

Comparison between Supervised and Non-Supervised Tooth brushing among Children of 6-12 Years of Age – A questionnaire Based Study

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Abstract:

Aim: To make a comparison between Supervised and Non-supervised toothbrushing among children between the age group of 6-12 years by doing a questionnaire based study.

Background: Tooth brushing is the act of scrubbing teeth with a toothbrush equipped with toothpaste. Since only two thirds of the outer tooth can be reached by a toothbrush, interdental cleaning with floss or an interdental toothbrush is also done. The front and backs of teeth should be brushed with the toothbrush at a 45 degree angle towards the gum line, moving the brush in a back and forth rolling motion that makes contact with the gum line and tooth. To brush the backs of the front teeth the brush should be held vertically to the tooth and moved in an up and down motion. The chewing surfaces of the teeth are brushed with a forward and back motion, with the toothbrush pointing straight at the tooth. This is taught to children under supervised toothbrushing.

Methods: A Questionnaire based study was carried out amongst 100 randomly selected students of the age 6-12 years. **Results:** 52% of the patients followed supervised toothbrushing. They were found to have better oral hygiene standards and habits than those that followed Non-Supervised Toothbrushing.

Keywords: Supervised Toothbrushing, Non-Supervised Toothbrushing, interdental aids, cavities, toothache

INTRODUCTION:

Dental caries and periodontal diseases exert a tremendous social, economic and financial burden on a global scale.^[1] Despite the number of techniques available to maintain oral hygiene, plaque is an unavoidable precursor of dental caries. Dental caries is known to be the most common childhood disease today. Children with chronic dental caries generally come from a poor background, with uneducated parents and excessive sugar intake in their diet.^[2] Reducing the amount of sugar in the diet prevents the disease but most dentists believe that it is due to the usage of new fluoridated toothpastes. Hence, toothbrushing is the most important criteria to oral hygiene.^[2]

It is an effective way of removing plaque, preventing gingivitis and managing dental caries. For young children, supervised toothbrushing is direly advised. Parents of young children are advised to brush their ward's teeth with a recommended brushing technique and a non-fluoridated toothpaste. Faulty toothbrushing techniques involving excessive pressure may increase gingival recession and loss of tooth substance by mechanical abrasion, and must therefore be corrected.^[3]

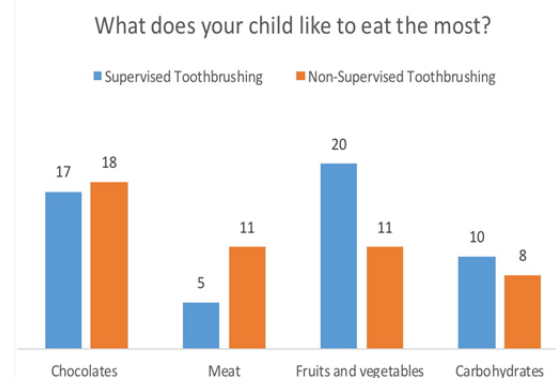
Thus, the study was designed to evaluate the effectiveness of supervised brushing and its impact on oral health in children of urban and rural communities.

MATERIALS AND METHODS:

This present study was carried out amongst 100 randomly selected students of the age 6-12 years. It was a Questionnaire-based study in which, out of the 100 patients, 46 were females and 54 were males. The data was collected from September to October 2015. A written informed consent was taken.

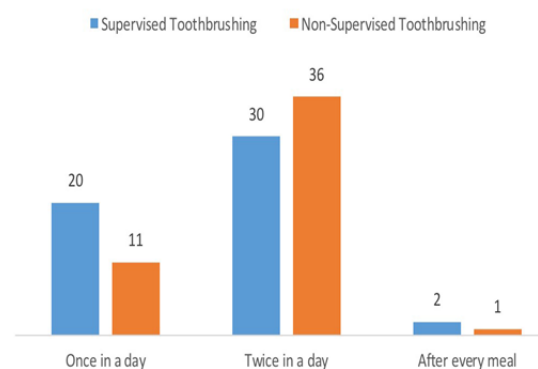
RESULTS:

Graph 1:



