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ORIGINAL RESEARCH

Oral Health-related Knowledge, Attitude, and Practices among Patients attending the Department of Public Health Dentistry of a Dental Hospital in Udaipur, India

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ABSTRACT

Background: Oral health problems can be considered a public health setback due to its high prevalence and significant social impact. Hence, it is essential to combat oral diseases with preventive approach and focus on education and promotion.

Objective: To assess the oral hygiene-related knowledge, attitude, and practices among the patients visiting Department of Public Health Dentistry of a dental hospital in Udaipur city, Rajasthan, India.

Materials and methods: A descriptive cross-sectional study was conducted among the patients visiting the Department of Public Health Dentistry at Pacific Dental College & Hospital, Udaipur, Rajasthan, India. A total of 500 patients were selected by simple random sampling method. A self-constructed self-administered questionnaire was used comprising questions regarding oral health knowledge, attitude, and practices. Descriptive statistics and chi-square test were used for statistical analysis.

Results: Among the study population, if dental decay is present, majority (44%) did not care if pain was absent. Merely 45.6% knew that tobacco causes oral cancer. A larger proportion of respondents (66%) did not know that oral health is related to systemic health. Majority (58.8%) used toothbrush and toothpaste and 52% had tongue cleaning habit. Rural population showed lesser frequency of toothbrushing in comparison to urban population, only 43.3% of them used toothbrush and toothpaste.

Conclusion: The knowledge and attitude of the study subjects about oral health were found to be nonsatisfactory, but the oral health practices seemed to be acceptable. The rural population requires attention in all the aspects of oral health maintenance. Oral health promotion programs are required to improve the current status of the population.

Keywords: Attitude, Knowledge, Oral hygiene, Rural, Urban.

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INTRODUCTION

World Health Organization (WHO) had declared the theme "Oral Health for a Healthy Life" on World Health Day, 1994.[1] The collective goal of the WHO is the accomplishment of an attitude of health that enables them to lead a fruitful life in social and economic context by all citizens of the world.[2] General health cannot be attained or maintained without oral health. The oral cavity is considered as the mirror of the body and the doorway to good health. Oral hygiene has been considered as a risk indicator, risk factor, and risk predictor for various oral problems. Access to oral health is a multifaceted concern involving varied barriers, such as failure to afford services and lack of ample services to technological hindrance.[3]

Knowledge as defined by "Oxford dictionary" is the "expertise and skills acquired by a person through experience or education." The term knowledge is also used to mean the convinced understanding (theoretical or practical) of a subject with the capability to employ it for a specific purpose. Proper knowledge about oral health and its maintenance is needful.

Attitude is a relatively durable organization of beliefs around an object, subject, or concept which influences one to respond in some preferential manner. People demonstrate a wide variety of attitudes toward dental care and dental professionals. Oral health behaviors are influenced strongly by familial values, individual understanding, cultural insight, and other life situations revealed by these attitudes.[4,5] The evaluation of available information, attitude, and practices is very important for provision of proper health care facilities as they form the baseline of the strategic planning and decision-making.[6]

Oral disease can be considered a public health problem due to its high prevalence and significant social

impact.[7] Literature in the past has found the dental disease levels are associated with cultural differences, low socioeconomic status, lower educational levels, inadequate oral health knowledge, improper oral hygiene, less dental visits, and a highly cariogenic diet.[8] Lack of information is one of the reasons for nonadherence to oral hygiene practices. The motives prompting people to hunt for preventive dental care include the idea that one is vulnerable to dental ailment, dental problems are grave, and dental management is useful. Studies by Woolgrove et al[9] and Hamilton and Coulby[10] have shown that there is an association between increased knowledge and better oral health. A large ratio of these diseases can be prevented at individual and community levels by offering oral health education; hence, perking up the oral health attitude and practices among the common people like proper brushing is essential for cleaning teeth and gums effectively.[6]

The National Oral Health Survey conducted by the Indian Dental Association[11] in 2005 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.

