

Knowledge, attitude, and practices regarding periodontal health in patients visiting a dental teaching hospital

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Abstract

Background: Periodontal diseases, despite being preventable have an increasing prevalence worldwide. Mechanical plaque control methods are most effective to prevent and control these diseases.

Objectives: To assess the knowledge, attitude, and practices regarding periodontal health among patients visiting department of Periodontics, Kantipur Dental College and Hospital.

Methods: An analytical cross-sectional study was conducted by administering pretested questionnaire to 384 patients in Kantipur Dental College and Hospital from September 2020 to August 2021. The study was conducted for one year after taking ethical clearance. All the patients who first visited the department of Periodontics were requested to participate by convenience sampling method. Statistical analysis was done to correlate among knowledge, attitude, and practices.

Results: Positive attitude and practices towards dental floss 165 (43%), tongue cleaning 273 (71.1%), replacing tooth brush 268 (69.8%), and regular dental visits 202 (52.6%) were demonstrated. There was lack of knowledge on interdental brushes 79 (20.52%), probiotics 52 (13.5%), gingival massage, and their use to improve periodontal health 17 (4.4%).

Conclusion: The majority of the respondents had good oral hygiene practices with favourable knowledge and attitude with respect to periodontal health and its measure to control the disease. Various preventive programs must be conducted regularly to brush up their knowledge. Further improvements should be focussed on knowledge and attitude which can increase and improve the practice of oral health.

Key words: Dental floss; Dental plaque; Oral health; Periodontal disease; Probiotics.

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INTRODUCTION

Periodontal health is the state in which periodontium is free from inflammatory periodontal disease allowing normal function and prevention of any consequences as a result of past disease.¹ Dental plaque is the main causative factor for periodontal diseases and effective removal is gold standard for the prevention.² To prevent these diseases, oral health knowledge, attitude, and practice play major role. However, periodontal health is still neglected by majority of Nepali population. Modification of patient's behaviour regarding oral hygiene maintenance is one of the significant challenges confronting the modern dental practitioner and periodontist. A study regarding patient's knowledge and attitude towards gingival health was done in Nepal that showed 52.2% had fair knowledge on the aetiology of disease and 52.2% had good knowledge on the treatment of gum diseases.³ Periodontal health also lowers the risk of other medical conditions like cardiovascular disease,

respiratory disease, and preterm low birth weight.⁴ Moreover, the importance of prevention of periodontal disease and practices to control disease is oversighted. In this regard, this study was conducted with an aim to assess knowledge, attitude, and practices regarding periodontal health during their first visit at Kantipur Dental College and Hospital (KDCH).

METHODOLOGY

An analytical cross-sectional study was conducted to assess the knowledge, attitude, and practices regarding periodontal health among the patients of ages ranging from 16-85 years with periodontal problems first visited to department of periodontics at KDCH. Prior to the onset of study, the ethical clearance and permission was obtained from the institutional review committee, KDCH to carry out the study (Ref. 26/020). Sample size of 384 was calculated using formula $n = Z^2P(1-P)/e^2$, taking $P = 0.5$ (50%) with confidence interval of 95%, and margin of error 0.05 (5%). The study was conducted for a duration of one year (September 2020 to August 2021). A self-developed questionnaire comprising twelve closed-ended questions with multiple choice (Yes/ No/ Do not know) and eight open ended questions were designed and asked to patient who visited to the department of periodontics for the first time in a random manner through a "convenience sampling" method. The questions were reviewed by experts to ensure content validity and then translated in Nepali language with the help of google translator for the understanding of the subjects. Questions were pretested in 40 patients and tested in 384 patients in Department of Periodontics, KDCH. The set of questions were used to assess the knowledge, attitude, and practice regarding periodontal health and disease after written informed consent received from every patient. Individuals less than 16 years and more than 85 years of age and unwilling to participate in the study were excluded. The acquired data were then entered and analysed using IBM SPSS Statistics for Windows, version 21 (IBM Corp., Armonk, N.Y., USA). First the descriptive statistics like frequency, percentage, mean and standard deviation were used to summarise the responses to those questions and the correlation between knowledge and attitude, knowledge-practice, and attitude-practice were tested.

RESULTS

The study was conducted to assess the periodontal health awareness among patients who visited to Department of Periodontics, Kantipur Dental College and Hospital for the first time. Mean age group of participants was 37.58 ± 15.28 years, where males were 194 (50.5%) and females were 190 (49.5%).

