



Oral Hygiene Practices among People in Salem District

S. Obuli Ganesh Kishore¹, Dhanraj Ganapathy^{1*} and Keerthi Sasanka¹

¹*Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, 162, Poonamalle High Road, Velapanchavadi, Chennai, India.*

Authors' contributions

This work was carried out in collaboration among all authors. Author SOGK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors DG and KS managed the analyses of the study. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2020/v32i2730863

Editor(s):

(1) Dr. Mohamed Fathy, Assiut University, Egypt.

Reviewers:

(1) Abhishek Kumar, Tribhuvan University, Nepal.

(2) Tasnia Ahmed, Stamford University Bangladesh, Bangladesh.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/59735>

Original Research Article

Received 15 June 2020
Accepted 22 August 2020
Published 09 November 2020

ABSTRACT

Oral hygiene is an important aspect of dental health and is considered to be an essential field as it involves both the oral and general health of the individual. Maintaining proper oral hygiene is essential and requires knowledge that should be imposed on people by a well-trained health educator. Oral health is not only implied by proper brushing, but also through frequent and regular visits to the dentist which helps in early detection and diagnosis of both oral and general diseases. The present study was conducted to assess the knowledge about oral hygiene and to determine the need to spread awareness on the same. A self-administered questionnaire consisting of 9 questions was circulated and the results were interpreted. The present study inferred that most of the people were aware of maintaining proper oral hygiene but however felt that there was a lack of established dental clinics around the urban areas. Further, there was a need to instill the importance of regular dental check-ups and spread awareness on the ill-effects of improper oral hygiene. The study concluded that there was a need to enhance the knowledge of the population on the importance of good oral hygiene and dental check-ups.

*Corresponding author: E-mail: ghanarajmaganapathy@yahoo.co.in;

Keywords: Oral hygiene; dental checkup; ill-effect; brushing.

1. INTRODUCTION

Oral hygiene can be defined as the process of keeping the mouth clean and free of diseases. Dental hygiene can be maintained by proper brushing of teeth and cleaning between the teeth. Improper hygiene of the oral cavity may lead to many diseases ranging from dental caries, pulpitis, gingivitis, periodontitis, and infections. That can lead to localized diseases and also cardiovascular diseases in some situations [1,2]. It also causes bad breath which makes people feel uncomfortable while speaking. To maintain proper oral health it is also important that an individual visits a dentist on a regular basis rather than visiting them only when there is a problem. It is also a part of oral health that educators need to educate people to build awareness on good oral practices. The people should also be educated on the evil effects of obnoxious habits like alcohol and tobacco. Oral hygiene and health can be attained by using good and standard oral products. It is necessary to impose awareness about oral health in school children so that they develop no diseases due to improper oral hygiene [3].

It was clear through previous studies that there was no availability of dental care services in rural areas as it was available in urban areas; the majority of dental clinics are found to be in urban areas only [4]. A study states that in the past 50 years the severity of dental diseases has been reduced in developed countries [5]. A survey conducted showed that dental pain was one of the most common reasons for a dental clinic visit [6]. Oral diseases are considered equally as other normal diseases and oral diseases are considered to be a public health problem [7]. Previously our department has published extensive research on various aspects of prosthetic dentistry [8–18], this vast research experience has inspired us to research oral hygiene practices among people in the Salem district. The main objective of the study is to gain knowledge about the awareness and habits of oral health and hygiene among rural and tribal populations in and around the Salem district.

2. MATERIALS AND METHODS

A self-administered questionnaire, based on oral hygiene practices was distributed among the people in and around the Salem district. The questionnaire elicited responses about various

aspects of oral hygiene maintenance among the population. The study population included 100 people from rural areas around Salem district enrolled by simple random sampling method. The participants were explained about the purpose of the study in detail. The responses were marked for the corresponding questions by the participants. The data were collected and statistically analyzed. The results were expressed in percentages.

2.1 Questionnaire Used

1. How many times do you brush your teeth daily?
2. Do you visit your dentist regularly?
3. Is there adequate availability of dentists in your area?
4. Are you aware of dental caries?
5. What are the different types of materials you use for brushing your teeth?
6. What type of toothbrush do you use?
7. Are you aware of complications associated with poor oral hygiene?
8. Do you cleanse your mouth after every meal?
9. Do you use any other method for maintaining oral hygiene?