Preventive dental care is almost absent in the rural areas and very limited in the urban areas of India.[12] It is, therefore, vital to fight oral diseases with a preventive approach, with the focal point on health education and promotion, which should be given prime importance.[13] There is a scarcity of education regarding the knowledge and behavior about oral health especially for rural people, who constitute more than 70% of the population in India though many studies have been conducted as stated by Patil et al.[14] Furthermore, the people living in cities, in spite of having trouble-free access to dental care, become victim to dental diseases due to their negligence in dietary habits and unhealthy lifestyle as shown in the study by Gundala and Chava.[15]

Due to dearth of literature, this study was taken up with the objective to assess the oral hygiene-related knowledge, attitude, and practices among the patients visiting the Department of Public Health Dentistry of a dental hospital in Udaipur city.

MATERIALS AND METHODS

Study Design and Population

A descriptive cross-sectional study was conducted among the patients visiting the Department of Public Health Dentistry at Pacific Dental College & Hospital, Udaipur, Rajasthan, India from August to October 2016. Study population consisted of patients referred to the Department of Public Health Dentistry of Pacific Dental College & Hospital.

Ethical Approval and Official Permission

The study protocol was reviewed and approved by the Institutional Review Board of Pacific Dental College & Hospital and was granted ethical clearance. An official permission was taken before conducting the study from the principal of the dental college.

Informed Consent

Written informed consent was obtained from participants after explaining the nature and purpose of research.

Pretesting of Questionnaire

Questionnaire was administered to 15 patients, twice on successive days, who were interviewed to gain feedback on the overall acceptability of the questionnaire in terms of length, language clarity, time, and feasibility in completing and returning it. Based on their feedback, the questionnaire did not require any corrections. Cronbach's coefficient was found to be 0.80, which showed an internal reliability of the questionnaire. Mean content validity ratio was calculated as 0.87, based on the opinions expressed by the panel of six academicians. Face validity was also assessed and it was observed that 92% of the participants found the questionnaire to be easy.

Questionnaire Details

A self-made structured closed-ended questionnaire written in English/Hindi was used, which consisted of four sections. Section I solicited general demographic information. Section II comprised five questions to assess the oral health knowledge. Section III comprised five questions to assess the attitude toward oral health. Section IV consisted of eight questions to assess the oral hygiene practices of the participants.

Pilot Study

A pilot study was conducted among 50 patients visiting the Department of Public Health dentistry before the main study. Our primary outcome variables were source of information about oral health and materials used to clean teeth. Based on the results of the pilot study, the prevalence of both the variables were estimated, and taking these as base values, z = 1.96, 95% confidence level, allowable error at 5% on either side of "p," applying the sample size formula: $n = z^2pq/l$, the sample size was calculated to be 500. The study participants were selected by simple random sampling method.

Inclusion Criteria

- Patients above 18 years age, who visited the Department of Public Health Dentistry of the dental hospital.
- Subjects who gave consent to participate in the study.

Exclusion Criteria

- Patients suffering from any systemic disease, maxillofacial trauma.
- Subjects with special needs.
- Patients who were unable to respond to the questionnaire.

Methodology

A total of 500 subjects participated in the study. A structured, self-administered questionnaire in English/Hindi was distributed to the selected patients visiting the Department of Public Health Dentistry of Pacific Dental College & Hospital. The purpose of the study was informed and explained to the participants. Those willing to participate in the survey were requested to fill in the consent form and complete the questionnaire. Participants were given instructions how to choose the most appropriate responses. The researcher accompanied the study subjects all the time to ensure that the concerned respondent did not discuss the questions/answers with any other patients sitting in the waiting area and also to make sure that the participant fully understood the questions and completed the questionnaire. Ample time was given to them to fill the questionnaire and completed questionnaires were collected back and verified for the same. The subjects were assured of their anonymity and confidentiality.

Statistical Analysis

Completed questionnaires were coded, compiled, and entered in a spreadsheet computer program (Microsoft Excel 2007) and then exported to data editor page of Statistical Package of Social Sciences version 20.0 (SPSS Inc., Chicago, Illinois, USA) and analyzed. Descriptive statistics included computation of percentages used to calculate the frequencies related to oral hygiene knowledge, attitude, and practices. Chi-square test was used to compare the oral health knowledge, attitude, and practices between rural and urban population. For all tests, confidence interval and p-value were set at 95% and ≤0.05 respectively.

