Research Article

Assessment of Oral Health Knowledge and Oral Hygiene Practices among Dental Patients- A Hospital-Based KAP Survey

[1]S Hoglah, [2*]Natarajan Kannan, [3]Beeraka Swapna Sridevi, [4]Sravya Vema Reddy, [5]Rakesh Kumar Manne

[1]Postgraduate Student, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Nellore, Andhra Pradesh, India
[2*]Senior Professor, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Nellore, Andhra Pradesh, India - dentkan1@gmail.com
[3]Professor, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Nellore, Andhra Pradesh, India
[4]Reader, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Nellore, Andhra Pradesh, India
[5]Professor & Head, Department of Oral Medicine and Radiology, Narayana Dental College and Hospital, Nellore, Andhra Pradesh, India

Abstract

Background: Knowledge of oral health is prerequisite for healthy life style, that allows individuals to take measures to protect their health. The objective of the study is to assess the knowledge of oral health and oral hygiene practices among the patients and to evaluate awareness, regarding harmful effects of tobacco and alcohol on oral health and general health. Materials and Methods: The study was conducted on 300 participants, willing to participate in the study. After detailing the procedure to the participants, a written consent was obtained through consent forms. A validated Questionnaire was administered to the participants in regional language. Responses were recorded and tabulated and entered into an excel sheet for statistical analysis using SPSS Version 20, Data were processed by Mann-Whitney or Kruskal-Wallis one-way ANOVA test. Results: There was statistically less significant difference in knowledge regarding Oral health between the genders. About 97.9% of the participants in the study had good knowledge, 14.3% had a positive attitude and 48.2% had adequate oral health practices . Patients in the age group of 25 to 44 yrs were more knowledgeable, and displayed better attitude and characteristics towards oral health compared to more elderly age groups. There was no difference in attitude towards oral health between males and females. There was no significant difference between the genders in their desire to undergo dental treatment.

Keywords: Attitude, Habits, Knowledge, Oral Health, Tobacco.

Introduction

"Oral health is vital for general well-being and plays a direct role in an individual's overall quality of life and physiological health."[1] Systemic health and oral health share a profound, bidirectional relationship. Improper diet, smoking, alcohol intake and poor oral hygiene practices are the most significant factors that influence the occurrence of various oral diseases.[2] The oral health challenges have a direct impact on oral function, quality of life and maybe associated with precipitation or aggravation of systemic diseases.[3]

The disruption of the oral microbiome, referred to as dysbiosis, initiates and exacerbates a variety of systemic diseases, including cardiovascular, metabolic, neurological, and autoimmune conditions, as well as specific malignancies. [4,5]

Damage to the gingival crevicular epithelium or gingival sulcus in periodontal disease, can provide an entry point for oral microbes and their inflammatory byproducts to the systemic circulation. A possible causal relationship between periodontitis and diseases like stroke, depression, diabetes, and fatty liver disease have been established by research workers.[5] Animal studies have shown that Streptococcus mutans has affinity for cardiac tissue and can *a*ccelerate atherosclerotic plaque growth and promote macrophage invasion following arterial injury.[6] Recent literature published shows several observational studies finding association between periodontitis and conditions like Alzheimer's disease, and rheumatoid arthritis.[7] Improving awareness among general public, and instituting preventive therapies as a public health measure may address these inequities and improve systemic health outcomes of the general population. Knowledge of oral health needs to be prioritized for healthy behaviour, and improve systemic health that allows individuals to reduce the burden of chronic diseases and enhance quality of life and introduce measures to protect their health.

Our study was intended to assess the oral health knowledge, attitude, practices, and raise awareness, regarding influence of oral health on systemic health and harmful effects of adverse habitsl on oral health and general health. This was also an attempt to understand Participant's perspectives regarding their own oral health.

