

Oral Health (KAP Model) Status and Tobacco Habits in Employees' State Insurance Patients Visiting a Dental College in North India: A Cross-sectional Study

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ABSTRACT

Background: Various oral health-related practices, perceptions, and behavioral patterns among the individuals in the society determine the treatment needs to be adopted among the dentists, hospitals, and country as a whole.

Objective: To access the knowledge, attitude, and practices regarding oral health and tobacco-related products.

Design: Questionnaire-based cross-sectional study.

Setting: All patients under Employees' State Insurance (ESI) empanelment coming to the department from August 2018 to July 2019.

Patients: The study consisted of 573 subjects who visited the outpatient department, of which 446 (77.8%) were males and 127 (22.2%) were females.

Measurements: A self-prepared questionnaire was asked from the patients and the response rate was recorded and statistically analyzed using nonparametric tests, such as Chi-square and *p* value to arrive at the results.

Results: It was observed that the subjects were maintaining oral health by cleaning their teeth with toothbrush and toothpaste in 549 (95.8%) individuals, changing their brush in >1-month and ≤3-month categories with 270 (50.7%) response. It was also seen that the subjects considered oral health as the mirror of their whole body, i.e., in 89% and 84.4% of the individuals and were ready to go to the dentist (86.9%) in the near future regarding oral prophylaxis. Regarding tobacco habits, males (37.8%) were predominantly using tobacco as compared to females.

Limitations: Being a single-centric study of the ESI patients, it does not reflect the overall status of the dental health of this kind of population on a pan-India level. So, more multicentric studies involving a large pool of individuals should be carried out.

Conclusion: This study represents the first-of-a-kind information regarding the oral health of the ESI population in our country. More in-depth and larger sample-sized studies are required from other parts of India that could reflect the true oral status of this category of individuals so that treatment plans can be developed accordingly.

Key messages: This article tends to formulate the oral hygiene perceptions, outlook, and execution of targeted occupants in an observational manner which can help in removing bottlenecks to reach an optimum level of dental health.

Keywords: Attitude, Knowledge, Oral health, Questionnaire, Survey.

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INTRODUCTION

The word hygiene first attested in English in 1676, comes from the Greek word "hygiene techne" meaning "art of health." It is a concept related to cleanliness, health, and medicine. It is as well as related to personal and professional care practices. Oral hygiene is the science and practice of recognition, treatment, and prevention of oral diseases.

According to the World Health Organization, oral health is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects, such as cleft lip and palate, periodontal (gum) diseases, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity.¹

A multicentric survey done by the Ministry of Health and Family Welfare (MoHFW) in collaboration with AIIMS, Delhi, stated that dental caries and periodontal diseases have a prevalence of 40 to 45% and 74%, respectively, with oral cancer in 12.6% per lakh population in the survey.² In terms of tobacco usage, the latest global adult tobacco survey done by MoHFW stated that India has 266.8 million current tobacco users in the year 2016 to 2017 with

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around 199.4 million adults using smokeless tobacco and 99.5 million adults currently smoke tobacco.³ So, with all these surveys done on a national level and other surveys being scattered at the lower level, one can assume that certainly there is a mismatch of information and knowledge given to the people about oral health or there is a death of willingness among the masses to adopt and pursue the habits related among themselves.

To decrease the burden of major oral diseases, one should first acquire information about oral health and its different practices among people in their daily routine so one can take the necessary steps to eradicate the harmful and unethical habits that could be detrimental to individual and society as a whole. This can be achieved through various epidemiological surveys and cross-sectional studies done at various levels. For this, one can adopt and use the KAP (knowledge, attitude, and practice) model of behavioral changes that has a positive vision of science, treating behavioral changes as a logical individual decision. The KAP survey can measure the extent of a known situation, identify what is known and done about a specific topic, establish the reference value that can be used in future assessments, and suggest an intervention strategy that can be helpful in eradicating the problem.⁴

In our country, where there is a vast network of industries throughout its length and breadth, one can say that the workers working in them certainly require social security and health insurance for them and their families. So to cater to the demand, the Ministry of Labor and Employment and Government of India constituted a statutory body named Employees' State Insurance Corporation (ESIC) under the ESI act of 1948.⁵ It gives social security by the way of medical and dental insurance to the employees that earn up to Rs. 21,000/- per month as wages, in which the employers contribute about 3.25% and the employee gives 0.75%, thus the total share coming to 4%.⁶

So, keeping in view the magnanimity of the working population of ESI workers in our country, we conducted a literature survey through various search engines to record and assess the studies done on the oral health of the workers. To our astonishment, we could not find even a single study that could give us an idea about the oral health status and behavioral pattern among the ESI workers. Since Baddi is an industrial hub of Himachal Pradesh with multiple pharmaceutical and other industries here, and the absence of any oral health data of ESI patients, we decided to conduct a cross-sectional study in our hospital which is ESI empaneled to get the firsthand information about the oral health of the ESI patients visiting the hospital outpatient department for the treatment purposes. So, with these findings in mind, the aim and the objectives of our study are:

- To assess the KAP of ESI patients toward oral health.
- To evaluate and assess the different tobacco habits among the ESI patients in a hospital setup.

