

Evaluating Oral Hygiene Awareness and the Differences in Gender and Socioeconomic Status among Patients Attending for Oral Prophylaxis

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ABSTRACT

Background: Oral hygiene is mandatory for maintenance of health in the oral cavity as well as other parts of the body. The knowledge about proper oral hygiene practices as well as setting a standard for oral health perceptions is very important in a patient for adequate oral health. By understanding the effect of socioeconomic status and gender on oral health, dental practitioners can focus on promoting awareness among those with poor knowledge about oral hygiene behaviors and can help to modify the attitude of these patients toward oral care. **Purpose of the Study:** The purpose of the study was to determine the level of awareness of oral health and exploring differences in gender and socioeconomic status among patients attending for oral prophylaxis. **Materials and Methods:** A survey was conducted among 250 patients attending the Department of Periodontology, JKK Nattraja Dental College, Komarapalayam, Tamil Nadu, for oral prophylaxis. A face-to-face viva with a structured questionnaire was used to collect information regarding practices and perception about oral hygiene. **Results:** Although majority ($n = 220$) of the patients felt that oral hygiene is mandatory for overall health, males ($n = 91.2\%$) gave more importance than females (84.07%), as more females belonged to lower class and were illiterate and unemployed compared to males. The most commonly used cleaning aid for oral prophylaxis was toothpaste and toothbrush (85.2%). Most of the patients (43.2%) avoided routine visit for oral hygiene maintenance as they did not feel any need for it. **Conclusions:** More number of females showed compromised oral hygiene awareness than males, but there was no statistically significant difference. This was correlated with difference in socioeconomic status as more females belonged to the lower class. Therefore, although gender does not directly play a significant role, along with the socioeconomic status, it may influence the level of awareness of oral hygiene practices among a population.

KEYWORDS: Oral health, oral hygiene awareness, oral hygiene practices, socioeconomic status

INTRODUCTION

One of the major public health concerns are oral diseases due to their high prevalence and effects on the quality of life. Although there are several etiological factors leading to oral diseases such as genetic predispositions, developmental problems, and traumatic incidents, poor oral hygiene is the most significant one.^[1] For good oral health, oral self-care has been proved to be an effective preventive method. The

oral care comprises measures such as professional care, diagnosis, and personal care and prevention.^[2] Thus, the knowledge of oral hygiene practices among patients is an essential prerequisite for providing oral health, and

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lack of information is the reason for nonadherence to oral hygiene practices.

There are various factors which influence the oral hygiene awareness among which the socioeconomic status has a profound effect on oral health behaviors.^[3] WHO International Collaborative Studies have demonstrated a social gradient in periodontal status across high- and low-income countries and various oral care service systems. Social discrepancy in oral health behaviors has been demonstrated in developing countries, with oral health detrimental behaviors being most common in participants of lower socioeconomic status. The lower the standard of living as measured by income, social class and social network, and support, the worse the level of oral health.^[4] Studies have shown that patients from low socioeconomic status were not aware of oral hygiene aids and their uses.

Several studies have also shown that gender differences were related to the degree of compliance with oral hygiene.^[5] Females have demonstrated more awareness about oral hygiene behaviors and more positive dental health attitude than males.^[6] Understanding the effect of gender on oral health would facilitate the development of successful attitude and behavior modification approach toward sustainable oral health.

Since treatment measures alone are insufficient to tackle the underlying cause of oral diseases, oral health inequalities can only be reduced through educating the public about preventive measures such as oral hygiene procedures.^[7,8] Therefore, it is imperative to determine the level of awareness among people belonging to different socioeconomic status and gender to implement effective and appropriate oral health promotion.

This study was conducted to determine the awareness of oral health and exploring differences in gender and socioeconomic status among patients attending JKK Nattraja Dental College, Komarapalayam, Tamil Nadu, for oral prophylaxis.

MATERIALS AND METHODS

A randomized cross-sectional study was conducted among the patients attending the Department of Periodontics, JKK Nattraja Dental College, Komarapalayam, Tamil Nadu. The study participants were recruited by nonprobability convenience sampling method. A total of 605 patients were screened and 250 patients aged between 20 and 60 years were selected according to sample size calculation. The informed consent was obtained from the patients who participated in the study. The Institutional Ethical Committee approval was obtained for the study.

