

How to Cite:

Singh, D. K., Jalaluddin, M., Pathi, J., & Kumar, S. P. (2022). Assessment of patient's anxiety before, during, and after dental scaling procedure: A questionnaire study. *International Journal of Health Sciences*, 6(S2), 7786–7793.
<https://doi.org/10.53730/ijhs.v6nS2.6928>

Assessment of patient's anxiety before, during, and after dental scaling procedure: A questionnaire study

Dr. Dhirendra Kumar Singh

Department of Periodontology, Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Bhubaneswar

Dr. Md. Jalaluddin

Department of Periodontology, Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Bhubaneswar

Dr. Jugajyoti Pathi

Department of Oral & Maxillofacial Surgery, KIIT Deemed to be University, Bhubaneswar

Dr. Smriti P Kumar

Department of Periodontology, Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Bhubaneswar

Abstract---Background: Dental anxiety and fear describe the stress a subject experiences in a dental setting and is an important factor that prevents the subjects from seeking dental care leading to poor oral hygiene status among the population. Aim: In this study, we aimed to assess the anxiety level of subjects before, during, and after the scaling procedure. Materials and method: One hundred subjects visiting the outpatient Department of Periodontology, KIDS, Bhubaneswar, and indicated for ultrasonic scaling procedure, participated in the study. Anxiety levels before, during, and after the scaling procedure was assessed with a Modified Dental Anxiety Scale (MDAS) and an Anxiety Questionnaire consisting of fifteen questions. Statistical analysis: Statistical analysis of the study was done using SPSS software. Results: It was observed that only 2% and 3% of patients are extremely anxious about deciding to visit a dental clinic and about experiencing pain or bleeding during the procedure. Conclusion: Assessing the subjects' level of anxiety using a questionnaire before the procedure can lead to modification of the patient counseling, treatment plan as needed as well as the modifications in the ambiance of the dental clinic or hospital.

Keywords---anxiety, ultrasonic scaling, dental fear.

Introduction

Dental anxiety may be defined as a feeling of trepidation before visiting a dentist or even contemplating dental procedures and has been established to be one of the major factors that prevent people from visiting a dental clinic¹. The main contributors of avoidance of dental care are fear and anxiety toward the dentist and dental treatment². Dental anxiety not only refers to the fear of the dentist but also fear of the treatment, specific smells or tools, and seeing other anxious patients³. Dental fear and anxiety can be seen in all ages, ranging from kids to adolescents, teens, adults, or elderly people⁴.

The prevalence of dental anxiety has been estimated among adults for a large number of different countries and cultures⁵. Extreme dental anxiety is found to be between approximately 3% and 15% in a population depending, among other things, on measurement methods and sample selection⁶. Thus, a significant proportion of adult individuals are affected by dental anxiety which may have implications for dental visiting habits, oral health, quality of life, and well-being⁷.

Periodontal therapy is also often associated with high levels of anxiety. In periodontal therapy, a relationship seems to exist between dental anxiety and pain experienced during scaling procedures and pain response after periodontal surgery⁸. Patients' perceptions of pain and dental anxiety differ with different periodontal procedures⁹. Mechanical non-surgical therapy, or Scaling and Root planning (SRP), is the most commonly used procedure for treating gingivitis and periodontitis¹⁰. These procedures may be perceived as painful. The experience of pain during preventive treatments such as probing and scaling may also discourage patients who do not have periodontitis. Supragingival debridement is the initial and essential phase before subgingival scaling and/or advanced periodontal procedures, and it is the first step of routine dental care and maintenance visits. Supragingival calculus removal procedures are also reported to cause pain in patients¹¹. Therefore dental anxiety is a psychological disorder impairing not only periodontal hygiene but also health quality¹². Hence this study aimed at assessing dental anxiety before, during, and after dental scaling procedure.

