

Oral health educational activities developed by dentists with students: a systematized literature review

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ABSTRACT

Dentists can effectively promote oral health through education. However, this is challenging in terms of ensuring effective and transformative learning attitudes and lifestyle habits. This systematized review addressed the role of the dentist as an educator capable of promoting student action while further reflecting on the professional training process in the same context. The LILACS and BBO databases were thus consulted through the *Biblioteca Virtual em Saúde* and SciELO. Searches were restricted to publications from 2009 to 2019 that were written in Portuguese and conducted in Brazil. The following search terms were used: education, childhood, oral health, and dentistry. A total of nine returned articles dealing with educational activities designed to teach oral health to schoolchildren were selected for analysis. A subsequent reflection was conducted to assess dentist qualifications according the National Curricular Guidelines on Dentistry. It was observed that educational actions were extremely important for children, with positive impacts on their lifestyles in regard to both clinical and behavioral conditions. A careful assessment was conducted regarding the elements proposed to dentists during training, including current curricular proposals aimed at expanding competencies and skills outside the clinical setting. There were positive aspects related to oral health actions in this regard. However, dentists are still expected to transpose barriers that allow greater participation in educational activities despite the current environment created by new curricular proposals, which this study found were essential for schoolchildren.

Descriptors Health Promotion. Health Education. School. Preschool Child. Oral Health. Dentist.

1 INTRODUCTION

Education and health interact in the space of actions aimed at populational quality of life. However, learning about this interaction and understanding the consequences generated by a variety of pedagogical conceptions both predominantly and over time are not sufficiently focused upon in most training programs for health professionals¹. Experience shows that it is not enough to merely convey information about the functions of the oral cavity and describe the characteristics of diseases that affect it when attempting to develop healthy public attitudes toward hygiene habits^{2,3}.

Brock *et al.*⁴ found that early childhood education plays an important mediating and facilitating role for children, who learn in playful ways based on areas of physical, emotional, social, and cognitive development. Educators therefore believe that playing can work a valuable learning tool because it produces intrinsic motivation. Learning activities thus require fun environments and interesting resources⁵.

Studies have shown that the school environment is appropriate for promoting health through both educational and preventive actions⁶⁻¹⁰. Vasconcelos *et al.*¹¹ concluded that oral-health education should be available at school, where children are socially oriented and established as citizens.

On December 5, 2007, the *Programa Saúde na Escola* - School Health Program (SHP) was instituted to promote the integral formation of students in the public basic education network through prevention, promotion, and health care actions¹². The lines of action regarding oral health within the SHP include the oral health assessment, which is annually conducted to identify vulnerabilities that require specific care. From there, clinical actions are planned in conjunction with the health team. Education and health promotion should also be conducted with the school as

they are indispensable components for dentists and teachers¹². There are notes in the literature informing teachers to continue education under the “oral health” theme^{13,14}.

National Oral Health Policy (NOHP) guidelines stipulate that the pedagogical contents of oral health education should be integrated with several other areas of education by conducting debates, workshops, theater productions, and other elements¹⁵. The National Curriculum Guidelines (NCG) for undergraduate dentistry education further state that dental surgeons must be endowed with healthcare competencies and skills at both the individual and collective levels to ensure proper dental-care related decision-making, accessible and reliable communication, staff leadership, the administration and management of human, physical, material, and information resources, and continuing education¹⁶.

Health professionals who desire teaching success must be willing and relatable to their target audience when motivating and driving change. In this context, interest and curiosity facilitate the acquisition of positive health behaviors. However, dentists may not feel prepared to practice early childhood education or child management. The challenge is to creatively optimize restricted resources, thus successfully informing and engaging in teamwork with professionals working in other areas.

This systematized review therefore evaluated the educational activities in oral health conducted by dental surgeons with students in order to determine how these practices are handled in the professional training process.

2 METHODOLOGY

Related literature was systematically reviewed by searching the *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LILACS) and *Bibliografia Brasileira de*

Odontologia (BBO) electronic databases via the *Biblioteca Virtual em Saúde* (BVS) and Scientific Electronic Library Online (SciELO). Search criteria (i.e., filters) were established to retrieve articles published between January 2009 and December 2019 that were written in Portuguese and conducted in Brazil. The employed search terms were education, child, oral health, and dentistry. These were combined using the Boolean operator “AND” so that all were present in the results. Given that oral health was present as a theme, articles that included school-based educational activities designed to teach oral health to children were then selected and analyzed regardless of their age, study design, and which professionals performed the described activities. Only one author compiled this article collection. However, the selection and evaluation processes were conducted by two authors who were familiar with the subject.

