

Fear and Anxiety among patients treated by scaling in Periodontally healthy subjects



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ABSTRACT

Background: Anxiety and fear experience represent significant problems in dental practice and are the factors that discourage the demand for treatment. They affect the use of health care services, treatment decision-making, and responses to periodontal treatment.

Aims and Objectives: The aim of this study was to evaluate fear and anxiety in patients undergoing scaling and root planing. **Materials and Methods:** Total of 80 patients were selected and grouped into 20-35 yrs and 40-55 yrs and each age group had 20 males and 20 females, so 40 were males and 40 were females. They were given a structured questionnaire dealing with dental fear and dental anxiety to fill. Statistical analysis was done by Tukey's multiple post hoc, Two-way ANOVA and Chi-square test. **Results:** The mean dental anxiety score (DAS) for males was 6.67 ± 3.24 and for females it was 6.57 ± 2.30 . The mean DAS score for 20-35yrs was 6.025 ± 2.37 and for 40-55yrs it was 7.22 ± 3.02 . But statistically significant difference was not found in the DAS scores in both sex and age groups. The mean dental fear survey (DFS) for males was 28.9 ± 9.4 and for females was 30.5 ± 6.56 . The mean DFS score for 20-35yrs was 28.42 ± 8.06 and for 40-55yrs it was 30.97 ± 7.89 . But this in the DFS scores was also not found statistically significant in both sex and age groups. When DAS and DFS scores were compared, there was a statistically significant correlation. **Conclusion:** An understanding of the presence of the anxiety and fear can help dentists to understand what patients feel about dental treatment procedures and aid dentist efforts to improve patients care. They should treat patients and seek to avoid fear and anxiety and discomfort in their patients caused by the treatment.

Key words: Age, Anxiety, Fear, Gender, Scaling

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INTRODUCTION

Anxiety and fear associated with dental treatment causes varied responses among individuals and are often used interchangeably in the dental literature. Klingberg and Broberg stated dental anxiety as a state of distress that something unpleasant or fearful is going to happen during dental treatment or certain phases of dental treatment.^{1,2} Dental anxiety is a combination of many elements like somatic, cognitive, and emotional elements which describes a general state that is not stimulus specific.¹ It has been also called as dental phobia, odontophobia, dentophobia, or dental fear in the literature.³ It is a future-oriented emotion characterized by negative effect and apprehensive anticipation of potential threats, and

results in hypervigilance and somatic tension.⁴ The role of anxiety in dentistry is complex and powerful, as described convincingly in the monograph by Milgrom et al.⁵ Dental anxiety/fear is quite prevalent among children and adults; it prevents patients from seeking dental care and affects their treatment decision making.⁶ Research showed that dental anxiety causes patients to cancel, miss, or arrive late for dental appointments.⁵ There is empirical support for the hypothesis that anxiety affects wound healing.⁷

Fear is an immediate alarm reaction to present threat, characterized by impulses to escape, and typically results in surge of sympathetic arousal.⁸ Fear enables the person to take action, whereas anxiety leads more awareness of environmental and somatic scanning that facilitates

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sensory receptivity. Fear of dental treatment is common and may interfere with patient's acceptance and result in deteriorating dental and periodontal health. A person's response is similar in both situations where fear is aroused by a real, specific stimulus and anxiety can be thought of as anticipatory in nature.³ Many scales were developed in order to assess dental anxiety and dental fear. Corah Dental Anxiety Scale and dental fear survey was proven to be popular among dental researchers. It is a simple, easy to score, short, valid and reliable test for dental visit-associated anxiety and fear.

Supragingival and subgingival scaling is an important part of all periodontal procedures, and it is the first step of routine dental care and maintenance visits.⁹ There are studies in the literature which have suggested that dental anxiety appeared to be gender specific phenomenon being significantly correlated with the female gender.¹⁰ It has been shown that more anxiety was observed with increase in age.¹¹ So, the objective of this study was to evaluate fear and anxiety in male and female patients of two different age groups.

MATERIALS AND METHODS

Study population

This pilot study was conducted at the Department of Periodontology, SDM college of Dental Sciences and Hospital, Dharwad, Karnataka. The following inclusion criteria were adopted : 1) Subjects older than 18 years of age; 2) Systemically healthy subjects; 3) Subjects willing for the study ; 4) Presence of supragingival calculus on the mandibular anterior incisor teeth; 5) No dentin sensitivity to air stimulation; 6) Lower two canines and incisors free of any restorations (root canal treatment, composite, amalgam, esthetic or prosthetic restorations) or orthodontic treatment. The following exclusion criteria were 1) Any medical conditions that might affect pain thresholds; 2) Use of analgesics or anxiety medications; 3) Acute infections like periodontal pain, pulpitis, abscesses; 4) Attachment loss and/or gingival recessions and/or root hypersensitivity that might cause tooth sensitivity.