MATERIAL AND METHOD

Systematically and mentally healthy patients, who were having ESI card (a separate colored card other than white, i.e., yellow and pink was issued in the college) and were willing to participate in the study with age-group greater than 15 years and above, were included in the study. The study was carried out in the Department of Periodontology of the college and was stretched to almost one year (i.e., August 1, 2018, till July 31, 2019). Ethical clearance for conducting the study was obtained from the ethical committee of the college itself (IEC No.: BDC/BUDH/SF/20175).

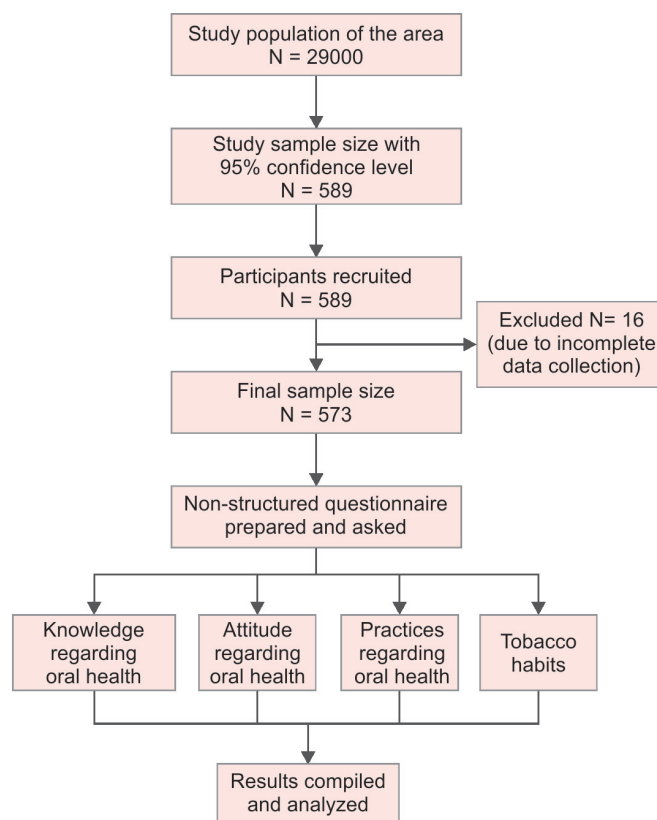


Fig. 1: Study design flowchart

A self-constructed, 31-item nonstructured questionnaire was prepared with the help of coinvestigators to identify the oral hygiene needs of the ESI patients. Since Baddi has a population of approximately 29,000 individuals,⁷ with a 95% confidence level and 4% margin of error, the total sample size computed came out to be 589.⁸ However, while collecting the data, 16 participants' questionnaires were rejected as they were incomplete, thereby yielding a response rate of about 97.2%. So, a total of 573 was the final sample size that was included in the study.

The questionnaire was written and prepared in English but the face-to-face interview was conducted in the regional language, i.e., Hindi, with the patient. The subjects were asked the questions one by one and were given multiple-choice options to choose the appropriate answer from the list of options. The investigator recorded the data carefully which was checked by coinvestigator accordingly.

All the data obtained were entered into the Microsoft Excel sheet and were further analyzed using Statistical Package for Social Sciences (SPSS, IBM, USA) version 21. The statistically significant level, i.e., *p* value was set at less than 0.05 to arrive at the results (Fig. 1).

