

# The development of a dental trauma application in Portuguese Language

Beatriz Silva de Souza,<sup>1</sup> Aryane Mayara Ferreira Ribeiro,<sup>1</sup> Carolina Oliveira de Lima,<sup>2</sup> Emmanuel João Nogueira Leal da Silva<sup>1,2</sup>

<sup>1</sup>Department of Endodontics, School of Dentistry, Grande Rio University (UNIGRANRIO), Rio de Janeiro, RJ, Brazil

<sup>2</sup>Department of Endodontics, School of Dentistry, State University of Rio de Janeiro (UERJ), Rio de Janeiro, RJ, Brazil

• Conflicts of interest: none declared.

## Dear editor,

**T**raumatic dental injuries (TDIs) occur frequently in children of pre-school, school age and young adults and account for 5% of all injuries leading to inpatient or outpatient treatment and that the oral region is the sixth most frequently injured part of the body.<sup>1,2</sup> A literature review reports that 25% of all school-age children suffered some kind of dental trauma and that 33% of adults suffered permanent dentition trauma, with most of these injuries occurring before 19 years old.<sup>3</sup> Dislocations are the most common TDIs in the deciduous dentition, while coronary fractures are most commonly reported in the permanent dentition.<sup>1,4,5</sup> TDIs represent a challenge for clinicians worldwide. Consequently, adequate diagnosis, treatment plan and follow-up are essential to ensure a favorable prognosis.

The present guidelines of the International Association of Dental Traumatology (IADT) represent an updated set of guidelines, based on the original guidelines published in 2007.<sup>6-8</sup> The update was performed based on a literature review using the EMBASE, MEDLINE and PUBMED databases with searches between the 1996-2011 periods, as well as a survey of the contents of the Dental Traumatology journal of the 2000-2011 periods. These guidelines should assist dentists, other health care professionals, and patients in the decision-making process. Also, they are credible, practical and easy to understand, in order to provide the most efficient and effective service possible.

The main objective of these guidelines is to outline an approach for the immediate or urgent care of TDIs. It is understood that subsequent treatment of TDIs may require secondary and tertiary interventions involving specialized consultations, services, and/or materials/methods not always available during primary care. However, these guidelines is often difficult to access and understand, even for dentists and other health professionals. Historically, audiovisual methods such as educational posters have been suggested as a clear, accessible and low-cost method to improve the knowledge of dental trauma.<sup>9</sup> However, access to information is now reaching new heights and the use of software

applications (apps) in smartphones has been indicated as an useful tool to increase dental trauma knowledge and management.<sup>10,11</sup> Nonetheless, most of these dental trauma apps are available only in English language which makes it unfeasible for users not familiar with the language.

The aim of the present study was to develop a software application using an open source platform with data related to dental trauma and its treatment for dentists, health professionals and general public in Portuguese language.

## The Dental Trauma app

The Trauma Dental app was developed natively for both iOS and Android operating systems by a multidisciplinary team. To create the app, a didactic plan related to bibliographic data search, mainly using the Dental Trauma Guidelines,<sup>12-14</sup> was determined. Software development was performed using the open source platform “Fábrica de Aplicativos” (<https://fabricadeaplicativos.com.br/>) (Figure 1). The app functions as a self-contained tool to provide dental trauma and emergency conduct to both dentists and patients (Figure 2) and may be used by either novice or experienced users. The app has icons with all possible trauma categories under primary and permanent dentition (Figure 3). Additionally, the app contains information regarding how to prevent dental trauma. Also, the app include an email for feedback and support where users are permitted to provide suggestions for app improvements, report bugs, and request technical assistance.

## Discussion

Management of traumatic dental injuries it is complex due many variables involved as combination injuries and interval between dental trauma and the onset of endodontic intervention.<sup>7</sup> Correct diagnosis and appropriate initial treatment is a critical factor in predicting the long-term prognosis.<sup>12</sup> So, dentists should know about the type of trauma and appropriate treatment.<sup>9</sup>

Applications have become an important element of smartphones and tablets since their emergence in 2008<sup>15</sup> and it has been used by dentists and other healthcare workers as part

of their professional practice like a diagnostic tool.<sup>16</sup> These applications can improve the quality of care, specifically in remote areas without access to providers and create opportunities to integrate technology into daily clinical practice.<sup>17</sup>

The use of software applications like “Trauma Dental” facilitates in differential diagnosis and initial treatment of dental trauma<sup>10</sup> and has portability, cost effective, and it is easily available, because dentists can download it at smart-

