

# Oral health knowledge, attitudes and practices of primary healthcare workers of Lucknow district: A cross-sectional study

Omveer Singh<sup>1</sup>, Devina Pradhan<sup>2</sup>, Lokesh Sharma<sup>3</sup>, Rahul Srivastava<sup>4</sup>

<sup>1</sup>Department of Public Health Dentistry, Career Dental College, Lucknow, UP, <sup>2</sup>Departments of Public Health Dentistry and <sup>4</sup>Oral Medicine and Radiology, Rama Dental College, Hospital and Research Centre Kanpur, UP, <sup>3</sup>Department of Public Health Dentistry, Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow, UP, India

## ABSTRACT

**Introduction:** Oral diseases are considered a public health problem due to their high prevalence. It is the primary concern of oral health educators to impart positive oral health knowledge and behavior in the society. Health workers' knowledge, attitude, and practices (KAP) toward oral health to a great extent influence the community as they can extend health education at the first contact in the community. Thus, the aim of the study was to assess the knowledge, attitude, and practices of health care workers. **Material and Methods:** A descriptive cross-sectional survey was designed to assess the knowledge, attitude, and practices towards oral health among health care workers. The study was conducted among health care workers aged between 20 and 60 years working in Primary Healthcare Centres and Community Healthcare Centres of Lucknow district. Informed consent was obtained from health care workers before the start of the study. The data were collected via a predesigned and pretested questionnaire. The data were analyzed using IBM SPSS Statistics-version 21. **Results:** The results of the study showed that 70.2% of the respondents ever visited the dentist due to somereason of which 19.2% visited once in a year. In addition, 38.9% of the respondents were daily smokers of which the majority belonged to the age group 20–40 years. A total of 63.9% of the respondents were daily chewable tobacco users, and 12.4% were routine users of alcohol. **Conclusion:** The present study gives a brief insight into the oral health knowledge, attitude, and practices of health care workers which were of fair degree.

**Keywords:** Health, healthcare, knowledge, oral

## Introduction

Health is one of the most valuable assets one can possess. Health continues to be a neglected entity despite continuous efforts for health promotion worldwide. “If wealth is lost nothing is lost but if health is lost everything is lost.” Always humans take health for granted, and its value is understood when it is lost.<sup>[1]</sup>

**Address for correspondence:** Dr. Devina Pradhan,  
3/99, Vishnupuri, Kanpur - 208 002, UP, India.  
E-mail: meetdrdevina@gmail.com

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Oral health is now recognized as equally important to general health. Oral health may be defined as a standard of health of the oral and related tissues which enables an individual to eat, speak, and socialize without active disease, discomfort, or embarrassment and which contributes to general well-being. Oral diseases can be considered a public health problem due to their high prevalence and significant social impact.<sup>[2]</sup>

The oral tissue forms an integral part of the human and is extremely vulnerable to disease as it is in intimate relation with the external environment and is constantly subjected to mechanical, chemical, and bacterial interactions. The most

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common oral health complaints across the world are tooth decay, gum problems, bad breath, etc.<sup>[3]</sup>

It is the primary concern of oral health educators to impart positive oral health knowledge and behavior in the society. This knowledge is usually derived from information and the information when believed translates into action. Behavior is the outcome when that action is sustained. However, only a weak relationship exists between knowledge and behavior. Nonetheless, there are reports that there is an association between increased knowledge and better oral health.<sup>[4]</sup> Thus, primary health care physicians play an important role in achieving this as they are the primary level providers and can help people with counseling and motivation.

Several factors may affect the oral health behavior of an individual, among which are, acquisition of Western education, values, and cultures, etc., Oral diseases are related to behavior, and that the prevalence of dental caries and periodontal disease decreases with improvements in oral hygiene and a decrease in the consumption of sugar. In contrast to twice daily tooth brushing in Western countries, this behavior is lacking in developing nations.<sup>[4]</sup>

Oral health is concerned with maintaining the health of the craniofacial complex, the teeth, and gums as well as the tissue of the face and head that surrounds the mouth. Loss of teeth and deterioration of oral tissue substantially reduce the quality of life.<sup>[5]</sup>