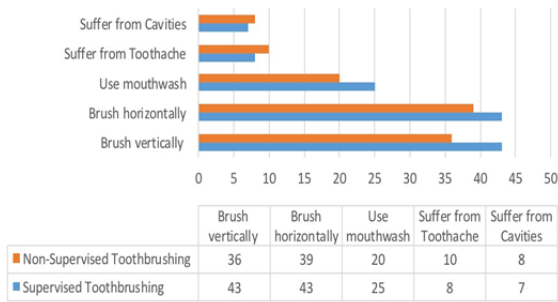
Graph 2

Frequency of brushing



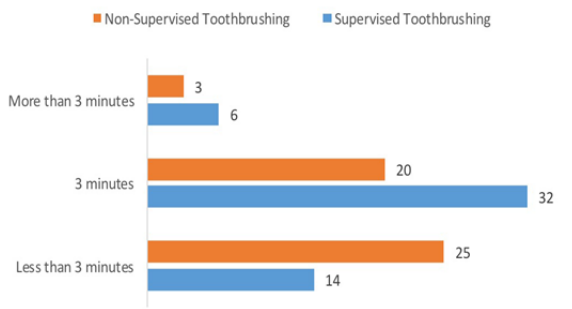
Graph 3

Does your child?



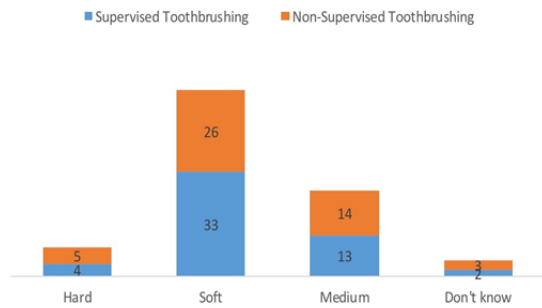
Graph 4

Duration of Toothbrushing



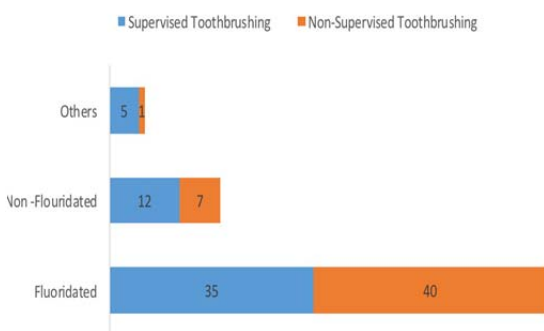
Graph 5

What kind of brush does your child use?



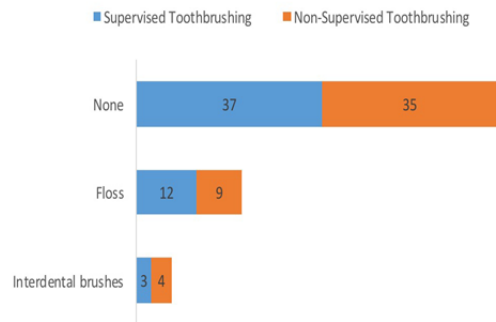
Graph 6

What kind of toothpaste does your child use?



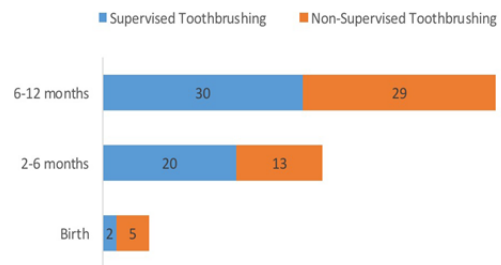
Graph 7

Does your child use Interdental aids?



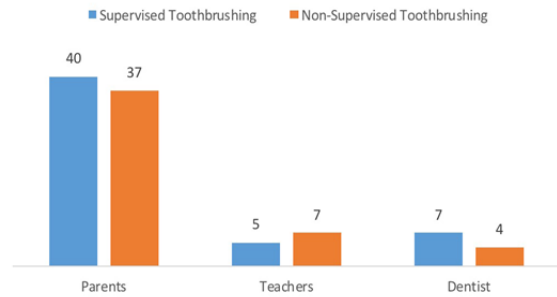
Graph 8

How old was your child when he/she started brushing?