Total 80 patients were selected of which 40 were males and 40 were females. There were 2 age groups: 20-35 yrs and 40-55 yrs and each age group had 20 males and 20 females. The research was performed in compliance with good clinical practice and the declaration of Helsinki.

Procedure

Scaling and root planing for each patient was performed by a single periodontist in the same dental setup. Supragingival scaling of anterior six mandibular teeth was performed

without local anesthesia with the same ultrasonic scaler unit. After scaling, patients were informed about the study protocol; written informed consent was obtained from them. Then dental anxiety was measured by using Corah's Dental Anxiety scale (DAS) which consisted of four questions to assess dental anxiety, three questions related to our study were selected.¹² Dental Fear Survey (DFS) has 20 questions, seventeen related questions were selected.¹³ The patients were asked to complete these two questionnaires. Then complete scaling of the entire mouth was done and oral hygiene instructions were given.

Data analyses

Chi-square test was used to analyze contingencies between categorical variables, such as gender and age. Two-way ANOVA and Tukeys multiple post hoc test was used to analyse question wise DAS and DFS in both gender and age groups. Karl Pearson's correlation was used to analyze the relationship between DAS and DFS. Data organization and statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS for Windows, version 22.0) program. P values <0.05 were considered statistically significant.

RESULTS

Overall mean DAS score was 6.62 ± 2.79 . The mean DAS score for males was 6.67 ± 3.24 . The mean DAS score for females was 6.57 ± 2.30 . The mean DAS score for 20-35yrs was 6.025 ± 2.37 and for 40-55yrs it was 7.22 ± 3.02 . There was no statistically significant difference in the DAS scores among males and females and also among the two age groups (Table 1).

Overall mean DFS score was 29.7 ± 7.98 . The mean DFS score for males were 28.9 ± 9.4 . The mean DFS score for females were 30.5 ± 6.56 . The mean DFS score for 20-35yrs was 28.42 ± 8.06 and for 40-55yrs it was 30.97 ± 7.89 . There was no statistically significant difference in the DFS scores among males and females and also among the two age groups (Table 1).

DAS question numbers 1 and 2 did not show any statistical significance but question 3 showed statistical significant correlation in males and females (Table 2). DAS question numbers 1 and 3 did not show any statistical significance but question 2 showed statistical significant correlations among 20-35 yrs and 40-55 yrs age groups (Table 2).

In DFS, only question numbers 8 and 9 showed significant correlation in males and females (Table 3). In DFS, only question numbers 2, 3d, 4, 5, 8 and 13 showed significant correlation among 20-35 yrs and 40-55 yrs age groups

Table 1: Age and Sex wise Comparison of DAS and DFS Scores

Scale	Interactions	Mean	SD	Male (20-35yrs)	Male (40-55yrs)	Female (20-35yrs)	Female (40-55yrs)
DAS	Male (20-35yrs)	5.70	2.54	-			
	Male (40-55yrs)	7.65	3.62	p=0.1212	-		
	Female (20-35yrs)	6.35	2.21	p=0.8775	p=0.4455	-	
	Female (40-55yrs)	6.80	2.42	p=0.5878	p=0.7626	p=0.9547	-
DFS	Male (20-35yrs)	28.45	10.30	-	p=0.9853	p=0.9999	p=0.3791
	Male (40-55yrs)	29.35	8.50		-	p=0.9828	p=0.5903
	Female (20-35yrs)	28.40	5.83			-	p=0.3683
	Female (40-55yrs)	32.60	7.29				-

Table 2: Comparison of DAS questions in both sex and age groups

		Q1	Q2	Q3
Chi-square	Gender	3.8314	4.8285	8.2046
	Age groups	8.5528	13.7026	1.7576
P-value	Gender	0.4293	0.1848	0.0420*
	Age groups	0.0733	0.0033*	0.6242

*P<0.05

(Table 3). When DAS and DFS scores were compared, there was a statistically significant correlation (Table 4).

DISCUSSION

This study gives information about patient's fear perception and level of dental anxiety during routine scaling and root planing. All the preventive measures were taken to reduce the individual and environmental discrepancies for the best results. The patients were treated in the same noise free room in same dental chair and dental assistant to provide a standardized and controlled environment for the study. Patients with gingivitis were excluded because the presence of inflammation of the gingiva was shown to increase pain during periodontal probing and it may change the pain levels after scaling.¹⁴

Patients who had presence of supragingival calculus on the lower anterior six teeth were included because the density of nerve endings are seen more in the anterior region of the mouth than in the posterior regions and also because of the openings of the submandibular salivary glands, lingual aspects of the lower incisors and canines present with more supragingival calculus formation.^{15,16,17,18}

There was no statistically significant difference in overall DAS and DFS scores compared with gender and age groups. Few studies also reported similar results with DAS and DFS.^{3,9,19}

Question no. 3 (Imagine you are in the dentist's chair to have your teeth cleaned. While you are waiting and the dentist or hygienist is getting out the instruments which will be used to scrape your teeth around the gums, how

do you feel?) of DAS score showed that males (50%) were little uneasy compared to females (32%) which was statistically significant. Study done by Eli et al. also showed similar results.²⁰ This may be due to different terms used for dental anxiety, differences in study designs, or different evaluation systems used. In the present study, there was no information about the recruited patients previous emotional status or experiences; hence, the results reflect the anxiety levels on the day of the procedure.

