

Introduction

Daily disruption of the biofilm by tooth brushing has long been accepted as a key factor in the prevention of oral diseases and conditions including periodontitis, halitosis, and caries (when applying fluoride toothpaste). The present study of children's tooth brushing skills and caries experience was carried out between 18th to 28th January 2022, and is the very first study relating to Oral Health ever conducted in the community of Jacmel, Haiti.

Objectives

- To establish a Baseline in order to assess and monitor progress of a pilot Tooth Brushing Education and Atraumatic Restorative Treatment Of Caries program for children aged 5-7 at the Centre Culturel Alcibiade Pommayrac, Jacmel Haiti..
- To Lay the foundation for Sustainable Oral Health in Jacmel.
- To raise awareness among local oral health professionals on challenges to be faced.

Methods

The data were collected using questionnaires and a Knowledge Attitude and Practice (KAP) survey, interviews with the principal and teachers, and a focus group with parents.

The Knowledge Attitude and Practice (KAP) survey is the main item of the study as it concerns the direct beneficiaries of the future project. The study population consists of a total of 30 children (5-7years-old) whereby 3 groups of 10 were randomly chosen from kindergarten, first and second grades.

- 1- A KAP interview assessed children's knowledge about oral hygiene (fig1,2).



Figure 1



Figure 2

- 2- An intra-oral examination was conducted for caries detection. Decayed teeth were recorded in an arch chart (fig 4) with a red crayon, the data in Microsoft Word tables (fig 13,14, 15) for the calculations (fig 11).



Figure 3

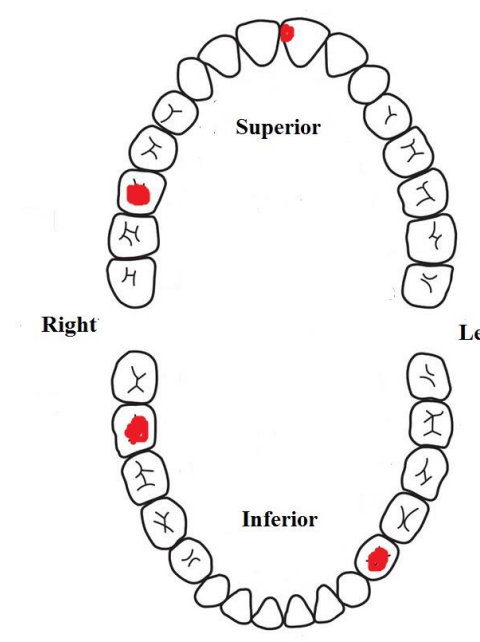


Figure 4



Figure 5

Dental arches were divided into six parts (figure 7), called sextants (from S1 to S6). Each posterior sextant (S1, S3, S4, S6), contains 3 distinct surfaces (occlusal, buccal and lingual), while, the anterior sextants (S2 and S5) have only 2 surfaces, Buccal and lingual. The letter "L" in the Sextants column of fig 18 is the initial of *Lingua*, for the tongue.

- 3- Tooth brushing ability was evaluated: Each child received a toothbrush with a pea-sized amount of dentifrice (fig 6). While standing in front of a mirror, they were closely observed for a duration of two (2) minutes, every single movement was recorded in a three-dimensional chart (figure 7). The number of children brushing each surface was recorded in fig 18, for example: one child brushed the lingual surface of sextant 1.