RESULTS

Table 1 shows the distribution of study population according to demographic variables. The present study was carried out among 500 subjects, of which 66% (n = 330) were males and 34% (n = 170) were females. Respondents in 31 to 40 age group were maximum in number (n = 180, 36%). While viewing the educational background of study subjects, it was found that 44% (n = 220) studied only up to school level, only 6% (n = 30) of the population were postgraduates and 18% (n = 90) were illiterate. Approximately 58% (n = 290) belonged to the rural areas and 42% (n = 210) were from urban areas.

Table 1: Distribution of study population according to several demographic variables

Variables	*n*	*%*
Age (years)		
18–30	110	22
31–40	180	36
41–50	110	22
51–60	60	12
>60	40	8
Gender		
Male	330	66
Female	170	34
Location		
Rural	290	58
Urban	210	42
Education		
Illiterate	90	18
Undergraduate	220	44
Graduate	160	32
Postgraduate	30	6
Total	500	100

Table 2 shows the distribution of study population based on knowledge regarding oral health. It was observed that majority of the participants [38% (n = 190)] received information regarding oral health from radio and television and 36% (n = 180) from their friends. When sign of tooth decay was observed, most of the study subjects [44% (n = 220)] did not care if no pain was present. Only

Table 2: Distribution of study population based on knowledge regarding oral health

Variables	*n*	*%*
Source of information		
Radio and TV	190	38
Friends	180	36
Newspaper	100	20
Community	30	6
Presence of bleeding from gums		
Stop brushing	100	20
Pay more attention	160	32
Go see a dentist	120	24
Never had this problem	120	24
Presence of dental caries		
Do not care if no pain	220	44
Visit a dentist	160	32
Try to maintain oral hygiene	120	24
Tobacco can cause oral cancer		
Yes	228	45.6
No	272	54.4
Sweet food affects teeth adversely		
Yes	185	37
No	315	63

Table 3: Distribution of study population based on attitude regarding oral health

Variables	*n*	*%*
Awareness about dental problems among family members		
Yes	420	84
No	80	16
Oral health is related to systemic health		
Yes	170	34
No	330	66
Frequency of visit to dentist		
Only in problem	280	56
Once in 3 months	80	16
Once in 6 months	70	14
In 1–2 years	70	14
Is it essential to visit dentist in 3–6 months		
Yes	413	82.6
No	87	17.4
Reason for visiting dentist		
When had pain	199	39.8
Treatment needed	150	30
Check-up	51	10.2
Scaling	60	12
Other	40	8

45.6% (n = 228) of the subjects knew that tobacco can cause oral cancer, while 63% (n = 315) had no clue to the fact that sugary food can have adverse effects on teeth.

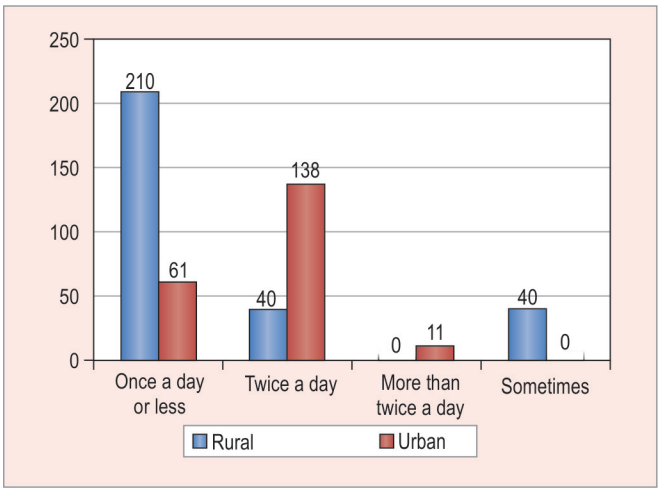
Table 3 depicts the distribution of study population based on attitude regarding oral health. Among the participants, a higher proportion [66% (n = 330)] thought that oral health is not related to systemic health and 84% (n = 420) believed that it was important to be aware about dental problems of members of the family. Subjects showed a higher tendency to visit dentist only if problems arose [56% (n = 280)], while few did not agree to visit dentist in 3 to 6 months [17.4% (n = 87)]; 12% (n = 60) respondents went to dentist for scaling, 10.2% (n = 51%) for dental check-up, and 39.8% (n = 199) due to dental pain.

