

**WORKSHOPS FROM THE "PLAYING AND LEARNING ABOUT HEALTH"
PROJECT: WHAT PERSISTED IN PRESCHOOL EDUCATION IN INDAIATUBA?**

**OFICINAS DO PROJETO APRENDER BRINCANDO SOBRE SAÚDE: O QUE FICOU
NO ENSINO INFANTIL DE INDAIATUBA?**

**TALLERES DEL PROYECTO "APRENDER JUGANDO SOBRE LA SALUD": ¿QUÉ
PERMANECIÓ EN LA EDUCACIÓN INFANTIL DE INDAIATUBA?**



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ABSTRACT: The present study aimed to evaluate the impact of workshops from the "Playing and learning about health" Project on the work routine of oral health teams (OHT) in schools of Indaiatuba (SP/Brazil). Educators from the municipal schools participated in the workshops (2017). In 2020, questionnaires were distributed to the 80 OHT responsible for each municipal school to blindly evaluate the actions carried out in the school routine related to the topics addressed in the workshops. After data collection, two groups were formed: GO (workshop participants; n=24) and GNO (non-participants; n=56). All actions received higher scores in the GO group, particularly in "school partnership with the OHT" ($p=0.0031$), "understanding of the guidance provided by the OHT" ($p=0.0186$), and "concern regarding the amount of toothpaste applied to the toothbrush" ($p=0.0326$). The content and values addressed in the workshops were identified by the OHT during their routine activities in schools with educators who participated in the workshops.

KEYWORDS: Health Education, Dental. Teaching Materials. School Teachers. Oral Hygiene.

RESUMO: O presente estudo buscou avaliar o efeito tardio de oficinas do projeto Aprender brincando sobre saúde na rotina de trabalho das Equipes de Saúde Bucal (ESB) nas escolas de Indaiatuba (SP/Brasil). Participaram das oficinas (2017) educadores da rede municipal. Em 2020, formulários foram entregues às 80 ESB responsáveis por cada escola municipal, para avaliar de forma cega ao objetivo as ações realizadas na rotina da escola voltadas aos temas trabalhados nas oficinas. Após coleta dos dados, formou-se 2 grupos: GO (participantes das oficinas; n=24) e GNO (não participantes; n=56). Todas as ações tiveram notas maiores para o GO e em especial, a "parceria da escola com a ESB" ($p=0,0031$), a "compreensão quanto às orientações transmitidas pela ESB" ($p=0,0186$) e "preocupação com a quantidade de pasta colocada na escova" ($p=0,0326$). Os conteúdos e valores trabalhados nas oficinas foram identificados pelos membros da ESB na rotina das escolas com educadores que participaram das oficinas.

PALAVRAS-CHAVE: Educação em Saúde Bucal. Materiais de Ensino. Professores Escolares. Higiene Bucal.

RESUMEN: El presente estudio tuvo como objetivo evaluar el impacto de los talleres del proyecto "Aprender Jugando sobre la Salud" en la rutina laboral de los equipos de salud bucal (ESB) en las escuelas de Indaiatuba (SP/Brasil). Educadores de la red municipal participaron en los talleres (2017). En 2020, se distribuyeron cuestionarios a los 80 ESB responsables de cada escuela municipal para evaluar de manera ciega las acciones relacionadas con los temas de los talleres en la rutina escolar. Se crearon dos grupos: GO (participantes; n=24) y GNO (no participantes; n=56). Todas las acciones obtuvieron puntuaciones más altas en el grupo GO, especialmente en "colaboración entre la escuela y el ESB" ($p=0,0031$), "comprensión de las orientaciones proporcionadas por el ESB" ($p=0,0186$) y "preocupación por la cantidad de pasta dental aplicada al cepillo" ($p=0,0326$). Los contenidos y valores abordados en los talleres fueron identificados por los miembros de la ESB durante sus actividades rutinarias en las escuelas con los educadores que participaron en los talleres.

PALABRAS CLAVE: Educación en Salud Dental. Materiales de Enseñanza. Maestros. Higiene Bucal.

