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Original Research Article

Oral hygiene awareness among the adult rural population of district Rewari: a cross-sectional study

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ABSTRACT

Background: Aim of the study is to assess the awareness regarding general oral hygiene practices amongst the adult rural population of district Rewari, with the objective to collect the baseline data about the level of awareness regarding oral hygiene amongst the adult rural population of district Rewari, Haryana and help policymakers implement new programs to improve the general health of individuals.
Methods: A cross-sectional study was conducted in Rewari district in November 2021. 600 participants were interviewed, data were analyzed using a statistical package for the social science (SPSS) version 21.0 (IBM Corp., Armonk, NY, USA). The frequency distribution tables were prepared to present overall and subgroups data. Categorical variables were compared using the Chi-square test. If the expected frequency is less than 5, Fisher's exact test was used. $P<0.05$ was considered statistically significant.
Results: There were 52.8% females and 47.2% of males who were interviewed, 97.3% of participants clean their oral cavity. Around 76.1% of population uses brush and 12.1% of participants uses datun. Majority of participants recognized the fact that oral health is important for general health.
Conclusions: Even in the year 2022, there is still lack in appropriate oral health awareness even among the educated group of the society. therefore, new programs should be implemented like camps and health talks to improve oral health of an individual in rural areas of the developing countries to educate and spread knowledge of proper dental care.

Keywords: Brushing technique, Health, Oral cavity, Hygiene, Rural population

INTRODUCTION

Oral health is the key indicator of general health, well-being, and quality of an individual's life. Good oral health comprises the healthy state of mouth with a disease-free oral cavity and its surrounding structure.[1]

India is the 2nd most populous country in the world, with an 833.1 million rural population.[2] There are many challenges in delivering oral healthcare services to the rural population, because of poor accessibility and handiness of manpower, poverty, and illiteracy.[3] Many rural population don't even have access to oral health providers due to geographic isolation and workforce shortages.[4] Hence there is an increase in demand for oral health services among the rural population.[5]

According to World Health Organization, 80% of the worldwide population is suffering from oral diseases.[6] In India, the most commonly occurring oral diseases are dental caries and periodontal diseases which can be prevented by maintaining good oral hygiene.[7] According to the report of the multi-centre oral health survey by the Ministry of Health and Family Welfare in collaboration with the dental department of AIIMS in 2007-2008, prevalence rate of dental caries was 45% and 90% for periodontal diseases in India.[8] Most of the oral problems are painless at first, but if ignored and left untreated, they can lead to serious oral discomfort and diseases.[9,10] The

main risk factors for oral diseases are poor oral hygiene, unhealthy diet, tobacco use, and areca nut chewing.[11,12] Furthermore, if an individual does not maintain his/her oral health it can have a deleterious effect on overall health and can lead to systemic diseases such as malnutrition, cardiovascular diseases, osteomyelitis, diabetes and pneumonia.[13,14] Some research has shown interrelationship between oral and systemic health. Therefore patients, dentists, dental hygienists, and other health care providers should be well aware of the relationship between oral and systemic diseases. So that they can choose the best treatment option for the patient.[15,16]

Oral hygiene awareness and practices may differ from country to country.[17] In India, apart from conventional and ideal methods for oral hygiene maintenance, rural population uses home remedies such as use of datun, or neem stick, using salt with a finger, use of charcoal powder/manjan with finger.[17,18] Many studies have shown that female performance was better than male in oral health practices.[19-21]

Recently there are several major advances within the field of dentistry from diagnosis to treatment planning, treatment, rehabilitation, and follow-up. However, with the advancement in treatment methods number of patients is also increasing. Not just because people are getting more concerned about their oral health but also because of their lack of awareness regarding basic oral hygiene practices. There are several new devices introduced in the market like electronic brushes, water flossers/electric oral irrigators, teeth whitening strips, which are designed for a target population, while a large number of population is still unaware of the most basic oral hygiene practices like brushing technique.[22,23]

Oral self-care is an effective, acceptable, and efficient method to obtain good oral health for the prevention of oral diseases.[24,25] Adequate information, education, and motivation can help an individual to change their attitude towards oral health and practices.[26] To create such health education, a survey is planned and conducted to assess the level of awareness regarding oral hygiene and practices among the rural population of district Rewari with the objective of collecting baseline data about the level of awareness regarding oral hygiene among the rural population of district Rewari, Haryana and also prevent oral diseases and to promote oral health.

METHODS

Study design

It was a cross sectional study.

Study setting

The study was done in 10 villages of Rewari district. The villages that were covered are Berli Kalan, Berli Khurd, Bhotwas Bhondu, Choki no. 2, Nangal, Kheri, Baldhan Khurd, Khijoori, Motla Kalan, and Musepur.