Materials and Methods:

This KAP study was conducted among 300 outpatients from the Department of Oral Medicine and Radiology. A pre-validated questionnaire was used in the study for assessment of knowledge attitude and practices regarding oral health and oral hygiene. The study was clearly explained to the participants and they were interviewed with structured questionnaire with 3 sections and Sociodemographic details, Part A. Part B : Related to knowledge, Part C: Related to attitude Part D: Related to practices.

A validated questionnaire comprised of 26 items to assess knowledge (Aetiology, clinical manifestation, treatment, symptoms, preventive measures on oral health), attitude (Individuals' attitudes towards oral health based on health belief model), and behaviour (Various actions towards oral hygiene that might have a good or ill effect on oral health) towards oral health among participants, contents of the questionnaire can be found in Table 1.

Contents of the Questionnaire

Part A –Sociodemographic profile Age, Gender, Educational qualifications, Occupation of the participants were included under sociodemographic details (Part-A).

Part B: Knowledge of oral health: The first 10 questions based on the key topics of human dentition, tooth decay, adverse habits, and oral cancer. These questions are close ended questions, participants were informed to choose the answer they believed that was correct. For the knowledge-based questions, "yes" responses received a score of 1, while "no" responses were given a 0.

Part C: Attitude Towards Oral Health

The survey consists of eight questions evaluating personal habits and mindsets regarding dental care, gum disease prevention, and cavity prevention. Responses were coded as 1 for agree and 0 for disagree. Individual attitude scores were then determined by summing the points across all questions.

Part D: Behaviour Towards Oral Health

The last part of the survey features seven No/ Yes questions about everyday dental care routines. A adequate counts as 1 point and a inadequate counts as 0, which are added together to find each person's overall oral health practices score.

Statistical Analysis

Data was collected, compiled and entered into Microsoft Excel version 2016.Statistical analysis for the data was done using SPSS Version 21, Mann-whitney U test and Kruskal- wallis test were used to see if factors like age, gender, and habits were linked to these oral health profiles. Descriptive analysis was done to find the frequency and percentage distributions of participant demographics, habits, and their knowledge, attitude, and practices regarding oral health. Spearman's rank correlation was used to measure the relationship between knowledge, attitudes, and practices with a value of less than 0.05 was taken as statistical significance.

Ethical Clearance

Ethics approval for the study was obtained from Institution's Ethical Committee. Informed consent was obtained prior to collecting the data from each participant of the study. A brief explanation was given to the participants about the purpose of our study, procedure and confidentiality of the data collected.

Results

A total of 300 participants were included in this study, of which 135(45%) were male and female 165 (55%). The 200 (66.6%)of the participants were below 30 years of age, 100 (33.33%) and above 30 yrs.

In addition, participants with school education were 80 (26.67%) participants above 10^{th} class and with graduation level education were 220 (73.33%) (Table 2).

The distribution of knowledge regarding oral health, participants listed in Table 1 indicates that majority of the participants had fair knowledge about oral health. 92.6% had the knowledge of tobacco chewing and smoking causes cancer. Among the participants, a positive attitude towards oral health and hygiene was comparatively less. 15.3% had knowledge of Brushing with fluoridated tooth paste can prevent tooth decay. Only 3.7 % thought keeping teeth clean and healthy is beneficial to overall health and 94% considered that scaling is harmful to gums. Majority of participants (93.3%) had an attitude that dentists only care for treatment and not prevention. Most participants (95%) knew sweet retention

results in tooth decay. Almost half of the study population had answered correctly to the behaviour questionnaire. Only 10.1% had experienced bleeding gums during brushing. Maximum participants (65.6%) did routine dental check-ups. 42.1% participants brushed teeth twice a day and 71.2% gave importance to teeth as much as any part of the body. 70.7% participants did not have sensitive teeth.