The participants satisfied the inclusion and exclusion criteria. Systemically healthy individuals and the patients willing to give informed consent were included in the study. Patients with a history of systemic disease (debilitating disease or any condition having a substantial effect on oral health), pregnancy and lactation, use of tobacco in any form, and patients who have undergone oral prophylaxis during the past 6 months were excluded from the study. A cross-sectional survey was conducted from May to August 2016, in which self-constructed close-ended questionnaire in English was filled by a dental professional after face-to-face interview with the patients. The questionnaire included questions regarding the oral hygiene practices and perceptions about the relationship of oral health with oral hygiene practices.

The socioeconomic status of the patients was assessed using the Kuppaswamy scale which is based on income, education, and occupation. A weightage was assigned to each variable according to 7-point predefined scale. The total of three weightages gives the socioeconomic status score which is graded to indicate the five classes as shown in Table 1. A total of 250 participants were grouped into Group I: males ($n = 137$) and Group II: females ($n = 113$).

Statistical analysis

Data were analyzed using SPSS software version 19. Number and percentage of responses for the questions and demographic information were calculated. Chi-square test was applied to compare the attitude regarding oral health and oral hygiene practices among males and females.

Table 1: Demographic profile of the study population

	Male (%)	Female(%)	Total(%)
Education			
Illiterate	9(6.56)	23(20.33)	32(12.8)
Primary school (up to 5th standard)	11(8.02)	20(17.69)	31(12.4)
Middle school (6th-8 th standard)	26(18.97)	10(8.84)	36(14.4)
High school (10th pass)	25(18.24)	9(7.96)	34(13.6)
Senior secondary school (12th pass)	14(10.21)	15(13.27)	29(11.6)
Graduate/Post-graduate	49(35.76)	31(27.43)	80(32)
Professional	3(2.18)	5(4.42)	8(3.2)
Total	137(100)	113(100)	250(100)
Occupation			
Unemployed	28(20.43)	25(22.17)	53(21.2)
Unskilled worker.	50(36.49)	41(36.28)	91(36.4)
Semiskilled worker	20(14.59)	27(23.89)	47(18.18)
Skilled worker	2(1.45)	0(0)	2(0.8)
Clerical, shop owner,	25(18.24)	3(2.65)	28(11.2)
Farmer	10(7.29)	12(10.61)	22(8.8)
Semiprofessional	2(1.45)	5(4.44)	7(2.8)
Professional	137(100)	113(100)	250(100)
Total			
Kuppaswamy	12(1.45)	14(12.38)	16(6.4)
Lower	63(45.98)	71(62.83)	134(53.8)
Upper lower	49(35.76)	17(16.04)	66(26.4)
Lower middle	23(16.78)	11(9.73)	34(13.6)
Upper middle	0(0)	0(0)	0(0)
Upper	137(100)	113(100)	250(100)
Total			

RESULTS

The study population included 137 (54.8%) males and 113 (45.2%) female patients. The demographic profile of the population is shown in Table 1 and Graph 1. Although majority ($n = 220$) of the patients felt that oral hygiene is mandatory for overall health, males ($n = 91.2\%$) gave more importance than females (84.07%). However, there was no significant difference in this perception among males and females as shown in Table 2 and Graph 3.

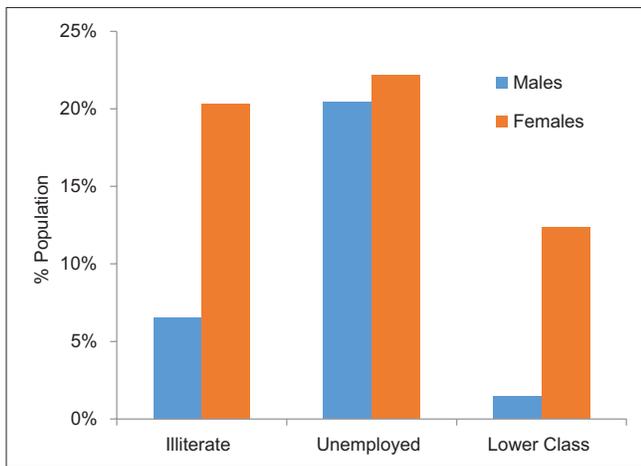
Among the study population, the most commonly used cleaning aid for oral prophylaxis was toothpaste and toothbrush (85.2%). More number of males (83.21%) reported the use of toothbrush in comparison to females (74.43%). While more males used toothpaste with toothbrush and neem stick and more number of females used toothpaste or powder with finger. However, there were no statistically significant gender differences

with regard to the use of cleaning aids among the study participants.