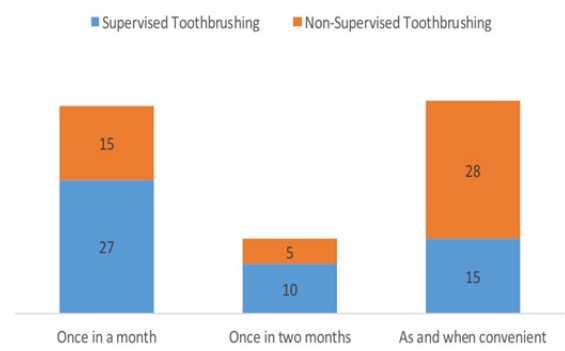
Graph 9

Who taught your child how to brush their teeth?



Graph 10

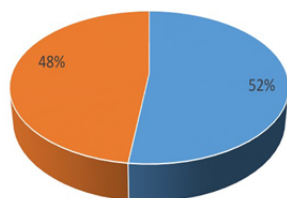
How often does your child visit the dentist?



Graph 11

Patients that follow Supervised Toothbrushing

- Number of patients that follow Supervised Toothbrushing
- Number of patients that do not follow supervised Toothbrushing

**DISCUSSION:**

Tooth brushing, like all habits of hygiene, is acquired during the socialization process of a child.^[4] When this habit is taught in early childhood, it is naturally ingrained in the daily routine of the child, with only positive reinforcement needed later.^[5] Supervised Toothbrushing is a method in which a child is taught how to brush by an adult. Programs are conducted in various schools by dentists to evaluate the effect of supervised toothbrushing on children. The present study, is a questionnaire-based study in which the effects of Supervised Toothbrushing and Non-Supervised toothbrushing are compared. Educational research shows that simple incentives and reinforcement by professionals encourage young children to change their behavior and maintain the change.^[6]

Brushing is a voluntary physical activity which has two requirements, that are motivation and physical (manual) ability.^[7] Tooth brushing is often not supervised or encouraged, which leads to poor oral hygiene that results in plaque build-up.^[8] Tooth brushing can be taught in the same way as other skills, but it requires time for the individual as well as commitment on the part of the regular caregiver to ensure that all areas of the mouth are being cleaned each time. Supervised oral hygiene programs result in a marked improvement of oral hygiene and reduce the incidence and severity of gingivitis and periodontitis.^[8]

In this study, patients were found to have a high tendency towards eating sticky food like chocolates, in both supervised and non-supervised toothbrushing methods. Although preventable, dental caries is considered the most common adverse oral condition in childhood and adolescence^[9]. (Refer Graph 1)

Young people exhibit behavior and face circumstances that make them more vulnerable to dental caries, such as a low frequency of daily brushing^[10] and the excessive consumption of cariogenic foods and beverages^[11]. Poor oral hygiene leads to the accumulation of bacterial plaque. Acidogenic bacteria present in the early stage only contribute to mild, infrequent de-mineralization. However, when the presence of fermentable carbohydrates is frequent, a gradual increase in such bacteria occurs in the oral environment, causing an imbalance in the de-mineralization/mineralization process in dental tissues^[12].

Results of this study showed that most of the patients brush their teeth twice a day irrelevant of whether they

followed Supervised or Non-Supervised toothbrushing. (Refer Graph 2)

A number of steps can be taken to reduce the risk of caries including brushing one's teeth twice a day.^[13] The benefit of brushing derives from both the mechanical removal of plaque from the teeth and the exposure of the teeth to fluoride in the toothpaste and water.^[14] In another study, when all oral hygiene measures were incorporated together in the same model, only toothbrushing frequency was significantly associated with dental caries due to the collinearity of the different measures.^[15]

In the present study, the patients were found to be brushing horizontally and vertically. (Refer Graph 3) Effective plaque removal depends not only on the type of toothbrush but also on the proper brushing technique.^[16] The appropriate brushing technique for children is the Fones Brushing Technique. It requires the patient to make big circles which are reduced in diameter until very small circles are made in front of the mouth. Brushing is done in circular motion in the teeth making sure that the teeth and the gums are covered. It has equal or better potential than the Bass technique for plaque removal. It is easy to learn and takes a shorter time. It also provides good gingival stimulation.^[17]

