future complications do not occur.¹⁶ Decisions on the optimal treatment for each child require knowledge about the chance of cure and the risk of subsequent complications¹⁷. Dental socket trauma in the deciduous dentition may lead to problems in the developing permanent successive dentition, besides having serious consequences, since there is an intimate anatomical relationship between the apexes of the deciduous teeth and the germs of the permanent ones¹⁸.

From the data found in the study, it may be suggested that measures be taken to improve student empowerment, such as the implementation of more classes, the use of active classroom methodologies, and broader practices that inspire the student about the importance of their knowledge about the proper management of dental trauma in children and adolescents, as the subject is approached in the form of seminars and reading of scientific articles.

Conclusion

General knowledge about deciduous tooth trauma had a low prevalence of correct answers. The subjects of avulsion and subluxation had lesser knowledge. There was no difference in the level of knowledge among the 8th, 9th, and 10th periods.

Author contributions

GS Peres and JVBC Melo performed the literature review and data analysis and wrote the article. EMM Andrade conducted the analysis and discussion of the results. DN Nogueira and MRS Cruz created the study design and performed the results analysis and the critical evaluation. NB Dantas-Neta created the study design and carried out the analysis and discussion of the results, critical evaluation, and work orientation.

Competing interests

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

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