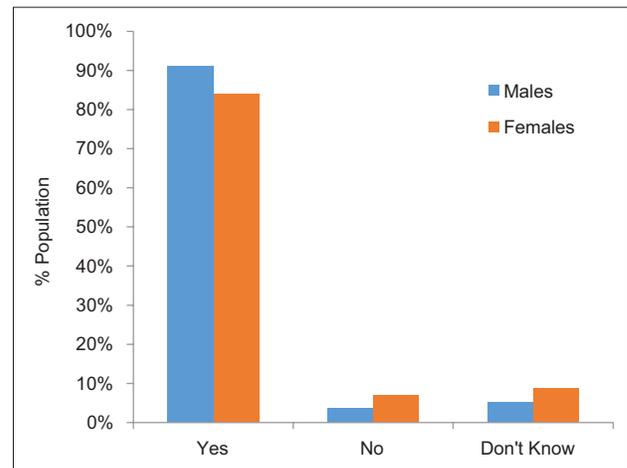
With regard to frequency of cleaning teeth per day, most of the participants brushed their teeth once before or after breakfast (68.4%). Majority of males (70.7%) reported oral hygiene practice once daily whereas majority of females (38%) performed twice daily, but there was no statistically significant difference Graph 3.

There was a significant difference between males and females with respect to duration of cleaning teeth, with most of the patients cleaning their teeth for 3–5 min (50%). More number of males cleaned for 3–5 min and 1–2 min (58.39% and 23.35%, respectively) compared to females (39.82% and 20.35%, respectively). However, 33.62% of females cleaned for more than 5 min whereas males using this duration was only 16.78%.

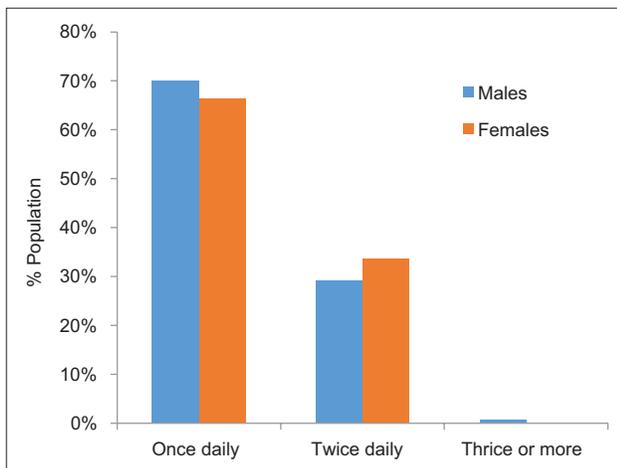
Most of the patients changed their toothbrush once in 3 months (50.4%). Females (56.63%) were more



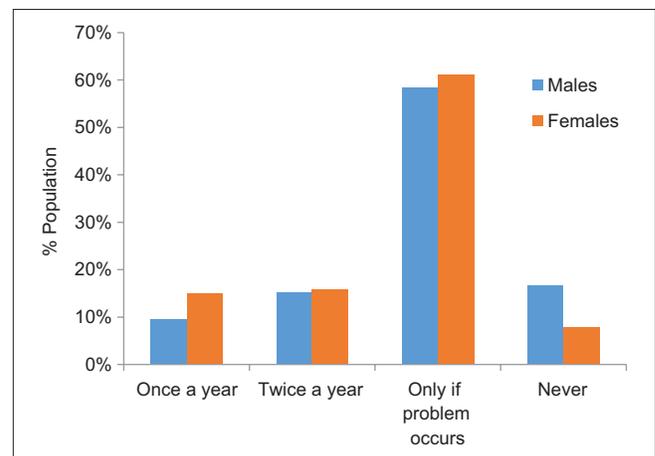
Graph 1: Comparison of demographic profile between males and females in the population



