

Effect of an Oral Health Lesson on Primary Schoolchildren: A Pilot Study

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Abstract

One of the dental hygienist's duties is to promote oral health and preventive dentistry in population. Children perform behaviours as desired when they receive positive feedback from significant instructors that have a persuasive position, thus can make important commitments to oral health advancement in the school community. The aim of the present pilot study was to evaluate the children response to an oral health lesson in terms of oral health knowledge in a population of Roman primary schoolchildren. Obtained results showed that the presence of dental hygienist in schools is very important to explain to children proper oral hygiene practices.

Keywords: Oral health; Primary schoolchildren; Pilot study

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Introduction

Despite some improvements in oral health in developing and developed countries, oral diseases are still considered as public health problems worldwide. Dental plaque, gingival bleeding, and dental caries are prevalent among schoolchildren around the world. [1] The Ministry of Health of Italy reports a mean DMFT (Decayed, missed, filled, teeth) index count of 0.81 for 4-year-old children; in addition, DMFT counts of 1.09 have been reported at 12 years of age. [2] These counts indicate the need for a major intervention to reduce the burden of oral diseases [3] and to improve oral health among schoolchildren. It has been guessed that oral health can be promoted through education, schools give a perfect setting to advancing oral education as they offer a proficient and powerful approach to reach more than 1 billion kids worldwide and through them, families and group individuals.[4]

Teachers are considered as role models to transmit values of life. It is sometimes critical to assume that their own oral status could be considered an example to follow by students. [5] One of the dental hygienist's duties, however, is to promote oral health and preventive dentistry in population. Children perform behaviours as desired when they receive positive feedback from significant instructors that have a persuasive position, thus can make important commitments to oral health advancement in the school community. [6]

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The aim of the present pilot study was to evaluate the children response to an oral health lesson in terms of oral health knowledge in a population of Roman primary schoolchildren.

Materials and Methods

This pilot study was conducted in 5 elementary schools in the municipality of Rome, 2 in center and 3 in periphery, 200 children (102 males and 98 females) aged 8 to 10 were recruited (Table 1). This study was conducted over a period of 3 months.

Enrollment N = 200 Male 102; Female 98			
Periphery Schools N = 116		City Center Schools N = 84	
Control Group N = 54	Training Group N = 62	Control Group N = 45	Training Group N = 42

Table 1: Characteristics of schoolchildren.

The first month was devoted to the preparation of questionnaire to obtain the data regarding the practices of all children in oral hygiene. The questionnaire, containing 13 questions, was administered to the all children during the first visit. Thus, in second visit (1 month after the first visit) about 100 children were educated through an interactive lesson with the help of slides and drawings administered by a group of three dental hygienists regarding importance of oral hygiene. Such teaching material (iDentiKit®) was provided by the Ministry of Health. 2 A third visit was made to the respective schools for follow-up examination of all students oral health knowledge and practices. Results are expressed as mean \pm Standard Deviation (SD). Pre and post training knowledge scores were compared to assess the effectiveness of oral health using ANOVA-test.

Results and Discussion

Two hundred children (8-10 years of age) in five public schools were included in the study, of these, three in the periphery (pe) of Rome and two in the center (ce) of the town. It is important to not that all the differences observed between “ce” and “pe” are random and are not due to behavioral differences between the two populations.

By the analysis of question 1, regarding the importance of brushing the teeth (the basic principle of oral hygiene), the comparative analysis of the pre and post training shows that all children know that oral hygiene is important (question 1, Figure 1 and table 2), even before the training course.



Figure 1: Responses obtained to first question.

Question	Re-sponses	(A) Pre training (Pe)	(B) Control pre training (Pe)	(C) Post training (Pe)	(D) Control post training (Pe)	(E) Pre training (Ce)	(F) Control pre training (Ce)	(G) Post training (Ce)	(H) Control post training (Ce)	p-value
1) Do you think it's important to wash your teeth?	Yes	95,2	100	96,8	100	100	100	100	100	
	No	4,8	0	3,2	0	0	0	0	0	

Table 2: Responses obtained to first question and statistical analysis.