3. RESULTS AND DISCUSSION

Knowledge and practices associated with maintaining proper oral hygiene are of utmost importance as certain oral diseases might also lead to severe problems such as cardiovascular disorders. Inadequate knowledge about oral health leads patients to consult a general physician even for oral problems. The general physician can treat disease only up to a grass-root level. Brushing of teeth plays a very vital role in the maintenance of oral hygiene, prevention of dental caries, and periodontal diseases. Majority of the study participants brushed their teeth at least once in a day (42.2%) (Fig. 1) which was similar to the responses from the study by Aggnur M et al. [5] where 43.2% (64/148) of subjects used to brush only once a day. Similar findings were observed by Ganss et al in their investigation [17]. Almost 70% of the population have the habit of cleaning their mouth after every meal (Fig. 2). It was found that around 70% of the population has easy access to dental clinics (Fig. 3). The population is in the mindset that it is enough to visit a dentist only if there is a problem which was comparable to the responses by the

study Shailee F et al in 2016 where only 10.8% of the study population visits dentist which reflects the poor oral health-seeking behavior [18]. 76% were aware of dental caries and 24% were unaware. (Fig. 4). With respect to the availability of dental practitioners in the locality. 69.8% of the participants are satisfied with the facilities available but 31.2% are not satisfied with the dental facilities available in rural areas which were in contrast with the study done Abdulrahman in 2012 among children in rural areas of Saudi Arabia where 17.3% complains of lack of facilities but this shows that there is a lack of dental facilities available in rural areas [19]. In this study, 76% population are aware of dental caries which is in contrast to the study conducted by Aggnur M et al 2016, about 18% study population are aware that they require restorations and 21% awareness among participants by a study conducted by Harold S et al., 2000 [20].

Fig. 5 shows the majority of the population 58% use toothpaste, 32% use tooth powder, and 10% use both. The usage of different materials for maintaining oral hygiene were similar to the study conducted by Sajjanshetty et al. [2]. Fig. 6 represents the usage of Toothbrushes and neem sticks in cleaning. The majority population 56.4% use a toothbrush, 30.7% use neem sticks, and

12.9% use both. Fig. 7 represents the awareness about complications due to poor oral hygiene. 84% were aware which was similar to the study by Shailee F et al in 2016 where 80% of the participants opined that oral health is associated with general health. The maximum population does not consult a dentist once in 6 months, almost 80% [18]. Fig. 8 represents the practice of cleansing the mouth after every meal, 69.7% had the practice of cleansing the mouth after every meal. Fig. 9 represents the different methods of maintaining oral hygiene. 25.4% did flossing, 21.1% did cleansing after meals, 30.3% used mouthwash and 23.2% did tongue cleaning (green). From the study results obtained, knowledge about the usage of different products and methods to maintain oral hygiene was adequate.

There is accumulating evidence of an association between some common infections of man and ATH. One possible mechanism is through endothelial injury by infectious agents, triggering in part; an inflammatory response seen in ATH. The role of infections has been recently reviewed by Danesh and colleagues; there is mounting evidence that infection by *Chlamydia pneumoniae*, *Helicobacter pylori*, Periodontal bacteria, and Cytomegalovirus are associated with heart disease [21,22].

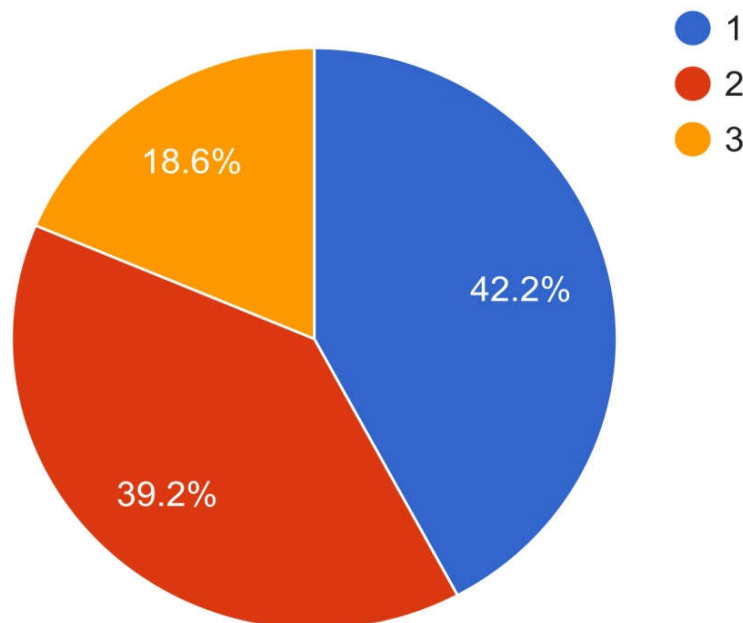


Fig. 1. Pie chart representing the number of times the participants brush their teeth in a day. Majority of the participants 42.2% brush once a day (blue), 39.2% brush twice (red) and 18.6% brush thrice (yellow)