Graph 2: Comparison of percentage of males and females who think oral hygiene is mandatory



Graph 3: Comparison of males and females with regards to frequency of cleaning teeth



Graph 4: Percentage of males and females undergoing routine dental visit

Table 2: Distribution of the oral hygiene practices according to gender

Questions	Response	Male (%)	Female (%)	Total (%)	χ^2	P
Question 1						
Do you think oral hygiene is mandatory for overall health of the body?	Yes	125 (91.2)	95 (84.07)	220 (88)	3.037	0.219
	No	5 (3.64)	8 (7.07)	13 (5.2)		
	Don't know	7 (5.10)	10 (8.84)	17 (6.8)		
Question 2						
Which of the following do you use to clean your teeth?	Toothbrush and toothpaste	114 (83.21)	99 (74.43)	213 (85.2)	5.002	0.172
	Toothbrush and toothpowder	8 (5.83)	1 (0.88)	9 (3.66)		
	Finger and toothpowder/toothpaste	7 (5.10)	8 (7.07)	15 (6)		
	Neem stick/datum	8 (5.83)	5 (4.42)	13 (5.2)		
Question 3						
How often do you clean your teeth?	Once daily before/after breakfast	96 (70.7)	75 (66.37)	171 (68.4)	1.339	0.512
	Twice daily - morning and evening	40 (29.19)	38 (33.62)	78 (31.2)		
	Thrice or more	1 (0.7)	0 (0)	1 (0.4)		
Question 4						
How much time you take for cleaning your teeth?	1-2 min	32 (23.35)	23 (20.35)	55 (22)	15.579	0.001
	3-5 min	80 (58.39)	45 (39.82)	125 (5)		
	>5 min	23 (16.78)	38 (33.62)	61 (24.4)		
	Don't know	2 (1.45)	7 (6.19)	9 (5.6)		
Question 5						
How often do you change your toothbrush?	Once every month	39 (28.46)	18 (15.92)	57 (22.8)	6.023	0.197
	Once in 3 months	62 (45.25)	64 (56.63)	126 (50.4)		
	Once in 6 months	14 (10.21)	11 (9.73)	25 (10)		
	Once every year	7 (5.10)	7 (6.19)	14 (5.6)		
	N/A	15 (10.94)	13 (11.50)	28 (11.2)		
Question 6						
How many times you rinse your mouth with plain water in a day?	Always after meals	92 (67.15)	75 (66.30)	167 (66.8)	1.671	0.643
	Before and after meals	30 (21.89)	27 (23.89)	57 (22.8)		
	Once in the morning	8 (5.83)	8 (7.07)	20 (8)		
	Never	3 (2.18)	3 (2.65)	6 (2.4)		
Question 7						
Do you use commercially available mouth rinse?	Yes	3 (9.48)	9 (7.96)	22 (8.8)	55.070	0.000
	No	122 (89.05)	104 (92.03)	226 (90.4)		
	Sometimes	2 (1.45)	0 (0)	2 (0.8)		
Question 8						
Do you clean your tongue?	Yes	99 (72.26)	88 (77.87)	187 (74.08)	1.035	0.309
	No	38 (27.73)	25 (22.12)	63 (25.2)		
Question 8 (a)						
If yes, what do you use to clean it?	No aid	4 (2.91)	4 (3.53)	8 (3.2)	3.963	0.265
	Tongue cleaner	55 (40.14)	60 (53.09)	115 (46)		
	Toothbrush	27 (19.47)	18 (15.02)	45 (80)		
	Other aids	13 (9.48)	6 (5.30)	19 (7.6)		
Question 9						
Do you use an inter-dental aid	Yes	54 (39.41)	35 (30.97)	89 (35.6)	4.965	0.026
	No	83 (60.58)	87 (76.99)	161 (64.4)		
Question 9 (a)						
If yes, what do use?	Other aids/tooth pick	54 (39.41)	33 (29.20)	87 (34.8)	3.157	0.076
	Dental floss	0 (0)	2 (1.76)	2 (0.8)		
	Interdental brush	0 (0)	0 (0)	0 (0)		
Question 10						

Contd...