Author/year data, survey samples, employed educational strategies, and results achieved (e.g., the impacts on clinical, behavioral, and self-perception aspects) were

then compiled. Two authors independently conducted this step. A third author arbitrated the tie-breaking process in cases of disagreement, thus establishing a consensus. Items were then grouped and descriptively analyzed.

A reflection component was then conducted to determine the nature of professional training according to the scope of the NCG concerning dentistry courses.

3 RESULTS

A total of 63 articles (57 in the BVS and six in SciELO) were returned through the search. However, nine were excluded due to duplicate titles. After reading through the titles, another three articles were excluded because they were revisions, while 34 were excluded because they were not related to the study theme.

The abstracts of the remaining 17 articles were then read. At this time, eight articles were excluded because they did not meet the inclusion criteria. The nine remaining articles were then read in full and included in the final analysis (figure 1).

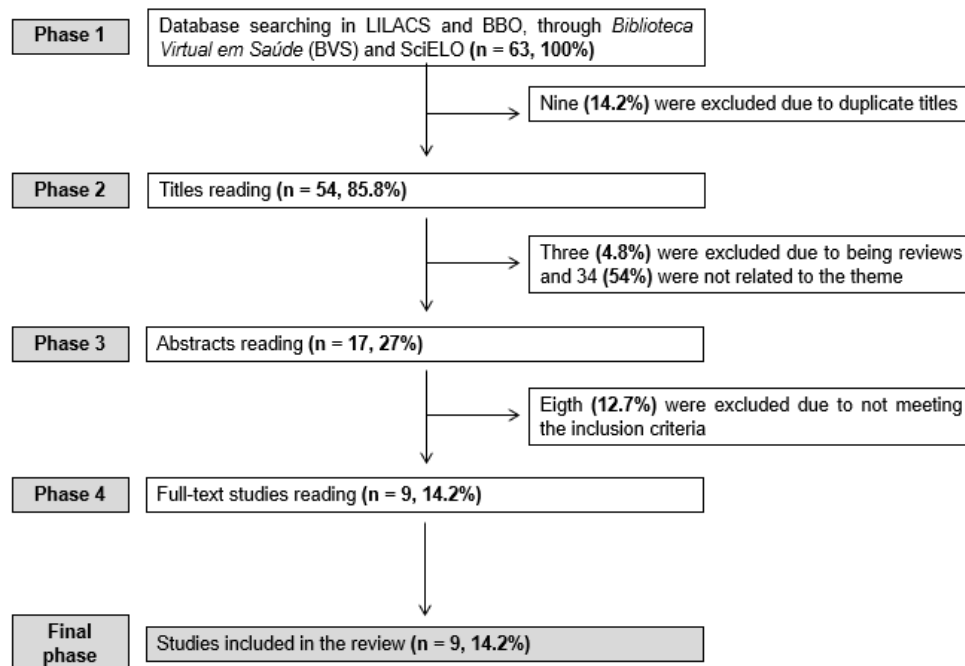


Figure 1. Search, selection, inclusion, and exclusion of studies during the systematic literature review

The articles selected and included for analysis are shown in table 1, which also presents a summary of their main aspects (year, sample, educational strategy, and results).

Sample sizes ranged from 26 to 522 individuals. Regarding educational strategies, three studies implemented orientation for oral hygiene (OOH) guidance¹⁷⁻¹⁹, while three others

used written educational materials¹⁹⁻²¹. Further, five studies implemented activities designed to promote greater involvement through active subject participation^{17,20,22-24}.

All interventions were positive in terms of improving clinical conditions^{17,19,20} and/or increasing the level of knowledge about the study themes and behavioral change^{18,20-25}.

