



## Awareness on Mechanical and Chemical Plaque Control in Children - A Survey

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### Article History:

Received on: 04 Sep 2020

Revised on: 08 Oct 2020

Accepted on: 10 Oct 2020

### Keywords:

Dental Plaque,  
Plaque Control,  
Toothbrushes,  
Children,  
Dental Tartar

### ABSTRACT

Periodontal infections (gum disease and periodontitis) are viewed as incendiary maladies of microbiological starting points. Their most significant hazard factor is the amassing of a plaque biofilm at and beneath the gingival edge, which is then connected with an improper and ruinous host fiery insusceptible reaction. Plaque control is the day by day expulsion of dental plaque, oral biofilm and furthermore counteraction of their collection on the teeth and different pieces of the oral pit. Mechanical plaque control is a viable strategy to dispose of gathering in the oral cavity. With opportunity a few changes came in toothbrushes to make mechanical plaque control progressively viable in everyday oral cleanliness practice. Cross sectional poll study was led. A sum of 104 individuals were made to respond to all the inquiries. The outcome will be examined utilizing factual investigation. In the examination, it was discovered that 72% of the population brush their teeth two times per day. 32% of the respondents feel stores in their teeth much in the wake of brushing. 72% of the individuals accept that brushing can forestall dental plaque. The point of the examination is to make mindfulness on the control of mechanical and substance dental plaque. The control of dental plaque is fundamental for developing kids with expansion of fluoride to mechanical plaque control before it solidifies to become dental tartar.



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ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL3.3483>

Production and Hosted by

IJRPS | <https://ijrps.com>

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### INTRODUCTION

Dental caries and constant gum disease are both related with amassing of bacterial plaque on around the teeth (Richards, 2017). At the start, it is critical to express that, not at all like constant gum disease there is no obvious connection between plaque control and anticipation of caries. For constant gum disease, bacterial plaque speaks to the absolute most significant aetiological factor (Anitha and Ashwini, 2017; Richards, 2017).

### Mechanical plaque control

The mechanical technique for plaque control, examined for their consequences for caries increase, have

been either actually or expertly delivered (Ashwini *et al.*, 2017). Further regions have incorporated the benefit of toothbrushing and interdental cleaning (Lakshmi *et al.*, 2015). For individual oral cleanliness, toothbrushing strategy, however the brush is additionally a most important vehicle for the conveyance of fluoride-containing toothpaste to the teeth (Ezhilarasan *et al.*, 2017b). Various issues exist in choosing whether tooth brushing itself influences caries. The plaque records utilized don't or can't score those surfaces generally vulnerable to caries (Perumalsamy *et al.*, 2018). Moreover, similarly as with numerous periodontal investigations, correlations are made for mean mouth score for both caries and plaque and are not site specific (Cummins, 1991; Perumalsamy *et al.*, 2018). All things considered, the productivity of individual mechanical oral cleanliness practices will be upgraded through innovative work concerning conditions deciding individual execution as opposed to by endeavours to improve helps and technique (Babu *et al.*, 2020).

### Chemical plaque control

Apparently the utilization of a toothbrush and toothpaste is the most regularly utilized strategy for oral hygiene (Ezhilarasan *et al.*, 2018). In that capacity, the endeavours have been made to consolidate mixes which may repress plaque and forestall dental ailment. Indeed, even in those situations where potential antiplaque or antimicrobial mixes have been delivered to help a gainful effect (Gheena and Ezhilarasan, 2019). Antimicrobial operators utilized for plaque control can be partitioned into a few gatherings and these are explored either for impact on plaque or plaque and gum disease and just a couple for the anticipation of caries (Gheena and Ezhilarasan, 2019). A subjective impact of toothpastes on plaque, interceded through an antibacterial activity of toothpastes (Menon *et al.*, 2018). This study aims to create awareness on the chemical and mechanical plaque control among children.

### MATERIALS AND METHODS

The questionnaire is used to record the responses of participants. Google forms were used for the questionnaire preparation. The sample for the study consisted of 102 people. The questionnaire consisted of 14 questions, out of which 12 questions are multiple choice questions. A cross-sectional study survey is made with the questionnaire of 14 questions through google forms. The google forms were circulated among 102 people through social media like Whatsapp. The data were analysed using SPSS software for knowing the mean, median and frequency

of responses. The data were subjected to descriptive statistics and paired t-test using SPSS software version 22. Each question of the survey was represented by pie chart.

### RESULTS AND DISCUSSION

72% of the population are aware of the importance of brushing teeth thrice a day. This shows that the respondents were aware of the mechanical and chemical plaque control in children.