Introduction

The school institution plays a fundamental role in the development of educational measures aimed at promoting health (Arcieri *et al.*, 2013; Barros *et al.*, 2017; Nery *et al.*, 2022). Considering that children spend most of their time at school during the early stages of life, it is essential that health skills are addressed from an early age in this environment (Mosquera *et al.*, 2022).

Among the cross-cutting themes, health was proposed in the National Curricular Parameters, and should comprise the contents to be taught in Cycle I of Elementary Education (Brasil, 1997a; Brasil, 1997b). It also appears in the National Curricular Guidelines for Basic Education (Brazil, 2013), which considers the inseparability of the dimensions of education and care and should be emphasized in pedagogical proposals, from early childhood education, on the development of hygienic and eating habits.

More recently, in the National Common Curricular Base (Brazil, 2018), the need for children to know themselves and build their personal, social and cultural identity, constituting a positive image of themselves and their children, was emphasized among the learning rights in Early Childhood Education, in the different experiences of care, interactions, games and languages experienced in the school institution and in a family and community context. It was also reinforced that the experience of care is a right to learning and the practical experiences of this care, both bodily and oral, are very important for this target audience, and there must be an educational intention to do so.

In the context of oral health, the school environment has been little used, as educators, although demonstrating commitment and responsibility in relation to the oral health of their students, report the need for training to safely address this topic (Kwan *et al.*, 2005; Franchin *et al.*, 2006); This highlights the need for actions aimed at teachers, since a safe approach to health in schools is a responsibility that must be shared between the health and education sectors (Pereira; Zanin; Flório, 2024).

In order to train educators and facilitate access to information, the MEC made available, on its website, fourteen files containing materials for updating in the areas of knowledge and transversal themes covered by the National Curricular Parameters, within which volume 9.1 was found, corresponding to the Environment and volume 9.2, relating to Health. Although the information on healthy eating and practical self-care measures for body hygiene, including oral hygiene, were explicit, there were no details on how to comply with these guidelines, and they did not even exist in the most recently available publications.

In this context, through a partnership with the Municipal Department of Education of Indaiatuba (SP), two workshops were offered in the second academic semester of 2017 under the project *Learning by playing about health – oral health with sustainability for children* (ABSS). The objective of the workshops was to empower early childhood education educators regarding oral health promotion practices in a playful, dynamic and sustainable way, promoting the integration of the areas of health and education. The workshops were based on the concepts presented in the book of the same name (Flório, Fonseca-Silva, 2017) and a study that evaluated the immediate results of these workshops showed that they were effective in demystifying practices and the participants appropriated established behaviors, enabling the effectiveness, in the school environment, of oral health actions using playful, sustainable and widely accessible materials (Flório *et al.*, 2018).

It is important to verify the effectiveness and longevity of the concepts covered in these workshops, in the sense that they have provided a rapprochement between education and health actors, whether by strengthening a partnership that improves human relations, or by routinely carrying out actions at school that have an impact on children's health. In this context, the objective of this study was to evaluate the indirect and long-term impact of the ABSS workshops on the work routine of the Oral Health Teams (ESB) responsible for schools in the municipality.

Methodology

The observational study of a quantitative and analytical nature was submitted and approved by the institutional Research Ethics Committee (CAAE: 19340319.8.0000.5374) and was conducted in accordance with the precepts determined by resolutions 510/2016 and 466/2012 of the National Council of Health.

The project "Learning through play about health" (ABSS)

The origin of the project is related to the need to address health as a transversal theme in basic education, recognizing it as a responsibility that must be shared between the health and education sectors. In this context, a project book was published in which concepts about oral health are presented, as well as playful, dynamic and sustainable strategies so that the educator can be a protagonist in oral health promotion actions carried out in the school routine (Flório, Fonseca-Silva, 2017). The proposed ecogames and eco-objects allow the interaction of topics

related to health, such as the main oral diseases in childhood, healthy diet and oral hygiene with topics related to the environment, such as the principle of the 5Rs of sustainability (rethink, reduce, refuse, reuse and recycle) and the conscious consumption of water.

