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Original Article

Perception and misconceptions of patients about dental scaling treatment: A cross-sectional study

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Abstract

Background: People postpone periodontal treatment due to a fear of pain, misconceptions, or traumatic events in the past. The study aimed to determine patients' perceptions and misconceptions about dental scaling treatment.

Methods: This cross-sectional study was conducted using a questionnaire developed and validated by the authors from January 2022 to October 2022 on 310 participants who reported to the periodontology departments of private and public dental institutes. Data were analyzed using IBM SPSS. The chi-square test was used to compare categorical variables. *P* values less than or equal to 0.05 were taken as significant.

Results: More than half of the participants had incorrect ideas about the purpose and frequency of dental scaling. A total of 24.2% (n=75) of the respondents believed it was a harmful procedure, and almost half (n=147, 47.4%) had received this knowledge from their relatives and 30.6% from observation (n=95). Many who had been to the dentist previously think of scaling as harmful. Of the participants, 28.1% (n=87) believed that bleeding during brushing is normal, and 38.4% (n=119) thought that medicated toothpaste alone solves gingival problems.

Conclusion: Most participants were unaware of the purpose, benefits, and frequency of dental scaling and considered it a harmful procedure. Those who had been to the dentist had more misconceptions. The primary sources of misinformation were personal experience and relatives or friends. Lack of communication and patient education about the transient outcomes of dental scaling were the primary factors that led to these myths and misconceptions.

Keywords: Dental scaling, Dentists, Perception, Periodontal diseases

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Introduction

Periodontal disease is one of the most prevalent yet preventable oral diseases, causing severe periodontal damage and tooth loss if not managed in time. It has been ranked eleventh among the most prevalent diseases around the globe.[1] The preliminary treatment for this periodontal disease is nonsurgical periodontal therapy involving scaling and root planning.[2,3] Scaling and root planning are used to remove plaque and calculus and eliminate endotoxins, treatments that activate the immune system and reduce inflammation.[4] Dental scaling has proven to be an effective therapy. However, the resulting pain, sensitivity, misconceptions, and lack of knowledge discourage patients' attendance and increase dental fear levels.[4,5]

Dental fear is reportedly present in 5%–20% of the adult population around the globe.[1] Roughly 19% of the American population suffers from moderate to high levels of dental anxiety.[6] In China, 27.3% of people with periodontal disease suffer from high levels of dental anxiety and may tend to avoid treatment.[7,8] In India, about 51.8% of the population face moderate to high levels of dental anxiety, and about 19.6% believe that scaling would lead to the loosening of the teeth.[7,9] In Pakistan, the prevalence of fear of periodontal treatment is more common among females.[10]

People avoid treatment for periodontal diseases, such as scaling, because of higher anticipation of pain or past traumatic experiences.[2,3] Another important yet neglected factor is the mythic beliefs related to periodontal therapy, which is quite prevalent in third-world countries.[5]

In Pakistan, almost one-third of the population avoids scaling because of dental anxiety and the high cost of treatment.[5,6,10]

This study aimed to identify patients' perceptions of dental scaling treatment and to identify common misconceptions about dental scaling.

Methods

This questionnaire-based descriptive cross-sectional study was conducted from January 1, 2022, to October 1, 2022, with the approval of the Institutional Review Board of the Institute of Dentistry CMH Lahore Medical College (Case #684/ERC/CMH/LMC) and with the cooperation of the periodontal departments of four private and two public dental institutes. The target population was patients aged 18 and above who reported to the outpatient department of the dental institutes using non-probability purposive sampling. A total sample size of 302 participants was calculated using a confidence interval of 95% and an expected prevalence ratio of 0.73.[6]

The authors developed the survey instrument after a thorough literature review. Individual items were refined after discussion with the experts and then added to the questionnaire. Several revisions were made till the final draft was accepted and validated. The questionnaire was translated to Urdu by a language expert and was back-translated into English by another expert proficient in both languages. Modifications were made in the Urdu version as suggested by the linguistic experts. Later, a pilot study of 50 participants was performed, and modifications were made accordingly. The survey was carried out by personally giving questionnaires to the patients reporting to the outpatient department of the dental institutes of Punjab. The questionnaires were filled and collected there and then.

Data was entered, stored, and analyzed using IBM Statistical Package for Social Sciences (SPSS version 25, IBM Corporation, USA, New York, 2011). Descriptive statistics were used to summarize the results, which were then presented as frequencies and percentages. The chi-square test was used to compare categorical variables. P values less than or equal to 0.05 were taken as significant.

Results

A total of 350 responses were received, out of which 310 responses were filled correctly and 40 were eliminated. The response rate was 88.5%. There were 144 (46.5%) male and 166 (53.5%) female respondents aged 18 years and above. The mean age was 32.7 (SD 12.56). Of the respondents, 54.2% (n = 168) were from private dental institutes, and 45.8% (n = 142) were from public institutes. The respondents who had been to the dentist were 74.8% (n = 232) whereas 25.2% (n = 78) had no previous experience of dental treatment.