Question no. 2 (When you are waiting in the dentist's office for your turn in the chair, how do you feel?) of DAS score showed that 52.5% patients of age group of 40-55 yrs were little uneasy compared to 19% patients of age group of 20-35 yrs. This difference was statistically significant. Older adults may worry more about health and disability and have fewer concerns about work, finances and family than younger adults.^{21,22,23} According to Kogan KN et al, older adults may present with subclinical anxiety or symptoms of anxiety that cause distress and/or impairment, but do not meet diagnostic criteria for any anxiety disorder.²⁴

DFS score showed statistically significant results for the question no. 8 and 9 in males and females. Question no. 8 had showed that males (62.5%) had never felt fear of smell of dentist office compared to females (35%). Question no. 9 had showed that males (55%) had fear seeing the dentist walk in compared to females (30%). DFS score of question 8 and 9 are contradicting to each other. Anxiety, and fear are highly subjective and are affected by so many factors; a single question may not adequately assess all aspects.³

Overall DFS scores showed that age group (20-35 yrs) patients were not fearful of dental treatment when compared to age group (40-55 yrs) patients. This suggest that older adults experience and process emotions differently than younger adults, with less of a bias toward negative emotion, and possibly less autonomic response to strong emotional states, than younger adults.¹¹

Correlation of DAS and DFS scores was found to be statistically significant. In our study, all questions were correlated with fear and anxiety for males and females

Table 3: Comparison of DFS scores in both sex and age groups

		Q1	Q2	Q3a	Q3b	Q3c	Q3d	Q3e	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13
Chi-square	Gender	4.40	4.22	1.29	3.79	4.80	2.57	2.33	5.41	2.67	2.55	2.58	6.05	8.37	7.47	4.91	5.21	3.05
	Age groups	5.77	6.08	3.71	3.43	2.48	10.4	6.42	10.0	9.66	5.05	1.79	8.50	6.74	5.74	6.00	1.95	7.88
P-value	Gender	0.22	0.12	0.52	0.28	0.09	0.27	0.50	0.14	0.44	0.27	0.46	0.04*	0.03*	0.11	0.29	0.15	0.38
	Age groups	0.12	0.04*	0.15	0.32	0.28	0.00*	0.09	0.01*	0.02*	0.07	0.61	0.01*	0.08	0.21	0.19	0.58	0.04*

*P<0.05

Table 4: Correlation between DAS and DFS scores

Variables	Correlation with DAS		
	r-value	t-value	P-value
DFS scores	0.5188	5.3601	0.0001*

*P<0.05

and also with two age groups and was noted that as anxiety increased, fear among patients also increased simultaneously. It has been reported that a patient with high DAS and DFS scores would be more likely to present a high pain response than a patient with lower scores.³

There are mixed results observed by various studies. This can be attributed to the reason that anxiety and fear measurement is subjective and individual, and the assessment and screening is difficult because of its physical and psychological features.

Higher levels of dental anxiety can lead to the avoidance of dental treatment and can change a patient's perception of pain. Dentists and their assistants should treat patients and seek to avoid anxiety and fear and discomfort in their patients caused by the treatment. One should consider screening patients' previous dental experiences and histories for more information, thereby enabling additional precautions that may improve therapist-patient interactions and treatment results. Large-scale epidemiologic studies are needed for precise results.

An understanding of the occurrence of the anxiety and fear can help dentists to understand what patients feel about dental procedures and guide dentist efforts to improve patients care. Dentists should also treat patients so that their fear and anxiety and discomfort are removed caused by the treatment.

CONCLUSION

In this study, patients experienced limited anxiety and fear during scaling. DAS scores showed that males were more anxious than females and age group (40-55 yrs) patients were more anxious than age group (20-35 yrs) patients.

DFS scores showed no significant differences when males and females were compared. Age group (40-55 yrs) patients

were more fearful of dental treatment when compared to age group (20-35 yrs) patients.

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Authors Contribution:

SS - Concept and design of the study, reviewed the literature, manuscript preparation and critical revision of the manuscript; **PK** - Concept, collected data and review of literature and helped in preparing first draft of manuscript; **SLT** - Conceptualized study, literature search, statistically analyzed and interpreted, prepared first draft of manuscript and critical revision of the manuscript.

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