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**ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICES
REGARDING ORAL HEALTH AMONG ADULTS RESIDING IN A
LOCALITY IN DELHI: A CROSS-SECTIONAL STUDY**

SHAHID S^{1*}, AKRAM M¹, KISHORE J² AND ZAIDI SS¹

1: Department of Community Medicine, School of Unani Medical Education & Research, Jamia Hamdard, Delhi

2: Department of Community Medicine, Vardhman Mahavir Medical College & Safdarjung Hospital, Delhi

***Corresponding Author: Dr. Saad Shahid: E Mail: makram@jamiahamdard.ac.in**

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ABSTRACT

Background: The healthcare necessities of the community are determined by many oral health related knowledge, practices and attitudes patterns among persons in society. Thus, it is critical to address oral illnesses using a preventative approach that focuses on awareness and education.

Objective: To assess the knowledge, attitude, and practices regarding oral health.

Material and methods: A community-based cross-sectional survey was done for six months in 2023. A total of 300 participants aged 18 to 25 living in Ballimaran area of Delhi were enrolled for the study. All participants were questioned face to face using a questionnaire. Prior to conducting the study, the Institutional Ethical Committee granted ethical permission. The information gathered was put into an MS Excel spreadsheet. A descriptive analysis was performed.

Results: It was discovered that the participants had satisfactory knowledge but attitude was poor. It was shown that 87.67% of the individuals valued their dental health equally as their overall health. 91.67% of the participants used toothbrush and toothpaste for cleaning their teeth, 55% of

the participants changed their brush in less than three months. 47% of those surveyed have never been to a dentist in their life. 71% of research participants did not use any sort of tobacco.

Conclusion: This research provides unique information about the oral health knowledge, attitude and practices of individuals residing in Delhi's Ballimaran area.

Keywords: Knowledge; Attitude; Practices; Oral health; Questionnaire; Survey; Tobacco habits

INTRODUCTION

Oral health is defined as the absence of chronic orofacial pain conditions such as oral and pharyngeal cancers, oral soft tissue lesions, birth defects such as cleft lip and palate, and a plethora of other illnesses and conditions affecting the oral, dental, and craniofacial tissues [1]. Oral disorders are the most frequent non-communicable diseases, affecting people all their lives and causing pain, suffering, disfigurement, and sometimes death [2]. Good oral health is a strong determinant of overall health, happiness, and life quality [3]. Oral health is essential for achieving and maintaining general health. The mouth cavity is seen as an image of one's body and a gateway to excellent health [4]. Oral diseases affect 3.5 billion people worldwide, according to the 2019 Global Burden of Disease Study, with unchecked dental caries in permanent teeth being among the most frequent medical problems and Caries in primary teeth affect more than five hundred million children worldwide [5].

As stated by the World Health Organization (WHO), "promotion of oral hygiene is an

economically viable way to reduce the incidence of oral disease and to preserve oral wellness and quality of life" [6]. The incidence and extent of dental illness vary from person to person and are influenced by their age, gender, and education [7]. Diseases of the mouth are linked to other chronic conditions as well, including diabetes, heart disease, cancer, and respiratory illnesses [8]. Dental caries (tooth decay), periodontal disease, tooth loss, and malignancies of the lips and oral cavity are the most common and consequential oral disorders worldwide [9]. The two most frequent oral disorders in India are dental caries and periodontal disease. In India, the prevalence of oral diseases is extremely high, with dental caries at 50%, 52.5%, 61.4%, 79.2%, and 84.7% in 5, 12, 15, 35–44, and 65–74 years old, respectively, and periodontal diseases at 55.4%, 89.2%, and 79.4% in 12, 35–44, and 65–74 years old, respectively [10].

Oral healthcare knowledge is still quite limited among Indians. However, it is generally recognized that significant

oral diseases can be controlled with adequate awareness [11]. The health of the mouth is strongly tied to oral health practices and knowledge, but nothing will be accomplished until attitudes and habits are established and carried out [12]. Poor dental health may result in poor nutrition and an increased risk of chronic illnesses such as cardiovascular disease, creating an endless cycle in which the person's entire health declines. Without proper oral health, it is impossible to reach a comprehensive state of health [13]. The evaluation of existing information and resources, attitudes, and practices is critical for the provision of appropriate healthcare facilities since they serve as the foundation for strategic development and choice-making [14].