By investigating more thoroughly if the boys wash their teeth after meals, the results obtained show that the children who have followed the course are more assiduous in brushing teeth than others only before going to school (question 2). In fact, observing the answers to questions 3, 4 and 5 it can be seen that the presence of dental hygienists in the school has increased the attention of the children towards oral hygiene (table3/Figures 2,3,4,5 and 6).

Question	Responses	(A) Pre training (Pe)	(B) Control pre training (Pe)	(C) Post training (Pe)	(D) Control post training (Pe)	(E) Pre training (Ce)	(F) Control pre training (Ce)	(G) Post training (Ce)	(H) Control post training (Ce)	p-value
2) Brush your teeth before going to school?	Yes	80,6	83,0	88,7	83,0	83,3	83,3	90,5	83,3	
	No	4,8	16,9	0,0	0,0	2,4	14,3	0,0	2,4	A vs B ** B vs D *** E vs F** F vs H **
	Not always	14,0	1,9	11,3	18,9	14,0	2,4	9,5	14,3	A vs B ** B vs D *** E vs F** F vs H**
3) Brush your teeth after eating?	Yes	37,1	54,7	54,8	54,7	42,9	45,2	54,8	47,6	A vs C *** A vs B *** E vs G *** G vs H **
	No	33,9	30,2	22,6	30,2	33,3	23,8	23,8	28,6	A vs C *** C vs D *** E vs G *** E vs F ***
	not always	24,2	15,1	17,7	15,1	23,8	30,9	21,4	23,8	A vs C * A vs B *** E vs F ** G vs H**
	Children do not respond	4,8	1,9	4,8	1,9	0	0	0	0	

4) Brush your teeth after lunch?	Yes	51,6	47,2	54,8	67,9	54,8	73,8	61,9	71,4	A vs C *** A vs B *** E vs G *** G vs H ***
	No	43,5	24,5	30,6	30,2	40,5	16,70	28,6	16,7	A vs C *** A vs B *** E vs G *** G vs H ***
	Not always	4,8	30,2	14,5	3,8	4,8	9,5	9,5	11,9	A vs C ** A vs B *** C vs D ** B vs D***
5) Brush your teeth after snacking?	Yes	17,7	47,2	32,2	30,2	16,7	52,4	23,8	21,4	A vs C * A vs B *** B vs D*** E vs F*** F vs H ***
	No	62,9	54,7	45,2	60,4	61,9	47,6	52,4	66,6	A vs C *** C vs D *** E vs G* G vs H *** F vs H ***
	Not always	19,4	0,0	22,6	11,3	21,4	0,0	26,2	11,9	A vs B *** C vs D ** B vs D ** E vs F*** G vs H*** F vs H**
6) Brush your teeth after dinner?	Yes	69,3	86,8	67,7	88,7	71,4	88,1	66,7	80,9	A vs B ** C vs D *** E vs F ** G vs H **
	No	14,5	7,5	14,5	1,9	14,3	0,0	14,3	0,0	C vs D * E vs F ** G vs H **
	Not always	16,1	7,5	17,7	11,3	14,3	11,9	19,0	19,0	

Table 3: Responses obtained to the questions 2, 3, 4, 5, 6 and statistical analysis, * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

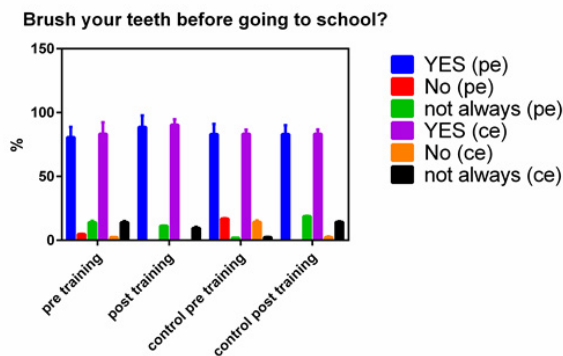


Figure 2: Responses obtained to second question.