Study population

A total of 600 participants were interviewed in November 2021.

Inclusion criteria

Individuals of 18 years and above age, people who were residing in the village at least for a year, and subjects willing to participate were included in the study.

Exclusion criteria

Individuals below 18 years of age, mentally handicapped patients, people who were not from district Rewari, and also people who were not willing to participate.

Study sample and sampling technique

The sampling frame for this study was the adult population of rural area of district Rewari. As per 2011 census, there are 258 villages in Rewari district.[27] The design effect for cluster sampling was taken as 2. Thus, the sample size required were 544 adult villagers (at 95% confidence interval). Around 600 adult villagers were surveyed. Out of 258 villages, 10 villages were selected as per proportional to its size and equal number of adult participants were selected randomly from these 10 villages. The survey was conducted in an interview manner. A close-ended questionnaire written in Hindi language was used to interview each participant.

Assessment tool

The data pertaining to study objectives was collected using questionnaire. The questionnaire included information related to patient's name, age, sex, and residence. The questionnaire was further characterized to evaluate the knowledge and practice related to oral hygiene. The participants were interviewed using predesigned questionnaire to evaluate their knowledge and awareness regarding oral hygiene and practices. The questionnaire was pilot tested on 30 villagers and their responses were recorded. Based on pilot study, necessary changes were done and then the questionnaire was finalized for the main survey. Each participant was interviewed by a trained interviewer to avoid any error in recording data.

Data collection

Data was collected by student investigator under guidance of teacher guide. An awareness campaign was organized, where participants were interviewed using predesigned questionnaire to assess level of awareness among each participant and after interview each participant was enlightened regarding the same. In order to achieve higher

response rate investigator has also conduct door to door interview with participant's consent.

Study duration

Data collection was finished within two weeks.

Statistical analysis

The data was analyzed using statistical package for the social science (SPSS) version 21.0 (IBM Corp., Armonk, NY, USA). The frequency distribution tables were prepared to present overall and subgroups data. Categorical variables were compared using Chi-square test. If expected frequency less than 5, Fisher's exact test was used. $P<0.05$ was considered as statistically significant.

RESULTS

There were 52.8% females and 47.2% of males as shown in Figure 1 who were interviewed. It has been observed that 97.3% of participants clean their oral cavity. Amongst these participants, there was a significant relation with the age, with increasing age there is a decrease in oral cavity cleaning tendency. Approx. 68.7% of participants clean their teeth once a day and majority of them clean their teeth before having their breakfast (Table 1).

Around 76.1% of participants uses brush and 12.1% of participants (50 and above) uses datun to clean their teeth as shown in Figure 2.

Also, less than half of the population (45%) takes 1-2 minutes to brush their teeth. Around 67.5% of population uses horizontal brushing technique to clean their oral cavity (Table 2). Few of them (27%) change their brushes within 2-3 months and around 37.1% of participants have changed their brush when it became completely worn-out or can't be used further. Amongst all the participants who were interviewed, 43.8% of participants don't know what kind of toothpaste they are using either it is fluoridated, non-fluoridated or ayurvedic.

Recently, there are many advancements in dentistry for oral cavity cleaning, but only 42.1% of participants of young age group (18-30 year) know about the mouthwashes, and 57.9% of participants are still unaware of these latest advancements (Table 3).

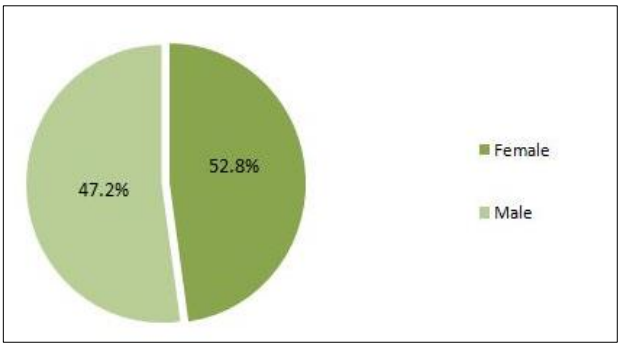

Figure 1: Division of participants based on their gender.

Age group of 40 and above complained for interdental food accumulation but, 57.2% of participants don't use any of these interdental aids. It has been observed that mostly middle age group (30-50 years) uses datun and toothpick to remove the accumulated food interdentally as shown in Figure 3.

Mostly, participants of age group 18-30 years clean their oral cavity using plain water after having their meal. Approximately 77.2 % of participants clean their tongue, using different cleaning aids like 29.4% participants use metal tongue cleaner, 21.5% uses brush, 6.3% uses datun and 19.7% use their finger to clean their tongue. Many participants complained of having bad breath but majority of them don't do anything to cure it and 33% of participants uses the plain water. Around 8.3% of males (30 and above) complained of having bleeding gums (13.2%). and only 7.5% of them uses Salt water gargles to cure it.