This may be accomplished through a variety of epidemiological surveys and cross-sectional research conducted at different levels. To do this, one might embrace and implement the KAP (knowledge, attitude, and practice) model of study [15]. The KAP study may analyze the scope of a known situation, assess what has been stated and understood about the subject in question, provide a point of reference for future assessments, and offer a method of intervention that may assist in the resolution of the problem [16]. Not much is understood about oral health attitudes and

practices in underdeveloped countries, particularly in this region of the country. Increasing understanding of oral health is seen as a necessary prerequisite to better community oral health.

A number of studies on oral health has been undertaken in India, but no data on the community's knowledge, attitude, and practices about oral health are available for the Ballimaran area of Delhi. The aforementioned causes functioned as impetus for us to perform this investigation. The current study sought to analyze the knowledge, attitudes, and practices of adults living in Delhi's Ballimaran area.

MATERIAL AND METHODS

A cross-sectional research on adult oral health was undertaken in the Ballimaran region of Delhi for a duration of six months from January to June 2023. A simple random sampling procedure was used to enumerate all of the residents of the region through house-to-house visits. The research included all persons, both male and females, between the age of 18 to 25, who lived continuously in the study region and provided their consent to participate. Those who did not provide consent for the study were ruled out from the study. The total number of participants in the study was 300. After describing the goal of the study, data was obtained through face-to-face

interviews. Before conducting the study letter of approval was obtained from institutional ethical committee.

The WHO oral health standard questionnaire for adults was primarily used for obtaining data. Along with the WHO adult questionnaire, certain questions derived from past comparable studies, probing knowledge, attitude, and practices about oral health, were added as well, and a few questions were modified to meet the needs of the present study. For ease of comprehension by the participants, the questions were translated into

the local language. Dental disorders that required immediate intervention were referred to the dentist for proper therapy throughout the study.

DATA ANALYSIS

All data collected was coded and put into Microsoft Excel. To summarize the questionnaire results, descriptive statistics were employed. The results in terms of percentages were then derived using the statistical analysis of the completed questionnaire.

Table 1: Socio-demographic characteristics of study participants. (n=300)

Characteristics	n (%)
Age (years)	
18-19	53 (17.67)
20-21	71 (23.67)
22-23	82 (27.33)
24-25	94 (31.33)
Gender	
Male	173 (57.67)
Female	127 (42.33)
Marital Status	
Unmarried	207 (69)
Married	93 (31)
Religion	
Hindu	59 (19.67)
Muslim	241 (80.33)
Educational qualification	
Illiterate	26 (8.67)
Primary	46 (15.33)
Secondary and higher secondary	152 (50.67)
Graduate and above	76 (25.33)
Occupations	
Professional	12 (4)
Semi Professional	16 (5.33)
Clerk, Shop owner, Farmer	34 (11.33)
Skilled worker	73 (24.34)
Semi-skilled worker	46 (15.33)
Unskilled worker	36 (12)
Unemployed	27 (9)
House wife	56 (18.67)

Table 2: Oral health knowledge among study participants. (n=300)