Table 2: Contd...

Questions	Response	Male (%)	Female (%)	Total (%)	χ^2	P
How often have you visited a dentist in the last 12 months?	Once	25 (18.24)	19 (1.68)	44 (17.6)	2.861	0.721
	Twice	15 (10.94)	7 (6.19)	24 (9.6)		
	Three times	3 (2.18)	2 (1.76)	5 (2)		
	More than three times	3 (2.18)	5 (4.42)	8 (3.2)		
	No visit since last 12 months	69 (50.36)	61 (53.98)	130 (52)		
	Did not require only	22 (16.05)	19 (1.68)	41 (16.4)		
Question 11						
Do you seek routine dental visit for oral hygiene maintenance?	Once in a year	13 (9.49)	17 (15.04)	30 (12)	5.447	0.142
	Twice in a year	21 (15.32)	18 (15.92)	39 (5.6)		
	Only if a problem is there	80 (58.39)	69 (61.06)	149 (59.6)		
	Never	23 (16.78)	9 (7.96)	32 (12.8)		
Question 12						
What are the potential barriers for avoiding routine visit to a dentist for oral hygiene maintenance?	Cost	17 (12.40)	18 (15.92)	35 (14)	1.324	0.932
	Cost, time	10 (7.29)	7 (6.19)	17 (17.8)		
	Cost, fear	1 (0.729)	2 (1.76)	3 (1.2)		
	Time	36 (26.27)	28 (24.77)	64 (25.6)		
	Fear	13 (9.48)	10 (8.84)	23 (9.2)		
	No need felt	60 (43.79)	48 (42.47)	108 (43.2)		

N/A: Not available

frequently changing their toothbrush every 3 months in comparison to males (45.25%) and 9.73% females changing their toothbrush once every 6 months in comparison to 10.21% males. However, there were no statistically significant gender differences in relation to change of toothbrush.

There were no statistically significant gender differences with respect to rinsing of mouth with water. Majority of patients reported rinsing of mouth with plain water after meal (66.8%), whereas 22.8% rinsed before and after meals and 8% rinsed only once in the morning. Majority of patients reported that they do not use commercially available mouthrinse (90.4%), with significantly more females (90.4%) than males (89.05%).

Out of all the participants, 74.08% reported cleaning of tongue with females (77.87%) using tongue cleaner more frequently than males (72.26%). The use of tongue cleaner was reported by 46% patients, followed by toothbrush (24%) and use of other aids such as finger (7.6%). However, there was a statistically insignificant difference between males and females with respect to the use of aids for tongue cleaning. Interdental aids were not utilized by majority of the participants (64.4%) and significantly more number of females (76.99%) did not utilize this compared to males (60.58%).

Majority of the patients (52%) reported not visiting dentist since past 12 months. Although more females (53.98%) avoided dental clinics than males (50.36%), there was no statistically significant difference.

Among the patients in the present study who visited a dentist for oral prophylaxis, majority visited only if a problem occurred (59.6%), whereas 12.8% had never visited a dentist for oral prophylaxis Graph 4. There was no significant difference in the present study between males and females who visited dentist for routine oral hygiene maintenance. Most of the patients (43.2%) avoided routine visit for oral hygiene maintenance as they did not feel any need for it. Time (25.6%) was the next barrier followed by cost (14%). There was no significant gender difference with regard to barriers for visiting the dentists.

Majority of the participants (53.8%) belonged to upper lower class background. More number of males (16.78%) belonged to the upper middle-class background compared to females (9.73%). Females (12.38%) dominated the lower class background compared to males (1.45%). More females (20.33%) were illiterate compared to males (6.56%), and among the participants who have passed high school, there were more males (18.24%) than females (7.96%). Comparing the rate of unemployment, more females (22.17%) were unemployed than males (20.43%).