Materials and Method

Study population

One hundred patients (58 males and 42 females) visiting the outpatient Department of Periodontology, Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Bhubaneswar, Odisha, India, participated in the study. The present questionnaire study was approved by the research committee of the Kalinga Institute of Dental Sciences, KIIT Deemed to be University, Bhubaneswar, with reference number: *KIDS/RES/032/19*

To be included in the study, patients had to be between the age ranges of 16 - 60 years, present with supragingival and/or subgingival calculus, absence of dentin sensitivity to air stimulation, and have either gingivitis or periodontitis. Exclusion criteria included refusal to give informed consent, a medical or psychological disorder that might affect pain thresholds, use of pain or anxiety medication, smoking habit and/or alcoholism, presence of acute periodontal pain, pulpitis, abscesses or other acute infections, attachment loss and/or gingival recession, and/or root hypersensitivity that might cause tooth sensitivity.

Methodology

Informed consent was obtained from all the subjects who were included in the study. Following this, the subjects who consented underwent supragingival scaling. All the subjects were treated using the same piezoelectric ultrasonic headpiece and tips without local anesthesia. The subjects were required to respond to the first part of the questionnaire which included questions regarding anxiety experienced before undergoing the treatment while sitting in the department's patient waiting area. The second part of the questionnaire which included the questions regarding anxiety during the scaling procedure was filled by an assistant to the dental operator. The third part of the questionnaire which included the questions regarding anxiety post-scaling was filled by the subjects before leaving the dental clinic. Anxiety levels before, during, and after the ultrasonic scaling, procedure was assessed based on Modified Dental Anxiety Scale (MDAS). (Fig. 1)

Modified Dental Anxiety Scale: Scoring Instructions
Not anxious = 1
Slightly anxious = 2
Fairly anxious = 3
Very anxious = 4
Extremely anxious = 5

Figure 1. Modified Dental Anxiety Scale (MDAS)

Statistical analysis

Statistical analysis of the study was done using SPSS software version 22.0

Results

One hundred dental patients participated in the study. Table 1 & figure 2 shows the general distribution of the level of anxiety among all the patients pre-operatively. It was observed that only 2% and 3% of patients are extremely anxious about deciding to visit a dental clinic and about experiencing pain or bleeding during the procedure. The maximum number of patients (44% and 42%) were not anxious about having their teeth cleaned and while waiting for their turn for the treatment at the clinic respectively. 7% of the patients were very anxious about having their dental treatment done. Question-wise distribution percentage distribution of responses for questions asked during the treatment is represented in Table 2 & figure 3.

Table 1- Question-wise distribution of responses (Pre-operative)

Questions	R1	R2	R3	R4	R5
Q1	44%	38%	11%	5%	2%
Q2	42%	36%	15%	7%	0
Q3	23%	39%	31%	7%	0
Q4	44%	35%	17%	4%	0
Q5	20%	29%	38%	10%	3%

