

Dental trauma education in undergraduate dental curricula: a scoping review

INPLASY2026100077

doi: 10.37766/inplasy2026.10.0077

Received: 16 October 2026

Published: 16 October 2026

Nascimento, FA; Ferreira, RT; Canellas, JVS; Stefani, CM; Rezende, LVML; Parizo, ÍCA; Garcia, FCP.

Corresponding author:

Fabrício Almeida do Nascimento

fabricio.odo@gmail.com

Author Affiliation:

Universidade de Brasília.

ADMINISTRATIVE INFORMATION**Support** - No support.**Review Stage at time of this submission** - Preliminary searches.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY2026100077**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 October 2026 and was last updated on 16 October 2026.**INTRODUCTION**

Review question / Objective How is dental trauma education structured within undergraduate dental curricula worldwide?

Background Traumatic dental injuries (TDIs) represent a significant public health concern due to their high prevalence and potential long-term biological, functional, aesthetic, psychological, and socioeconomic consequences. Effective management requires timely diagnosis, appropriate treatment, and long-term follow-up, highlighting the importance of undergraduate dental education in preparing future dentists to manage these conditions according to evidence-based recommendations. However, previous studies have reported deficiencies in dental students' and practitioners' knowledge, confidence, and preparedness regarding dental trauma management. These shortcomings may be associated with inconsistencies in undergraduate curricula, including limited instructional hours, fragmented content across dental disciplines,

insufficient simulation-based and clinical training, and a lack of standardized assessment strategies. Furthermore, considerable variation exists among dental schools and countries regarding curricular integration, teaching methodologies, assessment methods, and opportunities for clinical exposure to traumatic dental injuries. Although national surveys and international studies have investigated specific aspects of dental trauma education, the available evidence remains dispersed across educational systems, institutional contexts, and study designs. To date, a comprehensive synthesis mapping the structure and characteristics of undergraduate dental trauma education worldwide is lacking. Therefore, a scoping review is warranted to systematically map the available evidence, characterize current educational practices, identify curricular gaps, and explore reported challenges and innovations. This review may contribute to a better understanding of how dental trauma education is organized internationally and inform future curriculum development, educational research, and the improvement of undergraduate dental training.

Rationale Although dental trauma management is recognized as an essential competency for general dentists, the way in which this content is incorporated into undergraduate dental curricula remains highly heterogeneous. Existing studies have demonstrated substantial variation in curriculum integration, instructional time, educational methodologies, assessment strategies, simulation-based learning, and opportunities for clinical exposure to traumatic dental injuries. Furthermore, dental trauma education is frequently distributed across multiple disciplines without coordinated curricular integration, resulting in fragmented educational experiences and inconsistent competency development among dental graduates (KIANI; ABBOTT; LEVIN, 2023; O'CONNELL; OLEGÁRIO, 2024; BERLIN-BRONER; KIANI; LEVIN, 2025).

Recent national and international surveys have provided valuable insights into undergraduate dental trauma education in specific educational settings. However, the available evidence remains dispersed across countries, institutions, and educational systems, encompassing diverse study designs, curricular models, educational interventions, and outcome measures. To date, no scoping review has comprehensively mapped this body of evidence to identify how dental trauma education is currently structured worldwide, characterize existing educational approaches, summarize curricular components, and identify knowledge gaps that may guide future educational research and curriculum development.

According to the Joanna Briggs Institute, scoping reviews are particularly appropriate when the objective is to systematically map the available evidence, clarify key concepts, examine how research has been conducted, identify knowledge gaps, and inform future research agendas in areas characterized by heterogeneous evidence (PETERS et al., 2024). Given the diversity of educational contexts and methodologies identified in the literature, a scoping review represents the most appropriate methodological approach to comprehensively describe the current landscape of undergraduate dental trauma education without restricting the synthesis to specific study designs or outcomes.