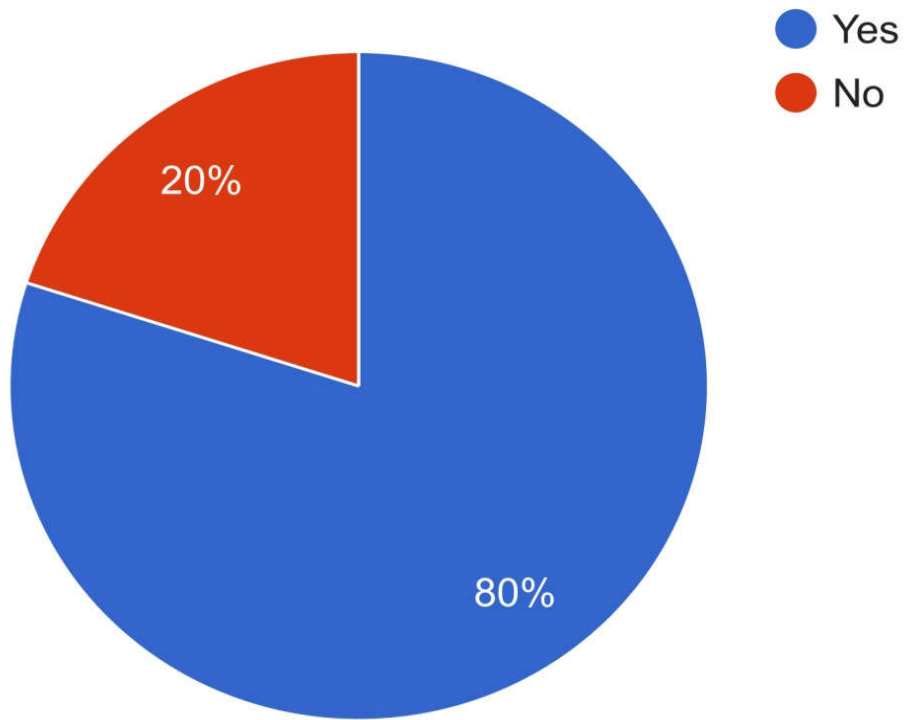


Fig. 2. Pie chart representing participants thoughts on visiting a dentist regularly even when there are no problems. 80% said yes (blue) and 20% said no (red)

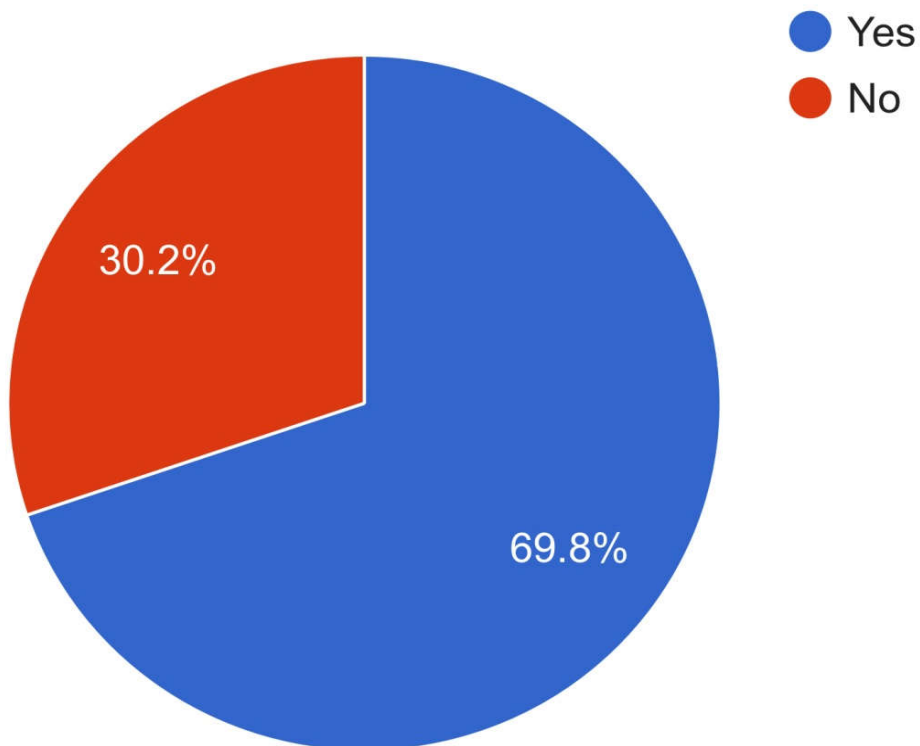


Fig. 3. Pie chart representing availability of dental practitioners in the locality. 69.8% said yes (blue) and 30.2% said no (red)

