10.5005/jp-journals-10051-0144

ORIGINAL ARTICLE

Assessment of Oral Health Knowledge, Dental Caries, and Periodontal Status among Attendants of Degree Colleges in South India

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ABSTRACT

Introduction: Oral health means more than healthy teeth. Knowledge of oral and general health can be acquired through different ways. Knowledge is a familiarity, awareness, or understanding of someone or something, such as facts, information, description skills which is acquired through experience or education by perceiving or learning that can refer to a theoretical or practical understanding of a subject.

Aims and objectives: The present study was conducted to assess oral health knowledge, dental caries, and periodontal status among attendants in degree colleges in Virajpet.

Materials and methods: The study population included a total of about 110 attendants aged above 20 years from degree colleges who were selected randomly working in six colleges that had given permission for the study. A pretested self-administered questionnaire was distributed to assess oral health knowledge, dental caries, and periodontal status among attendants in degree colleges in Virajpet.

Results: Out of the 110 participants, 51 were males (46.02%) with mean age of 36.62 years and 59 (53.63%) were females with mean age of 34.98 years. Socioeconomic status of the study subjects was assessed using Kuppuswamy scale 2012. Sixty-four attendants belong to lower middle class and 46 belong to lower class. Mean decayed component score is 4.42 in males and 4.0 in females; mean missing component score was 3.2 in males and 3.52 in females. Mean filled component score in males was 1.94 and 1.73 in females. The Corruption Perception Index (CPI) scores among males is 1.33 and in females 1.55, with standard deviation of 0.886 and 0.887. The periodontal status was found to be nonsignificant between the groups (p = 0.212). Loss of attachment (LOA) scores are 0.07 in males and 0.22 in females, with standard deviation of 0.271 and 0.527. Loss of attachment was found to be nonsignificant between the groups (p = 0.086).

Conclusion: Overall oral health knowledge among attendants was not as high as those compared with subjects belonging to other occupation and with different education level in previous literature.

Keywords: Attendants, Dental caries, Oral health knowledge, Periodontal status.

How to cite this article: Warad L, Pulayath CV, Baby M, Ismail SP. Assessment of Oral Health Knowledge, Dental Caries, and Periodontal Status among Attendants of Degree Colleges in South India. Int J Oral Care Res 2018;6(1):24-29.

Source of support: Nil

Conflict of interest: None

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INTRODUCTION

Oral health means more than healthy teeth. The World Health Organization (WHO) has a definition of good oral health: "Oral health means being free of chronic diseases and facial pain, oral and throat cancer, oral sores, birth defects, such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the mouth and oral cavity."[1]

Knowledge of oral and general health can be acquired through different ways.[2,3] Knowledge is a familiarity, awareness, or understanding of someone or something, such as facts, information, description skills, which can be acquired through experience or education by perceiving or learning that can refer to a theoretical or practical understanding of a subject.[4]

Oral health knowledge includes understanding of the combined effects of oral bacteria, fermentable carbohydrates in the diet, daily personal oral health care practices (including brushing), the effects of tobacco, alcohol, and other drugs on oral health, and importance of regular consultation with dentists to maintain oral health, and to find and address pathology in its early stages, when it is most treatable.[5-7]

In developing countries, the attitude toward oral health care and hygiene among these individuals has never been explored. Adequate knowledge regarding oral health is also mandatory as it is directly related to general health.[7]

Attendants working in degree colleges form an important component in the colleges. Limited data exist regarding oral health status of attendants, who provide valuable service by maintaining a good environment for their higher colleagues.[8] The study is planned to evaluate the oral health knowledge, dental treatment experience as well as the oral health status among these attendants. Assessing oral health status in these population groups is important to gather relevant information for planning dental care services and also to generate evidence on final outcomes from dental care delivered to people during their entire lifecycle.[8,9] The main objectives of the present study are to assess oral health knowledge, dental caries, and periodontal status among attendants in degree colleges in Virajpet.