Figure 6

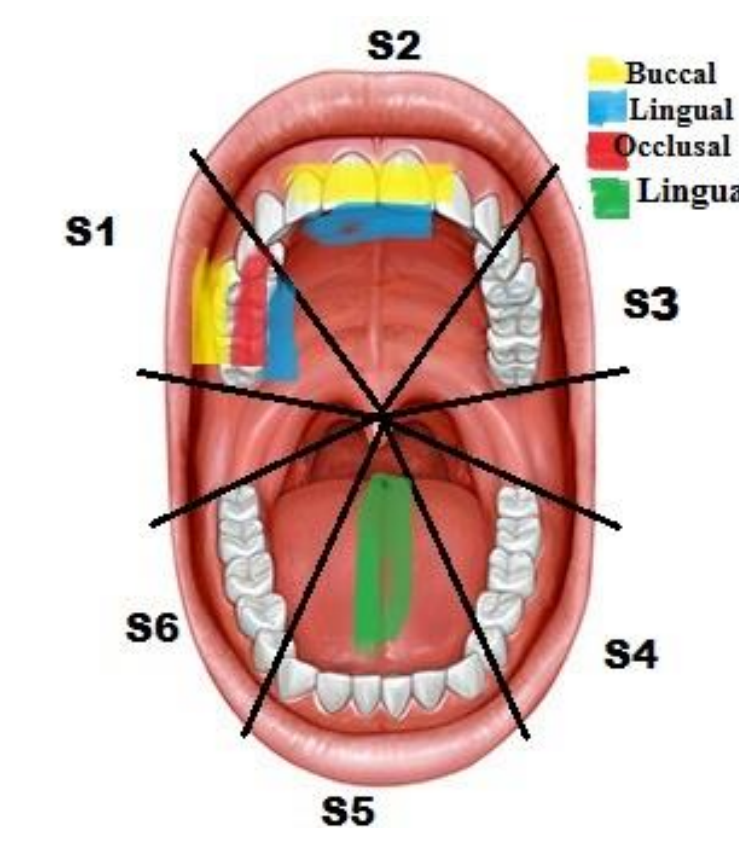


Figure 7: Three-dimensional arch in which tooth brushing motion was recorded

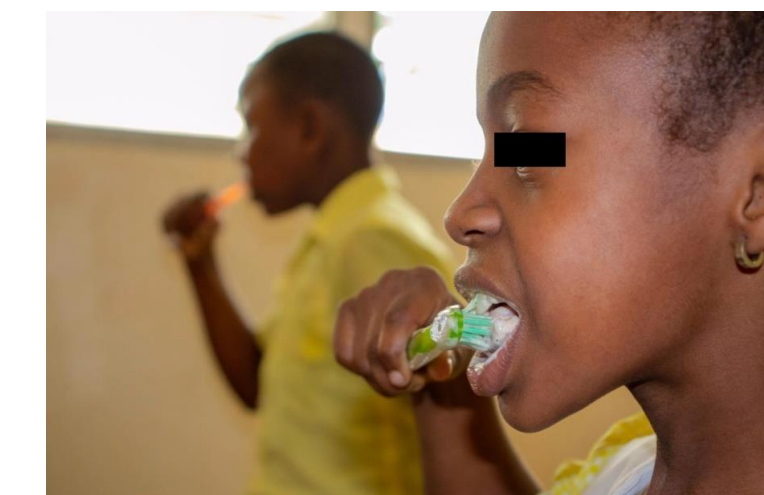


Figure 8

- 4- Other items of the survey included interviews with the principal of the elementary school, interviews with 3 teachers (fig 9) and a focus group with parents (fig 10).



Figure 9



Figure 10

Results

From the total $n=30$, two (2) kids were absent on the day of the intra-oral examination, meaning 28 participated. Among them, 20 (71,43%) had at least one decayed tooth (fig11).

	Total of children	Children without decayed teeth	Children with decayed teeth	Children with at least 2 decayed teeth	Children with at least 3 decayed teeth	Children with at least 4 teeth
Number	28	8	20	10	8	7
Percentage	100%	28,57%	71,43%	35,71%	28,57%	25%

Figure 11

Considering the kids with at least one decayed tooth, 50% of them had at least two decayed teeth, 40% had at least three (3) decayed teeth and 35% had at least (4) decayed teeth..

Calculation tables for decayed teeth in children from kindergarten, first and second grades.

Kindergarten		Number of decayed teeth identified										
Kid's Id Number		0	1	2	3	4	5	6	7	8	9	10
3a												
11a												
23a												
35a												
4b												
12b												
20b												
3c												
7c												
17c												
	Absents											

Figure 13

First grade		Number of decayed teeth identified										
Kid's Id Number		0	1	2	3	4	5	6	7	8	9	10
7a												
15a												
23a												
29a												
7b												
15b												
20b												
24b												
3c												
6c												
18c												

Figure 14

Second Grade		Number of decayed teeth identified										
Kid's Id Number		0	1	2	3	4	5	6	7	8	9	10
1a												
3a												
6a												
10b												
7b												
15b												
20b												
24b												
3c												
6c												
18c												

Figure 15

From the original sample, (n=30), one (1) child was absent on the day of the tooth brushing evaluation. Thus 29 children participated.

SEXTANTS	Occlusal	Buccal	Lingual
S1	15	10	1
S2		24	3
S3	13	8	1
S4	23	15	1
S5		19	0
S6	19	14	0
L			7

Figure 18. Number of children brushing surfaces containing in each sextant

100% of the children are right handed. Among the posterior sextants (S1, S3, S4, S6), they tend to start the brushing on occlusal (79,31%) or buccal (51,72%) surfaces within sextant 4. Immediately after, they conduct the brush to sextant 6 on occlusal (65,52%) or on the buccal (48,27%) surfaces. Only a range of 0-10% children brushed the lingual surfaces of the teeth and 24,14% brushed their tongue.