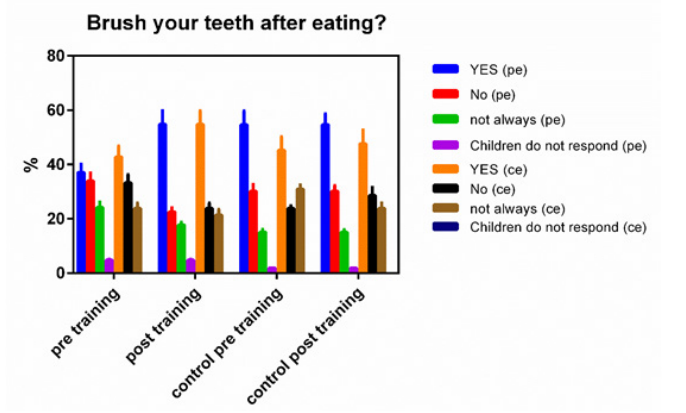


Figure 3: Responses obtained to third question.

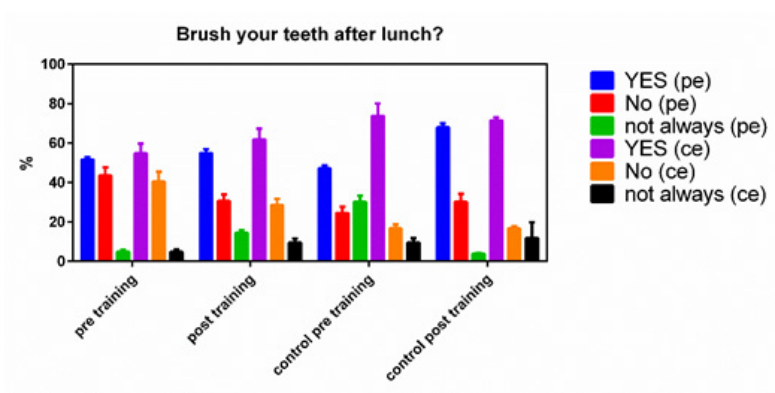


Figure 4: Responses obtained to fourth question.

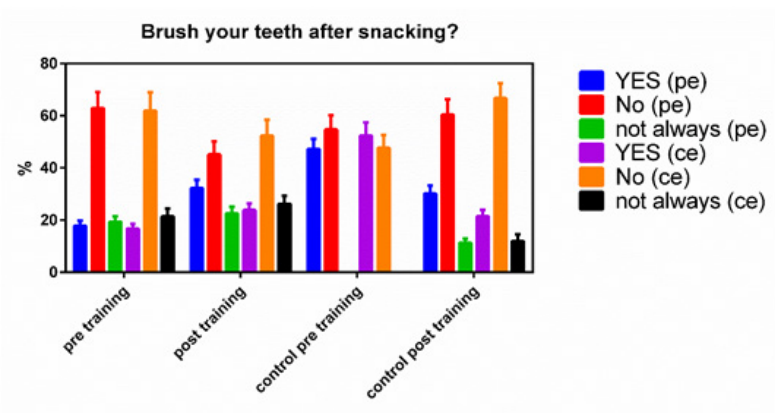


Figure 5: Responses obtained to fifth question.



Figure 6: Responses obtained to sixth question.

When the questions become more specific, the effects of the course become evident. In fact, after the course, children answer in appropriate way to the questions 7, 8 and 9 (tables 4 and figures 7,8 and 9).