MATERIALS AND METHODS

Coorg, a hilly district in the south-west region of Karnataka, is famous for coffee plantations which is an administrative district in Karnataka, India. There are three Taluks, namely Madikeri, Virajpet, and Somwarpet. The present study is a cross-sectional, self-administered questionnaire survey conducted in Virajpet taluk.

The study participants were selected using convenience sampling method. A total of about 110 attendants working in six colleges, who has given permission for the study were included.

Pilot Study

A pilot study was conducted among six subjects using self-administered questionnaire containing 10 questions. Questionnaire was found to be reliable (Cronbach's alpha = 0.792).

Data Collection

Initially, the questionnaire was prepared in English language, which was then translated into Kannada. It was then back-translated into English language to ensure comprehensibility and validation. The questionnaires were filled out by the respondents themselves. Prior to the distribution of questionnaire, instructions were given in Kannada or local language and filled questionnaires were collected after 15 minutes.

The questionnaire as such was divided into two parts:

Part I: This includes questions on demographic information, which includes age, sex, marital status, working experience in college, education, occupation, and income. Socioeconomic status was assessed by using Kuppuswamy socioeconomic scale (2012 modification).[10]

Part II: Questionnaire containing 10 questions pertaining to the oral health knowledge was recorded by giving three options: Yes, No, and Do not know. Questionnaire includes questions about oral health knowledge regarding dental decay, visit to dentist in previous year, tobacco consumption and oral cancer, dental decay or gum-related problem, brushing habits, use of mouthwashes, and relationship between gum diseases and diabetes.[11,12]

Part III: Clinical assessment: Class III examination was done (use of only diagnostic instruments, disposable gloves, and artificial light) using sterilized instruments following infection control protocol. A single calibrated examiner recorded caries experience and periodontal status by using dentition status and CPI, recording of community periodontal index, LOA, dentition status according to the WHO[13] III criteria, in the WHO oral health assessment form (1997).

Participants aged above 20 years, present on the day of survey, and who were willing to participate were included in the study. The participants were elaborated about the study and written informed consent was obtained. Pregnant and lactating females excluded from the study.

Statistical Analysis

Descriptive statistics were computed using mean and percentage scores. Oral health knowledge and demographic variables were compared using chi-square test. Confidence interval was set at 95% and a p-value <0.05 was considered as significant. Data were analyzed using the Statistical Package for the Social Sciences version 17.0 software.

RESULTS

The demographic data of the respondents are presented in Table 1. A total of 110 attendants participated in the study and all were above the age of 20 years. Among them, 51 were males (46.02%) with mean age of 36.62 and 59 (53.63%) were females with mean age of 34.98.

Socioeconomic status of study subjects was assessed by Kuppuswamy scale as shown in Table 2 and 64 of subjects belong to lower middle class and 46 of subjects belong to lower class.

Oral health knowledge was assessed by evaluating the response of subjects to various questions in the

Table 1: Distribution of study subjects according to gender

Gender	*Number (%)*	*Mean age*	*Total*
Males	51 (46.36)	36.62	110
Females	59 (53.63)	34.08	

Table 2: Distribution of study subjects according to socioeconomic status

Socioeconomic status	*Number (%)*	*Total*
Lower middle	64 (58.18)	110
Lower	46 (41.81)	