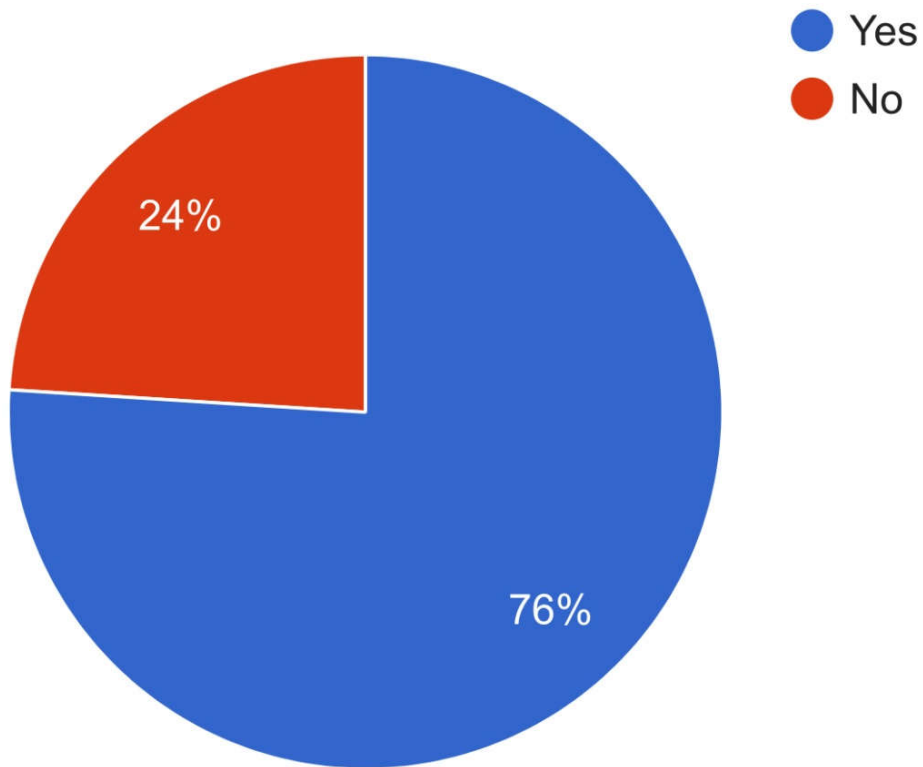


Fig. 4. Pie chart representing awareness of dental caries among participants. 76% were aware (blue) and 24% were unaware (red)

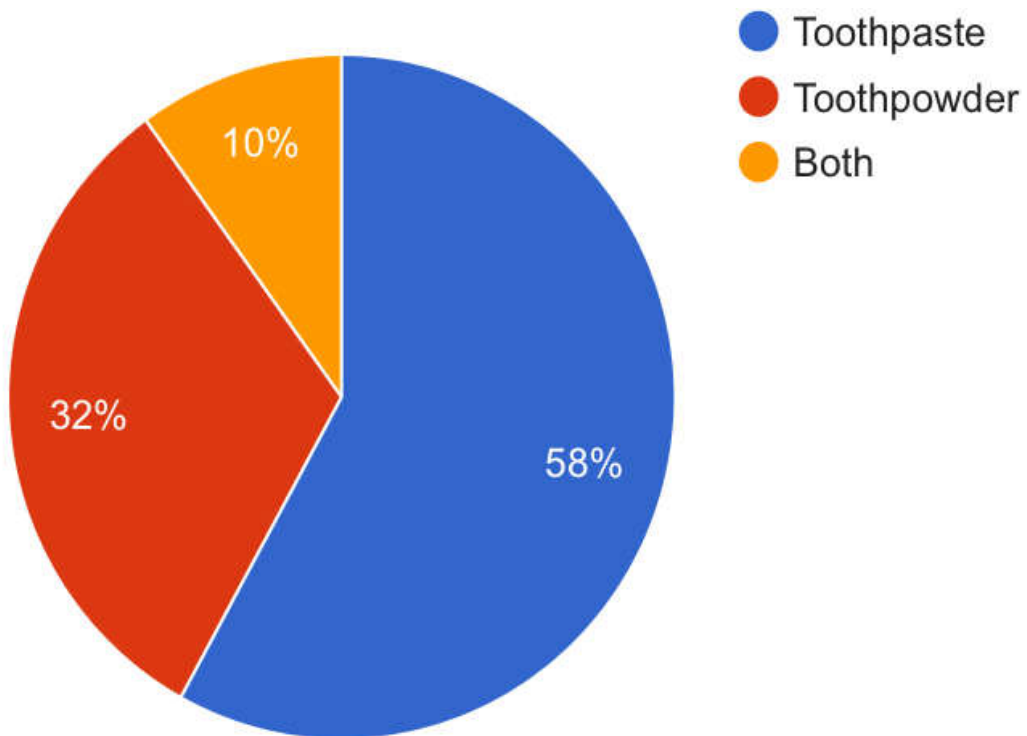


Fig. 5. Pie chart representing usage of different products to brush teeth. Majority of the population 58% use toothpaste (blue), 32% use tooth powder (red) and 10% use both (yellow)