Most (n = 232, 74.8%) believed dental scaling is the cleaning of the teeth. Most participants believed that scaling should only be done on the recommendation of a dentist (Figure 1).

The perception of patients about the purpose of dental scaling and its comparison based on education is shown in Table 1. Most participants believed dental scaling is only for cleaning teeth (Table 1).

The self-perceived harms of dental scaling and their comparison between patients who had visited the dentist and those who had never been to the dentist and were on their first visit are illustrated in Table 2. A quarter (n = 75, 24.2%) of the respondents believed dental scaling is harmful. The top three responses were "sensitivity," "gaps between teeth," and "erosion of teeth" (Table 2).

Sources of knowledge that led to the belief that scaling is a harmful procedure are shown in Table 3. The three

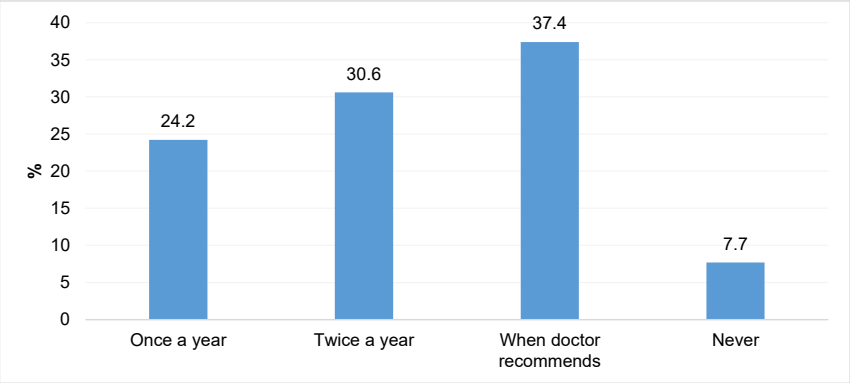

Figure 1. Perception of patients about the frequency of dental scaling

Table 1. Perception of patients about the purpose of dental scaling and its comparison with educational levels

Purpose of dental scaling	n (%)	Lower than graduate n (%)	Graduate n (%)	Higher than graduate n (%)	χ^2	*P*
Cleaning of teeth	232 (74.8)	75 (32.3)	135 (58.1)	22 (9.4)	3.08	0.214
Removal of stains	84 (27)	24 (28.5)	44 (52.3)	16 (19.0)	6.92	0.031
Removal of calculus	62 (20)	6 (9.6)	40 (64.5)	16 (25.8)	26.7	<0.001
Treatment of gums	60 (19.3)	7 (11.6)	43 (71.6)	10 (16.6)	13.6	0.001

P values were determined using the chi-square test.

Table 2. Self-perceived harms of dental scaling compared between patients who had previously visited the dentist and those who were on their first visit

Self-perceived harms of dental scaling	n (%)	Been to the dentist n (%)	First visit n (%)	χ^2	*P*
Loosening of teeth	67 (21.6)	57 (24.4)	10 (12.8)	4.7	0.029
Gaps between teeth	74 (23.9)	64 (27.5)	10 (12.8)	7.0	0.008
Teeth erosion	72 (23.2)	54 (23.2)	18 (23.0)	0.001	0.971
Gum damage	61 (19.7)	48 (20.6)	13 (16.6)	0.59	0.512
Oral cancer	23 (7.4)	15 (6.4)	8 (10.2)	1.2	0.269
Caries	26 (8.4)	21 (9)	5 (6.4)	0.43	0.567
Gum recession	37 (11.9)	33 (14.2)	4 (5.1)	4.5	0.032
Sensitivity	151 (48.7)	123 (53)	28 (35.8)	6.8	0.009
Misalignment of teeth	9 (2.9)	9 (3.8)	0 (0)	3.11	0.078

P values were determined using the chi-square test.

Table 3. Sources of knowledge regarding the misconceptions about dental scaling

Sources of knowledge	*n* (%)
Relatives/friends	147 (47.5)
Internet	44 (14.2)
Movies/ TV	24 (7.7)
Personal observation	95 (30.6)

major sources of misconceptions were relatives/friends, personal observations, and the internet (Table 3).

Bleeding during brushing was considered normal by 28.1% (n = 87) of the patients. More than a third (n = 119, 38.4%) of the respondents believed that medicated toothpaste alone is enough for solving gingival problems, and 39.7% (n = 123) of the participants believed applying salt to their gums could prevent gingivitis. A total of 198 (63.9%) participants thought there is no need for dental scaling if their oral hygiene is good. One-third of the respondents (n = 104, 33.5%) reported avoiding dental scaling because they thought it was painful. Around two out of every ten respondents (n = 68, 21.9%), a significant proportion of whom were females, thought that scaling is an expensive procedure.