Table 3: Gender-wise response to questions on oral health knowledge

Questions	Gender	Response			χ^2	p-value
		Yes	No	Do not know		
Do you think dental decay can cause bad breath, oral cancer?	Male	34 (66.7%)	15 (29.4%)	2 (3.9%)	2.489	0.289 NS
	Female	34 (57.6%)	18 (30.5%)	7 (11.9%)		
Have you visited dentist for toothache or restoration purpose in previous year?	Male	31 (60.8%)	20 (39.2%)	0 (0%)	4.446	0.108 NS
	Female	43 (72.9%)	14 (23.7%)	2 (3.4%)		
Is there a relation between dental cavities and sweets?	Male	33 (64.7%)	13 (25.5%)	5 (9.8%)	1.919	0.383 NS
	Female	40 (67.8%)	17 (28.8%)	2 (3.4%)		
Does tobacco consumption cause oral cancer?	Male	38 (74.5%)	12 (23.5%)	1 (2.0%)	1.535	0.454 NS
	Female	43 (72.9%)	12 (20.3%)	4 (6.8%)		
Is there any toothache or related problem like gum bleeding?	Male	17 (33.3%)	32 (62.5%)	2 (3.9%)	2.57	0.277 NS
	Female	18 (30.5%)	41 (69.5%)	0 (0%)		
Do you brush your teeth regularly?	Male	43 (84.0%)	8 (16%)	0 (0%)	0.339	0.560 NS
	Female	52 (88.1%)	7 (11.9%)	0 (0%)		
Do you use mouthwash to improve oral health?	Male	22 (44%)	28 (56%)	1 (1.7%)	0.926	0.629 NS
	Female	27 (45.8%)	31 (52.5%)	1 (1.7%)		
Do you have smoking or tobacco chewing habit?	Male	10 (19.6%)	41 (80.4%)	0 (0%)	1.824	0.402 NS
	Female	16 (27.1%)	42 (71.2%)	1 (1.7%)		
Do you rinse your oral cavity with plain water after every meal?	Male	42 (82.4%)	9 (17.6%)	0 (0%)	0.97	0.352 NS
	Female	44 (74.6%)	15 (25.4%)	0 (0%)		
Is there any relation between gum diseases and diabetes?	Male	14 (27.5%)	10 (19.6%)	27 (52.9%)	6.51	0.039 S
	Female	19 (32.2%)	22 (37.3%)	18 (30.5%)		

S: Significant; NS: Nonsignificant

questionnaire. The responses given by attendants gender wise were given in Table 3.

In response to Q1, Can dental decay cause oral cancer or bad breath? 66.7% males and 57.6% of females answered yes and 29.4% of males and 30.5% females answered no. In response to Q2, Have you visited dentist for toothache or restoration purpose in previous year? 60.8% of males and 72.9% of females answered yes; 39.2% of males and 23.7% of females answered no. In response to Q3, Is there a relationship between dental cavities and sweets? 64.7% of males and 67.8% of females answered yes and 25.5% males and 28.8% of females answered no. In response to Q4, Does tobacco consumption cause oral cancer? 74.5% males and 72.9% of females answered yes and 23.5% of males and 20.3% of females answered no. In response to Q5, Is there any toothache or related problem like gum bleeding? 33.3% of males and 30.5% of females answered yes and 62.7% of males and 69.5% of females answered no. In response to Q6, Do you brush your teeth regularly? 84.3% of males and 88% of females answered yes and 16% of males and 11.9% of females answered no. In response to Q7, Do you use mouthwash to improve oral health? 44% of males and 45.8% of females answered yes and 56% of males and 52.5% of females answered no. In response to Q8, Do you have smoking or tobacco chewing habit? 19.6% of males and 27.1% of females answered yes, 80.4% of males and 71.2% of females answered no. In response to Q9, Do you rinse your oral cavity with plain water after every meal? 82.4% of males and 74.6% of females answered yes and 17.6% of males and 25.4% of females answered no. In response to Q10, Is there any relation between gum diseases and diabetes? 27.5% of males and 32.2% of females answered yes and 19.6% of males and 37.3% of females answered no; and 52.9% of males and 30.5% of females answered do not know.

When responses of the oral health knowledge-based questions were compared based on gender, statistically significant association was found only for Q10, Is there any relation between diabetes and gum diseases? ($p = 0.039$). No statistical significance was found in relation to Q1 ($p = 0.289$); Q2 ($p = 0.108$); Q3 ($p = 0.383$); Q4 ($p = 0.454$); Q5 ($p = 0.277$); Q6 ($p = 0.560$); Q7 ($p = 0.629$); Q8 ($p = 0.402$); and Q9 ($p = 0.352$ NS).

Dental caries status of the study participants was assessed using decay, missing, filled teeth (DMFT) index (WHO Proforma 1997), which showed that males had a mean DMFT score of 9.54, while females had a mean DMFT score of 9.40. Mean decayed component score is 4.42 in males and 4.0 in females; mean missing component score was 3.2 in males and 3.52 in females. Mean filled component score in males was 1.94 and 1.73 in females (Table 4).