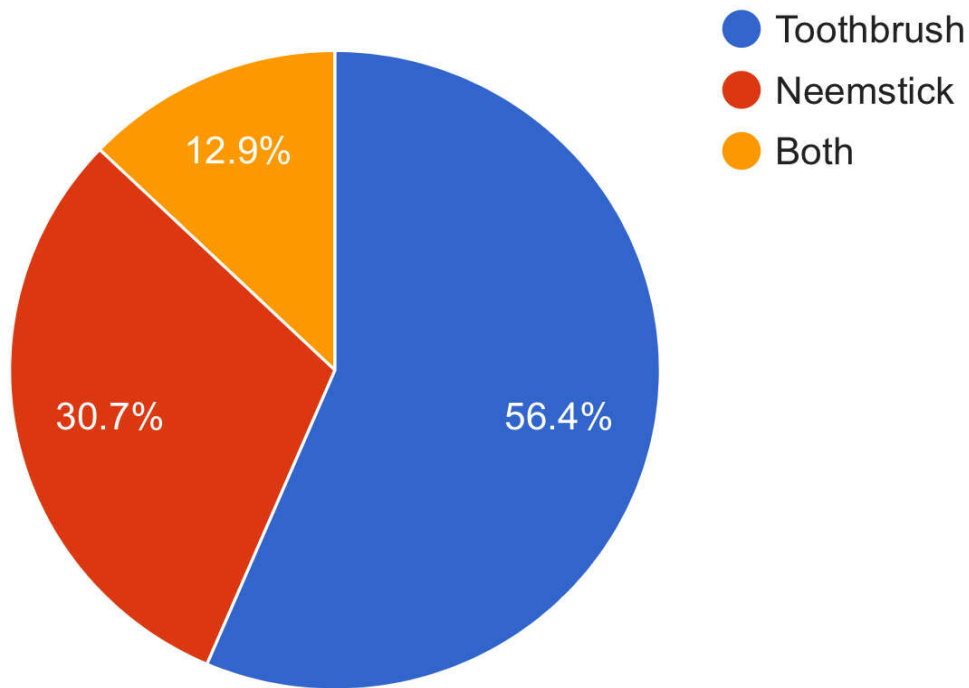


Fig. 6. Pie chart representing usage of Toothbrushes and neemsticks in cleaning. Majority population 56.4% use a toothbrush (blue), 30.7% use neem sticks (red) and 12.9% use both (yellow)

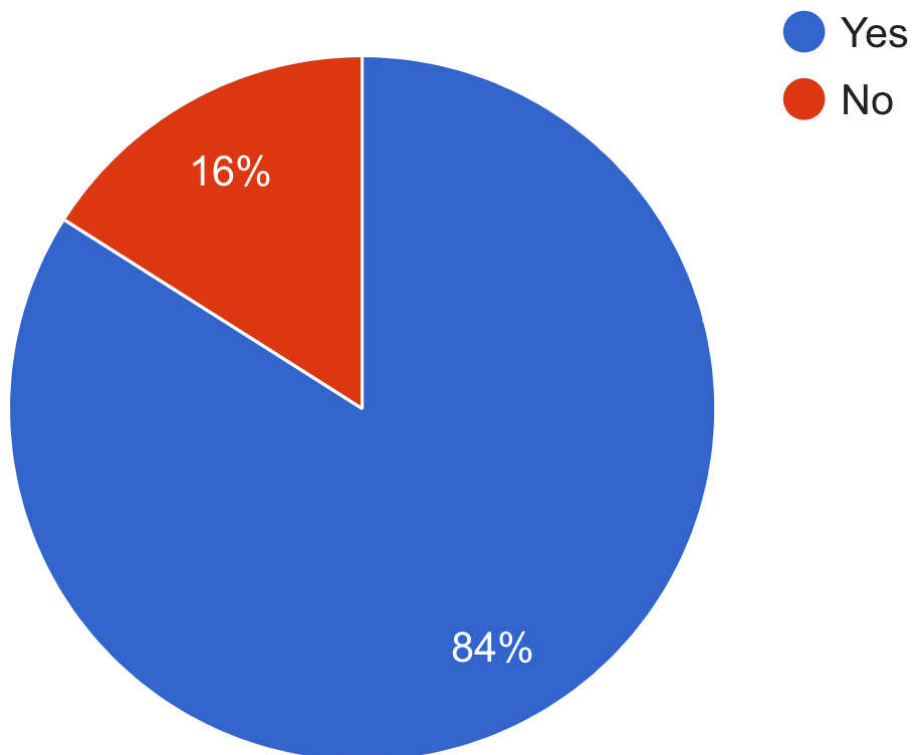


Fig. 7. Pie chart representing awareness about complications due to poor oral hygiene. 84% were aware (blue) and 16% were unaware (red)

