

## A Questionnaire Based Survey On Fear and Anxiety Levels of Patient Before and After Endodontic Treatment

Research Article

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### Abstract

Dental anxiety refers to a patient's specific reaction toward stress associated with dental treatment in which the stimulus is unknown, vague, or not present at the moment. It is widespread problems that persist despite the technological advances that have made dentistry less painful and uncomfortable. The present cross-sectional study was conducted in the Department of Conservative Dentistry and Endodontics, Saveetha Dental College from November 2019 to December 2019. A simple random sampling technique was used for the study and a sample size of 300 adult patients aged 18-40 years attending Out-patient were selected. The survey was done based on two sets of questionnaires and the patients were asked to complete the questionnaires before and after endodontic treatment. The present study concluded that female subjects were ranked highly and severely anxious with modified dental anxiety scale before root canal treatment. It was also reported that female subjects after root canal treatment were also ranked highly anxious.

**Keywords:** Corah Dental Anxiety Scale; Dental Anxiety; Dental Fear; Modified Dental Anxiety Scale; Root Canal Treatment.

### Introduction

Dental anxiety is characterized as a patient's particular response towards stress identified with the dental treatment during which the upgrade is obscure, dubious, or not present at that moment [1-4]. It's a far reaching issue that endures in spite of the logical advances that made dentistry less painful [5]. Depending on the populace and the estimation method, 2.5-20% individuals endure high dental anxiety [6, 7]. It has been assessed that around 80% of the Americans were positioned profoundly on edge in regards to dental treatment and 5-14% of them were positioned seriously anxious [8, 9]. Research considers revealed that dental anxiety is progressively normal in women [10-12]. Recognition of a patient's dental nervousness helps in arrangement of the crucial data for a dental specialist in taking care of business a patient-dental specialist relationship [13]. Dental anxiety and fear seem to shift in sync with sort of treatment [14]. Periodontal or endodontic medicines have been appeared to cause more significant levels of nervous-

ness than remedial or prophylactic treatments [15-18]. Patients' pre-treatment choices and post treatment fulfilment might be emphatically impacted by social, mental, and conduct viewpoints including information, convictions, perspectives, inclinations and behaviours [19-22]. Patients may know about endodontic pathology yet are probably going to be exceptionally sharpened to treatment-related dread, uneasiness and torment and are increasingly worried about expense, and whether the treated tooth satisfies their practical and stylish expectations [23]. There is no uncertainty that root canal treatment can increment physiological and mental feelings of anxiety. Patients who had undergone root canal treatment experienced fair to very much fear of pain, or 3-4 on a 5-point scale. Agony experienced during root canal treatment is related with the degree of foreseen nervousness level. Half of the patients detailed no adjustment in dread level after root canal treatment, however 44% revealed less fear after root canal treatment, and just 6% announced more dread after root canal treatment. Past encounters of root canal treatment will in gen-

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**Received:** May 05, 2021

**Accepted:** June 20, 2021

**Published:** June 26, 2021

**Citation:** Immadi Laxmi Sujith Kumar, Sindhu Ramesh. A Questionnaire Based Survey On Fear and Anxiety Levels of Patient Before and After Endodontic Treatment. *Int J Dentistry Oral Sci.* 2021;8(6):2844-2849. doi: <http://dx.doi.org/10.19070/2377-8075-21000555>

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eral abatement tension; experience may balance negative gossip. Strangely, negative noise builds entry treatment related nervousness, yet past negative section treatment encounters don't increase anxiety [24]. Females will in general experience more root canal treatment related tension and envision more agony than men [25]. Younger grown-ups foresee and experience higher torment levels and they may likewise encounter more anxiety [26]. Results of studies looking at dental uneasiness level and sexual orientation are clashing; Bergdahl and Hakeberg, et al. 2003 detailed more significant levels of dental tension among females, yet Sari, et al. 2005 neglected to locate any such contrast between genders [22-24]. Prior to treatment, dental specialists ought to have the option to identify a patient's degree of tension and dread so they can utilize suitable administration alternatives. Accordingly, a few scales have been produced for this expectation. Modified Dental Anxiety Scale is utilized in this survey.

Previously our team has a rich experience in working on various research projects across multiple disciplines [27-41]. Now the growing trend in this area motivated us to pursue this project.

The aim of the present survey is to evaluate fear and anxiety levels of patients before and after Endodontic treatment.