Table 4 shows the distribution of study population based on oral health practices. A total of 58.8% (n = 294) subjects used toothbrush and toothpaste to clean teeth. Only, 35.6% (n = 178) brush their teeth twice daily and a large number of participants [54.2% (n = 271)] brushed once or less than once a day. Majority [39% (n = 195)] changed their toothbrush when it became completely useless, and 30.2% (n = 151) changed in every 6 months; 67.4% brushed using the horizontal technique (n = 237); 72% (n = 360) did not use any other oral hygiene aids; 52% (n = 260) of the study participants had a habit of tongue cleaning, while 52.4% (n = 262) did not experience bad breath.

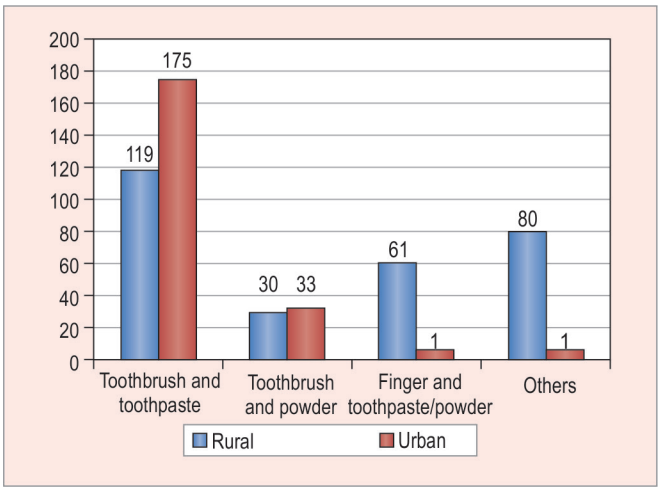
Graph 1 shows the frequency of brushing teeth among the rural and urban population. It was clearly observed that subjects from rural areas brushed their teeth in less

Table 4: Distribution of study population based on oral health practices

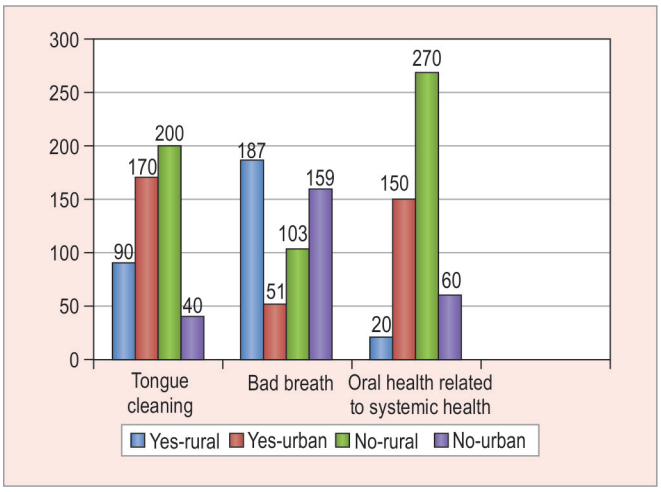
Variables	*n*	*%*
Material and method of cleaning teeth		
Toothbrush and toothpaste	294	58.8
Toothbrush and powder	63	12.6
Finger and toothpaste/powder	62	12.4
Others (Datun, Charcoal, Tobacco)	81	16.2
Frequency of brushing teeth		
Once a day or less	271	54.2
Twice a day	178	35.6
More than twice a day	11	2.2
Sometimes	40	8
Type of brush used		
Soft	179	35.8
Medium	111	22.2
Hard	210	42
Frequency of changing toothbrush		
When useless	195	39
Once a year	74	14.8
Once in 6 months	151	30.2
Once in 3 months	80	16
Technique used for brushing		
Vertical	100	20
Horizontal	237	67.4
Circular	163	32.6
Other oral hygiene aids used		
Dental floss	40	8
Interdental brushes/toothpicks	50	10
Mouthwash	50	10
None	360	72
Tongue cleaning habit		
Yes	260	52
No	240	48
Bad breath from mouth		
Yes	238	47.6
No	262	52.4