RESULTS

The present study consisted of 446 (77.8%) males and 127 (22.2%) females as the eventual sample size of the targeted population of ESI subjects for the study. The mean age of the participants came out to be 33.46 ± 9.39 years. Regarding various questions, the subjects gave different opinions and answers which were compiled and statistically analyzed as follows:

Regarding cleaning of teeth (Table 1), 436 (97.7%) males responded in the affirmation that they clean them regularly and merely 10 (2.2%) males responded that they clean their teeth

Oral Health Status and Tobacco Habits among the ESI Subjects

Table 1: Oral health-related practices among the subjects

Questions	Response	Male (%)	Female (%)	Total (%)	Chi-square value	P value [#]
		446 (77.8%)	127 (22.2%)	573		
Do you clean them?	Regularly	436 (97.7%)	126 (99.2%)	562 (98%)	1.111	0.29
	Sometimes	10 (2.2%)	1 (0.7%)	11 (1.9%)		
If yes, what do you use to clean them?	Toothpaste	427 (95.7%)	122 (96.1%)	549 (95.8%)	3.015	0.22
	Neem	4 (0.8%)	2 (1.5%)	6 (1.04%)		
	Tooth powder	15 (3.3%)	3 (2.3%)	18 (3.14%)		
	Charcoal	0 (0%)	0 (0%)	0 (0%)		
	Salt	0 (0%)	0 (0%)	0 (0%)		
	Else	0 (0%)	0 (0%)	0 (0%)		
If toothpaste, type of toothpaste used	Fluoridated	32 (7.4%)	16 (13.1%)	48 (8.7%)	3.27	0.19
	Nonfluoridated	62 (14.5%)	13 (10.6%)	75 (13.6%)		
	Don't know	333 (77.9%)	93 (76.2%)	426 (77.5%)		
How often do you clean your teeth?	Once	340 (76.2%)	76 (59.8%)	416 (72.6%)	17.38	0.001*
	Twice	101 (22.6%)	48 (37.7%)	149 (26%)		
	Thrice	2 (0.4%)	3 (2.3%)	5 (0.87%)		
	More than that	3 (0.6%)	0	3 (0.52%)		
What do you use to brush your teeth?	Toothbrush	432 (96.8%)	117 (92.1%)	549 (95.8%)	5.52	0.06
	Finger	7 (1.5%)	5 (3.9%)	12 (2.09%)		
	Tree stick	7 (1.5%)	5 (3.9%)	12 (2.09%)		
	Else	0 (0%)	0 (0%)	0 (0%)		
What type of toothbrush do you use?	Soft	206 (47.6%)	56 (47.8%)	262 (47.4%)	2.86	0.23
	Medium	195 (45.1%)	49 (41.8%)	244 (44.4%)		
	Hard	31 (7.1%)	12 (10.2%)	43 (7.8%)		
Which brushing technique you do with toothbrush?	Horizontal	353 (81.7%)	100 (85.4%)	453 (82.5%)	6.50	0.26
	Vertical	44 (10.1%)	10 (8.5%)	54 (9.8%)		
	Circular	31 (7.1%)	6 (5.1%)	37 (6.7%)		
	Combination of the above					
	Horizontal + vertical + circular	1 (0.22%)	0 (0%)	1 (0.1%)		
	Horizontal + vertical	1 (0.22%)	0 (0%)	1 (0.1%)		
	Horizontal + circular	1 (0.22%)	0 (0%)	1 (0.1%)		
	Vertical + circular	1 (0.22%)	1 (0.8%)	2 (0.3%)		
Do you change your toothbrush?	Yes	421 (97.4%)	111 (94.8%)	532 (96.9%)	4.40	0.03*
	No	11 (2.5%)	6 (5.1%)	17 (3%)		
If yes, when?	0 to ≤1 month	141 (33.4%)	40 (36%)	181 (34%)	2.69	0.61
	>1 month to ≤3 months	219 (52%)	51 (45.9%)	270 (50.7%)		
	>3 months to ≤6 months	51 (12.1%)	18 (16.2%)	69 (12.9%)		
	>6 months to ≤1 year	5 (1.1%)	1 (0.9%)	6 (1.1%)		
	More than that	5 (1.1%)	1 (1.9%)	6 (1.1%)		
Time spent for cleaning teeth	≤2 min	198 (44.3%)	60 (47.2%)	258 (45%)	0.324	0.56
	>2 min	248 (55.6%)	67 (52.7%)	315 (54.9%)		
Do you use any aid for cleaning between the teeth?	Never	359 (80.4%)	104 (81.8%)	463 (80.8%)	2.12	0.34
	Regularly	42 (9.4%)	15 (11.8%)	57 (9.94%)		
	Sometimes	45 (10)	8 (6.2%)	53 (9.2%)		
If yes, what type of interdental aid used?	Else (e.g., woodstick, thread, matchstick)	39 (44.8%)	13 (56.5%)	52 (47.2%)	1.30	0.86
	Floss	7 (8%)	2 (8.6%)	9 (8.1%)		
	Toothpick	40 (45.9%)	8 (34.7%)	48 (43.6%)		
	Interdental brush	1 (1.1%)	0	1 (0.9%)		
	Water	417 (93.4%)	115 (90.5%)	532 (92.8%)		
Do you use any rinse for mouth?	Mouthwash	21 (4.7%)	9 (7%)	30 (5.2%)	1.32	0.51
	Else (e.g., warm saline rinses)	8 (1.7%)	3 (2.3%)	11 (1.9%)		