Table 1

KNOWLEDGE	**Yes**	**No**
There are two sets of teeth during lifetime	290(96.7)	10(3.3)
Improper oral hygiene causes gum bleeding	284(94.7)	16(5.3)
Replacement of missing tooth improves general health	250(83.3)	50(16.7)
The dental caries of deciduous teeth need not be treated	177(59)	123(41)
Bacteria is one of the reasons to cause gingival problems	282(94)	18(6)
Fizzy soft drinks affect the teeth adversely	275(91.7)	25(8.3)
Loss of teeth can interfere with speech	274(91.3)	26(8.7)
Irregularly present teeth have influence on oral health	282(94.3)	17(5.7)
Decayed teeth can affect appearance	262(88)	36(12)
Tobacco chewing or smoking cause oral cancer	277(92.7)	22(7.3)
ATTITUDE	**agree**	**disagree**
Keeping your teeth clean and healthy is beneficial to your health	288(96.3)	11(3.7)
Scaling is harmful for gums	281(93.7)	19(6.3)
Dentist care only about treatment and not prevention	280(93.3)	20(6.7)
Sweet retention leads to tooth decay	285(95)	15(5)
Brushing with fluoridated toothpaste prevent tooth decay	255(85)	45(15)
Brushing teeth twice a day improves oral hygiene	133(44.3)	167(55.7)
Gum bleeding denotes gum infection	269(90)	30(10)
Improper brushing leads to gum disease	167(55.7)	133(44.3)
PRACTICES	**yes**	**no**
I change tooth brush for every 2 months	270(90.3)	29(9.7)

I do routine dental check-up	196(65.3)	104(34.7)
I give importance to my teeth as much as any part of my body	213(71)	87(29)
I brush my tooth twice daily	126(42)	174(58)
I use teeth to open cap of bottled drink	123(41)	177(59)
Use of additional cleaning aids	88(29.3)	212(70.7)
I experience toothache while chewing food	198(66)	102(34)

Table 2: Age and gender wise comparison of knowledge

DEMOGRAHICS		Mean	Std. dev	P value
Gender	Female	8.72	1.5	0.058(NS)
	Male	9.01	1.31	
Age	15-24	8.63	1.34	<0.001*
	25-34	9.07	1.35	
	35-44	9.38	1.27	
	45-54	8.50	1.90	
	>55	8.77	1.69	

The table shows the comparison of knowledge scores according to gender and age groups. Among genders, males had a slightly higher mean knowledge score (9.01 ± 1.31) compared to females (8.72 ± 1.50). However, the difference was statistically not significant, as the p-value was 0.058 ($p > 0.05$). This indicates that gender did not have a significant influence on knowledge levels in the study population.

With respect to age, the highest mean knowledge score was observed in the 35–44 years age group (9.38 ± 1.27), followed by the 25–34 years group (9.07 ± 1.35). The lowest score was seen in the 45–54 years group (8.50 ± 1.90). The association between age and knowledge score was statistically highly significant ($p < 0.001$), indicating that knowledge levels varied significantly across different age groups.
Fig 1 graph for knowledge

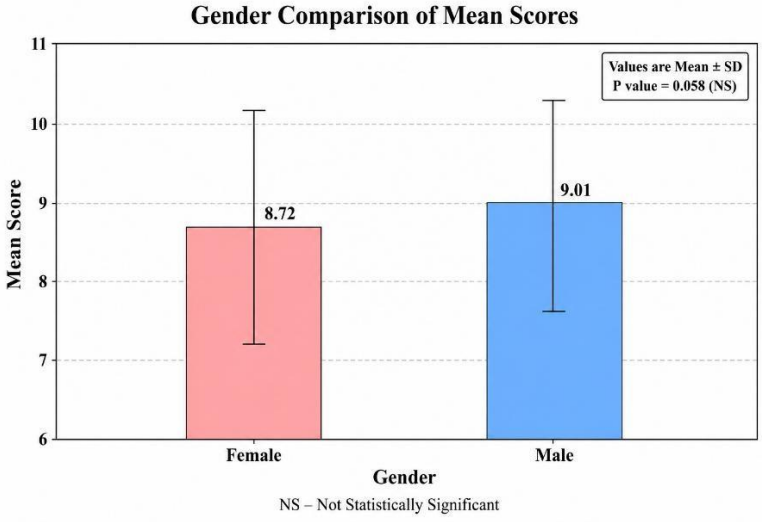


Fig2: Gender wise mean scores of knowledge attitude and Practices regarding oral health