S. No.	Questions	n (%)
1	How many times tooth eruption takes place in our life time?	
a	Once	3 (1)
b	Twice	284 (94.67)
c	Thrice	12 (4)
d	Four times	1 (0.33)
2	How many permanent teeth do you have?	
a	18	0 (0)
b	32	290 (96.67)
c	24	10 (3.33)
d	20	0 (0)
3	What is the function of teeth?	
a	Chewing	281 (93.67)
b	Digestion	7 (2.33)
c	Swallowing	12 (4)
d	Perception of taste	0 (0)
4	What is the color of healthy gums?	
a	Red	13 (4.33)
b	Yellow	0 (0)
c	White	0 (0)
d	Pink	287 (95.67)
5	What does gum bleeding indicate?	
a	Healthy gum	0 (0)
b	Inflamed gum	294 (98)
c	Do not Know	6 (2)
6	Has oral health got any role on general health?	
a	Yes	263 (87.67)
b	No	4 (1.33)
c	Don't know	33 (11)
7	What does irregular tooth brushing cause?	
a	Tooth decay	240 (80)
b	Gum disease	40 (13.33)
c	Bad breath	11 (3.67)
d	Don't Know	9 (3)
8	Why do we get dental problems?	
a	Eating sweets and ice creams	11 (3.67)
b	Not brushing properly	11 (3.66)
c	Consuming tobacco	12 (4)
d	Not regularly visiting a dentist	6 (2)
e	All of the above	260 (86.67)
9	Do you know that clean mouth can prevent tooth decay?	
a	Yes	293 (97.67)
b	No	7 (2.33)
10	Does use of fluoride toothpaste prevents dental carries?	
a	Yes	25 (8.33)
b	No	38 (12.67)
c	Don't know	237 (79)
11	Carious teeth can affect appearance?	
a	Yes	249 (83)
b	No	51 (17)
12	Do you know about the use of dental floss?	
a	Yes	38 (12.67)
b	No	262 (87.33)
13	Do you know about miswak/neem stick?	
a	Yes	213 (71)
b	No	87 (29)
14	Tobacco chewing/smoking cause oral cancer?	
a	Yes	260 (86.67)
b	No	40 (13.33)

Table 3: Oral health attitude among study participants. (n=300)

S. No.	Questions	n (%)
1	Do you think maintaining healthy mouth is individual responsibility?	
a	Yes	263 (87.67)
b	No	12 (4)
c	Don't know	25 (8.33)
2	Do you care about your teeth as much as any part of your body?	
a	Yes	256 (85.33)
b	No	44 (14.67)
3	Do you think it is required to visit a dentist periodically to maintain the health of your teeth and mouth?	
a	Yes	232 (77.33)
b	No	68 (22.67)
4	How long is it since you last saw a dentist?	
a	<6-month	35 (11.67)
b	6-12-month	42 (14)
c	>1-5-year	82 (27.33)
d	Never visited	141 (47)
4.1	Reason of your last visit to the dentist (n=159)	
a	For pain with teeth, gums or mouth	52 (32.70)
b	For treatment/follow up	26 (16.35)
c	Routine check-up	14 (8.81)
d	Don't remember	67 (42.14)
5	How would you describe the state of your teeth and gums?	
a	Excellent	27 (9)
b	Very good	44 (14.67)
c	Good	103 (34.33)
d	Average	58 (19.33)
e	Poor	43 (14.33)
f	Very poor	17 (5.67)
g	Don't know	8 (2.67)

Table 4: Oral health practices among study participants.

S. No.	Questions	n (%)
1	How do you clean your teeth?	
A	Tooth Brush and Tooth Paste	275 (91.67)
B	Tooth Brush and Tooth Powder	15 (5)
C	Finger and Tooth Powder	6 (2)
D	Neem Sticks/Miswak	4 (1.33)
2	How often do you clean your teeth?	
A	Once a day	185 (61.67)
B	Twice a day	88 (29.33)
C	More than twice a day	27 (9)
3	For how long do you brush your teeth?	
A	<1minute	11 (3.67)
B	1-2 minutes	93 (31)
C	>2 minutes	196 (65.33)
4	How do you brush your teeth?	
A	Use horizontal stroke	216 (72)
B	Use vertical strokes	32 (10.67)
C	Circular strokes	43 (14.33)
D	Combination of all	9 (4)
5	How often do you change your toothbrush?	
A	<3 months	165 (55)
B	3-6 months	130 (43.33)
C	>6 months	5 (1.67)
6	What amount of paste you apply on your brush?	
A	Full length of bristles	106 (35.33)
B	Half-length of bristles	161 (53.67)
C	Pea sized amount	33 (11)