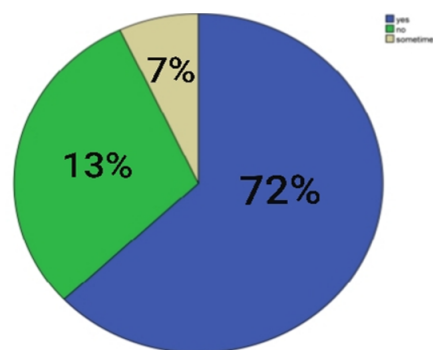


Figure 1: Pie chart showing percentage of respondents brushing teeth twice a day

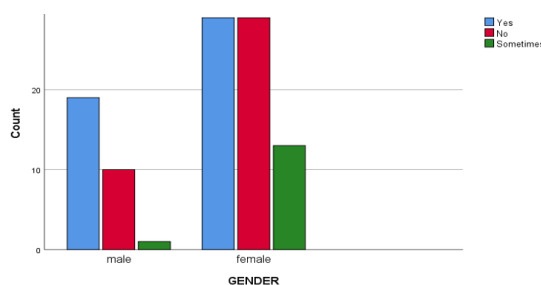


Figure 2: This graph represents the association of gender and awareness of tooth deposit after brushing

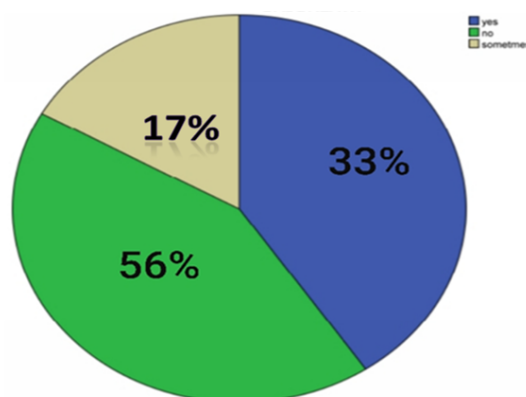
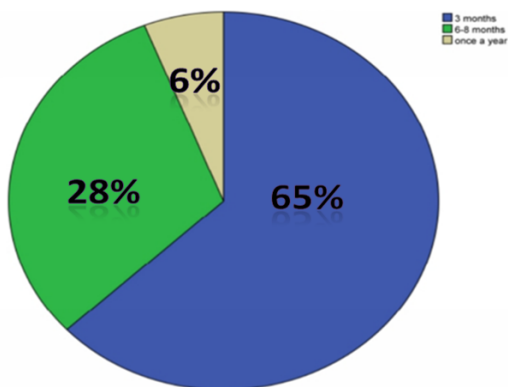
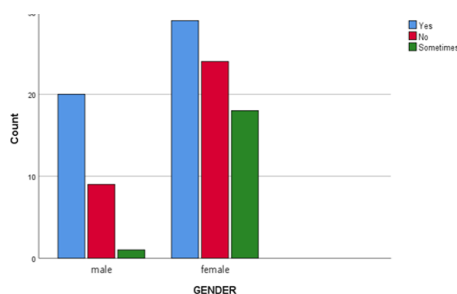


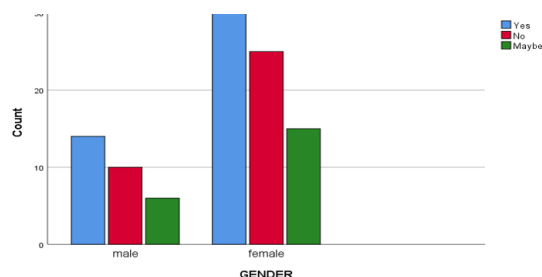
Figure 3: Pie chart showing percentage of respondents feeling bad breath



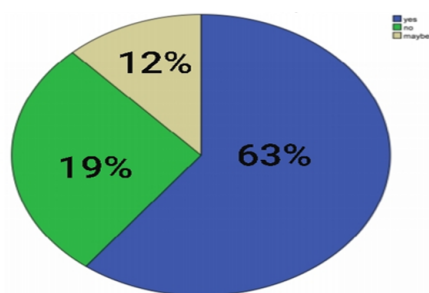
**Figure 4: Pie chart showing respondent's frequency of changing toothbrush**



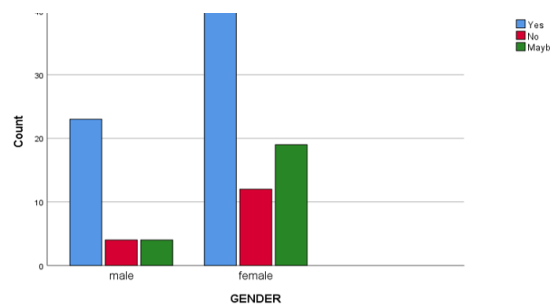
**Figure 5: This graph represents the association of gender and exposure to sugary foods**