The findings of this review are expected to provide a comprehensive overview of current educational practices, identify opportunities for curriculum improvement and standardization, and support the development of more coherent, evidence-informed, and competency-based approaches to undergraduate dental trauma education.

METHODS

Strategy of data synthesis The search strategy will follow the Joanna Briggs Institute (JBI) methodology for scoping reviews and will aim to identify published and unpublished evidence relevant to dental trauma education in undergraduate dental curricula. An initial limited search was conducted in PubMed/MEDLINE and Scopus to identify relevant articles and examine the terminology used in titles, abstracts, and indexing terms. The final search strategy will combine controlled vocabulary, including Medical Subject Headings (MeSH) and Emtree terms, with free-text terms related to the Population–Concept–Context (PCC) framework: undergraduate dental students and dental education; dental trauma, dental traumatology, and traumatic dental injuries; and curriculum, teaching, learning, assessment, simulation, and clinical training. The databases to be searched will include PubMed/MEDLINE, Embase, Scopus, Web of Science Core Collection, LILACS, and ProQuest Dissertations & Theses Global. Grey literature will be explored through Google Scholar and institutional repositories, when appropriate. The reference lists of included studies and relevant reviews will be screened, and citation tracking of key publications may also be performed to identify additional eligible sources. Search strategies will be adapted to the syntax and indexing systems of each database while maintaining the same conceptual structure. No restrictions will be applied regarding publication year, language, geographic location, or publication status. The complete search strategy developed for PubMed/MEDLINE is provided in the protocol and will serve as the basis for adaptation to the other information sources.

Eligibility criteria Studies will be eligible for inclusion if they address undergraduate dental education and provide information on the organization, delivery, implementation, evaluation, or development of dental trauma education within accredited undergraduate dental schools or higher education institutions worldwide. Eligible sources may involve undergraduate dental students, dental educators, course coordinators, curriculum developers, academic administrators, or other stakeholders involved in undergraduate dental trauma education. Studies may investigate curricular integration, disciplines responsible for teaching dental traumatology, curricular content and learning outcomes, timing and sequencing of instruction, teaching and learning methodologies, simulation-based and preclinical training, clinical exposure to traumatic dental injuries, assessment methods, educational resources, and the incorporation of evidence-based guidelines, including those of the International Association of

Dental Traumatology (IADT). Educational intervention studies will also be included when they provide information on the structure, implementation, or organization of undergraduate dental trauma education. Quantitative, qualitative, and mixed-methods studies, educational and curriculum evaluation studies, institutional curriculum reports, publicly available curriculum documents, theses, dissertations, conference proceedings, abstracts with sufficient methodological information, and relevant grey literature will be considered. No restrictions will be applied regarding country, publication year, language, or publication status.

Source of evidence screening and selection

The selection of sources of evidence will follow the Joanna Briggs Institute (JBI) methodology for scoping reviews. After the search results have been retrieved, all records will be imported into EndNote for reference management and duplicate removal, and the remaining records will be exported to Rayyan to facilitate the screening process. Before formal screening, two reviewers will independently pilot-test the eligibility criteria on a random sample of records to ensure a consistent interpretation of the inclusion and exclusion criteria. Subsequently, two reviewers will independently screen the titles and abstracts of all retrieved records. Records considered potentially eligible by either reviewer will proceed to full-text assessment, which will be conducted independently by the same reviewers. Reasons for exclusion at the full-text stage will be documented. Disagreements at either stage will be resolved through discussion and consensus; if consensus cannot be reached, a third reviewer will be consulted to make the final decision. When multiple publications report findings from the same study or educational project, they will be assessed collectively to avoid duplicate inclusion while ensuring that all relevant information is captured. The selection process will be documented and presented using a PRISMA-ScR flow diagram, reporting the numbers of records identified, screened, assessed for eligibility, included, and excluded, together with the reasons for full-text exclusions.