Prevalence and severity of periodontal diseases vary from individual to individual and are affected by age, gender, education, and socioeconomic status. Most chronic periodontal pathologies are directly related to lifestyle and are considered a major public health problem due to their high prevalence and significant social impact. Chronic periodontitis typically leads to tooth loss, and in some cases has physical, emotional, and economic impacts – physical appearance and diet are often worsened, and the patterns of daily life and social relations are often negatively affected. These impacts lead in turn to reduced welfare and quality of life.<sup>[6]</sup>

Tobacco use has been directly implicated in numerous oral morbidities including oral cancer, stomatitis nicotina, oral leukoplakia, periodontitis, gingival recession, and soft tissue changes. Hence, we are in a unique position to provide salient, proximal information about tobacco use and oral health, which can motivate tobacco users to quit.<sup>[7]</sup>

Knowledge of oral health is considered to be a prerequisite for health-related behavior. It has been shown that the rural Indian community, which constitutes more than 70% of the Indian population has a low level of oral health awareness and practice when compared to urban. Health workers' knowledge, attitude, and practices (KAP) toward oral health to a great extent influence the community as they can extend health education

at the first contact in the community and hence should possess good oral health. Literature on the oral health knowledge and oral hygiene status of health care professionals of India is almost nonexistent.<sup>[2]</sup>

Thus, this study was carried out to assess the knowledge, attitude, and practices of health care workers in Lucknow district.

## Materials and Methods

A descriptive cross-sectional survey was designed to assess the knowledge, attitude, and practices towards oral health among health care workers. The study was conducted among health care workers aged between 20 and 60 years working in PHCs and CHCs of Lucknow district. Before the start of the study, a list of PHCs, CHCs, and sub-centers located within the Lucknow was obtained from the office of Chief Medical Officer (CMO), and the necessary permission was taken from Director General Hospital and Health services from the Ministry of Health government of Uttar Pradesh along with related government authorities and the heads of the health centers. The inclusion criteria were all the health care workers who were present on the day of the study, and the exclusion criteria were all the health care workers who were not present on the scheduled date of the study.

A pilot study was conducted using the proforma on 90 health care workers attending health center to check the validity of the questionnaire and operational feasibility of the study. Cronbach's alpha was applied for the reliability of the questionnaire for assessing the knowledge on oral health problems as the questionnaire items were analyzed for difficulty in understanding, interpretation, and answering correctly without any difficulty. The same set of the questionnaire was asked to the same group of health care workers a week after the first administration of the questionnaire. These two sets of responses (i.e. the first and second administration) were then used in calculating the alpha coefficient for internal consistency which was found to be 0.84. No adjustments were found to be necessary. These workers were not part of the final study sample.

The formula for determining the size of the sample is:

$$N = 4pq/L^2$$

where

- $p$  = prevalence
- $q = (1-p)$
- $L$  = allowance error
- $N = 4 * 0.68 (1-0.68)/0.05 * 0.05 = 816$

The calculation of sample size was performed to seek the results at a 95% confidence level. The allowable error taken was  $e = 0.05$ .

In the pilot study done, the prevalence was found to be 0.68 (prevalence of dental caries). The sample size was estimated as 816 which was rounded off to a final sample of 900.

Before the commencement of the study, ethical clearance was obtained from the institutional ethical committee of Sardar Patel Post Graduate Institute of Dental and Medical Sciences, Lucknow. Approvals were taken from the Director General Hospital and Ministry of health government of Uttar Pradesh. Informed consent was obtained from primary health care workers before the start of the study.

The data were collected via a predesigned and pretested questionnaire. The questionnaire consisted of three sections:

- i. The first section included gathering demographic details like name, age, the official address of Health center from the health care workers.
- ii. In the second section, the socio-economic status (Kuppuswamy Socio- Economic Status Scale, Revised for 2014) was reported.
- iii. In the third section, the health care workers were interviewed using the WHO Oral Health Survey 1997 Questionnaire.

The data were analyzed using IBM SPSS Statistics-version 21 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.) Descriptive statistics included the calculation of percentages, mean, median, and standard deviation. The data distribution was assessed for normality using the Shapiro-Wilk test. Associations between the dependent and independent variables of categorical (discrete) type were tested by Chi-square ( $\chi^2$ ) test. All values were considered statistically significant for a value of  $P \leq 0.05$ .