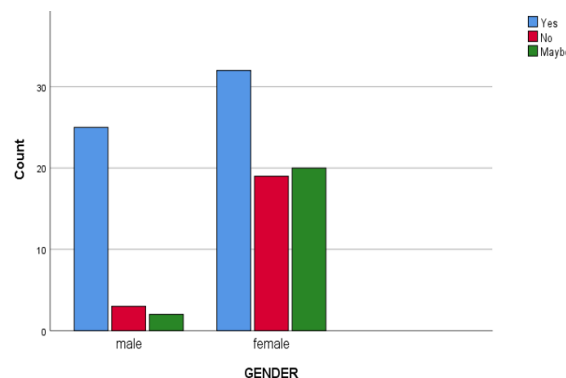
**Figure 6: This graph represents the association of gender and exposure of fluoride administration**



**Figure 7: Pie chart showing percentage of respondents agreeing that brushing teeth can prevent dental plaque**



**Figure 8: This graph represents the association of gender and awareness of different brushing techniques**



**Figure 9: This graph represents the association of gender and awareness of dental plaque leading to dental tartar**

In the present study, 72% of the population habit of brushing their teeth thrice a day and 13% of the people are not brushing their teeth that often (Figure 1). Among gender classification, out of 58% of the participants who are aware of tooth deposit even after brushing, 18% constitutes male and 40% constituent female (Figure 2). 33% of the respondents had a feeling of bad breath, whereas majority - 56% of the people do not feel bad breath (Figure 3).

65% of the people change their brush once in 3 months. 28% of the people change their toothbrush once in 6-8 months (Figure 4). Among gender classification, out of 47% of the participants who were exposed to sugary foods and drinks, 20% constitutes male and 27% constituent female (Figure 5).

Among gender classification, out of 42% of the participants who were exposed to fluoride administration, 12% constitutes male and 30% constituent female (Figure 6). 63% of the people believe that brushing their teeth can prevent dental plaque and 19% of the people deny it (Figure 7). Among gender classification, out of 63% of the participants who are aware of different brushing techniques, 22% constitutes male and 41% constituent female (Figure 8).

Among gender classification, out of 59% of the participants who are aware of dental plaque leads to

dental tartar, 26% constitutes male and 32% constituent female (Figure 9).

Comparative examinations were finished by different analysts from various districts of the world. Scarcely any investigations show that, in spite of the fact that brushing was usually utilized strategy for cleaning teeth, it was discovered that solitary 29.6 percent members detailed cleaning their teeth twice every day which is exceptionally less as contrasted and 58% of the police selects in an investigation lead by [Emilson et al. \(1982\)](#).

As per the study of Axelsson, the cleanliness quality is more significant than frequency of brushing in the oral cavity ([Emilson et al., 1982](#)).

As to items, just 4% of the members were utilizing floss and interdental brush. Interestingly, Hamilton and Couby in 1991 found that a high rate (44%) of the example in Northeastern Ontario utilized dental floss ([Keyes et al., 1991](#)). The examination indicated that 84% of the people had built up the correct propensity for cleaning their tongue and 71% wash their mouth after dinners in their everyday routine ([Rajeshkumar et al., 2018b](#)). The use of mouthrinses with 0.1% or 0.2%, chlorhexidine (CHX) in children, for 6 months, achieved significant reductions for plaque and gingival indices, and no differences for caries increment, compared with a placebo ([Marčetić, 2015](#)). With the concurrent application of PTC and a 0.4% or 1% CHX toothpaste in dental students over a period of 2-years, no differences were found in plaque and gingival scores, with the placebo group, while a lower caries increment was observed in the 1% CHX group, when compared to all other groups, concomitantly with a higher number of active non-cavitated lesions becoming inactive ([Karthiga et al., 2018](#)). The combination of a 0.5% CHX gel, rinsing with 2% MFP solution or 0.8% MFP toothpaste, failed to significantly reduce plaque accumulation and gingival scores and to reduce the rate of caries development ([Karthiga et al., 2018](#); [Mehta et al., 2019](#)).

