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# Oral Hygiene Aids Knowledge and Practice among People Attending Dental Institution

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## Abstract

**Aim:** Various materials and methods are suggested and used for the purpose of removing food particles and other deposits from surfaces of teeth to keep them healthy. Even people living in cities, in spite of having easy access to dental care, fall prey to dental diseases due to their negligence of oral hygiene and unhealthy life-style. Therefore the present study was conducted to assess the oral hygiene aids knowledge and practice amongst people attending dental college.

**Methodology**: The design for the current study was descriptive type. A face to face interview was conducted to collect the data using a pretested questionnaire. The questionnaire included questions regarding oral hygiene knowledge and practice. The results were analyzed by descriptive statistics including percentages and Chi-square test was used. All tests were set at a 0.05 significance level

**Results**: Except for tongue cleaning, knowledge and practice related to other oral hygiene aids is low in this population. With regard to tooth brushing there was a statistically significant difference in both knowledge and practice in relation to age group. In case of interdental aids significant difference was seen in relation to gender and high and low socioeconomic status group in both knowledge and practice wise, whereas in case of mouth rinsing, socioeconomic status groups showed a significant difference. In case of dental visit, significant difference was seen in socioeconomic status group in both knowledge and practice.

**Conclusion**: Study results showed that except for tongue cleaning, knowledge and practice related to other oral

hygiene aids is low in this population. Hence, there is a need to motivate people regarding their oral hygiene knowledge and practice, through the dentists, outreach programs and relevant public health awareness measures to make a healthy individual and a healthy society.

**Keywords:** Oral Hygiene Aids, Toothbrushing, Mouthrinsing.

**Introduction**

Oral diseases constitute public health issue in developing countries due to their high prevalence, economic consequences and negative impact on the quality of life of affected individuals. Oral diseases can be prevented by optimizing the oral health practices in the form of proper tooth brushing, use of dental floss, visit to the dentist at regular intervals and proper dietary practices.[1] The two most prevalent oral diseases, dental caries and periodontal diseases are largely preventable through a combination of professional and self-care activities and the people's attitude and behavior play an important role in development and prevention of oral diseases.[4] Oral self-care practices have been proved to be an effective preventive measure at individual level for maintaining good oral health as a part of general health.[2] Maintaining good oral hygiene is a must for having healthy teeth and gingiva. Various materials and methods are suggested and used for the purpose of removing food particles and other deposits from surfaces of teeth to keep them healthy. Oral diseases especially periodontal disease and dental caries are caused by accumulation and build up of plaque and bacteria. Plaque acts as a substrate of cariogenic bacteria, which in turn produce acid resulting in dissolution of teeth hence causing dental caries and also inflammation of the gums (gingivitis) and tooth supporting structures (periodontitis). Oral hygiene aids/tools are used to remove and/or inhibit "growth" of plaque thus prevent initiation and perpetuation of periodontal disease and dental caries. Loe et al in 1985 showed that careful cleaning of teeth using oral hygiene aids i.e., toothbrushes, toothpastes and other devices such as chewing sticks, wood points and dental floss keeps them free from plaque and maintains the gingivae in a state of clinical health.

The use of oral hygiene aids may improve tooth cleaning effectiveness provided that cleaning is sufficiently through and performed at appropriate intervals.[3] The American Dental Association (ADA) recommends that brushing and flossing be performed thoroughly at least once a day, with brushing duration being optimally about 3min.[5] Dental floss, toothpicks, and single tufted brushes are some of the tools recommended for interdental cleaning. The National Oral Health Survey, conducted in 2005, by the Indian Dental Association (IDA), highlighted that 95% of the population in India suffers from gum disease, only 50% use a toothbrush, and just 2% of the population visit the dentist.[6] Oral health knowledge is considered to be an essential prerequisite for health related behavior, although only a weak association seems to exist between knowledge and behavior in cross- sectional studies, nevertheless studies have shown that there is an association between knowledge and better oral health.[7]

Maintaining good oral hygiene is a must for having a good oral health. Lack of information is among the reasons for non adherence to oral hygiene practices. Therefore the aim of the present study is to assess the knowledge and practice about oral hygiene aids among adult people attending dental college with the objectives to determine the perceived knowledge of oral hygiene aids and to assess the practice of oral hygiene aids among the people attending dental college.

**Methodology**

A descriptive, hospital-based study was conducted, with a cross-sectional design among patients attending SDM College of Dental Sciences and Hospital, Dharwad to assess their oral hygiene aids knowledge and practice.

**Ethical clearance**

Prior to the start of the study, a protocol of the intended study was submitted to the Ethical Review Committee, S.D.M. College of Dental Sciences and Hospital, Dharwad. Ethical clearance was obtained for the present study by the above mentioned Ethical Review Committee

**Study duration**

The study was conducted over a period of one month (from 1st April 2016 to 30th April 2016)

**Study population**

Study population was people attending dental college, aged 18yrs and above belonging to both the genders. Data were collected from the OPD over a period of one month.