Data management All records retrieved through the search process will be managed using EndNote for reference organization and duplicate removal. After deduplication, the records will be exported to Rayyan for screening and selection. Screening decisions will be independently recorded by two reviewers, and disagreements will be resolved through discussion or consultation with a third reviewer when necessary. Data from

the included sources will be extracted using a standardized Microsoft Excel form developed according to the review objectives and pilot-tested before full data extraction. The form will capture bibliographic information, country, study design, population, educational setting, curricular structure, teaching methods, instructional hours, assessment strategies, educational guidelines, and the main findings and recommendations related to undergraduate dental trauma education. The extraction form may be refined during the process to accommodate relevant information identified in the included sources. Data will be organized in structured spreadsheets to facilitate descriptive analysis, evidence mapping, and narrative synthesis. No personal or identifiable participant-level data will be collected as part of this review.

Reporting results / Analysis of the evidence

The results will be presented using descriptive tables and narrative synthesis to map the available evidence on dental trauma education in undergraduate dental curricula worldwide. The included sources will be characterized according to bibliographic information, country, study design, population, and educational setting. The evidence will be mapped to describe how dental trauma education is integrated into undergraduate dental programs, including the disciplines responsible for teaching, curricular content and learning outcomes, instructional hours, teaching methodologies, simulation-based and preclinical training, clinical exposure, assessment methods, educational resources, and the use of evidence-based guidelines. Descriptive statistics will be used, where appropriate, to summarize the characteristics and distribution of the included sources. Tables and figures will be developed to illustrate the main findings and facilitate comparisons across educational contexts. A narrative synthesis will identify recurring educational approaches, similarities and differences among curricula, reported challenges, and gaps in the existing evidence. In accordance with the objectives of a scoping review, no formal critical appraisal of the methodological quality of the included sources will be conducted, as the primary aim is to map the extent, nature, and characteristics of the available evidence rather than to assess intervention effectiveness.

Presentation of the results The results will be presented in tables, figures, and a narrative summary to provide a comprehensive overview of dental trauma education in undergraduate dental curricula worldwide. Tables will summarize the characteristics of the included sources and map key educational components, including curricular

integration, disciplines responsible for instruction, content, teaching methodologies, instructional hours, preclinical and clinical training, assessment strategies, and the use of educational guidelines. Figures and charts will be used, where appropriate, to illustrate the distribution of evidence across countries, educational settings, and study characteristics. The narrative presentation will describe the main patterns identified in the evidence, highlighting similarities and differences in educational approaches, reported challenges, curricular gaps, and areas requiring further investigation. The source selection process will be illustrated using a PRISMA-ScR flow diagram. Results will be organized according to the review objectives and the Population–Concept–Context (PCC) framework to ensure a clear and systematic presentation of the mapped evidence.

Language restriction No language restrictions will be applied. Studies and other eligible sources published in any language will be considered for inclusion, provided they meet the review’s eligibility criteria.

Country(ies) involved Brazil.

Keywords Dental trauma; Dental traumatology; Dental education; Undergraduate dental education; Curriculum; Teaching methods; Clinical training; Assessment; Dental students; Scoping review.

Contributions of each author

Author 1 - Fabrício Almeida do Nascimento - First Reviewer / Corresponding author.

Email: fabricioodc@gmail.com

Author 2 - Raíssa Tabosa Ferreira - Second reviewer.

Email: dra.raissatferreira@gmail.com

Author 3 - João Victor dos Santos Canellas - Third reviewer.

Email: joao.canellas@unb.br

Author 4 - Cristine Miron Stefani - Expert.

Email: cmstefani@unb.br

Author 5 - Lílíana Vicente Melo de Lucas Rezende - SC.

Email: lilianarezende@unb.br

Author 6 - Ítalo César Alves Paraíso - Fourth reviewer.

Email: italocesaralves2010@gmail.com

Author 7 - Fernanda Cristina Pimentel Garcia - Coordinator.

Email: garciafcp@unb.br