About 25% members use mouthwash and 67% didn't utilize mouthwash even 7% individual didn't think about mouthwash. In the survey, half members were unconscious about the data that biofilm, plaque on tooth surface causes periodontal disease ([Ezhilarasan et al., 2017a](#)). As a view of self consideration is concerned, an outcome indicated that just 7% of the individual visit normally to the dental specialist, 93% visited at whatever point there is a problem ([Ezhilarasan, 2018](#); [Ezhilarasan et al., 2017a](#)). While assessing the information in clinical and dental experts about the connection between fundamental infections and periodon-

tal health ([Rajeshkumar et al., 2018a](#)). Not many are thought about the connection of fundamental conditions, for example, cardiovascular ailment, preterm low birth weight and diabetes mellitus and periodontitis ([Tomiyama et al., 2019](#)). Numerous human services experts never alluded such patients to periodontitis. According to the consequence of comparable examinations, there is a need to find a way to make mindfulness among everybody towards oral cleanliness and spur them to improve their conduct for avoidance of dental plaque ([Westfelt et al., 1996](#)). Just as to need to support social insurance experts also to give appropriate data and inspiration to their patients towards the most common ailment like periodontitis.

In Figure 1, Shows responses for questions about brushing thrice a day was 72% positive responses are in blue colour, 13% negative responses are in green colour and 7% responses for sometimes are in grey colour. In Figure 2, blue colour denotes 'yes', red denotes 'no' and green denotes 'sometimes'. X-axis represents gender and Y-axis represents tooth deposit after brushing. Out of 58% of the participants who are aware, 18% constitutes male and 40% constituent female. Hence female are more exposed to tooth deposits after brushing. Association between gender and dental tartar was done using Chi-square test, Pearson Chi-square value is 2.368- p-value- 0.086 ( $\geq 0.05$ ) was found statistically not significant. In Figure 3, shows responses when asked about feeling their own bad breath- 33% positive responses are in blue colour, 56% negative responses are in green colour and 17% responses for sometimes are in grey colour.

In Figure 4, Shows responses for how often people change their toothbrush- 65% blue colour represents people changing once in 3 months, 28% green colour showing once in 6-8 months and 6% grey colour showing once a year. In Figure 5, blue colour denotes 'yes', red denotes 'no' and green denotes 'sometimes'. X-axis represents gender and Y-axis represents exposure to sugary foods. Out of 47% of the participants who were exposed, 20% constitutes male and 27% constituent female. Hence females are more exposed to sugary foods and drinks. Association between gender and dental tartar was done using Chi-square test, Pearson Chi-square value is 7.858- p-value - 0.046 ( $\geq 0.05$ ) and was found statistically significant. In Figure 6, blue colour denotes 'yes', red denotes 'no' and green denotes 'sometimes'. X-axis represents gender and Y-axis represents fluoride administration. Out of 42% of the participants who were exposed, 12% constitutes male and 30% constituent female. Hence females are more exposed to fluoride administration in their child-

hood. Association between gender and dental tartar was done using Chi-square test, Pearson Chi-square value is 4.116 -p-value - 0.391 ( $\geq 0.05$ ) was found statistically not significant.

In Figure 7, Shows response for one's belief on brushing the tooth can prevent plaque control- 63% positive responses are in blue colour, 19% negative responses are in green colour and 12% response for maybe are in grey colour. In Figure 8, blue colour denotes 'yes', red denotes 'no' and green denotes 'maybe'. X-axis represents gender and Y-axis represents no. of responses. Out of 63% of the participants who are aware, 22% constitutes male and 41% constituent female. Hence females are more aware of different brushing techniques. Association between gender and dental tartar was determined using Chi-square test, Pearson Chi square value is 7.386- p-value- 0.058 ( $\geq 0.05$ ) was found statistically significant. In Figure 9, blue colour denotes 'yes', red denotes 'no' and green denotes 'maybe'. X-axis represents gender and Y-axis represents dental tartar accumulation. Out of 59% of the participants who are aware, 26% constitutes male and 32% constituent female. Hence females are more aware of dental plaque if not treated properly leads to dental tartar. Association between gender and dental tartar was done using Chi-square test, Pearson Chi-square value is 10.052- p-value- 0.042 ( $\geq 0.05$ ) was found statistically significant.

## CONCLUSION

Mechanical plaque control is the most significant approach to get free from day by day plaque amassing. Mechanical plaque control methodology is viable in diminishing plaque and gum disease. The expansion of fluoride to mechanical plaque control is the easiest method to eliminate caries and dental plaque. Mechanical plaque control is the backbone for counteraction of oral sicknesses, however it requires enormous patient collaboration and inspiration; along these lines, substance plaque control operators go about as valuable adjuvants for accomplishing wanted outcomes. The principle point of this examination is to make mindfulness control of mechanical and substance plaque control in kids.

## Conflict of Interest

The authors declare that there is no conflict of interest for this study.

## Funding Support

The authors declare that they have no funding support for this study.

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