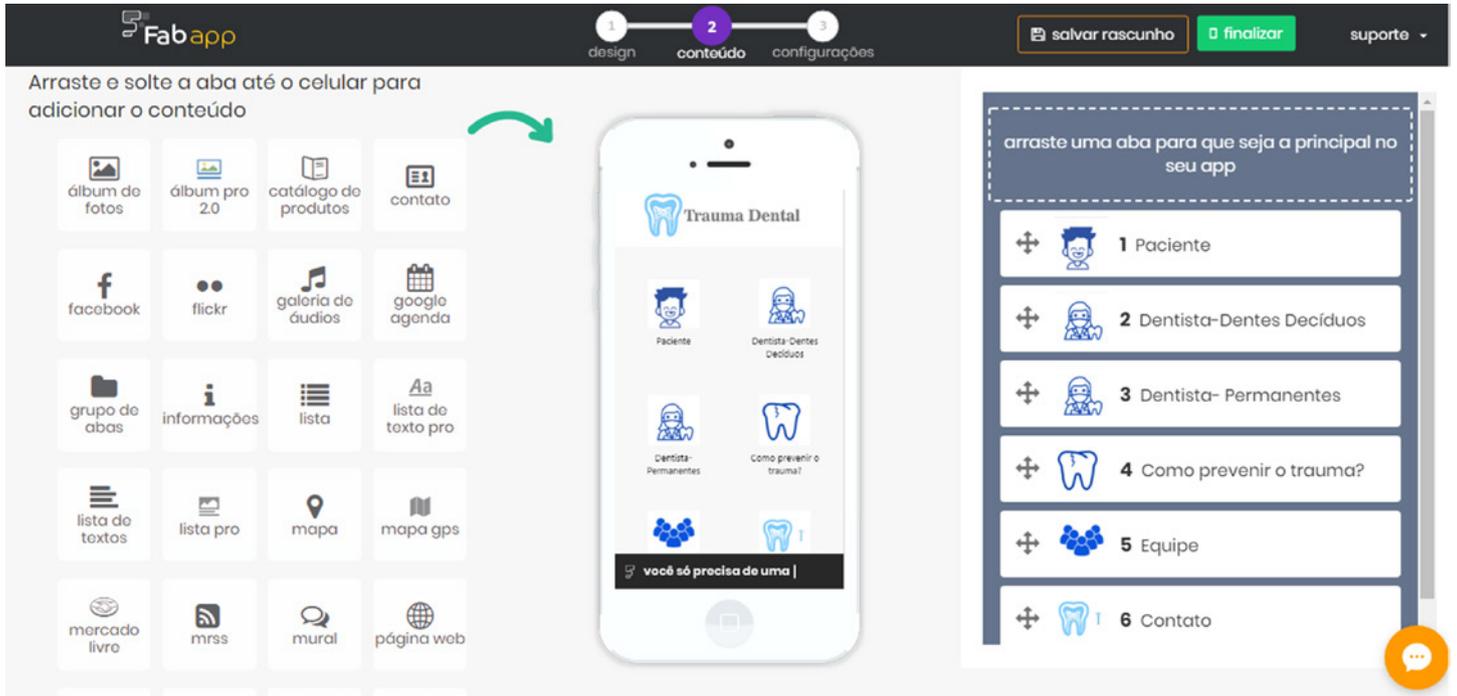
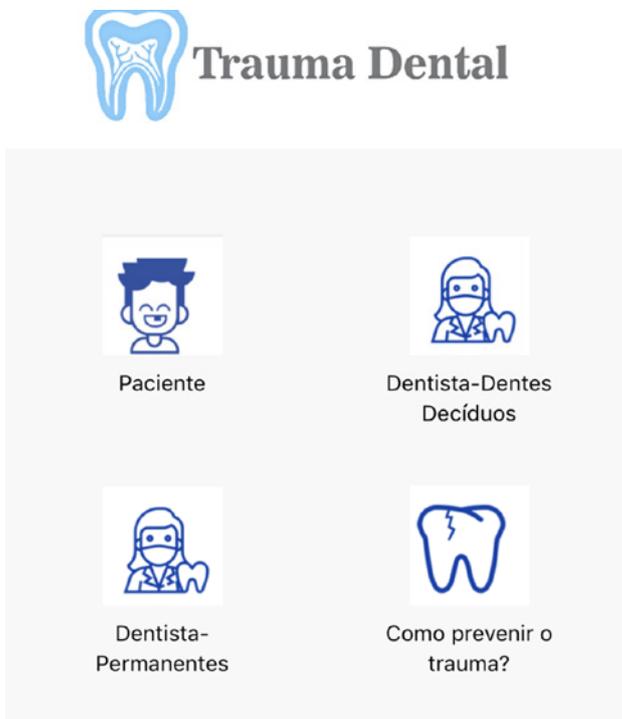