Question	Responses	(A) Pre training (Pe)	(B) Control pre training (Pe)	(C) Post training (Pe)	(D) Control post training (Pe)	(E) Pre training (Ce)	(F) Control pre training (Ce)	(G) Post training (Ce)	(H) Control post training (Ce)	p-value
7) Where do you eat, more often, the sweet foods?	At home	72,5	73,5	75,8	69,8	59,5	54,7	69,0	54,7	A vs.C * E vs G *** G vs H***
	At school	3,2	3,7	1,6	9,4	4,7	9,5	4,7	19,0	C vs D ** G vs H *** F vs H ***
	At home and at school	16,1	18,9	14,5	16,9	23,8	23,8	14,2	14,2	E vs G*** F vs H***
	I do not eat sweets	8	5,6	8	5,6	11,9	11,9	11,9	11,9	
8) When do you eat sweet foods more often?	After the main meals	85,5	90,6	69,4	88,6	83,3	73,8	76,2	78,6	A vs C *** C vs D *** E vs F *
	Along with the main meals	9,7	9,4	25,8	11,3	16,7	26,2	23,8	21,4	A vs C *** C vs D *** E vs G *
	I do not eat it	4,8	4,8	1,9	1,9	0	0	0	0	

9) Where do you drink carbonated beverages most often?	At home	16,1	15,1	1,6	9,4	0	9,5	0	11,9	A vs C *** C vs D ** B vs D*
	At a party	16,1	20,8	25,8	26,4	21,4	16,7	23,8	16,7	A vs C *** B vs D* G vs H **
	At school	0,0	0	1,6	0	0	0	0	0	
	At home and during parties	66,1	64,1	69,3	62,2	78,6	73,8	76,2	71,4	C vs D**
	At school and at parties	0,0	1,6	0,0	1,9	0	0	0	0	
	I do not drink	1,6	1,9	0,0	1,9	0	0	0	0	

Table 4: Responses obtained to the questions 7, 8, 9 and statistical analysis * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Question	Responses	(A) Pre training (Pe)	(B) Control pre training (Pe)	(C) Post training (Pe)	(D) Control post training (Pe)	(E) Pre training (Ce)	(F) Control pre training (Ce)	(G) Post training (Ce)	(H) Control post training (Ce)	p-value
10) How many times at week do you drink carbonated drinks?	One time	35,5	33,9	37,1	50,9	26,2	23,82	26,2	38,1	C vs D *** B vs D*** G vs H *** F vs H***
	More than once	37,1	56,6	41,9	49,1	47,6	61,9	47,6	61,9	A vs B *** C vs D ** B vs D ** E vs F *** G vs H***
	Everyday	27,4	9,4	20,9	0,0	26,2	14,3	26,2	0,0	A vs C * A vs B *** C vs D *** B vs D *** E vs F *** G vs H *** F vs H ***
	I do not drink	0,0	1,9	0,0	1,9	0	0	0	0	

11) How are the bristles of your toothbrush?	smooth	14,5	13,2	16,1	9,4	19,0	11,9	11,9	9,5	
	medium	50,0	60,4	62,9	81,1	57,1	52,4	71,4	85,7	A vs C ** A vs B* C vs D B vs D E vs G *** G vs H *** F vs H ***
	tough	1,6	7,5	9,7	3,8	0,0	9,5	9,5	2,4	A vs C *** A vs B ** B vs D** E vs G* E vs F*
	I do not know	33,9	20,7	11,3	7,5	23,8	26,2	7,1	2,4	E vs G** F vs H***
12) How long to brush your teeth?	Less than One Minute	30,6	5,7	3,2	3,8	40,5	2,4	4,8	0,0	A vs C *** A vs B *** E vs G*** E vs F ***
	One minute	37,1	28,3	30,6	33,9	30,9	30,9	33,3	35,7	A vs C ** A vs B *** B vs D*
	Two minutes	19,3	0,0	54,8	56,6	14,2	40,5	57,1	54,8	A vs C *** A vs B *** B vs D *** E vs G *** E vs F *** F vs H ***
	Three minutes	8,1	13,2	4,8	3,8	14,3	11,9	2,4	4,8	B vs D *** E vs G *** F vs H **
	More than three minutes	4,8	0,0	6,4	3,8	0,0	2,4	14,3	4,8	E vs F *** G vs H *** F vs H ***
13) How many months do you change your toothbrush?	3 months	62,9	50,9	79,0	69,8	71,4	52,4	78,6	78,6	A vs C ** A vs B* B vs D *** F vs H ***
	More than three months	37,1	50,9	20,9	32,1	28,6	47,6	21,4	21,4	A vs C ** A vs B ** C vs D* B vs D *** F vs H *** E vs F *** F vs H ***

Table 4: Responses obtained to the questions 10, 11, 12, 13 and statistical analysis * $p < 0.05$; ** $p < 0.01$; *** $p < 0.01$.