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Questions	Response	Male (%) 446 (77.8%)	Female (%) 127 (22.2%)	Total (%) 573	Chi-square value	P value [#]
If yes, time for rinsing	Anytime	243 (54.4%)	77 (60.6%)	320 (55.8%)	5.30	0.25
	Morning	190 (42.6%)	43 (33.9%)	233 (40.6%)		
	Afternoon	5 (1.12%)	2 (1.5%)	7 (1.2%)		
	Evening	3 (0.6%)	1 (0.7%)	4 (0.6%)		
	Night	5 (1.12%)	4 (3.1%)	9 (1.55)		
Do you clean your tongue?	Regularly	320 (71.7%)	96 (75.5%)	416 (72.6%)	1.20	0.54
	Sometimes	56 (12.55%)	16 (12.5%)	72 (12.5%)		
	Never	70 (15.6%)	15 (11.8%)	85 (14.8%)		

[#]p value being significant at 5% level, i.e., $p < 0.05$. *significant value

sometimes, whereas in females 126 (99.2%) confirmed that they brush their teeth regularly and only 1 (0.7%) asserted that she does it off and on. Most of the respondents cleaned their teeth once daily, i.e. 340 (76.2%) males and 76 (59.8%) females followed by two times, three times, and every meal with the p value being statistically significant ($P 0.001$) (Table 1).

In the content of the material used in cleaning the teeth (Table 1), the most prevalent aid used was toothpaste which was endorsed by 427 (95.7%) males and 122 (96.1%) females followed by toothpowder in 15 (3.3%) males and 3 (2.3%) females, neem in 3 (0.6%) males and 3 (2.3%) females, respectively.

On the nature and the type of toothpaste used by the subjects (Table 1), it was found that 333 (77.9%) males and 93 (76.8%) females did not know whether the toothpaste they are using is fluoridated or nonfluoridated. Only 32 (7.4%) males and 15 (12.3%) females were knowing about it and were using fluoridated toothpaste, whereas 62 (14.5%) males and 13 (10.7%) females were using nonfluoridated toothpaste and knowing about it.

On the type of mechanical aid and technique used for cleaning the tooth surfaces (Table 1), the toothbrush was endorsed by 549 (95.8%) and the horizontal method of brushing by 453 (82.5%) subjects. Most of the subjects changed their brush predominantly in the 3-month category response, i.e., 219 (52%) males and 51 (45.9%) females. The p value ($P 0.03$) was statistically significant for the change in brush response (Table 1).

Regarding the interdental aids used for the interproximal areas (Table 1), most of the respondents had never used any aids, i.e., 359 (80.4%) males and 104 (81.8%) females. And concerning the chemical type of plaque control method (Table 1), most of them were using water for rinsing, i.e., 417 (93.4%) males and 115 (90.5%) females and that at anytime time period, i.e., 243 (54.4%) males and 77 (60.6%) females followed by morning time in 190 (42.6%) males and 43 (33.9%) females. The majority of the respondents were cleaning their tongue in both male and female categories, i.e., 320 (71.7%) and 96 (75.5%), respectively (Table 1).

In terms of attitude regarding oral health (Table 2), it was found that 274 (61.4%) males and 76 (59.8%) females had visited the dentist before. The subjects who had visited before went mainly for the reason of dirty teeth, i.e., 94 (34.3%) and 23 (30.2%) in both males and females followed by repair of teeth and pain in teeth.

The subjects went to the dentist whenever they faced any problems (i.e., 204 (74.4%) males and 70 (92.1%) females) followed by regularly every 6 to 12 months in 28 (10.2%) males and 3 (3.9%) females and occasionally in 42 (15.3%) males and 3 (3.9%) females. The p value with respect to the frequency of dental visit came out to be statistically significant ($P 0.01$) (Table 2).

Regarding the scaling procedure (Table 2), the majority of the respondents did not have their teeth cleaned before, i.e., 372 (64.9%). The subjects who had their teeth cleaned, i.e., 160 (35.8%) males and 41 (32.2%) females were of the view that scaling is good for the teeth, i.e., 200 (34.9%). In response to whether they will opt for getting their teeth cleaned in the future, the majority of them affirmed a positive response, i.e., 392 (87.8%) males and 106 (83.4%) females (Table 2).