7	Do you clean your tongue?	
A	Yes	208 (69.33)
B	No	92 (30.67)
7.1	How do you clean your tongue? (n=208)	
A	Tongue cleaner	42 (20.19)
B	Fingers	76 (36.54)
C	Tooth brush	90 (43.27)
8	Do you use any other oral hygiene aids?	
A	Mouth Wash	28 (9.33)
B	Dental Floss	22 (7.33)
C	Tooth sticks	136 (45.33)
D	None	114 (38)
9	Do you consume tobacco?	
A	Yes	87 (29)
B	No	213 (71)
9.1	If yes, which form of tobacco? (n=87)	
A	Smoking	44 (50.57)
B	Chewing	37 (42.53)
C	Both	6 (6.90)
9.2	Which Smoking form of tobacco? (n=50)	
A	Cigarette	37 (74)
B	Bidi	11 (22)
C	Both	2 (4)
9.3	Which chewing form of tobacco? (n=43)	
A	Zarda	23 (53.49)
B	Gutkha	15 (34.88)
C	Pan masala	4 (9.30)
D	Khaini	1 (2.33)
9.4	Do you consume alcohol with tobacco? (n=87)	
A	Yes	11 (12.64)
B	No	76 (87.36)

RESULTS

A total of 300 participants were included in this study at random with 57.67% being male and 42.33% being female. Close to one-third of participants 31.33% are between the ages of 24 and 25. Out of all 69% of the participants were unmarried, while 31% were married. Around 50.67% of participants had secondary and higher secondary education. Professionally, 24.34% of the participants were skilled workers (**Table 1**).

In the current study 93.67% of individuals knew the necessity of teeth for chewing and 83% knew the value of teeth for appearance.

According to 95.67% of the participants pink is the color of healthy gums, 80% of research participants indicated that irregular brushing causes teeth decay. In answer to the causes of dental issues, 86.67% of the participants recognized that eating sweets and ice cream, not brushing correctly, smoking, and not visiting the dentist on a regular basis are the primary reasons. 87.67% of the adults questioned were aware that oral health was linked to overall health. Only 8.33% of those polled were aware that fluoride was present in their toothpaste. 12.67% of the participants were familiar with the usage of

dental floss and 86.67% of the participants were aware that tobacco chewing or smoking causes mouth cancer (**Table 2**).

The majority of the research participants have a poor attitude towards dental visits. 47% of the sample participants had never attended a dental clinic, whereas 27.33% had gone during the previous one to five years. 32.7% of the participants went to the dentist primarily for tooth, gum, or mouth discomfort. 58% of research participants were content with their dental health and rated it as excellent to good. 85.33% of respondents value their teeth as much as any other part of their body. With regards to visiting dentist, 77.33% of the respondents believed that periodical visit to dentist is required for maintaining oral health (**Table 3**).

In relation to the practices of study participants for material used in cleaning the teeth, 91.67% of the participants used toothbrush with toothpaste. 61.67% of the study participants cleaned their teeth once a day. The majority of survey participants 65.33% brushed their teeth for more than two minutes. In terms of the brushing method, 72% of the participants employed horizontal strokes to clean their teeth. 14.33% utilized circular strokes, 10.67% used vertical strokes and 9% of the participants used combination of all (**Table 4**).

The practice of duration of change of toothbrush 55% of the study participants changed their toothbrush in less than three months. Regarding the amount of paste used for cleaning, 53.67% of the participants used paste equal to half the length of the bristles and only 11% used a pea-sized amount of paste. In terms of using oral hygiene aids, 45.33% of research participants utilized tooth sticks, whereas 38% did not use any form of oral hygiene aid (**Table 4**).

In terms of tobacco habits, around 71% of the research participants did not use any sort of tobacco. The most common mode of tobacco use was smoking, which was used by 29% of the participants. Cigarette smoking was the most popular way 74%, followed by bidi smoking 22%, and a combination of both cigarette and bidi smoking 4%. The majority of individuals chewed zarda 53.49%. Alcohol was consumed with tobacco by 12.64% of the study participants (**Table 4**).