DISCUSSION

Periodontal health has become a substantial public health problem at a global scale. Inadequate oral hygiene practices is one of the major reasons for impaired periodontal health and general health. Among the epidemiological indicators of oral diseases, socioeconomic status and gender play a very influential role, especially with regard to oral hygiene behavior

of a population. Nunez *et al.*^[9] have described about disparities among developed and developing countries in relation to oral hygiene measures. Participants belonging to poor socioeconomic background tend to be less aware about the significance of oral hygiene and have limited knowledge about oral hygiene practices. Similarly, gender discrepancy has also been noticed with regard to the level of oral hygiene awareness as described by Kumar *et al.*,^[10] who revealed that females are more informed about toothbrushing and have more interest in oral health than males.

The present study was conducted to determine whether gender and socioeconomic status has influenced the oral hygiene awareness among patients visiting for oral prophylaxis. Among the participants, 88% of believed that oral hygiene is mandatory for overall health of the body, which is concordant with the study by Ali *et al.*,^[11] who found that 81% of participants are aware of the importance of oral hygiene.

The majority of the patients in the present study used toothpaste and toothbrush (85.2%) for cleaning their teeth whereas finger and toothpowder were used by 6% of the patients which was similar to the study conducted by Al-Johani^[12] where almost 95.4% of the patients used toothbrush for cleaning their teeth.

The frequency of toothbrushing was more among males as compared to the females in the present study, but there were no statistically significant differences. Similarly, studies conducted by Al-Johani^[12] and Tseveenjav *et al.*^[13] did not demonstrate any statistically significant difference between genders with regard to toothbrushing.

Frequency of the oral hygiene practices is also an important factor deciding the periodontal health of an individual. Brushing twice daily was reported by 31.2% of the participants in the present study which was almost similar to the study conducted by Al-Johani.^[12] Brushing teeth once daily was reported by majority (68.4%) of the patients in the present study which was similar to the study conducted by Khami *et al.*^[14] (57%). However, there was no significant difference between genders with regard to frequency of toothbrushing. The use of interdental aids was significantly more common among males (39.41%) in comparison to females (30.97%). With regard to mouthrinse, significantly more males used mouthrinses than females.

No regular visit to a dentist was reported by 52% of the participants in the present study which was higher than reported by Steele *et al.*^[15] among British participants (19%–28%) across various age groups. Dental visit within the past 12 months was reported by 48% participants in the present study which was similar

to the studies by Behbehani *et al.*^[16] (49%). In the present study, majority (59.6%) of the participants were under the perception that there was no need to seek dental care unless a problem occurs and there was no significant difference between males and females with regard to the visit for routine oral hygiene maintenance. This is due to the lack of awareness among patients about the preventive measures.

There was no significant difference between both the genders, in aspects such as method and frequency of toothbrushing and the frequency of visiting dental clinic in the present study. However, unlike other similar studies, in the present study, males demonstrated better awareness about oral hygiene than females. This disparity could be due to the variation in the socioeconomic status and demographic profiles as demonstrated by the Kuppusamy scale. Majority of the participants (53.8%) belonged to upper lower class background. More number of males (16.78%) belonged to the upper middle-class background compared to females (9.73%). Females (12.38%) dominated the lower class background compared to males (1.45%). Correlating this with the results from the questionnaire, it was found that males belonged mostly to the upper middle-class background, and so they demonstrated better awareness to oral hygiene practices. Moreover, demographic profile of the population was more favorable for males. More females were illiterate compared to males, and among the participants who have passed high school, there were more males than females. Therefore, it can be estimated that educational background may also influence the level of oral hygiene awareness among people, with males being more educated and hence more aware than females.

Therefore, since female participants were found to be less educated and belonged to low socio-economic status and less aware about the oral hygiene measures, focus must be placed on them and specific set of goals must be suggested to improve the oral hygiene. Knowledge about toothbrushing and flossing and other most commonly used oral hygiene aids has to be instructed to these patients to improve their periodontal health. Moreover, dental practitioners must implement a habit of routine dental visits among patients along with their personal care for maintaining periodontal health.

CONCLUSIONS

Although gender does not directly play a significant role, along with the socioeconomic status, it may influence the level of awareness of oral hygiene practices among a population. Therefore, oral prophylaxis and routine follow-up combined with patient oral hygiene instructions will improve the overall oral hygiene of the individual.

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Conflicts of interest

There are no conflicts of interest.

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