Graph 1: Frequency of toothbrushing among rural and urban population



Graph 2: Materials used for cleaning teeth among rural and urban population



Graph 3: Tongue cleaning habit, bad breath experience, and knowledge regarding relation of oral health to systemic health among rural and urban population

frequency, i.e., 72.4% (n = 210) brushed once a day or less in comparison to subjects from urban areas [29% (n = 61)] and 13.8% (n = 40) of the rural population did not even brush regularly.

Graph 2 shows the materials used for cleaning teeth among rural and urban population; 83.3% (n = 175) of the urban population used toothbrush and toothpaste for cleaning their teeth, whereas only 41% (n = 119) of the rural population used the same for cleaning. A total of 21% (n = 61) and 27.6% (n = 80) of the respondents who belonged to rural areas used finger and toothpaste and other materials (charcoal, tobacco) for cleaning their teeth respectively, which was noticeably higher than the subjects who belonged to urban areas.

Graph 3 shows the tongue cleaning habit, bad breath experience, and knowledge regarding relation of oral health to systemic health among rural and urban population. A total of 69% (n = 200) depicted no tongue cleaning habit from the rural areas, while 81% (n = 170) of the urbanized respondents had the habit of tongue cleaning. On the contrary, 64.5% (n = 187) of the rural population noticed bad breath from their mouth, whereas only 24.3% (n = 51) urban study subjects experienced bad breath. Majority of the study subjects [93.1% (n = 270)] from the rural areas did not know that oral health is related to systemic health, while out of 210 urban subjects, 83.2% (n = 150) knew about it.

DISCUSSION

Health is a universal human need, and it has been proven that it cannot be achieved independent of oral health. As a part of behavioral modernity, from ages before, man started building up stone blocks of concepts about oral health and using various oral hygiene measures, which are changing till date.

The present research showed that among 500 subjects, 31 to 40 age group subjects were maximum in number (36%), indicating that as age advances individuals come more into the grasp of dental problems; 58% of the respondents came from rural areas and 18% of the study population were illiterate as majority of the participants were from the nearby rural areas, as the college is located in the city outskirts.

The knowledge pertaining to oral health among the participants was not good enough as about 37% of the subjects were aware that sugary food can have adverse effects on teeth, but the study by Chandra Shekar et al[8] showed even lesser percentage of people knew about it (25%). Regarding the source of information on oral health, radio and television were the most common means, with 38% of the participants obtaining information through it, which was consistent with the discoveries of other studies.[16,17] Only 45.6% of the subjects knew that tobacco can cause oral cancer, which indicates that people from village areas are poor in knowledge about the same.

Considering the oral health attitude, it has been observed that oral hygiene has mostly remained as a neglected field and a social problem. Majority of the people are unaware about the relationship between oral hygiene and systemic disorders. Most diseases show their first appearance through oral signs and symptoms and they remain undiagnosed or untreated because of this missing awareness. The present research shows that a higher proportion (66%) thought that oral health is not related to systemic health, which is in contrast to the studies by Nagarajappa et al[7] and Kapoor et al,[18] where merely 28.5 and 56.8% subjects answered negatively respectively.

The current study showed that only 14% of the study population reported visiting a dentist once in 6 months. On the contrary, in the studies by Nagarajappa et al[7] and

Parveen et al,[6] it was found that 42.5 and 52.5% of the study population visited a dentist during last 6 months respectively, which was higher. When the respondents were asked about reason for visiting dentist, most of them responded they had pain (39.8%), followed by when treatment is needed (30%), for check-up (10.2%), which clearly depicts that the subjects were not concerned about oral health and visit dentists only in need.