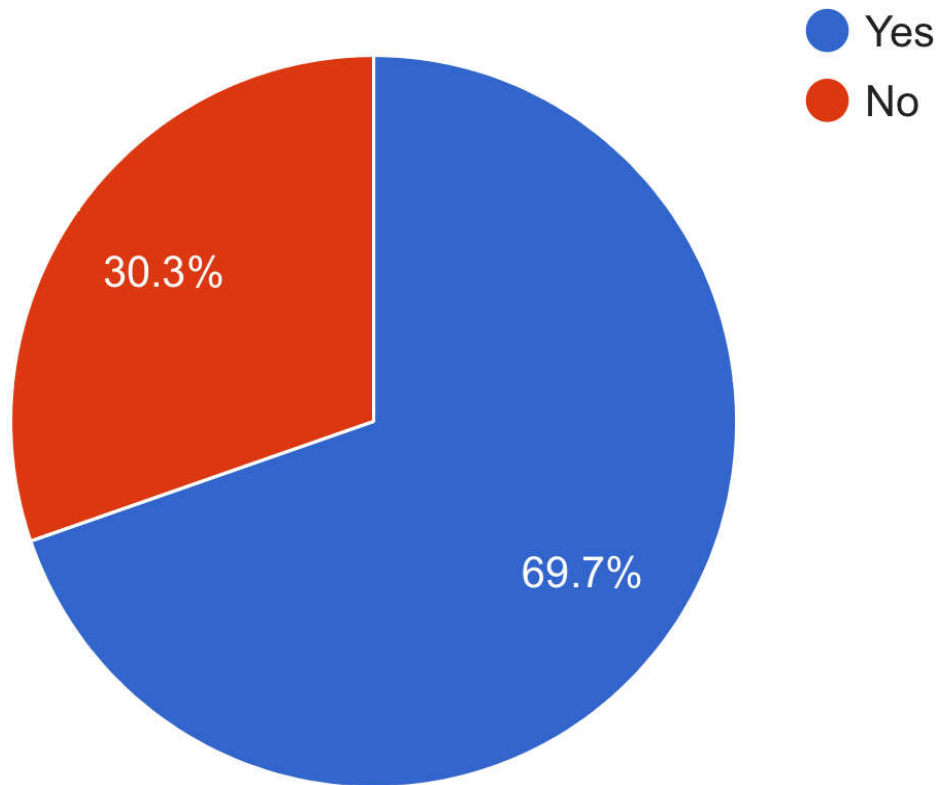


Fig. 8. Pie chart representing practice of cleansing mouth after every meal. 69.7% had the practice (blue) and 30.3% were not in the practice (red)

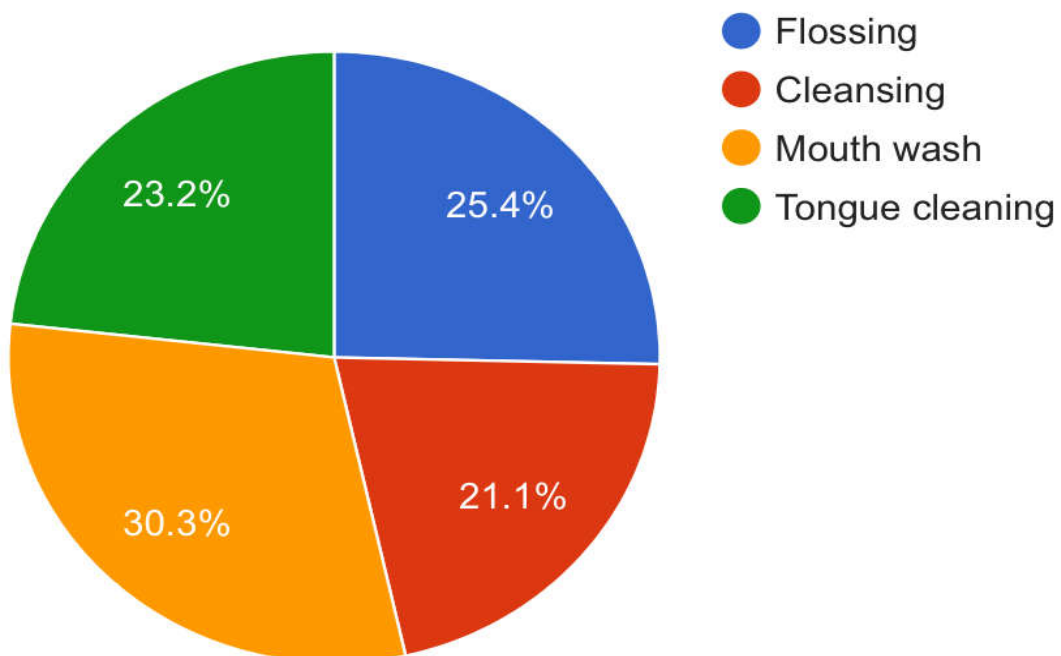


Fig. 9. Pie chart representing different methods of maintaining oral hygiene. 25.4% did flossing (blue), 21.1% did cleansing with water after every meal (red), 30.3% used mouth wash (yellow) and 23.2% did tongue cleaning (green)