Since the publication of the book, workshops have been organized to equip education professionals with the basic concepts of oral health promotion so that they can independently exercise their role of caring and educating, including oral health in their repertoire. Among the objectives of the workshops are the valorization of oral health in the context of general health, the recognition of the importance of the school environment and its actors in health practices, as well as activities for the creation and manufacture of eco-objects and eco-games aimed at stimulating practice of self-care in oral health.

Indaiatuba was the first partner municipality and registrations for the two workshops held in the second half of 2017, voluntary and free, were made publicly available on the city hall website, via the Continuing Training Center of the Municipal Department of Education. Each of the workshops had 20 class hours, 9 of which were theoretical in person and 11 practical carried out in the field and with interaction via WhatsApp. In total, 115 educators from 38 schools in Indaiatuba completed the workshops.

Oral health in the school environment and team perception

The “Boquinha Encantada” program establishes a partnership between the municipal Health Department and the Education Department with a view to working on the oral health of students enrolled in the municipal basic education network (infant, elementary and affiliated daycare centers). The program's dental surgeons carry out clinical examinations on schoolchildren once a year to classify the risk of caries, refer those who need curative treatment to the health unit, distribute supplies for carrying out tooth brushing in schools (brushes and creams dental). Every month, each school receives a visit from a professional from the oral health team (ESB) responsible for the territory in which the school is located, to maintain the bond and carry out educational and awareness-raising activities regarding oral health and healthy habits.

The dental surgeon responsible for Boquinha Encantada provided a list of schools and the members of the 80 ESB responsible for each of them. After face-to-face contact and invitation to participate, all ESB agreed to participate in the study. The research questionnaires were distributed personally and it was instructed that members of each of the ESBs should discuss their perceptions regarding the evaluated parameters and based on the team's consensus,

a representative from each ESB answered the questionnaire and returned it to the researcher within 15 days.

The questionnaire sought to evaluate the teams' perception regarding the oral health actions and conduct adopted by educators in their school routine. Based on a scale of 0 to 10, scores were given to the following aspects: partnership between the school and the oral health team; educators' understanding of the oral health guidelines transmitted by the ESB; respect in the school routine in relation to the oral health guidelines transmitted by the ESB; concern on the part of educators regarding the amount of paste to be placed on the brush and the use of water during brushing.

At this stage of the research, neither the researchers nor the respondents knew which of the schools had teachers who had participated in the ABSS workshops that were held in 2017.

After collecting the completed evaluation forms and based on the attendance lists and data collected during the workshops, study groups were organized considering:

- Workshop Group (GO): schools with educators who participated and completed one of the project's two workshops (70%; n=56).
- Non-Workshop Group (GNO): schools with educators who did not participate in the workshops offered (30%; n=24).

Analysis of results

The results were calculated and quantified in absolute and relative frequencies. Initially, exploratory data analysis was carried out. For the variables in which the data did not meet the assumptions of the Analysis of Variance (partnership between the school and the oral health team; concern on the part of educators regarding the amount of paste to be placed on the toothbrush and concern on the part of educators regarding the use of water during brushing) the Mann Whitney test was used comparing the two study groups. For the others (educators' understanding of the oral health guidelines transmitted ; respect in the school routine in relation to the oral health guidelines transmitted), the Student's t test was used. The Bioestat 5.0 statistical program was used and the significance level adopted was 5%.

Results

Table 1 presents the evaluation data of the participating ESBs regarding the schools under their responsibility, considering a scale of 0 to 10, with the higher the evaluation, the greater the agreement of the respondent and their team in relation to the evaluated parameters. It is noted that, numerically, for all parameters evaluated, the scores were higher for the GO group, with a significant difference considering the aspects: partnership between the school and the oral health team; educators' understanding of the oral health guidelines transmitted and concern on the part of educators regarding the amount of paste to be placed on the brush.

Table 1 – ESB assessment of municipal schools in its territories. (Indaiatuba, March 2020).

