Oral Hygiene Practices among People in Salem District

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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.

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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.

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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].

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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. 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 actinomyecetemcomitans, Bacteriodes forsythus, P. gingivalis* and *P. intermedia*. Thirty percent of specimens were positive for *B. forsythus*; 26% for *P. gingivalis*, 18% for *Aggregatibacter actinomyecetemcomitans*, 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.

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