In this study, 32% of the patients that follow supervised brushing, brush their teeth for a duration of 3 minutes. Professional recommendations for individual oral hygiene mostly include tooth brushing at least twice daily for 2–3 min with gentle force.^[18] (Refer Graph 4)

The results of this study show that majority of the patients that followed Supervised Toothbrushing used soft-bristles toothbrushes. (Refer Graph 5) Soft-bristled brushes are safer for teeth as hard or even medium-bristled brushes can damage the tooth enamel. In addition, they may damage the gingiva as well as the tooth root surfaces. Soft, rounded bristles are the best choice for removing plaque and tartar buildup without damaging teeth.^[19]

Fluoride is still the main strategy for non-invasive control of root caries^[20]. Among all methods of fluoride delivery, toothpaste is responsible for the decline of coronal caries^[21,22] and its recommendation is based on strong evidence^[23,24]. There is evidence that the effect of fluoride toothpaste on caries control is concentration dependent^[23,25]

Fluoride may have antimicrobial effects but it is concentration-dependent. Hence out of a 100 patients majority of them are known to use fluoridated toothpastes. (Refer Graph 6) Some, being afraid of the side effects of fluoride when used in large quantities, use non-fluoridated toothpastes like herbal toothpastes. One side effect from swallowing too much fluoride is dental fluorosis. Dental fluorosis is a defect in tooth enamel caused by excessive fluoride intake during the tooth-forming years (age 0 to 8). In its mild forms, dental fluorosis presents as cloudy white splotches and streaks on the teeth, while in its moderate and severe forms, fluorosis can cause extensive brown and black staining along with pitting and crumbling of the enamel.^[26]

25 of the 52 patients that follow Supervised Toothbrushing were found to be using mouth wash. (Refer

Graph 3) Oral halitosis is a common complaint which has been recognized since ancient times but has only recently come forward as it can be a significant social handicap in this increasingly sophisticated world^[27] Due of its strong antibacterial effects^[28] and substantivity in the oral cavity chlorhexidine (CHX) gluconate provides a significant reduction in organoleptic ratings^[29] CHX gluconate which has been set as the gold standard chemical in the reduction of breath odor.^[30] Use of chemical agents for the reduction of oral malodor or as a breath freshener has an effect for a shorter duration and thus, a long-term prescription of these agents is needed.

Interdental aids like interdental toothbrushes and floss are effective in reducing inter proximal plaque and maintains oral hygiene. However, in this study, majority of the patients do not use interdental aids. (Refer Graph 7)

The results of the present study revealed that most of the patients that followed supervised or non- supervised Toothbrushing started to brush their toddler's teeth when they were around 6-12 months of age, when the first tooth emerged. (Refer Graph 8) It is advisable to start brushing the tooth buds of your toddler right from birth. A gauze or muslin cloth must be used with a little bit of fluoridated toothpaste to prevent tooth decay. The teeth must be rubbed gently in a circular motion with the gauze. This process can be repeated twice a day.

The study also showed that most of the patients were taught to brush by their parents (Refer Graph 9). Majority of the patients that followed supervised toothbrushing were known to visit the dentist once a month regularly. (Refer Graph 10)

The results gathered from the study show that 52% of the patients followed supervised toothbrushing. (Refer Graph 11) Majority of them used fluoridated toothpastes and soft-bristled brushes.

The patients were found to brush for 3 minutes and most of them brushed twice a day. They also visited the dentist regularly. This study shows that patients who followed supervised Toothbrushing have better oral hygiene habits than the patients that followed non-supervised Toothbrushing.

CONCLUSION:

The present study reveals that patients who followed supervised Toothbrushing have better oral hygiene habits than those that did not. Dentists play a major role in maintaining the oral hygiene habits of a patient. Awareness of supervised toothbrushing must be spread to improve the standard of oral hygiene.

This study can be progressed further by conducting a clinical diagnosis of dental caries to substantiate the effects of Supervised toothbrushing over Non-supervised Toothbrushing in the oral cavity.

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