Although, majority of participants (92.8%) recognized the fact that oral health is important for general health (Table 4). In almost half (43.3 %) of the cases, participants have not visited the dentist, but those who visited were mainly due to toothache (27.3%) and tooth extraction (18.2%) as shown in Figure 4. Yet they are visiting the dentist only when teeth are in worse condition and difficult to be saved.

Table 1: Data pertaining to time of brushing in relation to gender.

Time of cleaning teeth	Age (years)						
	17-30	31-40	41-50	51-60	61-70	71 and above	Total
Before breakfast							
Count	74	71	68	49	55	33	350
% of total	17.3	16.6	15.9	11.5	12.9	7.7	82.0
After breakfast							
Count	4	6	9	3	6	9	37
% of total	0.9	1.4	2.1	0.7	1.4	2.1	8.7
Before sleep							
Count	6	4	3	2	2	5	22

Continued.

Time of cleaning teeth	Age (years)						
	17-30	31-40	41-50	51-60	61-70	71 and above	Total
% of total	1.4	0.9	0.7	0.5	0.5	1.2	5.2
Many times							
Count	0	0	2	0	1	0	3
% of total	0.0	0.0	0.5	0.0	0.2	0.0	0.7
Total							
Count	87	82	84	54	69	51	427
% of total	20.4	19.2	19.7	12.6	16.2	11.9	100.0

Table 2: Data pertaining to mode of brushing technique in relation to gender.

Brushing technique	Sex (%)		Total (%)
	Female	Male	
Vertical			
Count	7	11	18
% of total	1.2	1.8	3.0
Horizontal			
Count	209	196	405
% of total	34.8	32.7	67.5
Circular			
Count	27	26	53
% of total	4.5	4.3	8.8
All			
Count	2	2	4
% of total	0.3	0.3	0.7
None			
Count	0	1	1
% of total	0.0	0.2	0.2
Total			
Count	286	314	600
% of total	47.7	52.3	100.0

P=0.028

Table 3: Data pertaining to knowledge of latest advancements in oral cavity cleaning in relation to age.

Latest advancements	Age (years)						Total
	17-30	31-40	41-50	51-60	61-70	71 and above	
Mouthwash							
Count	111	74	38	17	10	2	252
% of total	18.5	12.4	6.3	2.8	1.7	0.3	42.1
None							
Count	30	48	75	60	74	60	347
% of total	5.0	8.0	12.5	10.0	12.4	10.0	57.9
Total							
Count	141	122	113	77	84	62	599
% of total	23.5	20.4	18.9	12.9	14.0	10.4	100.0

Table 4: Data pertaining to awareness that oral health is important to general health.

Oral health important for general health	Age (years)						Total
	17-30	31-40	41-50	51-60	61-70	70 and above	
Yes							
Count	138	120	109	71	75	44	557
% of total	23.0	20.0	18.2	11.8	12.5	7.3	92.8
No							

Continued.

Oral health important for general health	Age (years)						Total
	17-30	31-40	41-50	51-60	61-70	70 and above	
Count	3	2	5	6	9	18	43
% of total	.5	0.3	0.8	1.0	1.5	3.0	7.2
Total							
Count	141	122	114	77	84	62	600
% of total	23.5	20.3	19.0	12.8	14.0	10.3	100.0

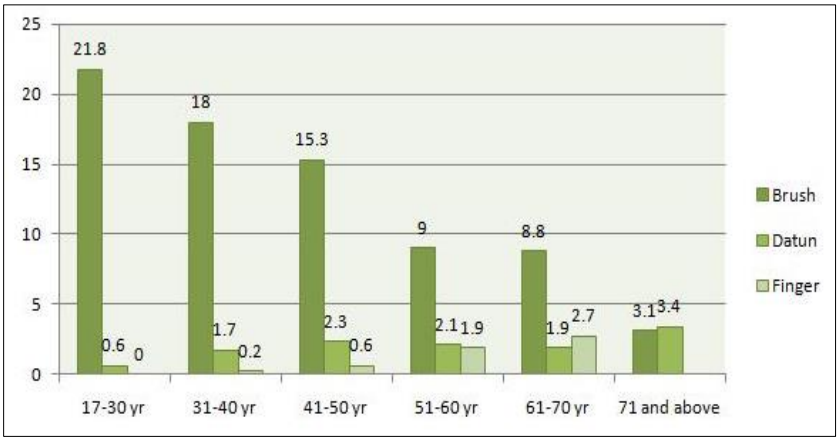

Figure 2: Data pertaining to mode of cleaning in relation to age.