Oral health practices of the study population were relatively good, with 54.2% brushing at least once a day and about 58.8% of the participants using toothbrush and toothpaste for brushing, although another study reported an even better picture in this aspect: That 73% brushed their teeth regularly, and about 67% subjects used toothbrush and toothpaste for cleaning teeth.[7] The subjects brushing their teeth twice daily was found to be 35.6% in the present research, which was less as compared with data from other studies by Jain et al,[19] Jiang et al,[20] and Al-Shammari et al,[21] where 67% patients, 67% of Chinese urban adolescents, and 62% of the Kuwaiti adults brushed twice daily respectively. These findings may be explained by the reason that our study participants did not receive proper oral hygiene instructions from their childhood may be due to family matters, cultures, and socioeconomic factors. According to the consumer usage and attitudes study done in 2010, among the most shocking of revelations is that nearly half of the Indian population does not use a toothbrush and only 51% brushed their teeth using a toothbrush and toothpaste.[22]

It is noteworthy that 67.4% of the respondents brushed their teeth horizontally, which is in accordance with the studies by Jain et al[19] and Zhu et al,[23] where 75 and 60% of the sample brushed their teeth in a horizontal manner, which puts the tooth at risk. It was scrutinized that 35.8% used soft toothbrush, which is more than that observed in the study by Zhu et al[23] where 27% use the same. There is generally a failure in the use of dental floss as a defensive instrument. Only 8% of the subjects used dental floss, which is in contrast with the study conducted by Hamilton and Coulby,[10] who found that a higher percentage (44%) of participants used dental floss. Some studies also found that none of the subjects used dental floss.[19,24] This emphasizes the urgent necessity for educating and motivating the public to use this efficient method for oral hygiene maintenance.

Fifty-two percent of the participants reported that they clean their tongue, which was quite good in comparison to the study by Jain et al,[19] where only 20% of the studied population cleaned their tongue; 47.6% of the subjects reported bad breath from mouth. Lesser frequency was found in an epidemiologic survey of the general population of Japan where 24% complained about bad breath.[25] Again, depicting a contrary finding, 80% reported halitosis in another study.[19]

The current study depicted that the rural population brushed their teeth in less regularity. Majority (74%) of the urban population brushed at least once daily, whereas only 29% villagers did the same. Also, 13.8% of the rural people did not even brush their teeth regularly and barely 41% cleaned their teeth using toothbrush and toothpaste. These facts are similar to the findings of the study by Varenne et al,[26] where it was reported that tooth cleaning habits were more often observed in urban than rural population. The subjects from rural areas preferred to use finger and toothpaste (21%) more than the urban people, which might be as the villagers are not aware of correct oral hygiene means and they tend to follow techniques with which they are comfortable.

A huge proportion of the nonurban population had no tongue cleaning habit (69%) and noticed halitosis (64.5%), while 81 and 24.3% of the urban population had the habit of tongue cleaning and experienced bad breath respectively. Another finding in the current piece of research was that 93.1% of the rural subjects were not conscious that oral health is related to systemic health, whereas 83.2% of the urban subjects were familiar with it. This is obvious as the rural population tend to have less access to appropriate oral health education, awareness and dental health services.

Nevertheless, this study has some limitations as follows:

- The results withdrawn are solely based on the patients' self-report.
- Cross-sectional study design does not allow the evaluation of causality.

CONCLUSION

The knowledge and attitude of the study subjects about oral health were found to be nonsatisfactory, but the oral health practices seemed to be acceptable. This study points to the fact that knowledge regarding oral health and oral hygiene maintenance techniques is not well known to the rural population as compared with the urban population. This is a serious concern, as the nonurban areas suffer from lack of oral health education and utilization of health care facilities, continuing from decades. There is a need to educate people about the significance of oral health-related problems, maintenance, link with general health, especially among the rural population by different outreach programs and public health awareness measures to create a hale and hearty civilization.

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