In the context of tobacco habits (Table 3), about 401 (69.9%) subjects were not consuming tobacco in any forms. The participants, i.e., 169 (37.8%) males and 3 (2.3%) females who were consuming tobacco were having the habit of chewing in men, i.e., 85 (50.2%) and smoking in women, i.e., 2 (66.6%) as the most prevalent method of using tobacco. The p value in the above parameters was statistically significant ($P 0.00$).

In smoking form, the most prevalent method was cigarette smoking in male subjects, i.e., 41 (56.7%) followed by bidi in 32 (43.2%) and a combination of cigarette and bidi with chewable forms of tobacco. The p value came out to be statistically significant ($p = 0.00$). In chewing form, the majority of the respondents were using zarda, i.e., 36 (42.3%) followed by gutkha in 27 (31.7%), pan masala in 11 (13%), and khaini in 9 (10.5%) in males and females only 1 (100%) subject was using gutkha as the chewable form of tobacco. The p value came out to be statistically significant ($P 0.001$) (Table 3).

The subjects who were consuming alcohol with tobacco, i.e., 58 (34.3%) males and 2 (66.6%) females were consuming it any time of the day, especially in 125 (73.9%) males and equally divided into evening and night and anytime, i.e., 1 each (33.3%) in females, respectively. The p value was statistically significant ($P 0.00$) (Table 3).

DISCUSSION

The overall condition of oral health depends upon the KAP which the individuals possess and do in their daily routine. Also, there are numerous categories of individuals in our country that can have different sets of rules while following dental health. So, keeping this in mind, we tried to conduct a cross-sectional study to assess the practices and habits regarding the oral health of individuals who were ESI empaneled and were getting the dental treatment included in their health insurance plans.

It was found that majority of the subjects were cleaning their teeth regularly and with toothbrush and toothpaste. This was in accordance with the studies done by Oberoi et al.,⁹ Ali et al.,¹⁰ and Hind Al-Johani¹¹ who also observed the same results, but lower than that of other studies, which evaluated the educated students in their

Oral Health Status and Tobacco Habits among the ESI Subjects

Table 2: Oral health-related knowledge and attitude among the subjects

Questions	Response	Male (%) 446 (77.8%)	Female (%) 127 (22.2%)	Total (%) 573	Chi-square value	P value [#]			
Have you ever visited a dentist?	Yes	274 (61.4%)	76 (59.8%)	350 (61%)	0.10	0.74			
	No	172 (38.5%)	51 (40.1%)	223 (38.9%)					
When was your last dental visit?	<6 months	86 (31.3%)	26 (34.2%)	112 (32%)	0.634	0.88			
	6 months to 1 year	69 (25.1%)	20 (26.3%)	89 (25.4%)					
	>1 year	119 (43.4%)	30 (39.4%)	149 (42.5%)					
Purpose of last dental visit	Dirty teeth	94 (34.3%)	23 (30.2%)	117 (33.4%)	14.08	0.36			
	Pain	58 (21.1%)	20 (26.3%)	78 (22.2%)					
	Routine checkup	14 (5.1%)	2 (2.6%)	16 (4.5%)					
	Repair of teeth	62 (22.6%)	18 (23.6%)	80 (22.8%)					
	Other reasons								
	Extraction	23 (8.3%)	9 (11.8%)	32 (9.14%)					
	Root canal treatment	9 (3.2%)	1 (1.3%)	10 (2.8%)					
	Bleeding gums	5 (1.82%)	0 (0%)	5 (1.4%)					
	Sensitivity	2 (0.7%)	1 (1.3%)	3 (0.8%)					
	Orthodontic treatment	1 (0.3%)	0 (0%)	1 (0.2%)					
	Replacement of missing teeth	5 (1.82%)	2 (2.6%)	7 (2%)					
	Bad breath	1 (0.3%)	0 (0%)	1 (0.2%)					
	Frequency of dental visit	Regularly every 6–12 months	28 (10.2%)	3 (3.9%)			31 (8.8%)	10.26	0.01*
		Occasionally	42 (15.3%)	3 (3.9%)			45 (12.8%)		
Whenever I have a problem		204 (74.4%)	70 (92.1%)	274 (78.2%)					
Have you ever got your teeth cleaned?	Yes	160 (35.8%)	41 (32.2%)	201 (35%)	0.56	0.45			
	No	286 (64.1%)	86 (67.7%)	372 (64.9%)					
Reasons for cleaning	Bleeding and swollen gums	18 (11.25%)	6 (14.6%)	24 (11.9%)	7.72	0.25			
	Dirty teeth	85 (53.1%)	29 (70.7%)	114 (56.7%)					
	Scaling was advised	15 (9.3%)	3 (7.3%)	18 (8.9%)					
	Pain relief	18 (11.25%)	1 (2.4%)	19 (9.4%)					
	Relief from bad breath	8 (5%)	1 (2.4%)	9 (4.4%)					
	Routine scaling	16 (10%)	1 (2.4%)	17 (8.4%)					
	How do you view scaling and why?	Good	159 (35.6%)	41 (32.2%)			200 (34.9%)	0.80	0.67
Bad		1 (0.2%)	0 (0%)	1 (0.17%)					
Neither of two		286 (64.1%)	86 (67.7%)	372 (64.9%)	4.95	0.83			
Teeth get cleaned		71 (44.3%)	17 (41.4%)	88 (43.7%)					
Removes bad breath		36 (22.5%)	7 (17%)	43 (21.3%)					
Feels fresh		21 (13.1%)	8 (19.5%)	29 (14.4%)					
Decreases hot and cold sensitivity		3 (1.8%)	0 (0%)	3 (1.49%)					
Improves oral hygiene		8 (5%)	1 (2.4%)	9 (4.47%)					
Relief from pain		16 (10%)	7 (17%)	23 (11.4%)					
Improves gums		3 (1.8%)	1 (2.4%)	4 (1.9%)					
Teeth got worsened		1 (0.6%)	0 (0%)	1 (0.4%)					
Removes yellow stain		1 (0.6%)	0 (0%)	1 (0.4%)					
Will you get teeth cleaned in the future?		Agree	392 (87.8%)	106 (83.4%)			498 (86.9%)	3.87	0.14
		Disagree	9 (2.01%)	1 (0.78%)			10 (1.74%)		
	Undecided	45 (10.08%)	20 (15.74%)	65 (11.3%)					
Do you think oral health is as important as general health?	Agree	398 (89.2%)	112 (88.1%)	510 (89%)	3.12	0.21			
	Disagree	8 (1.79%)	0 (0%)	8 (1.39%)					
	Undecided	40 (8.96%)	15 (11.8%)	55 (9.59%)					
Do you think oral health has a relationship with systemic illness	Agree	380 (85.2%)	104 (81.8%)	484 (84.4%)	0.94	0.62			
	Disagree	15 (3.36%)	6 (4.72%)	21 (3.6%)					
	Undecided	51 (11.4%)	17 (13.3%)	68 (11.8%)					