Table 1. Summary of the main aspects of the studies included in the systematized review (n = 9)

Author/Year	Sample	Educational strategy	Results achieved
Borges <i>et al.</i> /2009 ¹⁷	120	Lecture, theater, and OOH	Biofilm reduction, gum problems, and caries
Garcia <i>et al.</i> /2009 ²⁰	120	Self-instructional reading materials (comic book), group discussion, and content setting activity	Biofilm reduction, especially in groups using joint strategies
Orsi <i>et al.</i> /2009 ²⁵	386	Lectures using playful materials	Greater adherence to oral hygiene habits
Ribeiro <i>et al.</i> /2009 ²²	33	Educational methods presented by students through classroom seminars	Increased knowledge in all topics covered after the application of the method
Valarelli <i>et al.</i> /2011 ¹⁸	522	OOH and use of playful materials	Greater adherence to oral hygiene habits and disease reduction
Barreto <i>et al.</i> /2013 ¹⁹	38	OOH, receiving hygiene kits, and educational materials	Significant decrease of biofilm in the group that participated in the activities
Carvalho <i>et al.</i> /2013 ²³	169	Play activities	Greater adherence to oral hygiene habits
Castro e Costa/2015 ²¹	26	Instructional materials provided through Cordel Literature	Creative and dynamic pedagogical strategy that helped motivate, educate, and promote oral health
Figueiredo <i>et al.</i> /2015 ²⁴	45	Use of educational software related to oral hygiene	The teaching tool was important for motivating oral health care

OOH: orientation for oral hygiene

4 DISCUSSION

Professionals are confronted with several

challenges when conducting educational activities in the school environment, including

learning to teach, developing activities that are appropriate for children's developmental phases, and expanding their creativity.

Oral health education aims to provide adequate information to learners, increase motivation, assist in the development of self-care skills, and promote the incorporation of healthy habits⁷. Research from the 1990s indicates that health stability is more likely to occur when healthy behaviors are taught during early childhood⁵.

Studies show that school-based oral health education reduces the frequency of oral health problems such as dental caries, thus suggesting that such instruction should be included in the general curriculum, thereby positively impacting prevention knowledge, attitudes, and practices^{7,17}. Thus, the school environment is conducive to health promotion activities through both education and preventive approaches^{7-10,18}. A recent systematic review and meta-analysis on the effectiveness of oral health education in schoolchildren indicated that "traditional" actions (i.e., those based on knowledge transmission) are capable of improving plaque control, but not gingivitis and dental caries. The authors also stated that, in the long run, there is no concrete evidence that school interventions have positive results²⁶.

A range of resources can be implemented through pedagogical practices using the "Oral Health" theme, including theaters, workshops, and guidelines from the NOHP¹⁵. The studies evaluated in this review suggest that play-themed resources were also relevant, thus suggesting the importance of their implementation among the target population^{17,18,20,21,23-25}.

Pinto and Tavares²⁷ clarified that playfulness improved learning outcomes while enabling children to interact with their environment. For the authors, playful activities allowed the incorporation of values and the assimilation of new knowledge as well as

cultural, social, and creative development in a pleasant manner.

A study by Valarelli *et al.*¹⁸ on the importance of oral health education and motivational programs at school reinforced the idea that education and motivation established during the same phase impacted child performance and that, for this work to be successful, innovations must depend on professional skills. Other authors have since corroborated these findings, indicating that such activities motivate students and help change their habits^{18,21,23-25}.

Another study on oral health promotion collected information on the playful activities and favorite educational materials of children between four and six years of age⁵. The authors specifically collected data from educators working in a nursery in Piracicaba, São Paulo, finding that children preferred puppets or actor theaters, musical activities, and cartoons⁵.

Further, Morano Júnior and Mialhe²⁸ found that music was also an interesting resource through which oral health concepts could be learned. A study by Antonio *et al.*⁶ evaluated different educational methods in the context of oral health among children between seven and 10 years of age in a public school in the city of Araras, São Paulo, thus concluding that comic books were more effective than theater, gymkhana, and lectures. The authors added that such methods were directly dependent on student age, socioeconomic status, location, and subject of study; further, audiovisual resources should always be used with current child characters. Malik *et al.*²⁹ similarly realized that interactive games and crossword puzzles with oral health-themed contents provided easy and effective ways to build knowledge among children between eight and 12 years of age when compared to more traditional teaching methods, including oral presentations.

Also noteworthy is an extension project

developed by undergraduate and postgraduate students of a university in Santa Catarina focusing on oral health education. The authors concluded that workshops with playful and creative materials facilitated professional training, thus overcoming the purely technical and clinical limits⁸.