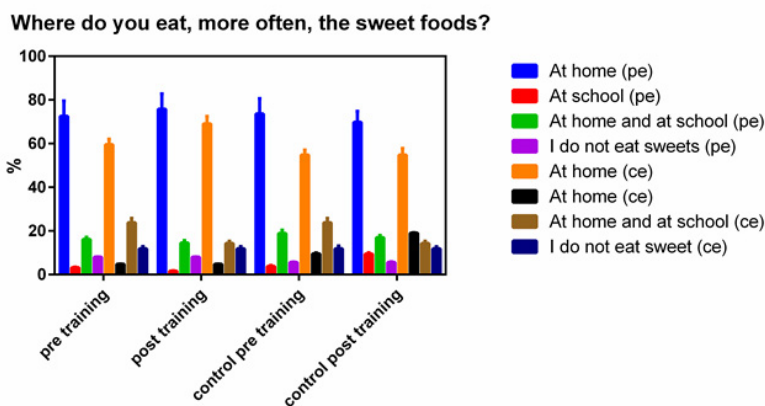


Figure 7: Responses obtained to seventh question.

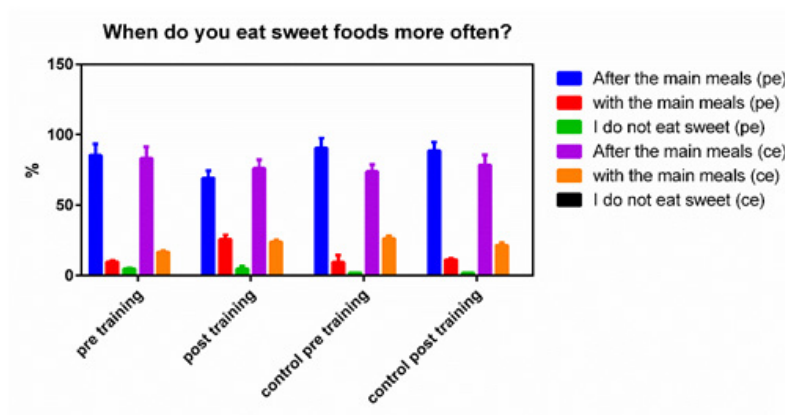


Figure 8: Responses obtained to eighth question.

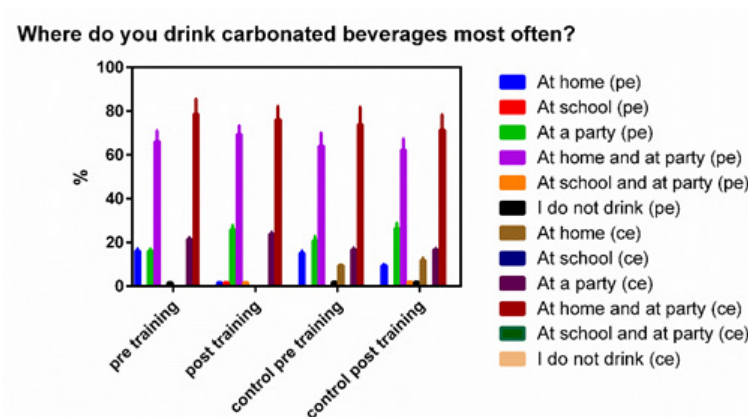


Figure 9: Responses obtained to ninth question.

Even for questions 10,11,12 and 13, the presence of dental hygienist has improved the behaviors of all children.