Findings show that only small part of population (52, 13.5%) know about probiotics to cure periodontal disease (Table 1). In total, 165 (43%) of them know what dental floss is, 67 (17.4%) gives gingival massage, 79 (20.52%) knows about interdental brush. Similarly, 188 (49%) participants answered the cause of bleeding while brushing too hard, 195 (50.8%) responded due to periodontal disease, only 20 (5.2%) thought it could be due to systemic diseases, and 61 (15.9%) have misconception that bleeding gum is a natural phenomenon.

Patients in the present study show that 289 (75.3%) thought bad oral health affects general health, and almost 279 (72.7%) meet dentist every six months. Self-administration is more important for oral health for 294 (76.6%). In this study, 202 (52.6%) responded that regular visit to dentist is required for better oral health. Individuals were also asked about use of dental floss. Attitude scale shows only 69 (18%) thought use of dental floss would harm interdental gingiva, whereas 195 (50.8%) did not know about injury that can be caused while using.

Overall percentage of patients exhibit positive practice towards brushing and flossing. Use of toothpick was in 236 (61.5%). Frequency of use of tooth brush for 3-4 months is 268 (69.8%), its type mostly soft 177 (46.1%), duration of brushing up to two minutes by 175 (45.6%) and horizontal brushing technique as 187 (48.7%) and vertical as 182 (47.4%). Out of 384 participants, 273 (71.1%) clean their tongue, feel gag while cleaning in 198 (51.6%) and 174 (57.6%) use interdental cleaning aids to remove impacted food.

There were positive linear correlations between knowledge and attitude (0.13), knowledge-practice (0.21), and attitude-practice (0.29).

Table 1: Knowledge of study participants

Questions	Yes n (%)	No n (%)	Don't know n (%)
1. Do you know what dental floss is?	165 (43)	146 (38)	73 (19)
2. Do you know gingiva can be massaged for better gingival health?	67 (17.4)	180 (46.9)	137 (35.7)
3. Causes of gingival bleeding while brushing			
a. Natural physiological phenomenon	61 (15.9)	2 (0.5)	321 (83.6)
b. Brushing too hard	188 (49.0)	-	196 (51)
c. Periodontal disease	195 (50.8)	-	189 (49.2)
d. Systemic disease	20 (5.2)	-	364 (94.8)
4. Do you know about probiotics to cure periodontal diseases?	52 (13.5)	182 (47.4)	150 (39.1)
5. Do you know about interdental brush?	79 (20.52)	172 (44.8)	133 (34.6)

Table 2: Attitude of the participants

Questions	Yes n (%)	No n (%)	Don't know n (%)
1. Do you think bad oral hygiene affects general health	289 (75.3)	44 (11.5)	51 (13.3)
2. Do you think the use of dental floss would injure/harm the interdental gingiva	69 (18)	120 (31.3)	195 (50.8)
3. Do you think it is essential to meet the dentist after six months?	279 (72.7)	59 (15.4)	46 (12.0)
4. Which is more important for oral health?			
a. Self-administration of oral hygiene	294 (76.6)	2 (0.5)	88 (22.9)
b. Regular visit to dentist	202 (52.6)	13 (3.4)	169 (44)

Table 3: Practice of oral hygiene

Questions	Yes n (%)	No n (%)	Don't know n (%)
1. Do you use toothpick?	236 (61.5)	140 (36.5)	8 (2.1)
2. Do you replace toothbrush every 3-4 months?	268 (69.8)	106 (27.6)	10 (2.6)
3. Do you clean your tongue?	273 (71.1)	105 (27.3)	6 (1.6)
4. Do you feel gag reflex while using tongue scraper?	198 (51.6)	104 (27.1)	82 (21.4)
5. Do you give gingival massage in daily practice	17 (4.4)	301 (78.4)	66 (17.2)
6. Which interdental cleaning aids do you use?			
a. Dental floss	112 (29.2)	114 (29.7)	158 (41.1)
b. Interdental brush	98 (25.5)	132(34.4)	154 (40.1)
c. Unituft brush	36 (9.4)	129 (33.6)	219 (57.0)
7. What type of toothbrush do you use?			
a. Ultra soft	41 (10.7)	41 (10.7)	302 (78.6)
b. Soft	177(46.1)	34(8.9)	173 (45.1)
c. Medium	160 (41.7)	43 (11.2)	181 (47.1)
d. Hard	21 (5.5)	64 (16.7)	299 (77.9)
8. Which type of brushing technique do you use?			
a. Bass	85 (22.1)	2 (0.5)	297 (77.3)
b. Modified bass	21 (5.5)	8 (2.1)	355 (92.4)
c. Horizontal	187 (48.7)	5 (1.3)	192 (50.0)
d. Vertical	182 (47.4)	3 (0.8)	199 (51.8)

Table 3 cont ...