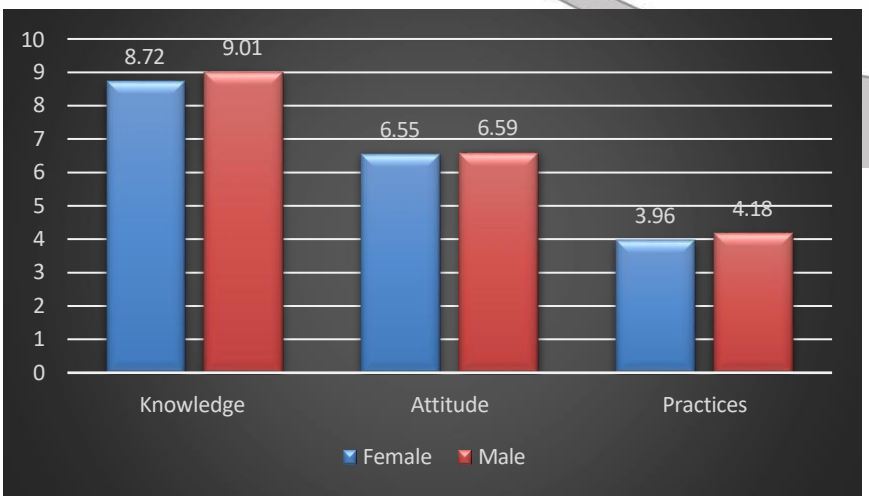


Table3: Age and Gender wise comparison of attitude

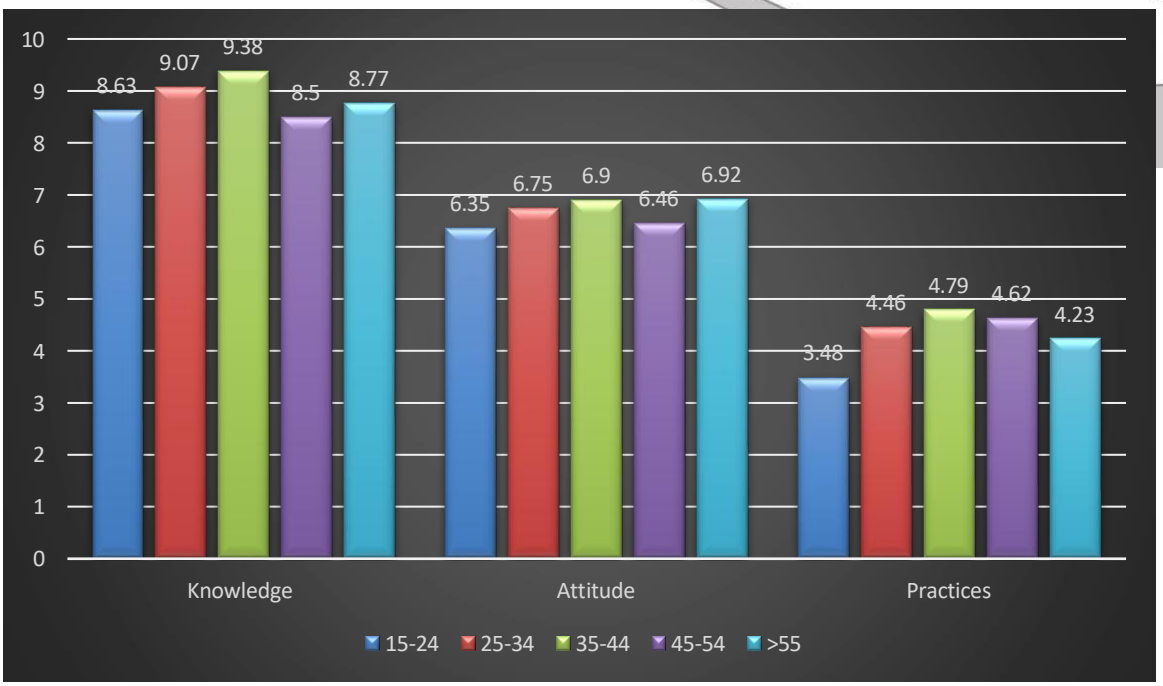
DEMOGRAHICS		Mean	Std. dev	P value
Gender	Female	6.55	1.48	0.53(NS)
	Male	6.59	1.15	
Age	15-24	6.35	1.42	<0.001*
	25-34	6.75	1.18	
	35-44	6.90	1.22	
	45-54	6.46	1.48	
	>55	6.92	1.04	