### Materials And Methods

The present cross-sectional study was conducted in the Department of Conservative Dentistry and Endodontics, Saveetha Dental College from November 2019 to December 2019. All the respondents were provided to sign a detailed informed consent form. The Survey done was based on two sets of questionnaires and the patients were asked to complete the questionnaires before and after endodontic treatment. The first questionnaire was the Modified Dental anxiety scale which consisted of five questions. Respondents rate each item on a five point scale that ranges from not anxious to extremely anxious, in ascending order. Each question carries a possible maximum score of five, and the total score is a sum of all five questions, ranging between 5 to 25. Cut off is 19 or above which indicates a highly dentally anxious patient, possibly dental phobic. The second questionnaire consisted of eleven questions, which were asked after treatment including questions on tapping on a sore tooth, multiple X-rays taken, anesthesia, drilling of tooth, sensations of files, appointments of root canal treatments and lengths of root canal treatment which were asked after treatment. Both the questionnaires were meant to analyze the response of the patient's anxiety and fear towards endodontic treatment.

### Ethical Approval

Ethical permission and approval for the project was obtained from the institutional review board of Saveetha Institute Of Medical And Technical Sciences, Chennai, India on date 25/08/2018 (SRB/SD/MDS12/129 ODS/19).

### Eligibility Criteria

Patients aged 18-40 years attending Outpatient Department of Conservative dentistry and endodontics in Saveetha Dental College And Hospital were selected.

### Sample Size

The sample size was calculated by taking this prevalence rate and computed using G\*Power at 95% confidence interval and  $\alpha = 5\%$  and sample size of 300 was obtained. Patients aged less than 18 years and above 40 years were excluded from the study.

### Data Collection

This cross sectional survey was conducted during November 2019 to December 2019. The questionnaire was shared via physical forms and responses were obtained from 300 patients. The data form the questionnaire was compiled and statistical analysis was done.

### Statistical Analysis

Data was analyzed by using Statistical Package for Social Sciences software version 20.0 (SPSS Inc., Chicago, IL, USA) for frequency and percentages of dental anxiety before and after endodontic treatment. Chi- squared test was done to compare fear levels in relation to gender.

### Results

Frequency of age and gender distribution of patients who took part in the survey, which shows that male participants are higher (57.0%) than female participants(43.0%) and participants under the age group of 36-40 years are higher in number(34.0%).(Table 1) 3(15.7%) males and 16(84.3%) females were found to be extremely anxious according to the Modified Dental Anxiety Scale before endodontic treatment. (Table 2) Chi square test for comparison of fear in relation to gender after endodontic treatment was done and all the questions showed statistically significant p value <0.05 (Table 3). The association between gender and re-

**Table 1. Frequency of age and gender distribution of patients who took part in the survey, which shows that male participants are higher (57.0%) than female participants(43.0%) and participants under the age group of 36-40 years are higher in number(34.0%).**

Demographic variables	Categories	No. of Respondents	Percentage %
Gender	Female	129	43
	Male	171	57
Age (years)	18-25 years	66	22
	26-30 years	84	28
	31-35 years	48	16
	36-40 years	102	34

**Table 2. Shows Modified Dental Anxiety Scale(MDAS) before endodontic treatment.**

Modified dental anxiety scale (MDAS)	Male	Female	Total
Not anxious(0-5)	60(58.8%)	42(41.2%)	102 (100%)
Slightly anxious(6-10)	32(37.2%)	54(62.8%)	86 (100%)
Fairly anxious(11-14)	22(35.4%)	40(64.6%)	62 (100%)
Very anxious(15-18)	10(32.2%)	21(67.8%)	31 (100%)
Extremely anxious(19-25)	3(15.7%)	16(84.3%)	19 (100%)