**Inclusion criteria**

1. Patients above 18 years of age,
2. Patients willing to participate in the study
3. Patients who gave verbal consent, and were able to understand and answer the questions, were included in the study.

**Exclusion criteria**

1. Patients suffering from debilitating diseases were excluded from the study.

**Sample size determination**

A pilot study was conducted on 30 people attending the dental college to check the reliability of the questionnaire and to determine the sample size. The value of Cronbach's coefficient α was 0.78. Formula for sample size estimation used was.

$$S = \frac{(Z_{1-\alpha/2})^2 p\,(1-p)}{d^2}$$

$Z_{1-\alpha/2}$ = standard normal variate (at 5% type 1 error) = 1.96

p = expected proportion in population based on pilot study (0.5)

d= absolute error or precision = 0.05

$$= \frac{(1.96)^2 \times 0.5(1-0.5)}{(0.05)^2} = 384$$

Based on the pilot study result, a total of **384** subjects were taken for this study

**Procedure of data collection**

Before the actual study, the questionnaire was designed in consultation with experts on the subject and pre-testing of the same was done to assure its validity. Following that, the necessary correction and modification was incorporated.

The questionnaire included patient's sociodemographic profile like name, age, gender, marital status, occupation, family income, education, address and religion which were used as independent variables. Modified Kuppuswamy's socio-economic status scale, revised for 2016 was used to access the socio-economic status of the participants.[15]

The above mentioned socioeconomic classes were further dichotomized into two groups i.e., high socioeconomic group which included upper class and upper middle class and low socioeconomic group which included lower middle class, upper lower class and lower class.

The questionnaire was closed ended type, consisting of 17 questions, of which 8 were knowledge based and 9 were practice based questions. Knowledge related questions (knowledge regarding toothbrushing, mouthrinses, interdental aids etc) and questions related

to practices (how often they visit the dentist, toothbrushing practices etc).

Patients were informed about the purpose of the study and were assured about the confidentiality. After getting verbal consent, the data were collected by an interview method through a questionnaire.

The overall knowledge and practices concerning oral hygiene aids were assessed based on their responses to questions pertaining to oral hygiene knowledge and practice. The answers to each question were numerically coded (the correct answers were given a value of one and incorrect answers were given a value of zero.)

The data were entered in the Microsoft excel sheet and Statistical Package for Social Sciences (SPSS) software 20.0 version (Chicago, SPSS Inc.) was used for statistical analysis. The results were analyzed by descriptive statistics including percentages and Chi-square test was used. All tests were set at a 0.05 significance level.

**Results**

A total of 384 subjects participated in the present study. Table 1 shows the distribution of the study subjects according to their age and gender. Out of **384** people, there were **203 males** with the mean age of **35.09 years** and **181 females** with the mean age of **32.28 years.** **Table 2** shows the distribution of the study subjects according to different age group. **59.37%** belong to 18-20 yrs age group, **24.47%** belong to 31-40 yrs age group and **16.66%** belong to 41-50 yrs age group. **Table 3** shows the distribution of study population in different education group. Majority (30.98%) of the population were graduates/PG whereas 5.98 % subjects were illiterates. **Table 4** shows the distribution of study population according to their profession. 38.02% of the participants were clerks, shop owners, farmers whereas 15.62% of the participants were unemployed. **Table 5** shows the distribution of study population according to their family income **27.60%** people belong to 2165-6430 and the least **0.78%** belong to ≥ 42876. **Table 6** shows the distribution of study population according to their socio economic class. **37.5%** belong to upper lower class followed by **32.81%** belong to lower middle class and least **(1.04%)** belong to upper class. **Table 7** shows the distribution of study population according to their socio economic group. Class was further dichotomized into 2 groups, upper and lower socio economic group. Upper socio economic group includes Upper class and Upper middle class and lower socio economic group includes Lower middle class, Upper lower class and lower class. Hence **62 (16.14%)** people belong to upper socio economic group and **322 (83.84%)** people belong to lower socio economic group. **Figure 1** shows the percentage of people with knowledge and practice of oral hygiene aids. Regarding tooth brushing, **58.5%** of the people has knowledge and **58.3%** practice, in relation to interdental aids **26%** of the people has knowledge and **12%** practice, **68%** of the people has the knowledge and **18.5%** people practice mouth rinsing, In relation to Tongue cleaning **97%** of the people has knowledge and **94.5%** people practice and **16%** has knowledge regarding dental visit and **9.6%** practice it. **Table 8** shows the comparison of oral hygiene aids knowledge among the study population with respect to different demographic parameters. In tooth brushing there was a statistically significant difference, age group and gender wise. In case of interdental aids significant difference was seen w.r.to all the 3 variables, whereas in case of mouth rinsing in SES group there was a significant difference. In tongue cleaning, there was no significant difference w.r.to any of the variables. In case of dental visit, significant difference was seen age and SES group wise. **Table 9** shows the comparison of oral

hygiene aids practice among the study population with respect to different demographic parameters. In tooth brushing there was a statistically significant difference w.r.to age group. In case of interdental aids and mouthrinsing significant difference was seen w.r.to gender and SES group. In tongue cleaning, there was no significant difference w.r.to any of the variables. In case of dental visit, significant difference was seen in SES group.