Table 3 The gender wise distribution of attitude towards oral health and hygiene practices is comparatively similar with P value of 0.53. Age group between 35-44 and age above 55 years showed similar attitude towards oral health P value <0.001.

Table 4: **Age and Gender wise comparison of Practices**

DEMOGRAHICS		Mean	Std dev	P value
Gender	Female	3.96	2.02	0.367(NS)
	Male	4.18	2.08	
Age	15-24	3.48	1.89	<0.001*
	25-34	4.46	2.03	
	35-44	4.79	2.06	
	45-54	4.62	1.96	
	>55	4.23	2.39	

Table 4 Demographics shows no significant difference in gender wise distribution in behavior towards oral health. Age group of 35-44 and 25-34 showed more positive behavior towards oral health and oral Hygiene P value< 0.001.
Fig: Age wise mean scores of knowledge attitude and practices regarding oral health



Discussion

Among 300 participants, majority of the participants had fair knowledge about oral health. But among the participants, a positive attitude towards oral health was lower than expected. The present study showed some awareness of oral health among participants. However, their oral health status was not satisfactory. There was no statistically significant difference regarding knowledge of Oral health between the genders. Patients in the age group of 25 to 44 yrs had more knowledge, and displayed better attitude and characteristics towards oral health compared to more elderly age groups. There was no difference in attitude towards oral health between males and females. There was no significant difference between the genders in their desire to undergo dental treatment.

Wahengbam et al. has done KAP survey on 810 healthy adolescent participants. 90.9% had high knowledge, 79.8% had promising attitude and 70.4% had acceptable practice towards oral health. Significant and positive linear correlation were observed between knowledge-attitude ($r=0.369$, $p<0.01$) knowledge-practice ($r=0.405$, $p<0.01$) and attitude-practice ($r=0.353$, $p<0.01$).[8]

Selvaraj s et al. in their survey reported that among 288 patients, majority of the participants exhibited fairly higher knowledge on oral health and general facts. A total of 98%of participants belonged to the high knowledge group, only 33% had a positive attitude and 48% had consistent practices. The correlation revealed non-significant weak correlations between knowledge-attitude ($r=0.11$, $p<0.21$) knowledge-behaviour ($r=-0.037$, $p<0.68$) and attitude-behaviour ($r=0.01$ $p<0.91$).[9]

Several studies have emphasised that Oral microbiota dysbiosis causes oral conditions such as dental caries, periodontal disease, and has been linked to systemic diseases like Alzheimer's disease, type 2 diabetes mellitus, rheumatoid arthritis, cardiovascular disease, and aspiration pneumonia.[10]

As tobacco use causes oral health issues such as oral cancer, oral mucosal lesions, periodontal disease, implant failure, salivary gland hypofunction, dental caries and also affects the systemic health.[11] Several studies established significant association between smoking, systemic inflammation and hypertension related mortality.[12]

Conclusion

Oral health is increasingly recognized for its interconnectedness to systemic health, with emerging evidence highlighting their bidirectional relationship. Oral diseases, affecting approximately 3.5 billion people globally, disproportionately

burden low and middle-income countries due to inadequate healthcare access. Recognizing oral health as a component of overall well-being emphasizes the need for integrative approaches linking dentistry and medicine.

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