Discussion

In the Western world, patients are more aware of scaling and other periodontal treatments than in Southeast Asia.[7,11] The results of the present study revealed that more than half of the participants had the wrong idea about the purpose of dental scaling. Almost half of the participants in the present study believed that dental scaling is harmful to teeth, especially those who had previously visited the dentist. The authors believe this misconception among the patients is due to the lack of guidance, dental education, and communication with the dentist. The dentist should educate the patients during appointments or by handing out pamphlets and providing information through posters in the waiting areas of clinics, televised commercials, and social media.

Worldwide, five out of six people believe that scaling results in sensitivity, and one out of ten believe it causes gaps between the teeth. Short-term post-scaling sensitivity is a common occurrence experienced by most patients.[12-14] Moreover, after removing calculus, the empty spaces are often perceived as gaps between teeth.[12,15] In the current study, a significant proportion of patients who had previously visited the dentist believed that scaling is harmful and causes sensitivity. A significant proportion claimed that it caused gaps between teeth and eroded them. Patients wrongly assume sensitivity is a negative consequence of dental scaling as they have not been adequately informed that the transitory symptoms would subside on their own. Moreover, those with previous experience with scaling may have formulated this opinion based on their experience of short-lived sensitivity and lack of information that these gaps are empty spaces produced due to calculus removal, not tooth surface loss.

More than three-fourths of the participants believed that smoking causes gingival problems. Bleeding while brushing is a frequent finding when gingivitis or periodontal disease is present.[16] In the current study, more than a quarter of the participants thought bleeding while brushing was normal. Misinformation regarding bleeding during brushing could be a crucial factor in the failure to seek early treatment for periodontal issues.

Medicated toothpaste provides adjunctive therapy and is not a permanent treatment option for periodontal disease.[17] A significant proportion of respondents thought that medicated toothpaste alone is sufficient to solve gingival problems. Others believed that applying salt to their gums can prevent gum diseases. This, however, is only a myth, and salt can be harmful to hypertensive patients and may further aggravate the disease.[18,19]

Most respondents who thought that scaling was harmful had gotten this idea from their relatives. A significant proportion of them had formed their opinion based on personal observation. Lack of communication between the dentist and the patient about the transient outcomes of dental scaling has led to the misconception that scaling is a harmful procedure.

Strengths and Limitations

Oral health and patient perceptions are crucial topics, especially in a setting like Pakistan, where studies on such subjects might be limited. This could provide valuable information for dental practitioners and public health campaigns. By identifying perceptions and misconceptions, this study might pave the way for interventional studies to correct misconceptions and enhance patient knowledge. However, the study does not capture changes in perception over time, which means any temporal evolution of beliefs or attitudes will be missed. Pakistan is diverse, and perceptions might vary across regions, ethnicities, and social groups. If these nuances are not addressed, the generalizability of the findings will be affected.

Conclusion

Most participants were unaware of the benefits of dental scaling and considered it a harmful procedure. Lack of communication and patient education about the transient outcomes of dental scaling were the primary factors that led to these myths and misconceptions. The major source of misinformation was through personal experience or from relatives or friends. Therefore, patients should be educated about the benefits of dental scaling in clinics. A longitudinal study can follow the same participants to better understand how perceptions and misconceptions evolve over time. Future research could include other regions of Pakistan or other countries to provide a broader perspective on the issue and compare and contrast the findings. Exploring the quality and nature of communication between dentists and patients might shed light on how misconceptions arise and how they can be prevented.

Authors' Contribution

Conceptualization: Rabia Shafique, Hammad Hassan, and Kanwal Aslam.
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Formal analysis: Hammad Hassan.
Investigation: Asma Shakoor, Nain Zahra Najfi, and Hammad Hassan.
Methodology: Rabia Shafique, Hammad Hassan, Kanwal Aslam, and Salman Aziz.
Project administration: Hammad Hassan and Salman Aziz.
Resource: Rabia Shafique, Asma Shakoor, and Kanwal Aslam.
Software: Hammad Hassan and Rabia Shafique.
Supervision: Hammad Hassan and Salman Aziz.
Validation: Hammad Hassan, Salman Aziz, and Asma Shakoor.
Visualization: Hammad Hassan and Nain Zahra Najfi.
Writing-original draft: Rabia Shafique, Hammad Hassan, Asma Shakoor, and Salman Aziz.
Writing-review & editing: Rabia Shafique, Kanwal Aslam, and Nain Zahra Najfi.

Competing Interests

None.

Data Availability Statement

Data is available on demand.

Ethical Approval

Ethical approval was granted by the Institute of Dentistry, CMH Lahore Medical College (Case #684/ERC/CMH/LMC).

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