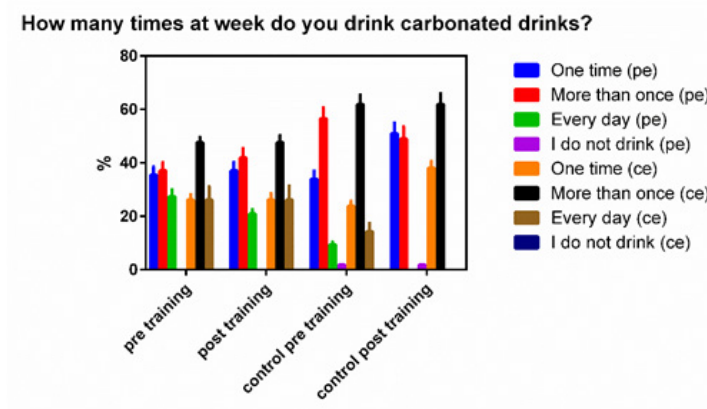


Figure 10: Responses obtained to tenth question.

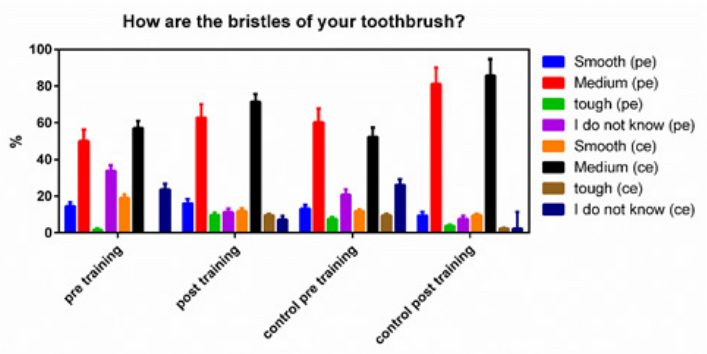


Figure 11: Responses obtained to eleventh question.

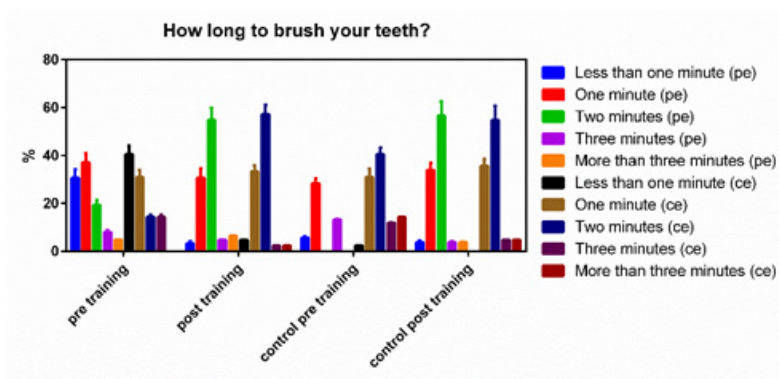


Figure 12: Responses obtained to twelfth question.

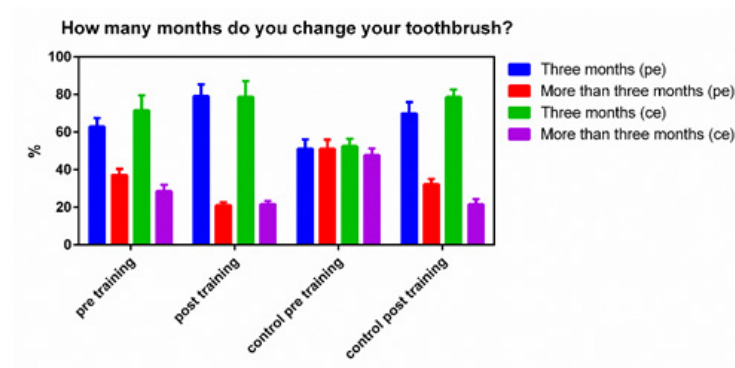


Figure 13: Responses obtained to thirteenth question.

Conclusion

The results obtained in the present pilot study have shown that elementary school children clearly understand the importance of oral hygiene, but a high percentage of them do not practice it in the daily life. Therefore, the presence of dental hygienist in schools is very important to explain to children proper oral hygiene practices.

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