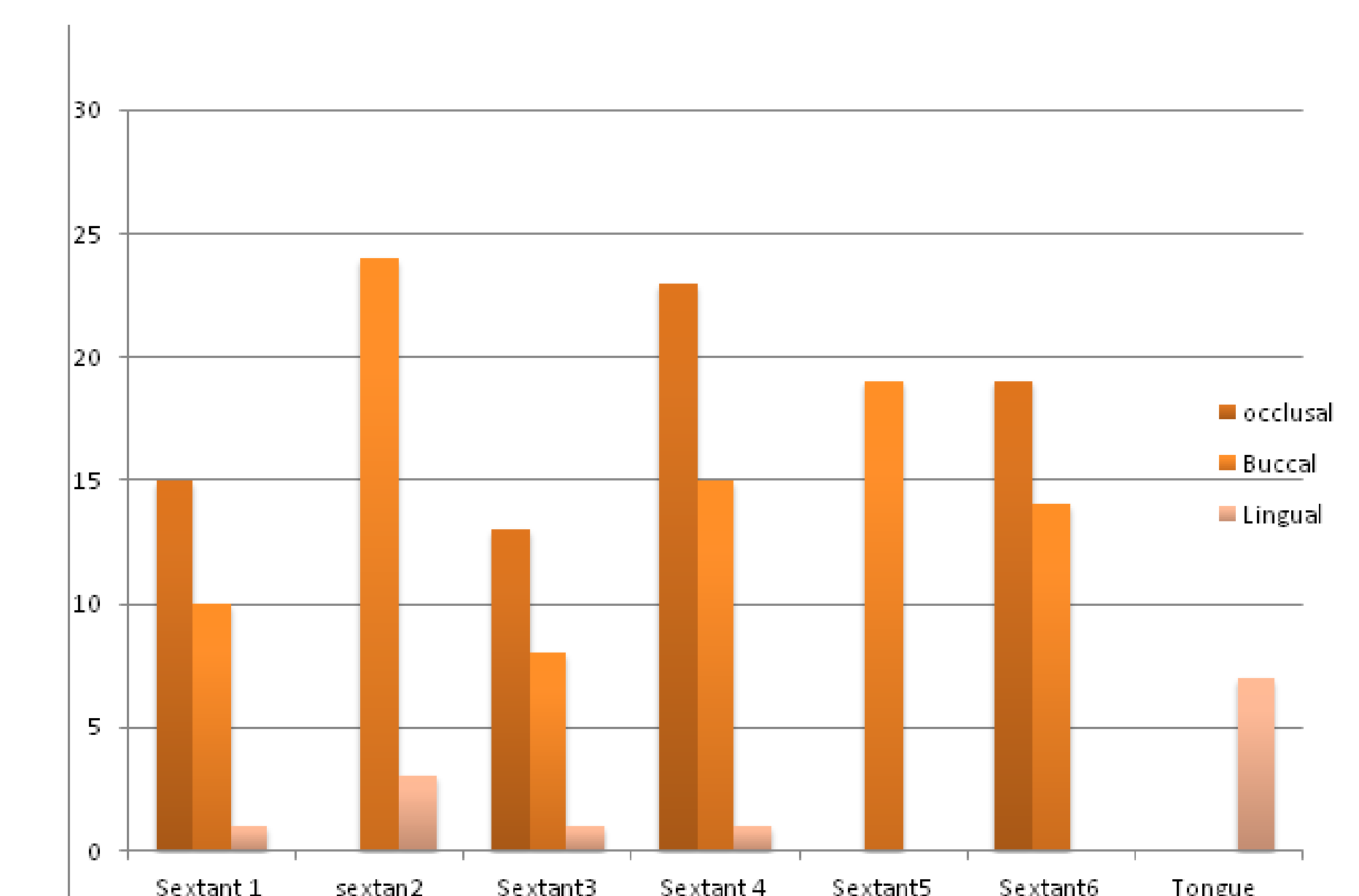


Figure 19 Representation of brushing tendency within each sextant.

Conclusion

Most of the elementary school children had caries. Half of those had at least 2 teeth with caries; 40% had at least 3; 35% at least 4; and there were even children observed with 8 carious teeth.

It seems that the children are unable to brush all surfaces within 2 minutes. In fact, few brushed their tongue, and even fewer reached the lingual surfaces with a toothbrush.