9. What do you use interdental aids for?			
a. Removing food debris	221 (57.6)	8 (2.1)	155 (40.4)
b. Impacted food	174 (45.3)	9 (2.3)	201 (52.3)
c. Interdental plaque removal	64 (16.7)	5 (1.3)	315 (82.0)
10. How many times do you brush your teeth?			
a. Once a day	125 (32.6)	3 (0.8)	256 (66.7)
b. Twice a day	237 (61.7)	-	147 (38.3)
c. Three times a day	22 (5.7)	-	362 (94.3)
d. Irregular	3 (0.8)	-	381 (99.2)
11. Duration of tooth brushing			
a. Less than one minute	54 (14.1)	-	330 (85.9)
b. Up to two minutes	175 (45.6)	-	175 (45.6)
c. More than two minutes	121 (31.5)	-	263 (68.5)

DISCUSSION

Oral health is the entrance to general health and it is an integral part of one's physical, social, and mental wellbeing.⁵ Unlike other parts of human body, the mouth teems with 500 species of bacteria. Those useful and harmful bacteria exist at diverse locations of the mouth like tongue, interdental papilla, gingival sulcus, and can cause disease under favourable environment.⁶ This study was conducted to have an estimation on knowledge, attitude, and practice for the maintenance of regular periodontal health. Majority of the people in this study were aware of dental floss and its use, whereas 195 (50.8%) did not know about its harmful effect on interdental papilla if not properly used. Similarly, study conducted in dental interns of Nepal showed that 31.2% believed that dental floss could injure interdental papilla.⁷ Hence, demonstration on use of dental floss for general population is equally important while educating patients about oral health measures. Maximum participants in the study were unaware about the relationship between oral hygiene and systemic diseases, probiotics, gingival massage, and proper techniques of brushing. A cross-sectional study among 184 elderly patients attending KDCH also suggests a need to improve oral health care and knowledge for elderly group through preventive and curative public health measures.⁸ Out of five knowledge related questions in current study, responses were very less for the use of interdental brush among patients with periodontitis. Awareness on what interdental brush is, and how to use it, is very important for better periodontal health because it is proven that only brushing cannot effectively remove interdental plaque.⁹ Recent trend in the use of probiotics for the

prevention and treatment of periodontal disease is emerging. However, very few number of participants in this study knew about it and its uses. Koll-Klais et al. have reported the capacity of lactobacilli to inhibit the growth of periodontal pathogens, including *Porphyromonas gingivalis*, *Prevotella intermedia*, and *Actinobacillus actinomycetemcomitans*.¹⁰ So, use of probiotics or food containing probiotics like curd and other fermented food should be emphasised for those with periodontal disease. Majority of the participants did not know about gingival massage and its benefits. When gingival massage is performed for 10 minutes, there is increased keratinisation, blood flow, and gingival crevicular flow which ultimately helps to fight against the gum disease and improve overall gum health.¹¹ Newer methods of gingival massage with ozonated oil and chlorhexidine gel can also be used as valuable methods to prevent and improve periodontal diseases as it can decrease the technique, time, and duration of brushing.¹² The surprising finding in the study regarding was that 268 (69.8%) participants changed their toothbrush every 3-4 months which is very important. Studies also show that frayed toothbrushes are less effective in plaque removal than new toothbrushes.^{13,14} This study shows majority of participants don't know the most common cause of bleeding gums whereas attitude towards self-administration of oral hygiene practice and regular dental visit were satisfactory. Plaque, debris, and its nature to cause periodontal disease is difficult to understand for general population. Still more than half (221, 57.6%) participants use interdental cleaning aids to remove impacted food debris which shows positive attitude towards oral hygiene. Among interdental

aids 236 (61.5%) use toothpick, but it is not regularly recommended by experts as wooden pick can pierce gingival tissue and bacteria can enter to cause disease progression.⁹

There were positive linear correlations between knowledge and attitude, knowledge-practice and attitude-practice. The positive linear correlation reaffirms that better knowledge can lead to good practices. This will help in prevention and management of oral as well as periodontal diseases.

CONCLUSION

The majority of the respondents had high practice but favourable knowledge and attitude with respect to periodontal health and its measure to prevent and

control the disease. Evidence based reinforcement programs should be introduced to further reduce the gap between knowledge, attitude and practice. This study will also serve as reference value for use in future estimation to help measure effectiveness of the planned activities in periodontal health.

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