## Results

Table 1: shows the majority of the respondents were aged 20–40 years (54.4%) followed by 41–60 years (44.1%) and were female (75.7%). The mean age of the respondents was  $41.40 \pm 10.44$  years.

Table 2: shows the majority of respondents were married (86.3%) and having family income greater than Rs 2000 and belonged to the – Upper Lower (55.0%) socioeconomic class. Regarding education, the majority of respondents were in almost equal proportion in High School (30.0%), ntermediate (33.6%), and graduate (30.2%). Regarding occupation, the majority of respondents were in almost equal proportion of semi-skilled (26.8%), skilled (29.7%), and semi-professional (24.0%). Most of the respondents belonged to the Upper lower (42.1%) and Lower middle (31.3%) socio-economic classes.

Table 3: shows the majority of the respondents have a frequency of cleaning teeth once a day (59.8%) followed by twice or more a day (29.8%). There were 5.1% of the respondents who cleaned their teeth only once a month. Also, the majority of the respondents used a toothbrush for cleaning of their teeth (97.4%)

**Table 1: Age & Sex Distribution of Respondents**

Age group	Gender				Total	
	Male		Female		n	%
	n	%	n	%		
2040 yr	132	26.9	358	73.1	490	54.4
4160 yr	87	21.9	310	78.1	397	44.1
Above 60 yr	0	0.0	13	100.0	13	1.4
Total	219	24.3	681	75.7	900	100.0

**Table 2: Distribution of Respondents according to Social Characteristics**

Characteristic	Category	N	%
Marital Status	Unmarried	123	13.7
	Married	777	86.3
Education	Primary	16	1.8
	Middle	24	2.7
	High School	270	30.0
	Intermediate	302	33.6
	Graduate/PG	272	30.2
	Professional	16	1.8
Occupation	Unskilled Worker	33	3.7
	Semi-Skilled	241	26.8
	Skilled	267	29.7
	Semi-Professional	271	30.1
	Professional	88	9.8
Family Income Per Month (Rs.)	>=34830	88	9.8
	17415-34829	271	30.1
	13029-17414	267	29.7
	8707-13028	201	22.3
	5224-8706	73	8.1
Socio-Economic Class	Upper	23	2.6
	Upper Middle	137	15.2
	Lower Middle	282	31.3
	Upper Lower	379	42.1
	Lower	79	8.8

**Table 3: Distribution of Respondents According to Cleaning Practice of Teeth**

Cleaning Pattern	No.	%
Frequency of Cleaning Teeth		
Never	0	0.0
Once a Month	46	5.1
Once a week	8	0.9
2-6 times a week	40	4.4
Once a Day	538	59.8
Twice or more a day	268	29.8
Method of Cleaning Teeth		
Toothbrush	877	97.4
Wooden Toothpick	31	3.4
Plastic Toothpick	0	0.0
Thread	40	4.4
Charcoal	0	0.0
Miswak	56	6.2
Others	16	1.8

followed by miswak (6.2%). Some used thread (4.4%), wooden toothpicks (3.4%), and other methods (1.8%).

Table 4 Depicts that 70.2% of the respondents ever visited a dentist due to some reason of which 19.2% visited once in a year to 2 years. A total of 29.8% of the respondents never visited the dentist.

Table 5: Depicts that the majority of the participants (49.2%) consumed fruit every day (49.2%), and 50.2% of the participants consumed biscuits every day. Because of teeth/mouth problems most of the respondents faced various major and minor problems say difficulty in biting (48.9%), difficulty in chewing (57.4%), sleep interrupted (40.0%), and so on.

Table 6: shows that 38.9% of the respondents were daily smokers of which the majority belonged to the age group 20–40 years. A total of 63.9% of the respondents were daily chewable tobacco users, and 12.4% of the respondents were routine users of alcohol.

Table 7: shows that only in 31.1% of the respondents, fluorosis was found to be normal. It was questionable in 35.1% of the respondents, very mild in 19.9%, and mild in 13.9% of the respondents.