**Table 3. Shows Correlation of Fear with Gender after Endodontic Treatment.**

Questions	Variables	Gender		Total	Chi Square value	p value
		Male	Female			
Do you mind the dentist tapping or pushing on the sore tooth?	Not at all	53	9	62	53.17	0.000
	A little	66	43	109		
	Somewhat	25	47	72		
	Much	6	16	22		
	Very much	4	10	14		
	Never experienced	17	4	21		
Do you mind the use of an electric pulp tester?	Not at all	56	8	64	56.62	0.000
	A little	64	45	109		
	Somewhat	24	46	70		
	Much	6	16	22		
	Very much	4	10	14		
	Never experienced	17	4	21		
Do you mind having multiple x-ray taken of your tooth?	Not at all	37	3	40	41.531	0.000
	A little	72	37	109		
	Somewhat	47	59	106		
	Much	13	27	40		
	Very much	2	3	5		
	Never experienced	17	4	21		
Do you mind when an x-ray receptor was placed in your mouth?	Not at all	22	0	22	44.545	0.000
	A little	64	25	89		
	Somewhat	54	46	100		
	Much	25	39	64		
	Very much	6	19	25		
	Never experienced	17	4	21		
Do you mind when a metal rubber dam clamp was placed on your tooth?	Not at all	15	0	15	53.371	0.000
	A little	77	22	99		
	Somewhat	49	47	96		
	Much	23	35	58		
	Very much	7	25	32		
	Never experienced	17	4	21		
Do you mind the use of rubber dam?	Not at all	15	0	15	53.933	0.000
	A little	78	22	78		
	Somewhat	51	52	51		
	Much	21	34	21		
	Very much	6	21	6		
	Never experienced	17	4	21		
Do you mind getting an injection for anaesthesia?	Not at all	66	2	68	92.199	0.000
	A little	51	30	81		
	Somewhat	34	27	61		
	Much	12	27	39		
	Very much	8	43	51		
	Never experienced	17	4	21		
Do you mind the drill on your tooth?	Not at all	71	11	82	52.345	0
	A little	70	59	129		
	Somewhat	26	41	67		
	Much	3	15	18		
	Very much	1	3	4		
	Never experienced	17	4	21		
Do you mind the sensation of the root canal files?	Not at all	82	18	100	46.753	0.000
	A little	71	68	139		
	Somewhat	16	36	52		
	Much	2	6	8		
	Very much	0	1	1		
	Never experienced	17	4	21		
Do you mind the length of appointment required to do root canal therapy?	Not at all	18	3	21	51.963	0.000
	A little	69	21	90		
	Somewhat	66	51	117		
	Much	16	43	59		
	Very much	2	11	13		
	Never experienced	17	4	21		
All things considered, are you fearful of having root canal work?	Not at all	80	10	90	64.192	0.000
	A little	56	53	109		
	Somewhat	29	40	69		
	Much	4	16	20		
	Very much	2	10	12		
	Never experienced	17	4	21		

sponses for have you ever cancelled or missed an appointment for root canal therapy because you were apprehensive or fear is shown in (Chart 1). The association between gender and responses for would you have root canal therapy again to save one of your teeth is shown in (Chart 2).

### Discussion

Our institution is passionate about high quality evidence based research and has excelled in various fields [42-52].

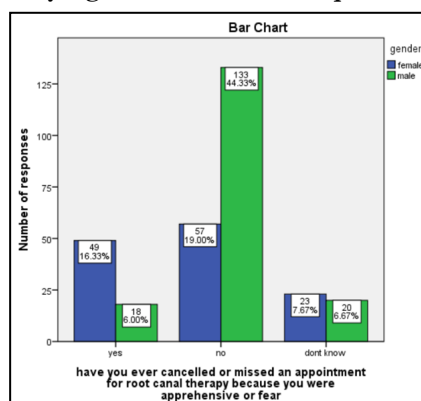
Dental anxiety, fear and phobia are known to extremely influence patients behaviors and felt experiences [53-56]. Fearful patients are more likely to experience and remember more pain [53, 55] and they also tend to avoid necessary treatment perpetuating a vicious cycle of dental fear and avoidance [53, 56, 57]. The present study reported that 16(84.3%) of the females and 3(15.7%) of males were extremely anxious about root canal treatment. LeClaire,et al. 1988 reported that 1(5.6%) of subjects who missed or got cancelled the appointments because of fear [19]. Scott, et al. 1984 in his study reported that high and low dentally anxious subjects did not differ significantly in the number of dental appointments cancelled [58]. Even though root canal therapy can usually be performed with a minimum of discomfort, many patients express apprehension concerning therapy before the start of treatment [19]. The present study reported that 86 were found to be slightly anxious, 62 were fairly anxious and 19 were found to

be extremely anxious. Le Claire, et al. 1988 in his study reported 18 (22%) subjects were found to be highly anxious [19]. Physiologic stress peaks early in a RCT appointment, around the time of local anesthesia delivery and initial instrumentation [16, 59]. The present study reported that subjects were least anxious during initial instrumentation and only females were found to be anxious.