Root caries was assessed using dentition status of WHO Proforma (1997), which was found to be 1.28 and 1.01 for males and females respectively (Table 5).

Table 4: Distribution of subjects based on dental carries status

Gender	Decayed	Missing	Filled	DMFT
Males (59)	4.42	3.20	1.94	9.54
Females (51)	4.00	3.58	1.73	9.40

Table 5: Distribution of subjects based on root carries

Gender	*Root caries*
Males (59)	1.28
Females (51)	1.01

Table 6: Assessment of periodontal status according to gender

	Gender	*Mean*	*Standard deviation*	*t-value*	*p-value*	*Significance*
CPI	Male	1.33	0.886	1.254	0.212	NS
	Female	1.55	0.987			
LOA	Male	0.07	0.271	1.732	0.086	NS
	Female	0.22	0.527			

NS: Nonsignificant

The CPI scores among males is 1.33 and in females 1.55 with standard deviation of 0.886 and 0.887 respectively. The periodontal status was found to be nonsignificant between the groups (p = 0.212).

The LOA scores are 0.07 in males and 0.22 in females with standard deviation of 0.271 and 0.527. The LOA was found to be nonsignificant between the groups (p = 0.086) (Table 6).

DISCUSSION

Attendants working in the degree colleges form an important component in the colleges. The attendants provide valuable service by maintaining a good environment for their higher-level colleagues.[5] This study is planned to evaluate their oral health knowledge, dental treatment experience as well as the oral health status.[13-16]

Oral health knowledge is considered to be an essential prerequisite for oral health-related behavior; nevertheless, studies have shown assessment of oral health knowledge and better oral health in attendants working in colleges.[17-21]

In the present study, in response to question, Have you visited dentist for toothache or restoration purpose in previous year? 60% answered yes. Results can be compared with a study by Gangwar et al[12] done among health professionals in Bareli in North India, where 53.3% visited dentists due to toothache and 16% due to cavities for restorations.

In response to question, Is there a relationship between dental cavities and sweets? 60.8% males and 72% of females responded yes. Results can be compared with a study by Bashiru and Omotola[4] done among medical, pharmacy, and nursing students in Nigeria, where 60% had knowledge about sweets consumption and its effect on dentition. In a study by Gangwar et al[12] conducted among Anganwadi workers (AWWS) in Bareli city in North India, 65.6% of the participants had knowledge about sugary contents causing tooth decay. Based on these results, we can conclude that irrespective of the occupation and education level, people have good knowledge about relation between sweet consumption and dental cavities.

In response to question, Whether tobacco consumption causes oral cancer? 74% males and 72% females answered yes. In a study by Aggnur et al[6] conducted among health care workers in Ambala, 91.2% knew about tobacco consumption can cause oral cancer. In a study by Usman et al[17] conducted among dental and paramedical students, 90% had good oral health knowledge about tobacco consumption causing oral cancer. Hence, we can conclude that people have good knowledge about tobacco consumption leading to oral cancer irrespective of their occupation.

In response to question, Is there any toothache or gum-related problems they had? 33.3% of males and 30.5% of females answered yes. Results can be compared with a study by Jain et al[22] done among patients attending the outpatient department (OPD) at Vyas Dental College and Hospital, Jodhpur, 40% said that they had gum-related problems like bleeding of gums and halitosis. In response to question, Do you brush your teeth regularly? 84% of males and 88% of females answered yes. In a study by Bipina et al[23] conducted among construction workers in Mangalore, 34.28% of them used brush regularly. In a study by Kaur et al[11] conducted among health professionals in Ludhiana in India, 50% of health workers and technicians used brushing regularly ($p < 0.001$).