Figure 1. Interface of open source platform “Fábrica de Aplicativos”



[www.fabricadeaplicativos.com.br](http://www.fabricadeaplicativos.com.br)

Figure 2. Interface of application “Trauma Dental” and the functions available to the patient and dentists in primary and permanent dentition trauma

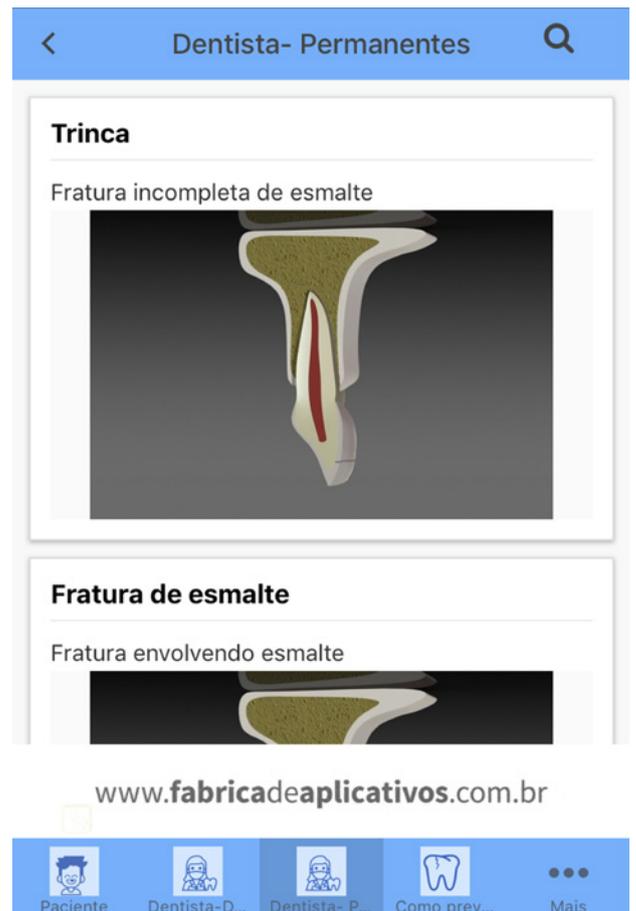


Figure 3. Application icons with all possible trauma categories

phones.<sup>18</sup> Some studies evaluated the effectiveness of different apps in correct diagnosis of dental trauma and verified that apps are effective in assisting the diagnosis of dental trauma.<sup>10,11,18,19</sup>

There are many applications in English language available for both patients and dentists in the emergency management of traumatic dental injuries - like Trauma First Aid, Dental Crown Repair i.e.,<sup>18</sup> however applications following the Dental Trauma Guidelines,<sup>12-14</sup> in Portuguese language are limited.

The Portuguese language is spoken by 263 million people, which represents 3.7% of the world population and it is considered the 4th most spoken language in the world.<sup>20</sup> In

addition, the prevalence rate of dental trauma in Brazilian population varied from 7.2% to 58.6%.<sup>21-23</sup> Due to the high prevalence of trauma in the Brazilian population and the large number of Portuguese speakers, the development of “Trauma Dental” application, in Portuguese language, it will facilitates access to information on diagnosis and treatment of dental trauma for the general public, dentists and people from different countries who speak the Portuguese language.

## Acknowledgements

The authors deny any conflicts of interest related to this study.

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## Mini Curriculum and Author's Contribution

1. Beatriz Silva de Souza – DDS. Contribution: development of application software. ORCID: 0000-0002-5924-5649
2. Aryane Mayara Ferreira Ribeiro – DDS. Contribution: development of application software. ORCID: 0000-0002-2300-0156
3. Carolina Oliveira de Lima – DDS; MSc. Contribution: write the manuscript. ORCID: 0000-0003-2132-4373
4. Emmanuel João Nogueira Leal da Silva – DDS; PhD. Contribution: idea, hypothesis, proofread the manuscript and final approval of the version to be published. ORCID: 0000-0002-6445-8243

Submitted: 02/19/2019 / Accepted for publication: 05/19/2019

### Corresponding Author

Emmanuel João Nogueira Leal da Silva

E-mail: nogueiraemmanuel@hotmail.com