[#]p value being significant at 5% level, i.e., $p < 0.05$. *significant value

Table 3: Tobacco habits among the subjects

Questions	Response	Male (%) 446 (77.8%)	Female (%) 127 (22.2%)	Total (%) 573	Chi-square value	P value [#]	
Do you consume tobacco?	Yes	169 (37.8%)	3 (2.3%)	172 (30%)	58.92	0.000*	
	No	277 (62.1%)	124 (97.6%)	401 (69.9%)			
Form of tobacco	Smoking	74 (43.7%)	2 (66.6%)	76 (44.1%)	58.47	0.000*	
	Chewing	85 (50.2%)	1 (33.3%)	86 (50%)			
	Both	10 (5.9%)	0 (0%)	10 (5.81%)			
Smoking form of tobacco	Cigarette	42 (56.7%)	1 (50%)	43 (56.5%)	59.12	0.000*	
	Bidi	32 (43.2%)	1 (50%)	33 (43.4%)			
	Khaini + cigarette	2 (20%)	0 (0%)	2 (20%)			
	Zarda + cigarette	2 (20%)	0 (0%)	2 (20%)			
	Zarda + bidi	3 (30%)	0 (0%)	3 (30%)			
	Gutkha + bidi	1 (10%)	0 (0%)	1 (10%)			
	Gutkha + cigarette	2 (20%)	0 (0%)	2 (20%)			
Chewing form of tobacco	Zarda	36 (42.3%)	0 (0%)	36 (41.8%)	32.42	0.001*	
	Gutkha	27 (31.7%)	1 (100%)	28 (32.5%)			
	Pan masala	11 (12.9%)	0 (0%)	11 (12.7%)			
	Khaini	9 (10.5%)	0 (0%)	9 (10.4%)			
	Chuna/slaked lime	2 (2.35%)	0 (0%)	2 (2.3%)			
	Khaini + cigarette	2 (20%)	0 (0%)	2 (20%)			
	Zarda + cigarette	2 (20%)	0 (0%)	2 (20%)			
	Zarda + bidi	3 (30%)	0 (0%)	3 (30%)			
	Gutkha + bidi	1 (10%)	0 (0%)	1 (10%)			
	Gutkha + cigarette	2 (20%)	0 (0%)	2 (20%)			
Do you consume alcohol with tobacco	Yes	58 (34.3%)	2 (66.6%)	60 (34.88%)	59.53	0.000*	
	No	111 (65.6%)	1 (33.3%)	112 (65.11%)			
Time of consumption of tobacco	Daytime	14 (8.28%)	0 (0%)	14 (8.13%)	60.59	0.000*	
	Work time	16 (9.46%)	0 (0%)	16 (9.3%)			
	Evening	7 (4.14%)	1 (33.3%)	8 (4.65%)			
	Night	7 (4.14%)	1 (33.3%)	8 (4.65%)			
	Anytime	125 (73.9%)	1 (33.3%)	126 (73.2%)			
Are you aware tobacco causes oral cancer	Agree	426 (95.5%)	121 (95.2%)	547 (95.4%)	0.013	0.90	
	Disagree	0 (0%)	0 (0%)	0 (0%)			
	Undecided	20 (4.48%)	6 (4.72%)	26 (4.5%)			