## Discussion

Oral health which is an integral part of general health may be defined as “standard of health of the oral and related tissues which enables an individual to eat, speak, and socialize without active disease, discomfort, or embarrassment and which contributes to general well-being.”

The study was conducted on 900 health care workers, and a pilot study was performed on 90 subjects within the department before the start of the study to check the validity of the questionnaire and for operational feasibility of the study along with proper calibration and standardization.

In the present study, the age of the health care workers ranged from 20 to 60 years with a mean age of  $41.4 \pm 10.4$  yrs. A similar study was conducted by Aggnur M *et al.* (2014)<sup>[2]</sup> in that, the majority (53.6) of the health care workers in the study belonged to the age group between 20 and 40 years which is also similar to the study by Prathibha B *et al.* (2010).<sup>[8]</sup>

The total study subjects (900) were distributed according to Kuppaswamy's classification of socioeconomic class within its three parameters i.e. education, occupation, and income. Distribution of the study subjects according to education revealed that 30.2% had completed graduation/postgraduation, 33.6% had completed intermediate, and 30.0% were educated till high school. Most of the study subjects (29.7%) were skilled workers, 26.8% subjects were semi-skilled, 30.0% were semi-professional. The majority of the participants (30.1%) had a monthly income between Rs. 17415 and 34829, 29.7% had monthly income between Rs. 13029 and 17414, and 22.3% had monthly income between

**Table 4: Distribution of Respondents according to Visit to Dentist**

Responses		Age Group			Total
		20-40 yr	41-60 yr	Above 60 yr	
<6 months	No.	32.0	48	0	80
	%	6.5	12.1	0.0	8.9
6-12 months	No.	72.0	40	0	112
	%	14.7	10.1	0.0	12.4
More than 1 year but <2 year	No.	94.0	79	0	173
	%	19.2	19.9	0.0	19.2
2 years or more but <5 years	No.	53.0	83	5	141
	%	10.8	20.9	38.5	15.7
5 Years or more	No.	63.0	55	8	126
	%	12.9	13.9	61.5	14.0
Ever Appointment with Dentist	No.	314	305	13	632
	%	64.1	76.8	100.0	70.2
Never received dental care	No.	176.0	92	0	268
	%	35.9	23.2	0.0	29.8
Total		490	397	13	900

**Table 5: Eating Habit of Respondents**

Eating Habit	Choice	Proportion	Age Group			Total
			20-40 yr	41-60 yr	Above 60 yr	
Fresh Fruit	Seldom/ Never	No.	40	16	8	64
		%	4.4%	1.8%	0.9%	7.1%
	Once a week	No.	164	52	0	216
		%	18.2%	5.8%	0.0%	24.0%
Every Day		No.	219	219	5	443
		%	24.3%	24.3%	0.6%	49.2%
	Several times a Day	No.	67	110	0	177
		%	7.4%	12.2%	0.0%	19.7%
Biscuits	Seldom/ Never	No.	36	36	0	72
		%	4.0%	4.0%	0.0%	8.0%
	Once a week	No.	152	104	0	256
		%	16.9%	11.6%	0.0%	28.4%
	Every Day	No.	244	195	13	452

**Table 6: Agewise dental fluorosis status of respondents**

Dental Fluorosis		Age Group			Total
		20-40 yr	41-60 yr	Above 60 yr	
Normal	No.	88	184	8	280
	%	9.8%	20.4%	0.9%	31.1%
Questionable	No.	173	138	5	316
	%	19.2%	15.3%	0.6%	35.1%
Very Mild	No.	124	55	0	179
	%	13.8%	6.1%	0.0%	19.9%
Mild	No.	105	20	0	125
	%	11.7%	2.2%	0.0%	13.9%
Total	No.	490	397	13	900
	%	54.4%	44.1%	1.4%	100.0%

Rs. 8707 and 13028, whereas the remaining 8.1% had between Rs. 5224 and 8706. The majority of the participants (42.1%) belonged to the upper lower class, 31.3% belonged to the lower middle class, whereas the remaining 15.2% belonged to