There is increasing amount of evidence that periodontal infections may directly contribute to the pathogenesis of ATH and thromboembolic events by providing repeated systemic challenges with liposaccharides and inflammatory cytokines [23]. Herzberg and co-workers have reported that the *Streptococcus sanguis* and *Porphyromona gingivalis* have been shown to induce platelet aggregation and activation through the expression of collagen-like platelet aggregation-associated proteins. The aggregated proteins may play a role in atheroma formation and thromboembolic events [24].

A study by Haraszthy *et al.* identified periodontal pathogens in human carotid atheromas . Fifty carotid atheromas obtained at endarterectomy were analyzed for the presence of bacterial 16S rDNA by PCR (polymerase chain reaction) using synthetic oligonucleotide probes specific for periodontal pathogens *Aggregatibacter actinomycetemcomitans*, *Bacteriodes forsythus*, *P. gingivalis* and *P. intermedia*. Thirty percent of specimens were positive for *B. forsythus*; 26% for *P. gingivalis*, 18% for *Aggregatibacter actinomycetemcomitans*, and 14% for *P. intermedia*. Additional direct evidence comes from infections with *P. gingivalis* that contribute to systemic inflammation comes from animal studies (mice) shows calcification of aortic atherosclerotic plaque with exposure to *P. gingivalis* infection. Increasing the length of exposure to the pathogens increases the amount of calcification. Moreover 44% of atheromas have one or more periopathogens [25,26]. These and other studies suggest that periodontal pathogens may be present in atherosclerotic plaques, where like other infectious organisms periodontal pathogens too play a role in atherogenesis and cardiovascular illness.

4. CONCLUSION

This study concluded that, majority of the people living in rural areas have adequate knowledge about oral health and its importance, the establishment of more dental clinics around rural areas could improve their overall dental health. Oral health education programs should be conducted in schools close to the rural areas to impose a positive attitude on oral health among children.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The ethical approval for the study was obtained by the Institutional review board.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Research CM, Case Medical Research. Endothelin Concentrations In a Population With Cardiovascular Disease And Periodonitis [Internet]. Case Medical Research; 2019. Available:<http://dx.doi.org/10.31525/ct1-nct04152005>
2. Villela B, Cogen RB, Bartolucci AA, Birkedal-Hansen H. Collagenolytic activity in crevicular fluid from patients with chronic adult periodontitis, localized juvenile periodontitis and gingivitis, and from healthy control subjects [Internet]., Journal of Periodontal Research. 1987;22:381–9. Available:<http://dx.doi.org/10.1111/j.1600-0765.1987.tb01603.x>
3. Priya M, Devdas K, Amarlal D. Oral health attitudes, knowledge and practice among school children in Chennai, India. Journal of education [Internet]; 2013. Available:<http://www.urologyannals.com/article.asp?issn=0974-7761;year=2013;volume=3;issue=1;page=26;epage=33;aualast=Priya>
4. Sajjanshetty M, Rao A, Gururaghavendran R. Oral health knowledge and practices: their influence on oral health status of auxiliary health workers in health centers of Mangalore, India. Journal of Indian [Internet]; 2019. Available:<http://www.jiaphd.org/article.asp?issn=2319-5932;year=2019;volume=17;issue=2;spage=97;epage=102;aualast=Sajjanshetty>
5. Ahmed SM, Soliman AMA, Elmagrabi NM, Sayed S. Oral health knowledge, attitude and practice among primary school children In rural areas of Assiut Governorate. Egyptian Journal of Community Medicine [Internet]. 2015; 33(4).