Variables	GO			GNO			p-value
	Average	DP	Median	Average	DP	Median	
School partnership with the oral health team	9.57	1.04	10.0A	8.69	1.67	10B	0.0331
Educators' understanding of the oral health guidelines you provide	9.35A	1.50	10.0	8.33B	1.77	8.00	0.0186
Respect the school routine in relation to the oral health guidelines you provide	8.96A	2.27	10.0	7.96A	2.30	8.00	0.0865
School's responsibility for children's oral health	8.87	2.01	10.0	8.15	1.96	8.50	0.1525
Concern on the part of educators regarding the amount of paste to be placed on the brush	8.87	1.66	9.0A	6.87	3.51	8.00B	0.0326
Concern on the part of educators regarding the use of water during brushing	9.09	2.31	10.0A	8.06	2.53	8.50A	0.1013

Means followed by different horizontal letters differ from each other using Student 's t test ($p < 0.05$). Medians followed by different horizontal letters differ from each other using the Mann Whitney test ($p < 0.05$).

Source: Prepared by the authors.

Discussion

The parameters evaluated in the study obtained higher scores from the ESBs that were responsible for the schools that had participants in the ABSS project workshops.

In Brazil, since the 1950s, schools have been important settings for oral health practice, due to the Incremental System, which prevailed as the oral health care model in the country for more than 40 years (Nickel; Lima; Silva, 2008). With the creation of the SUS in 1988, by the Brazilian Federal Constitution, the universality of health care was established and specific policies for students were implemented, including the School Health Program (PSE), which reinforced the school as an environment for promoting of health. Through the PSE, prevention, promotion and health care actions are planned, prepared by the health department or school directors, considering social and school conditions, in addition to oral health (Carvalho; Zanin; Flório, 2020). In the PSE, although there is collaboration between different sectors, health professionals play a central role in the activities carried out in schools (Farias *et al.*, 2016), which contrasts with the ABSS approach, which emphasizes the role of the educator as a protagonist in in health.

Most children have access to guidance on oral health in public schools, as is the case in Indaiatuba, which has a health education center and implements the "Boquinha Encantada" program. However, having access to information only when health professionals visit the school may not be enough to influence oral health habits and routine. In this sense, the role of educators is fundamental due to their daily contact with children (Mosquera *et al.*, 2022). It is worth mentioning that around a fifth of Basic Health Units in Brazil do not offer dental care for children in early childhood (from zero to six years of age) (Essvein *et al.*, 2019). This reinforces the importance of educators in promoting healthy habits from an early age at school. Encouraging educational oral health programs with the participation of public-school educators motivates students to adopt a healthier lifestyle (Carvalho *et al.*, 2013). The proposed partnership between educators, monitors and oral health teams has great potential, creating positive synergies between health and education, and is the basis of the ABSS project (Flório; Fonseca-Silva, 2017; Flório *et al.*, 2018).

The role of educators is fundamental for the training of citizens and for health education as there is a need to "sediment" knowledge by reinforcing information (Santos; Rodrigues; Garcia, 2002) and the school is a strategic space for stimulating and the development of healthier skills, behaviors and lifestyles (Honkala, 2014; Busch *et al.*, 2017). In the first years

of school life, children find themselves in a period of new discoveries and learning, which values the importance of teachers, for example, in facilitating and monitoring oral hygiene right after snack time at school, in a playful and fun way. In this sense, the present study showed that the ESB feels more welcomed and valued in GO schools, as the items that denote the established partnership and the understanding of the concepts covered were better evaluated.

Out of curiosity, during the period in which the workshops were held (2017), the city council had decided to provide schools with dentifrices (toothpastes) without fluoride and the explanation given at the time was that this decision was taken due to the resistance of educators regarding the ESB guidelines on the appropriate amount of toothpaste to be used by children. They mistakenly believed that the guidance to use a small amount of toothpaste on the brushes of pre-school children had the sole objective of 'saving city hall resources' and not benefiting them and, therefore, they resisted following the team's recommendations. This is in line with currently available evidence, which indicates that regular brushing with fluoride toothpaste is the main non-professional intervention in preventing tooth decay (Walsh *et al.*, 2019). Furthermore, its use is recommended from the eruption of the first tooth, which occurs approximately at six months of age (Clark *et al.*, 2014; Fdi General Assembly, 2019). In this context, in the workshops held in 2017, we sought to emphasize the importance of using an adequate amount of fluoride toothpaste in children (Wright *et al.*, 2014) to maximize the benefits in preventing cavities, while at the same time minimizes the risk of dental fluorosis, a change in the mineralization of teeth resulting from chronic fluoride ingestion, the severity of which is related to the dose.