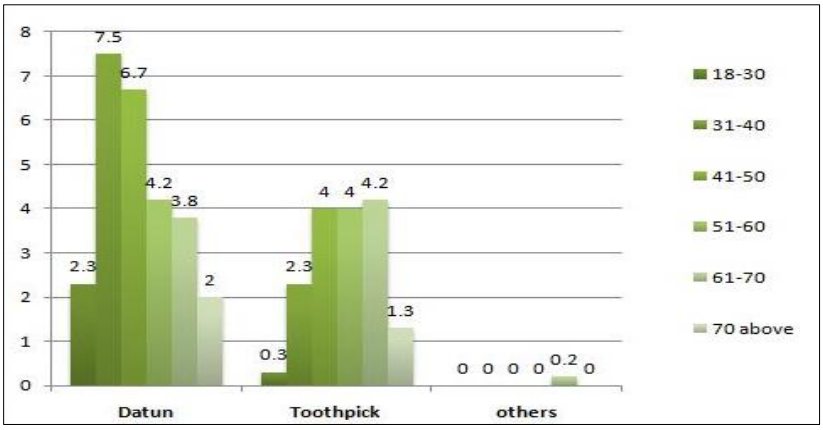

Figure 3: Data pertaining to use of interdental aids in relation to gender.

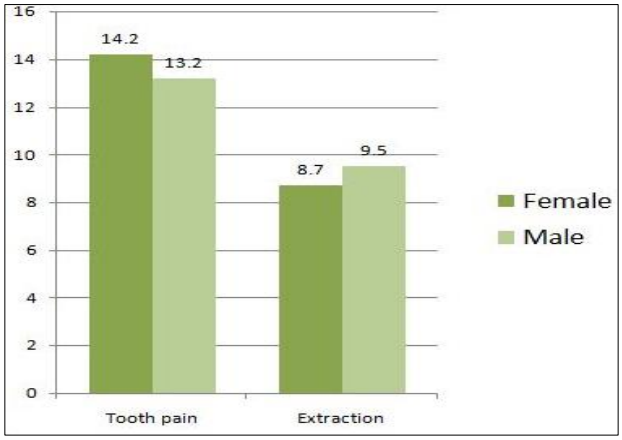

Figure 4: Data pertaining to reasons of last dental visit in relation to gender.

DISCUSSION

The present finding showed that majority of the population (56.6%) don't visit for general dental checkup which was similar to a study done by Varenne et al, but 27.3% participants reported pain in tooth as the most common cited reason for visiting a dentist which is in concordance with the finding of Chen in year 2018 who found that 29% participants visited a dentist when they had toothache.[12,28] It is also observed that majority of population don't clean their oral cavity using brush or any other aids after meal which was similar in study done by Chen.[12] But we have found that now people have started cleaning their oral cavity using plain water after meals.

In our study, we have a tendency to found that 68.7% participants brushed just the once each day, that is within

the agreement with the study conducted by Singh et al and Bala wherever 69%, 61.1% participants brushed only once a day respectively.[30,31] Almost half of the population change their brush once it become completely worn out and can't be used further which is eventually harming the soft tissues of the oral cavity. Moreover, they didn't even know what kind of toothpaste they are using and were just following the brand names.

Although, most of the population was following basic oral hygiene practices, but many limited people were aware about correct technique and right ways to follow it. A study conducted by Ganss showed that majority (73.8%) of participants used circular brushing technique, but in our study, we found that 67.5% of participants brushed their teeth using horizontal brushing technique due to which many participants complained for attrition and gingival recession.[7] Majority recognize the fact that oral health is important for general health. Yet they are visiting the dentist only when the teeth are in worse condition and difficult to be saved. Although there are many advertisements promoting their products like toothpaste, toothbrush, mouthwashes, electronic brushes, water flossers/electric oral irrigators, teeth whitening strips, which are designed for a target population, but none of them provide the basic information about method of cleaning teeth properly, therefore a large number of populations is still unaware of the most basic oral hygiene practices.[22,23]

CONCLUSION

Even in the year 2022, there is still lack in appropriate oral health awareness even among the educated group of the society. Majority of the participants were unaware of basic oral hygiene practices. Therefore, it is high time for health care policymakers to develop and implement new programs in order to improve oral and overall health of an individual. As a dentist, it is our duty to conduct more of these awareness campaigns, health talks, street plays (nukad natak) displaying the correct way of proper oral hygiene maintenance especially in rural areas of the developing countries and to educate and spread knowledge of proper dental care and prevention of dental diseases to improve their overall health status which will also decrease the economic burden to some extent.

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