DISCUSSION

The total state of oral health is determined by the Knowledge, attitudes and practices that individuals possess and practice on a regular basis. Furthermore, there are several types of people in our nation that have distinct sets of norms when it comes to oral health. Taking this into consideration, we sought to carry out cross-sectional research to analyze

participants oral health knowledge, attitude and practices. In our research, we questioned 173 males and 127 females. According to the findings of our study, the population had enough knowledge but an unsatisfactory attitude towards oral health. In certain aspects, the community's oral health practices were above average, while in others they were below normal.

In terms of the knowledge of the participants about oral health, 93.67% of the study participants knew that chewing is the function of teeth. Similar observations were found by Mahore *et al.* [14]. From the perspective of 87.67% of the participants, dental health was related to overall health. 97.67% of the participants answered that a clean mouth can prevent tooth decay. Only 8.33% of the participants knew about fluoride in their toothpaste. Majority 83% of the participants were of the opinion that carious teeth can affect appearance. Similar findings were observed by Bala *et al.* [17].

Regarding the role of irregular brushing on oral health, 80% of the study participants mentioned that irregular brushing causes tooth decay. The study conducted by Mahore *et al.* found that 90.8% of the study participants were of the opinion that irregular brushing causes dental problems [14].

In context of knowledge about the use of dental floss, only 12.67% of the participants were aware of its use. The study done by Prusty in Kamrup district in the north-eastern region of India found that 24.3% of the participants knew about dental floss. Which is in contrast to our findings [3]. With reference to knowledge about tobacco as a cause of oral cancer 86.67% of the respondents knew that chewing or smoking tobacco causes oral cancer. A similar study done by Sohi *et al.* found that 75% of the participants knew that tobacco could cause oral cancer [7].

In relation to the attitudes of the study participants, most of the study participants have a poor attitude regarding dental visits. Approximately half, i.e., 47% of the respondents, had never visited dental clinics. A study conducted by Sen *et al.* discovered similar results [4]. It was found that 87.67% of the respondents believed that maintaining oral health was an individual's responsibility. 85.33% of the respondents care about their teeth as much as any other part of their body. With regards to visiting the dentist, 77.33% of the respondents believed that a periodic visit to the dentist is required for maintaining oral health. A cross-sectional KAP study conducted in Central India has shown that 49.7% of participants agree that dental checkups are important, and 60.8% of the

participants agree that teeth are as important as other body organs [14].

In relation to the practices of study participants for material used in cleaning the teeth, the most prevalent aid used was a toothbrush with toothpaste, which was used by 91.67% of the participants. Majority of the study participants 65.33% cleaned their teeth for more than two minutes and 55% of the participants changed their tooth brush in less than three months. A study done by Nanda *et al.* among the study population of North India revealed similar findings [15].

In the practice regarding brushing technique, 72% of the participants used horizontal strokes for teeth cleaning. 14.33% used circular strokes, and 10.67% used vertical strokes and 9% of the participants used a combination of horizontal, vertical, and circular strokes for cleaning their teeth. An almost similar pattern of findings was observed by Jain *et al.* [18]. Coming to the tobacco habit prevalence among the participants, it was found that about 29% consumed tobacco in different forms. Among the most prevalent method of using tobacco 50.57% of the participants used smoking. The similar findings were observed by Nanda *et al.*, they observed that 30% of the participants were consuming tobacco while 69.9% didn't consume any form of tobacco [15].

CONCLUSION

In the current study, the participants knowledge regarding oral health was good and the attitudes and practices of the participants were unsatisfactory. There are particular issues that require improvement and attention, such as understanding the role of oral hygiene aids, brushing procedures, dental visits and oral preventive measures. People must be informed and inspired about oral hygiene problems and associated issues in order for the enhancement to continue. According to the results of our study, it is necessary to raise awareness among local adults by holding grassroots efforts and outreach community events so that they would prioritize oral health and incorporate improved oral health practices into their normal daily lives.

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CONFLICT OF INTEREST

No conflict of interests

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