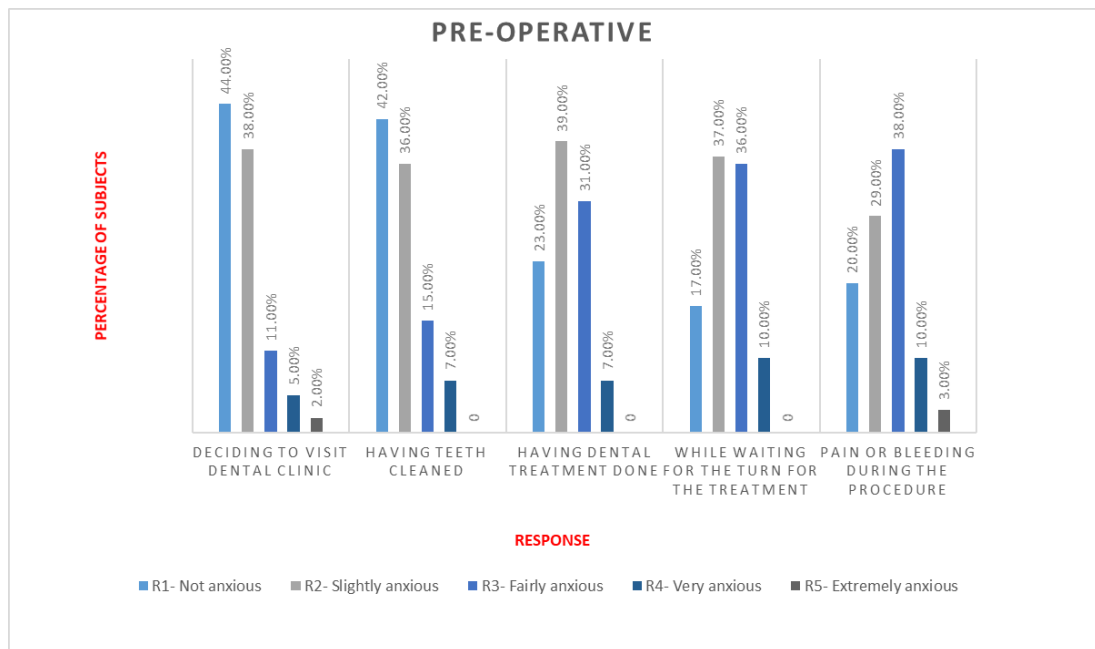


Fig.2 Graph representing the question-wise distribution of responses (Pre-operative)

Table 2- Question-wise distribution of responses (Intra-operative)

Questions	R1	R2	R3	R4	R5
Q6	33%	38%	20%	9%	0
Q7	25%	41%	23%	10%	1%
Q8	24%	38%	26%	10%	2%
Q9	14%	33%	35%	16%	1%
Q10	17%	37%	36%	10%	0

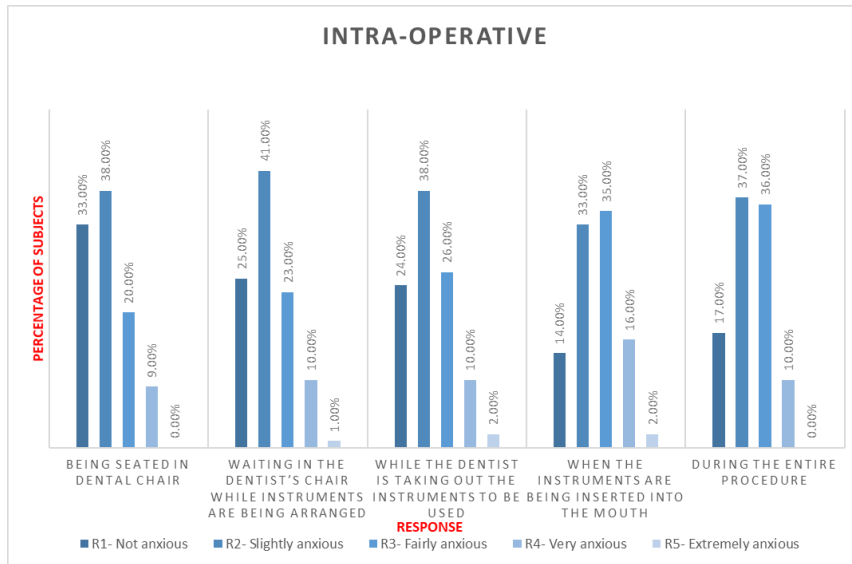


Fig. 3 Question-wise distribution percentage distribution of responses for questions asked during the treatment

Table 3- Question-wise distribution of responses (Post-operative)

Questions	R1	R2	R3	R4	R5
Q11	42%	34%	23%	1%	0
Q12	51%	43%	4%	2%	0
Q13	52%	45%	2%	1%	0
Q14	30%	46%	21%	3%	0
Q15	39%	45%	11%	5%	0