[#]p value being significant at 5% level, i.e., $p < 0.05$. *significant value

examination.¹²⁻¹⁴ So, here comes the role of oral health education and promotion among the masses that lack it.

Most of the subjects were unaware of the fluoride nature of their toothpaste. Anuradha and Mishra in 2011 reported that only 35.8% of their workers were aware of fluoride toothpaste.¹⁵ Similar findings were reported by Olusile et al.¹⁶ in Nigerian people, Pradeep et al. in patients and attendants,¹⁷ and by Kumari et al.¹⁸ and Usman et al.¹⁹ even in medical and paramedical students. So, one should stress the nature of the toothpaste as many areas in our country have higher levels of fluoride content in the water already.

Most of the respondents were cleaning their teeth once a day with a statistically significant difference among the gender and that too in a horizontal method which was in accordance with other previous studies^{9,14,20,21} but in contrast to the studies done by Dilip CL,²² Jiang et al.,²³ Al-Shammari et al.,²⁴ Zhu et al.,²⁵ and Das et al.²⁶ who reported cleaning of teeth twice a day.

In our study, most of the subjects changed their brush in a 3-month timeframe which was in accordance with the study

conducted by Gopikrishna et al.²⁷ Regarding the use of interdental aids, the majority, i.e., about 90% of the patients were not using anything for the upkeep of oral hygiene. Even in other studies, it was seen that the subjects had little knowledge and practiced rarely the aids, such as dental floss or interdental brushes.^{14,16,20,21,27,28} Even the students being educated in the dental field, only a few of them educate their patients on flossing, and that too by demonstration on a plastic jaw or verbally only.²⁹ Various reasons, such as low socioeconomic status, less affordability of such oral hygiene aids, and less availability especially in rural setup can lead to less use of these types of measures to control dental health.

In terms of knowledge and attitude of the subjects, the response of ESI patients was on the positive side in the majority of the parameters. Almost 61% of the subjects visited the dentist before which was much better than the previous studies on this parameter where the results of 19.8%,²¹ 26.4%,¹⁶ 46.4%,⁹ and 53%³⁰ were obtained. The probable reason for this can be attributed to the dental treatment cost covered for the ESI subjects under their

medical and dental insurance given by their governing body. In our study, pain was not the major factor for the patients seeking dental care. This was in contrast to other studies where pain was the major factor in driving the patients toward dental care.^{14,20,21,31}

Regarding oral prophylaxis, it was seen that only 35% of the participants had undergone scaling before and that too majority because of dirty teeth. This reflects the carefree attitude of the patients toward cleaning procedures where they are bothered only when they feel so rather than regularly. Also, they had no idea about the actual benefits of scaling apart from that feeling is good, freshness is there in the mouth after having scaling done. So, this emphasizes the role of dentists, media, and other educational programs either taking place in schools, community, or country level to educate and motivate the individuals toward oral prophylaxis on a regular basis. On the brighter side, the majority of the respondents, i.e., 86.9% were of the view that they will get their teeth cleaned in the future, almost 89% thought that oral health is as important as general health and 84.4% were of the viewpoint that oral health has a direct relationship with the health of the body which is in accordance with the study done by Al-omiri et al., in which almost 55% were of the same view.³² It is important to mention here that having a positive attitude among the subjects between oral health and systemic well-being can promote better oral care practices and attitude toward dental treatment among the public and particularly the ESI patients as well.