Table 7: Tobacco &amp; Alcohol Habit of Respondents

Tobacco Habit	Frequency	Proportion	Age Group			Total
			20-40 yr	41-60 yr	Above 60 yr	
Smoking	Never/Seldom	No.	297	210	13	520
		%	33.0%	23.3%	1.4%	57.8%
	Several times a week	No.	7	23	0	30
		%	0.8%	2.6%	0.0%	3.3%
	Everyday	No.	186	164	0	350
		%	20.7%	18.2%	0.0%	38.9%
Tobacco- Chewing	Never/Seldom	No.	158	162	5	325
		%	17.6%	18.0%	0.6%	36.1%
	Everyday	No.	332	235	8	575
		%	36.9%	26.1%	0.9%	63.9%
Alcohol	Occasional	No.	47	88	8	143
		%	5.2%	9.8%	0.9%	15.9%
	Routine	No.	24	88	0	112
		%	2.7%	9.8%	0.0%	12.4%
No Drink	No.	419	221	5	645	
	%	46.6%	24.6%	0.6%	71.7%	
Total	No.	490	397	13	900	
	%	54.4%	44.1%	1.4%	100.0%	

the upper-middle class, wherein the education and occupation along with the total family income was recorded using Kuppuswamy's SES scale that has been employed previously by Pushpanjali K *et al.* (2011).<sup>[9]</sup>

Health care workers who were more knowledgeable about the development of dental caries might also be more aware of the importance of oral health care. Therefore, the health care workers need to be educated about the importance of fluoridated toothpaste which has been similarly (96.7%) done in a study by Gangwar *et al.* (2014).<sup>[10]</sup>

In response to utilization of dental services which was measured by a visit to the dentist, more than half of health care workers (70.2%) visited a dentist which is similar to the study by Yadav K *et al.* (2016)<sup>[11]</sup> who found that 76.8% of the health care workers visited a dentist and also with the study by Baseer MA *et al.* (2012).<sup>[12]</sup> These findings are in contrast with the study by Kaur S *et al.* (2015)<sup>[13]</sup> which showed only 50% of the health care workers visited the dentist, with the study by Gangwar C *et al.* (2014).<sup>[10]</sup>

The distribution of responses to the reason for dental visits among health care workers was analyzed, and 46.8% of health care workers visited a dentist because of pain. The finding highlights the similar picture depicted by Yadav K *et al.* (2016)<sup>[11]</sup> who found that a high proportion (35%) of health care workers visited a dentist because of pain. These findings are in contrast with the study by Gangwar C *et al.* (2014).<sup>[10]</sup>

Surveys done in many parts of the world have found tooth brushing to be the best way to maintain oral health.<sup>[14,15]</sup> To prevent oral health problems, the American Dental Association recommends tooth brushing at least once a day.

This shows that respondents had lacked in practicing oral hygiene measures for their oral hygiene maintenance as it is believed that behavior and practices may be as a result of cultural or local influences.

The present study also showed that some of the health care workers (6.2%) used indigenous products instead of toothpaste and toothbrush as oral hygiene aid which is in contrast with the study by Baseer MA *et al.* (2012)<sup>[12]</sup> in which 1.2% health professionals used the products for cleaning their teeth.

An interesting piece of information from the participants reported that 63.9% of the health care workers had a habit of chewing tobacco everyday followed by 38.9% of the participants used smoking tobacco every day. These findings are similar to the study by Gangwar C *et al.* (2014)<sup>[10]</sup> which showed that 88.5% of the health care workers were unaware of the harmful effect of tobacco consumption. The findings of the current study are in contrast with the study by Aggnur M *et al.* (2014)<sup>[2]</sup> which showed that 98% of the health care workers were aware of the fact that excessive smoking can pre-dispose the person to oral and lung cancer.

This information showed that despite the best efforts of the Government of India to spread awareness on the harmful effects of tobacco in its various forms, there is ignorance among health care workers.<sup>[10]</sup>

It is difficult to fathom the causes for this rampant addictive habit. One of the reasons cited is the habit of paying wages on tobacco which might have got them hooked to the habit as well as they were unaware of the harmful effects of tobacco consumption and oral cancer. It is the poor knowledge of health care workers in the present study regarding the harmful effect of tobacco on health and in particular oral health.<sup>[10]</sup>

Thus, the findings of this present study also have imperative implications for public health and provide much-needed information to target wider interventions on a community level.