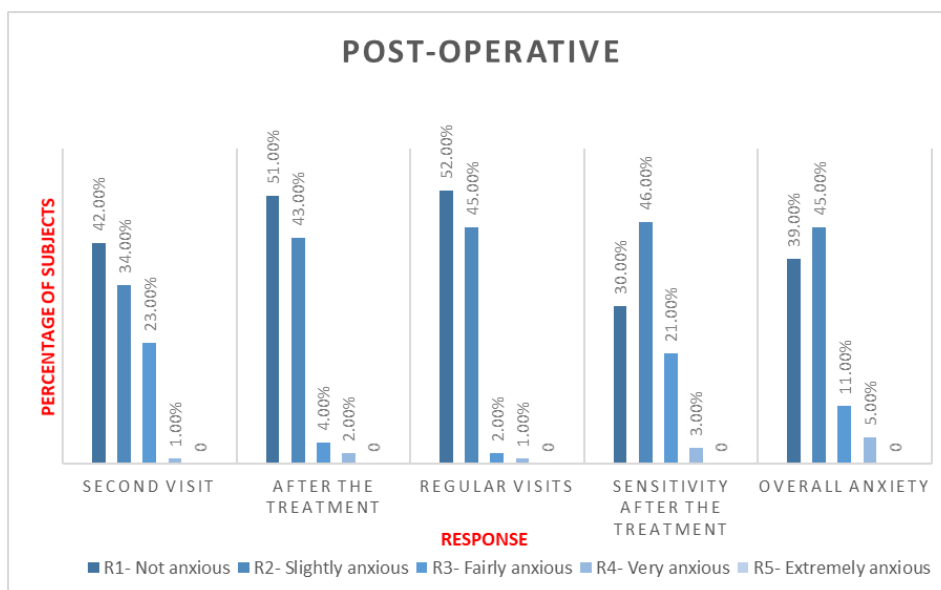


Table 4- Intergroup comparison of highest anxiety responses

Sl no.	Pre-operative		Intra-operative		Post-operative		p-value
	R4	R5	R4	R5	R4	R5	
1	5%	2%	9%	0	1%	0	0.19
2	7%	0	10%	1%	2%	0	0.37
3	7%	0	10%	2%	1%	0	0.37
4	4%	0	16%	1%	3%	0	0.70
5	10%	3%	10%	0	5%	0	0.86

Discussion

As it is well described that the main contribution to the avoidance of dental care is fear and anxiety toward the dentist and dental treatment. Dental anxiety not only refers to the fear of the dentist but also fear of the treatment¹³, specific smells or tools, and seeing other anxious patients, The present study provided information about the anxiety level of the subjects before, during, and after the ultrasonic scaling procedure. The results from this study suggested that the subjects were anxious considerably while deciding to visit the dental hospital for their dental treatment needs.

The subjects also demonstrated moderate anxiety during the procedure but were more anxious while the operating dental instruments were being inserted into their mouth for treatment procedures by dental surgeons. This response indicates that a positive or neutral experience in the dental office would make the patient more compliant. It emphasizes the psychodynamic understanding of the dentist-patient interaction, which is a two-person endeavor, it is the dentist working with the patient and the patient being able to accept the treatment provided by the dentist. This interaction requires improved time and behavioral management skills, increased awareness of patients' concerns and anxieties, the ability to

readjust treatment plans and to provide patient-centered ¹ This study was following Sanikop et al ¹⁴ and Hakeberg et al¹⁵ where similar results were observed and therefore dentists should seek to alleviate or reduce the anxiety related to treatment not only to complete the treatment but also to sustain and motivate the patients for proper maintenance.

Conclusion

The anxiety level of the subjects towards dental treatment is directly related to their perspective towards the dentist and the fear of pain or bleeding. Therefore, assessing the subjects' level of anxiety using a questionnaire before the procedure can lead to modification of the treatment plan as needed as well as the modifications in the patient's counseling before planning any dental treatment procedure as well as the ambiance of the dental clinic or hospital.

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