Coming to the tobacco habit prevalence among the ESI subjects, it was found that about 30% consumed tobacco in different forms which is still lower than the studies done by various authors.^{15,21,33,34} Among the usage, females were contributing a negligible amount toward tobacco usage. So, we can think that since mostly females were homeworkers it can lead to decreased usage whereas in male category since all were working in factories, occupation-related work, stressful environment, and getting a kick and relaxation in the mind can lead to more tobacco usage among them.

In relation to the type of tobacco use, in males, cigarette smoking and zarda chewing were more prevalent methods than others, which is consistent with the findings of Kasat et al., but in contrast with the findings of Sorenson et al.^{33,35} Most of the subjects with an overwhelming 95.4% of both genders were aware that tobacco can cause oral cancer, reflecting the awareness and state of mind of the ESI subjects. Perhaps, we as the dentists were not doing enough to refrain them from tobacco use. Even in the studies done by Mitra et al.,³⁶ Shaheen et al.,³⁷ and Madhu et al.,³⁸ it was concluded that dentists have limited knowledge about tobacco cessation strategies and even if they have, there are potential barriers, such as little chances of success, lack of training, time and remuneration, and the possibility of losing patients in the clinic. So, one has to do a lot of work even at the grassroots level to educate different professionals including the dentists regarding tobacco initiation, usage, and cessation techniques so that one could control their social enigma at various levels.

In the end, one can conclude that in spite of the overall condition of oral health among the ESI workers going more toward the positive side, yet there are some gray areas of concern like knowledge about the fluoride nature of the toothpaste, use of interdental aids, techniques of brushing, visit to the dentist, oral prophylaxis, and tobacco habits which need to be improved and stressed upon repeatedly in every visit. Coming to the limitations in our study, one can say that these observations only represent a small pool of ESI workers in our country and that too in the initial phases, so one has to incorporate a larger section of population falling into this category to determine their exact oral health status and treatment needs.

QUESTIONNAIRE

Name: _____ **Age/Sex:** _____
Occupation: _____ **Phone No:** _____
Address: _____ **O.P.D No:** _____

➤ **Work:** _____
 ➤ **Home:** _____

1. (a) Do you clean your teeth?
 Regularly Sometimes Never
 (b) If yes, what do you use to clean them?
 Toothpaste Neem Tooth powder
 Charcoal Salt Else
 (c) If toothpaste, type of toothpaste used
 Fluoridated Nonfluoridated Don't know
 (d) How often do you clean your teeth?
 Once Twice
 Thrice More than that
2. (a) What do you use to brush your teeth?
 Toothbrush Finger Tree stick Else
 (b) If toothbrush, what type of toothbrush do you use?
 Soft Medium Hard
 (c) Which brushing technique you do with your toothbrush?
 Horizontal Vertical Circular
 Combination
 (d) Do you change your brush? Yes No
 If yes, when?
 0 – ≤1 month >1 month – ≤3 months
 >3 months – ≤6 months >6 months – ≤1 year
 More than that
3. Time spent for cleaning teeth
 ≤ 2 minutes >2 minutes
4. (a) Do you use any aid for cleaning between the teeth?
 Regularly Sometimes Never
 (b) If yes, what type of interdental aid?
 Floss Toothpick
 Interdental brush Else
5. (a) Do you use any rinse for the mouth?
 Water Mouthwash Else
 (b) If yes, when? Time of rinsing
 Morning Afternoon Evening
 Night Anytime
6. Do you clean your tongue?
 Regularly Sometimes Never
7. (a) Have you ever visited a dentist? Yes No
 (b) If yes, when was your last dental visit and purpose?

 Dirty Teeth Pain Routine checkup
 Repair of teeth Other reasons
- (c) If yes, frequency of dental visit
 Regularly every 6–12 months Occasionally
 Whenever I have a problem
8. (a) Have you ever got your teeth cleaned? Yes No
 (b) If yes, what was the reason?

- (c) How do you view scaling and why?
 Good Bad Neither of the two

- (d) Will you get your teeth cleaned in the future?
 Agree Disagree Undecided
9. Do you think that oral health is as important as general health?
 Agree Disagree Undecided
10. Do you think that oral health has a relationship with systemic illness?
 Agree Disagree Undecided
11. (a) Do you consume tobacco presently? Yes No
 (b) If yes, which form?
 Smoking Chewing Both
 (c) If smoking tobacco: form and quantity?

 (d) If chewing tobacco: form and frequency?

 (e) Do you consume alcohol with tobacco? Yes No
 (f) Time of consuming tobacco
 Daytime Work time Evening
 Night Anytime
 (g) Are you aware that tobacco causes oral cancer?
 Agree Disagree Undecided

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