## Conclusion

The present study gives a brief insight into the oral health knowledge, attitude, and practices of health care workers which were of fair degree. The study findings concluded that there was an evident gap between their knowledge and what they were really practicing.

Proper oral hygiene practices along with the frequency of using oral hygiene aid along with the use of toothbrushes and fluoridated toothpaste is a necessity for having good oral hygiene. Hence, there is a need to educate health care workers about the harmful effects of consuming tobacco as it causes oral cancer and as having sufficient knowledge regarding oral hygiene but not implementing it into their practices is also a major issue that should be taken care of.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

## References

1. Soni A, Singh V, Savi GR, Yadav OP, Khan M, Agrawal M. Oral health related knowledge, attitude and practice among bus conductors and drivers in Jaipur district. *Int J Dent Med Res* 2014;1:25-9.
2. Aggnur M, Garg S, Veerasha KL, Gambhir RS. Oral health status, treatment needs and knowledge, attitude and practice of health care workers of Ambala, India. A cross-sectional study. *Ann Med Health Sci Res* 2014;4:676-81.
3. Singh KP, Kochhar S, Mittal V, Agrawal A, Chaudhary HV, Anandani C. Oral health: Knowledge, attitude and behavior among Indian population. *Int Res J* 2012;3:66-71.
4. Udoye C, Aguwa E. Oral health related knowledge and behavior among nursing students in a Nigerian tertiary hospital. *Int J Dental Sci* 2008;7:1-6.
5. Bhardwaj VK, Sharma KR, Jhingta P, Luthra RP, Sharma D. Assessment of oral health status and treatment needs of police personnel in Shimla city, Himachal Pradesh: A cross-sectional study. *Int J Health Allied Sci* 2012;1:20-4.
6. Hongal S, Torwane NA, Goel P, Byarakele C, Mishra P, Jain S. Oral health-related knowledge, attitude and practices among eunuchs (hijras) residing in Bhopal City, Madhya Pradesh, India: A cross-sectional questionnaire survey. *J Indian Soc Periodontol* 2014;18:624-31.
7. Bharathi TC, Kavitha K, Ganesh R. Oral health status, awareness, attitude, practices, and level of nicotine dependence among Tamil Nadu Electricity Board workers in North Chennai, Tamil Nadu. *SRM J Res Dent Sci* 2016;7:73-7.
8. Prathibha B, Anjum S, Reddy PP, Kumar JA. Oral health awareness among the Anganwadi workers in Karimnagar Town. *J Indian Assoc Public Health Dent* 2010;15:5-8.
9. Pushpanjali K, Randheer R. Kuppuswamy's socioeconomic status scale for urban community: Updating income ranges for the year 2013. *J Indian Assoc Public Health Dent* 2013;11:90-2.
10. Gangwar C, Kumar M, Nagesh L. KAP towards oral health, oral hygiene and dental caries status among Anganwadi workers in Bareilly City, Uttar Pradesh: A cross-sectional survey 2014. *J Dent Sci Oral Rehabil* 2014;5:53-7.
11. Yadav K, Solanki J, Adyanthaya BR, Yadav O, Shavi GR, Yadav P. Primary health centre approach for oral health related knowledge, attitude and practice among primary health care workers of Western India. *J Dent Health Oral Disord Ther* 2016;5:248-51.
12. Baseer MA, Alenazy MS, AlAsqah M, Al Gabbani M, Mehkari A. Oral health knowledge, attitude and practices among health professionals in King Fahad Medical City, Riyadh. *Dent Res J* 2012;9:386-92.
13. Kaur S, Kaur B, Ahluwalia SS. Oral health knowledge, attitude and practices amongst health professionals in Ludhiana, India. *Dentistry* 2015;5:315-20.
14. Fotedar S, Fotedar V, Bhardwaj V, Thakur AS, Vashisth S, Thakur P. Oral health knowledge and practices among primary healthcare workers in Shimla District, Himachal Pradesh, India. *Indian J Dent Res* 2018;29:858-61.
15. Malhotra S, Singh P, Dubey H. Effectiveness of oral health education on knowledge and practice among 15-year-old children of Government High Schools in Lucknow city (Uttar Pradesh). *Univ J Dent Sci* 2020;6:51-6.