- Available:https://ejcm.journals.ekb.eg/article_693.html
6. Souza JGS, Martins AME de BL. Dental pain and associated factors in Brazilian preschoolers. *Rev Paul Pediatr*. 2016; 34(3):336–42.
 7. Aggnur M, Garg S, Veerasha K, Gambhir R. Oral health status, treatment needs and knowledge, attitude and practice of health care workers of Ambala, India - A Cross-sectional Study. *Ann Med Health Sci Res*. 2014;4(5):676–81.
 8. Anbu RT, Suresh V, Gounder R, Kannan A. Comparison of the Efficacy of Three Different Bone Regeneration Materials: An Animal Study. *Eur J Dent*. 2019;13(1):22–8.
 9. Ashok V, Ganapathy D. A geometrical method to classify face forms. *J Oral Biol Craniofac Res*. 2019;9(3):232–5.
 10. Ganapathy DM, Kannan A, Venugopalan S. Effect of coated surfaces influencing screw loosening in implants: a systematic review and meta-analysis. *World Journal of Dentistry*. 2017;8(6):496–502.
 11. Jain AR. Clinical and functional outcomes of implant prostheses in fibula free flaps. *World Journal of Dentistry*. 2017;8(3):171–6.
 12. Ariga P, Nallaswamy D, Jain AR, Ganapathy DM. Determination of correlation of width of maxillary anterior teeth using extraoral and intraoral factors in indian population: A systematic review. *World Journal of Dentistry*. 2018;9(1):68–75.
 13. Evaluation of corrosive behavior of four nickel–chromium alloys in artificial saliva by cyclic polarization Test: An *in vitro* study. *World Journal of Dentistry*. 2017; 8(6):477–82.
 14. Ranganathan H, Ganapathy DM, Jain AR. Cervical and incisal marginal discrepancy in ceramic laminate veneering materials: A SEM analysis. *Contemp Clin Dent*. 2017; 8(2):272–8.
 15. Jain AR. Prevalence of partial edentulousness and treatment needs in rural population of South India. *World Journal of Dentistry*. 2017;8(3):213–7.
 16. Duraisamy R, Krishnan CS, Ramasubramanian H, Sampathkumar J, Mariappan S, Navarasampatti Sivaprakasam A. Compatibility of nonoriginal abutments with implants: evaluation of microgap at the implant-abutment interface, with original and nonoriginal abutments. *Implant Dent*. 2019;28(3):289–95.
 17. Gupta P, Ariga P, Deogade SC. Effect of monopoly-coating agent on the surface roughness of a tissue conditioner subjected to cleansing and disinfection: A contact profilometric study. *Contemp Clin Dent*. 2018;9(1):S122–6.
 18. Varghese SS, Ramesh A, Veeraiyan DN. Blended module-based teaching in biostatistics and research methodology: A retrospective study with postgraduate dental students. *J Dent Educ*. 2019;83(4): 445–50.
 19. Ganss C, Schlueter N, Preiss S, Klimek J. Tooth brushing habits in uninstructed adults—frequency, technique, duration and force [Internet]. *Clinical Oral Investigations*. 2009;13:203–8. Available:<http://dx.doi.org/10.1007/s00784-008-0230-8>
 20. Shailee F, Girish MS, Kapil RS, Nidhi P. Oral health status and treatment needs among 12- and 15-year-old government and private school children in Shimla city, Himachal Pradesh, India. *J Int Soc Prev Community Dent*. 2013;3(1):44–50.
 21. Kalayoglu MV, Byrne GI. A Chlamydia pneumoniae Component That Induces Macrophage Foam Cell Formation Is Chlamydial Lipopolysaccharide [Internet]. *Infection and Immunity*. 1998;66:5067–72. Available:<http://dx.doi.org/10.1128/iai.66.1.5067-5072.1998>
 22. Danesh J, Collins R, Peto R. Chronic infections and coronary heart disease: is there a link? [Internet]. *The Lancet*. 1997; 350:430–6. Available:[http://dx.doi.org/10.1016/s0140-6736\(97\)03079-1](http://dx.doi.org/10.1016/s0140-6736(97)03079-1)
 23. Baelum V, Fejerskov O, Karring T. Oral hygiene, gingivitis and periodontal breakdown in adult Tanzanians [Internet]. *Journal of Periodontal Research*. 1986;21: 221–32. Available:<http://dx.doi.org/10.1111/j.1600-0765.1986.tb01454.x>
 24. Herzberg MC, Meyer MW. Effects of oral flora on platelets: possible consequences in cardiovascular disease [Internet]. *Journal of Periodontology*. 1996;67:1138–42.

- Available:<http://dx.doi.org/10.1902/jop.1996.67.10s.1138>
25. Haraszthy VI, Zambon JJ, Trevisan M, Zeid M, Genco RJ. Identification of Periodontal pathogens in atheromatous plaques [Internet]. Journal of Periodontology. 2000;71:1554–60.
- Available:<http://dx.doi.org/10.1902/jop.2000.71.10.1554>
26. Kuramitsu HK, Qi M, Kang IC, Chen W. Role for periodontal bacteria in cardiovascular diseases [Internet]. Annals of Periodontology. 2001;6:41–7. Available:<http://dx.doi.org/10.1902/annals.2001.6.1.41>

© 2020 Kishore et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/59735>