In this context, the best evaluation in GO regarding “concern on the part of educators regarding the amount of paste to be placed on the brush” may be related to the emphasis given to the topic in the workshops. When the mechanism of action of fluoride in the dynamics of tooth decay was discussed, workshop participants expressed great concern about the municipality's decision to stop providing toothpastes with fluoride in schools. To consolidate the habit of brushing at school and bring fluoride to the oral cavity, indirect supervised brushing with fluoridated toothpaste is viable and necessary and, organized daily or weekly, must rely on the effective action and protagonism of the educator (Brasil, 2009). The consensus for teaching children is to use a toothpaste with a conventional concentration of fluoride (between 1000 and 1500 µg/g) and in small quantities (0.1 to 0.3g) (Ellwood; Cury, 2009; Cury; Tenuta, 2014), in addition to the need for a person responsible to dispense the toothpaste onto the brush and stimulate expectoration at the end of brushing (Polk *et al.*, 2014)

Supervising brushing, both in relation to the amount of toothpaste used and rinsing after brushing, should be the responsibility of the adult, especially in early childhood education, as this is the period in which the dental crowns of permanent teeth are in the mineralization phase (Evans; Darvell, 1995) and are therefore exposed to the occurrence of fluorosis. As an aggravating factor, it is at this stage that children swallow a large part of the toothpaste when brushing their teeth, due to the difficulty in expectorating it (Lima; Cury, 2001; Paiva; Lima; Cury, 2003; Lima-Arsati *et al.*, 2018). Daily intake of toothpaste can lead to dental fluorosis in permanent dentition (Oliveira *et al.*, 2007) and when the issue of supervising children during brushing is emphasized, this measure is associated with the fact that young children do not have the ability to spit out the entire toothpaste due to greater difficulty in controlling swallowing (Jagher *et al.*, 2016), resulting in ingestion of 30% to 63.2% of the product during brushing (Zohoori *et al.*, 2012). A guardian's recommendation to dispense toothpaste onto the toothbrush is a preventive measure that aims to avoid the risk of dental fluorosis (Polk *et al.*, 2014).

Addressing this topic and with the aim of guiding laypeople on the safe use of fluoridated toothpaste by children, educational material in comic book format was validated (Flório *et al.*, 2023) and proved to be efficient in qualifying education professionals as multiplying agents for the promotion of oral health, either by improving knowledge about dental fluorosis or by providing opportunities to reduce the amount of fluoridated toothpaste used on schoolchildren's toothbrushes (Perez, 2022).

Another aspect covered in the workshops was the rational use of water during brushing. Previous study carried out by Flório *et al.* (2020) proved that the implementation of daily brushing in the school routine, within a playful and sustainable health educational context, does not have a negative impact on water consumption. The evaluation of this criterion by the ESB was extremely positive and showed no significant differences between the groups, indicating that this topic is valued by educators in the municipality.

The present study has some limitations that need to be considered. Firstly, other variables that could have influenced participants' responses to the questionnaire were not measured. Furthermore, there is the possibility that only educators interested in the topic signed up for the workshops, which may have created a bias in the study. However, it is important to highlight that all schools participate in the municipal program Boquinha Encantada, ensuring the standardization of information on oral health and, in the context of the limitations highlighted, the ESB had generally faced difficulties in schools in the municipality regarding acceptance of their guidance before the workshops and that after them, the decision to use non-

fluoridated toothpaste was revoked. We understand that the contents and values covered in the ABSS workshops were incorporated into the school routine, indirectly benefiting children through this educational strategy with educators. There is a perception that positive changes have occurred in the school environment, which justifies the continuity of workshops focusing on early childhood education.

Final remarks

Promoting oral health in schools plays an important role in forming healthy habits from childhood, and educators have a fundamental role in this process, as this responsibility should not be attributed exclusively to oral health teams. In this context, the contents and values worked on in the ABSS workshops proved to be integrated into the school routine, justifying the continuity of these activities, especially with a focus on early childhood education. By collaborating closely with oral health teams, educators have the opportunity to create a school environment that actively promotes health.

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