Table 1: Distribution of the study population according to gender

| Gender | | Mean Age ± Sd (Years) |
|---|---|---|
| Males | 203 | 35.09±13.07 |
| Females | 181 | 32.28±13.2 |
| Total | 384 | 33.72±13.18 |

SD- Standard Deviation

Table 2: Distribution of the study population according to age group

| Age groups | No of subjects | Percent |
|---|---|---|
| 18-30yrs | 228 | 59.37 |
| 31-40yrs | 94 | 24.47 |
| 41-50yrs & < | 62 | 16.66 |
| Total | 384 | 100 |

Table 3: Distribution of the study population according to different educational group

| Characteristics | No. of Subjects | Percent |
|---|---|---|
| Professional Degree | 3 | 0.7 |
| Graduate/PG | 119 | 30.98 |
| Intermediate or post high school diploma | 78 | 20.31 |
| High school certificate | 73 | 19.01 |
| Middle school certificate | 65 | 16.92 |
| Primary school certificate | 23 | 5.98 |
| Illiterate | 23 | 5.98 |

Table 4: Distribution of the study population according to their profession

| Occupation | No. of Subjects | Percent |
|---|---|---|
| Professional | 4 | 1.04 |
| Semi-professional | 23 | 5.98 |
| Clerical, shop owner, farmer | 146 | 38.02 |
| Skilled worker | 92 | 23.95 |
| Semi- skilled worker | 39 | 10.15 |
| Unskilled worker | 20 | 5.20 |
| Unemployed | 60 | 15.62 |

Table 5: Distribution of the study population according to their family income

| Family Income Per Month In Rupees | No. of Subjects | Percent |
|---|---|---|
| ≥ 42876 | 3 | 0.78 |
| 21438- 42875 | 24 | 6.25 |
| 16078- 21437 | 48 | 12.5 |
| 10719-16077 | 62 | 16.14 |
| 6431-10718 | 87 | 22.65 |
| 2165-6430 | 106 | 27.60 |
| ≤2164 | 54 | 14.06 |

Table 6: Distribution of the study population according to different socio economic classes

| Class | Total Score | No of Subjects | Percent |
|---|---|---|---|
| Upper class | 26-29 | 4 | 1.04 |
| Upper middle class | 16-25 | 58 | 15.10 |
| Lower middle class | 11-15 | 126 | 32.81 |
| Upper lower class | 5-10 | 144 | 37.5 |
| Lower class | <5 | 52 | 13.5 |

Table 7: Distribution of the study population according to different socio economic group

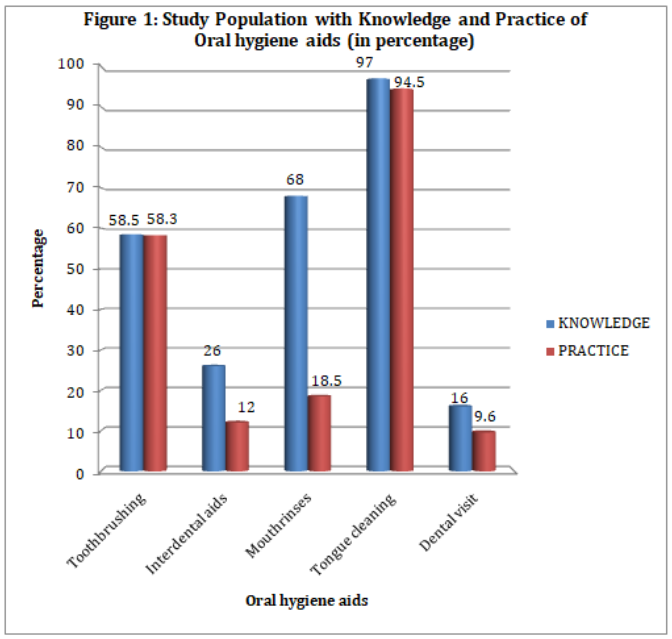
| Group | No of Subjects | Percent |
|---|---|---|
| High Socioeconomic group | 62 | 16.14% |
| Low Socioeconomic group | 322 | 83.86% |