In addition to integrating and articulating health and education policies, SHP emerges as a strategy that brings teams of family health units closer to the school's faculty, students, and family members, thus strengthening the ties needed to ensure effective health actions. Joining Unified Health System (SUS) programs with public basic education networks can also help expand their reach and impact on health vulnerabilities that compromise school development¹².

The State and Municipal Departments of Education and Health must work with schools to define program priorities and attendance goals. The guidelines (including the oral approach) provided in the SHP consider the aspects of attention, prevention, promotion, and maintenance of health in schools with the inclusion of this theme in the school pedagogical and political projects¹².

Although there are still many weaknesses and limitations, the SHP presents itself as a national reality that is in a constant state of expansion and transformation³⁰. To overcome these limitations, Milanez *et al.*¹⁰ developed a virtual educational platform (oral health at school) using different information and communication technologies to spread knowledge related to dentistry throughout the community as well as among managers and health professionals. This tool seemed to increase access to information while promoting the collaboration needed to improve community health and education.

With reference to dental education and collective educational efforts, there has been some debate over higher education in this area

regarding the traditional model of teaching and vocational training. Reflections on new teaching methodologies designed to help students develop the general, interdisciplinary, creative, and resilience skills needed to work in different social facilities have also gained prominence³¹.

Based on the view of disease as a strictly biological phenomenon, Farias and Sampaio³² concluded that professional training influences the work process and prevents knowledge exchanges between professionals. Provisions of the NCG for undergraduate dentistry courses have tried to overcome this reductionist view by expecting graduates to obtain the competencies and skills needed to focus on health care and communication. A practical example of this discussion can be found in a study by Cawahisa *et al.*³³, in which third- and fourth-year students of the dentistry course developed oral health promotion and prevention activities at a preschool. The authors found that interactions between educational and curative activities implemented the developments proposed by the NCG.

The concept of the expanded clinic should quickly be incorporated so that dental students can view their field of action in a diverse manner³⁴.

5 CONCLUSIONS

Educational activities developed with students successfully promoted the achievement of proper oral health habits, including improved clinical aspects. Dentists should be aware of their roles as educators as well as their abilities to instrumentalize, thus empowering individuals in the health-disease process. In this context, the NCG highlights the need for professionals with broad views of their skills and competencies, including engagements in this type of action.

RESUMO

Atividades educativas em saúde bucal desenvolvidas por cirurgiões-dentistas com

escolares: uma revisão sistematizada da literatura

Promover saúde bucal por meio da educação é uma estratégia possível de ser realizada por profissionais da área odontológica. No entanto, é tarefa desafiadora no que se refere à garantia de uma aprendizagem efetiva e transformadora de atitudes e de hábitos de vida. Esta revisão sistematizada teve como objetivo abordar o papel do cirurgião-dentista enquanto educador, capaz de atuar em ações voltadas para escolares, e em seguida fazer uma reflexão acerca do processo de formação profissional nesse contexto. Foram consultadas as bases LILACS e BBO via Biblioteca Virtual em Saúde e SciELO, com busca restrita para publicações entre os anos de 2009 a 2019, em língua portuguesa e realizadas no Brasil. Os descritores empregados foram educação, criança, saúde bucal e Odontologia. Foram selecionados e analisados nove artigos, os quais contemplavam atividades educativas em saúde bucal para crianças em escolas. Adicionalmente, foi feita uma reflexão sobre a capacitação do cirurgião-dentista, com base nas Diretrizes Curriculares Nacionais em Odontologia. Observou-se que as ações educativas são de suma importância para as crianças, com impactos positivos em suas vidas, em condições clínicas e comportamentais. De modo reflexivo, coube um olhar crítico à fragilidade do que ainda é proposto durante a formação do cirurgião-dentista, mesmo mediante propostas curriculares atuais que almejam a expansão de competências e habilidades para fora do ambiente clínico. Concluiu-se que as pesquisas consultadas revelaram o aspecto positivo das ações em saúde bucal executadas. Contudo, sabe-se que, apesar do atual cenário estimulado por novas propostas curriculares, aos cirurgiões-dentistas ainda é custosa a transposição de barreiras que permitam maior engajamento em atividades educativas, que aqui foram reveladas como essenciais para o público escolar.

Descritores: Promoção da Saúde. Educação em Saúde. Escola. Pré-Escolar. Saúde Bucal. Cirurgião-Dentista.

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