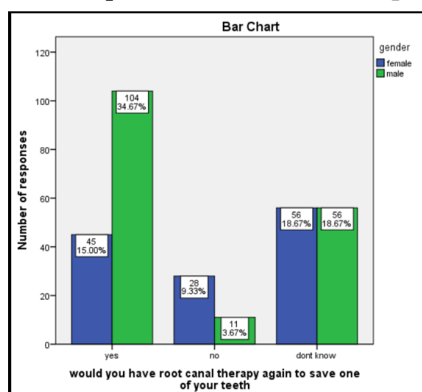
Hamedy R, et al. 2013 reported that patients ranked the following from least to most anxiety producing as: electric pulp testing, rubber dam, appointment length, multiple radiographs, rubber dam clamp placement, X-ray film placement, access opening, percussing a sore tooth, sensing files, local anesthesia injection [60]. LeClaire, et al. 1988 ranked use of the electric pulp tester, rubber dam, length of appointments among the least unpleasant aspects and X ray film placement, access opening of intermediate concern [19].

Ali S, et al. 2015 reported that 59.5% of males and 48.4% of females showed fear of injection needle followed by 29.7% of males and 29.7% of females reported fear from vibration of the drill, 21.6% of males and 28.1% of females had fear from rubber dam placement, 16.2% of males and 10.9% of the females reported fear from X-rays [61]. The present study reported that 36% of females and 22.7% of males were highly anxious when x-ray film was placed in their mouth. 26.8% of males were found to be highly anxious when multiple x-rays were taken. 25.2% of females and 20.6% of males were highly anxious about the length

**Chart 1. Bar chart showing the association between gender and responses for have you ever cancelled or missed an appointment for root canal therapy because you were apprehensive or fear. X axis represents the question variables and y axis represents the number of responses from the participants. The association between Male(green) and Female(blue) among the different variables was found to be statistically significant with a Chi square value of 39.894 and p value of 0.000(p<0.05).**



**Chart 2. Bar chart showing the association between gender and responses for would you have root canal therapy again to save one of your teeth. X axis represents the question variables and y axis represents the number of responses from the participants. The association between Male(green) and Female(blue) among the different variables was found to be statistically significant with a Chi square value of 25.390 and p value of 0.000(p<0.05).**



of appointments required during root canal treatment.

Thirty eight (38%) of the females and 20(20.6%) of the males reported fear towards tapping and pushing on a tooth. LeClaire, et al. 1988 in his study also ranked subjects highly anxious about tapping or pushing on a sore tooth and the most unpleasant aspect of root canal therapy [19]. Needle fear, in particular, is a major issue given that the delivery of local anaesthesia via injection is the central plank of pain relief techniques in dentistry [62]. Honkala S, et al. 2014 reported that use of drill and injection were the highest anxiety arousing dental procedure [63].

Females generally had a greater phobia of dental procedures than their males. One reason for this trend could be that males tend to hide their fears due to their orthodox gender role [64]. In addition, it has been reported that, in general, females are more reactive to a specific stimulus (like a needle prick) than males, which could account for the higher anxiety levels reported by females in various studies [65, 66]. Kanegane, et al. 2009 reported no relation between gender and dental anxiety [67]. Masoud, et al. 2015 in his study reported that female patients demonstrate higher levels of dental anxiety than males [68]. Similar results were reported by many authors that dental anxiety is more common in women [2, 6, 69, 70, 71]. The present study also reported higher levels of dental anxiety in women. This difference may be explained by women being more able to express their feelings of fear. In addition, physiological conditions such as social phobia panic, depression, stress, and fear are more common in females and dental anxiety may be associated with such emotions [9]. drill and injection were the highest anxiety arousing dental procedure. Ali S, et al. 2015 also reported the most feared dental procedure was fear of an injection/ needle [61].

### Study Limitations

The limitation of the present study includes small sample size and that data collection was done from only one Dental College. Another was that the patients included in the study were from the same locality and this affected the outcome of the study. Pretreatment anxiety levels are assessed by Modified Dental Anxiety Scale but there is until now no anxiety scale developed that will assess post treatment anxiety level.

### Conclusion

The present study concluded that female subjects were ranked highly and severely anxious with modified dental anxiety scale before root canal treatment. It was also reported that female subjects after root canal treatment were also ranked highly anxious.

### Clinical Significance

Dentists need to be trained in anxiety management and communication techniques, this consideration will help in development of specialist postgraduates courses for dentists in management of dental anxiety. Such initiatives allow interested dentists to gain more confidence, more experience and skills in this specialised field of dentistry.

### Acknowledgement

With Sincere gratitude,we acknowledge the staff members of the department of Conservative Dentistry and Endodontics, Saveetha Dental College and study participants for their extended support towards the completion of research.

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