Table 8: Comparison of oral hygiene aids knowledge among the study population with respect to different demographic parameters

| Variables | | Oral hygiene aids knowledge (in percentage) | | | | |
|---|---|---|---|---|---|---|
| | | Tooth brushing | Interdental aids | Mouthrinsing | Tongue cleaning | Dental visit |
| Age | 18-30 years | 35.68 | 18.33 | 38.25 | 54.43 | 11.4 |
| | >30years | 22.82 | 7.67 | 29.75 | 42.57 | 4.6 |
| P value* | | 0.04 | 0.048 | 0.29 | 0.503 | 0.028 |
| Gender | Male | 22.47 | 8.63 | 37.72 | 44.63 | 6.67 |
| | Female | 36.03 | 17.37 | 30.28 | 52.37 | 9.33 |
| P value | | 0.034 | 0.008 | 0.62 | 0.41 | 0.31 |
| Socioeconomic (SES) Group | High SES group | 30.03 | 19.72 | 47.01 | 56.29 | 11.24 |
| | Low SES group | 28.47 | 6.28 | 20.99 | 40.71 | 4.76 |
| P value | | 0.29 | 0.041 | 0.033 | 0.52 | 0.002 |

Table 9: Comparison of oral hygiene aids practice among the study population with respect to different demographic parameters

| Variables | | Oral hygiene aids practice (in percentage) | | | | |
|---|---|---|---|---|---|---|
| | | Tooth brushing | Interdental aids | Mouthrinsing | Tongue cleaning | Dental visit |
| Age | 18-30 years | 33.43 | 7.2 | 9.32 | 53.47 | 5.4 |
| | >30years | 24.87 | 4.8 | 9.18 | 41.03 | 4.2 |
| P value | | 0.051 | 0.212 | 0.89 | 0.62 | 0.72 |
| Gender | Male | 24.41 | 3.69 | 7.96 | 46.28 | 3.74 |
| | Female | 33.89 | 8.31 | 10.54 | 48.22 | 5.86 |
| P value | | 0.15 | 0.046 | 0.066 | 0.8 | 0.61 |
| Socioeconomic (SES) Group | High SES group | 31.92 | 9.19 | 13.05 | 52.04 | 6.12 |
| | Low SES group | 26.38 | 2.81 | 5.45 | 42.46 | 3.48 |
| P value | | 0.38 | 0.003 | 0.049 | 0.68 | 0.08 |




## Discussion

The study presented a comprehensive overview on knowledge and practice of oral hygiene aids among people attending a dental institution. Results of the study showed that maximum subjects did not have enough knowledge and practice of tooth brushing. This may be due to lack of a systematic plan to provide oral health related knowledge to the population. Younger adults (18 to 30 yrs) had more knowledge and practice of tooth brushing than older ones (>30yrs) which was statistically significant. It may be because, younger adults are more aware about their oral health. Tooth brushing practice was more among females as compared to males, but there was no statistically significant difference, which was similar to the study conducted by Hind Al-Johani.[16] Although in high socioeconomic group knowledge and practice related to tooth brushing was more but it was not statistically significant.

The knowledge and practice of interdental aids was significantly more common among females and in high socioeconomic group as compared to their respective counterparts which is in accordance with the study conducted by Oberoi et al.[1]

The knowledge related to mouth rinsing was high in this study population (68%) but only 18% study subjects were practicing, which is in accordance with the study conducted by Zhu L et al. in which only 17% of the respondents used mouthwashes.[17] Study result also showed that in high socioeconomic group there was more knowledge and practice related to mouth rinsing as compared to low socioeconomic group which was statistically significant. High socioeconomic group people are highly educated and their per capita income is also high. Therefore they may afford mouthrinse as an oral hygiene adjunct in comparison to low socioeconomic group people.

Most of the study population had knowledge and were practicing tongue cleaning, which is quite higher than as reported by Oberoi et al [1] (67.2%). Although, in younger age group, in females and in high socioeconomic group, the knowledge and practice related to tongue cleaning was higher than their respective counterpart but it was not statistically significant.

In this study population both knowledge and practice related to regular dental visit was very low, which is in accordance with study conducted by Sharma et al (12.6%).[18] Younger age group and high socioeconomic group showed more dental visit related knowledge as compared to their respective counterpart, which were statistically significant, this might be because younger age group are more aware of oral health and in high socioeconomic group, high education and high per capita income affect the dental visit.

Appropriate use of oral hygiene aids in conjunction with regular dental visit, is capable of virtually preventing oral disease and maintaining oral health. Tooth brushing and flossing are most commonly used oral hygiene aids,

though interdental brushes and wooden sticks can offer advantages in patients with poor periodontal health.

**Conclusion**

Study results showed that except for tongue cleaning, knowledge and practice related to other oral hygiene aids is low in this population. Hence, there is a need to motivate people through outreach programs and relevant public health awareness measures to make a healthy individual and a healthy society.

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