In response to question, Do you use mouthwash to improve oral health? 44% of males and 45.8% of females answered yes. Results can be compared with a study by Kaur et al[11] conducted among health professionals in Ludhiana in India, where 33.3% of health pharmacists and 16% of nurses used mouthwashes frequently (p-value > 0.001). In a study by Jain et al[22] done among patients attending OPD at Vyas Dental College and Hospital, Jodhpur, 10% of patients used mouthwash for rinsing.

In response to question, Do you have smoking or tobacco chewing habit? 19.6% males and 27% of females answered yes and 70% of attendants answered no. Results can be compared with a study by Singh et al[24] conducted among lock factory workers of age groups 19 to 64 years, where 29.5% had tobacco chewing habits and 3.5% had gutkha chewing habits in other forms of tobacco. In a study by Aggnur et al[6] conducted among health care workers in Ambala, only 19% were having the tobacco chewing habit.

In response to question, Do you rinse oral cavity with plain water after every meal? 42% of males and 74% females answered yes. Results can be compared with a study by Gangwar et al[12] conducted among AWWS in Bareli city, where 94% did not have habit of rinsing oral

cavity with plain water after every meal. In a study by Jain et al[22] done among patients attending OPD at Vyas Dental College and Hospital, Jodhpur, 29% rinses their mouth after every meal.

In response to question, Is there any relation between gum disease and diabetes? 27.5% of males and 32.2% of females answered yes. Results can be compared with a study by Jain et al[22] conducted among patients attending the OPD at Vyas Dental College and Hospital, Jodhpur, where majority of them (50%) were aware of relationship between systemic diseases and oral hygiene. In a study by Aggnur et al[6] conducted among health care workers in Ambala, 43.2% were aware of association between oral and general health problems.

ASSESSMENT OF DENTAL CARIES AND PERIODONTAL STATUS

The DMFT score was 9.54 among males and 9.4 in females, where decayed tooth component contributed most of DMFT score, i.e., 4.52 in males and 4 in females; filled tooth component contributed less (1.94 and 1.73 filled score in males and females respectively); missing tooth component was 3.2 for males and 3.58 for females. Results of the present study are higher than the mean DMFT scores in Karnataka as measured by National Oral Health Survey 2003. The mean DMFT score is 3 for age group 35 to 44 years and 1.5 for age of 15 years. Mean decayed component score is 1.7, which is lower than the present study and mean missing component score is 1.2 and mean filled component score 0.1. Mean missing component and filled component scores are also lower than the present study (M = 1.2, F = 0.1) and root caries is 0.6 lower than present study which is 1.2.[13,25]

Results can also be compared with a study by Sohi et al[26] conducted among police personnel, where mean DMFT was 3.05 and mean number of teeth requiring filling was 0.44 respectively. In a study by Kahar et al[2] among adults aged 18 to 34, 35 to 44, 44 to 54 years (residents), and above 55 years in central rural areas in Ramgargh, mean DMFT scores were 2.3, 2.9, 5.2, and 10.7 among the different age groups of 18 to 34, 35 to 44, 45 to 54, and 55 years above. While males had a slightly higher mean score, the difference in the mean DMFT scores was not statistically significant between the gender groups.

In the present study, mean number of root caries was found to be 1.28 in males and 1.01 in females. This was higher than the root caries score of 0.6 as observed in National Oral Health Survey 2003 in rural and urban Karnataka.

In the present study, subject scores for periodontal status as measured by CPI were 1.33 in males and 1.55 in females and LOA scores were 0.07 and 0.22 respectively. As per National Oral Health Survey 2003, CPI with LOA scores of Karnataka state was 1.2 in 35 to 44 year age group, which is higher than that of the present study.

Results can be compared with a study by Sohi et al[26] conducted among police personnel of a North Indian state, where maximum subjects had a CPI score of 2. In a study by Batra et al[27] conducted among adults of age 20 to 29 years in Moradabad, 37.8% had CPI score of 4 and 32.5% had score of 3; 7.3% had LOA with score 1.

CONCLUSION

In conclusion, the results of the study showed that the overall oral health knowledge among attendants was not as high as those compared with subjects belonging to other occupation and with different education level in previous literature. But, response of the attendants was quite good related to few of the questions.

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