

## Analysis of Level of Anxiety and Fear Before and After Endodontic Treatment

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### Abstract

**Introduction:** Dental anxiety refers to 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. **Materials and Methods:** The present cross-sectional study was conducted in the Department of Operative Dentistry, Baqai dental college from June 2014 to March 2015. A simple random sampling technique was used for the study and a sample size of 200 adult patients aged 18-40 years attending Out Patient Department of Operative Dentistry, Baqai Dental College were selected. The Survey done was based on two sets of questionnaires and the patients were asked to complete the questionnaires before and after endodontic treatment. **Result:** Fifty seven (28.5%) of the patients were found to be moderately anxious. Sixty four (32.2%) of the patients were found to be afraid of drilling the tooth. Thirty nine (38.2%) of the female patients and 25 (25.8%) of male patients were found to be afraid of drilling the tooth followed by 59 (29.5%) of the patients were afraid of the x-ray film positioned in the mouth. Thirty nine (37.9%) of the female patients and 20 (20.6%) of male patients were afraid of the dentist tapping on sore tooth. **Conclusion:** The present study concluded that female subjects were ranked highly and severely anxious with Corah dental anxiety scale before root canal treatment. It was also reported that female subjects after root canal treatment were also ranked highly anxious.

**Keywords:** Dental anxiety, Dental fear, Gender, Prevalence, Root canal treatment

### Introduction

Dental anxiety is defined as patient's specific reaction towards stress related to the dental treatment in which the stimulus is unknown, vague or not present at that moment [1,2]. It is a widespread problem that persists despite the scientific advances that made dentistry less painful [3-5]. Depending on the population and the measurement technique, 2.5-20% people suffer high dental anxiety [6,7]. It has been evaluated that around 80% of the Americans were ranked highly anxious regarding dental treatment and 5-14% of them were ranked severe anxious [8]. Research studies reported that dental anxiety is more common in women [2,8-10]. Recognition of a patient's dental anxiety helps in provision of the vital information for a dental surgeon in shaping up a patient-dentist relationship [11]. Dental anxiety and fear appears to vary according to type of treatment. Periodontal or endodontic treatments have been shown to cause higher levels of anxiety than restorative or prophylactic treatments [12,13]. Patients' pretreatment decisions and post treatment satisfaction may be strongly influenced by social, psychological, and behavioral aspects including knowledge, beliefs, attitudes, preferences and behaviors [14]. Patients might be aware about endodontic pathology, but are likely to be highly sensitized to treatment-related fear, anxiety and pain and are more concerned about cost, and whether the treated tooth fulfills their functional and esthetic expectations [15]. There is no doubt that root canal treatment can increase physiological and psychological stress levels [16]. Patients who had undergone root canal treatment experienced fair to very much fear of pain, or 3-4 on a 5-point scale [17]. Pain experienced during root canal treatment is associated with the level of anticipated anxiety level [16,18]. Half of the patients reported no change in fear level after root canal treatment, but 44% reported less fear after root canal treatment, and only 6% reported more fear after root canal treatment [19]. Previous experiences of root canal treatment tends to decrease anxiety; experience may counteract negative

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hearsay [13,19]. Interestingly, negative hearsay increases root canal treatment associated anxiety, but previous negative root canal treatment experiences do not increase anxiety [13].

A woman tends to experience more root canal treatment associated anxiety and anticipate more pain than men [19-21]. Younger adults anticipate and experience higher pain levels and [21] they may also experience more anxiety [20]. Results of studies examining dental anxiety level and gender are conflicting. Bergdahl and Bergdahl [22] and Hakeberg, et al. [23] reported higher levels of dental anxiety among females, but Sari, et al. [24] did not find any such difference between genders.

Prior to treatment, dental surgeons should be able to detect patient's level of anxiety and fear so they can use appropriate management options [25]. Thus, several scales have been developed for this intention. Corah's Dental Anxiety Scale (CDAS) is used in the present study [26].

Therefore the aim of the study was to analyze the level of anxiety and fear before and after endodontic treatment.

## Materials and Methods

The present cross-sectional study was conducted in the Department of Operative Dentistry, Baqai dental college from June 2014 to March 2015. The Ethical Committee of Baqai Medical University approved the study design and all the respondents were provided to sign a detailed informed consent form. A simple random sampling technique was used for the study and a sample size of 200 adult patients aged 18-40 years attending Out Patient Department of Operative Dentistry, Baqai Dental College were selected. There were a total of 97 male patients and 103 female patients participated in the study. The sample size was calculated by taking this prevalence rate and computed using Open Epi version 3.03a at 95% confidence interval and  $\alpha = 5\%$ . Patients aged less than 18 years and above 40 years were excluded from the study. 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 Corah's Dental anxiety scale which consisted of four questions on asking how respondents would feel "if they had to go to the dentist tomorrow," "waiting at the dentist office," "waiting while he gets the drill ready," and "in the dentist's chair to have teeth cleaned". 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 scores range between 4 and 20. 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.

Data was analyzed by using IBM statistics version 19 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.

## Result

Fifty seven (28.5%) of the patients were found to be

Corah's Dental Anxiety scale (DAS)	Male	Female	Total
Not Anxious (4-8)	40(77%)	12(23%)	52(100%)
Moderately anxious (9-12)	32(56%)	25(44)	57 (100%)
Highly anxious (13-14)	15(34%)	29(66%)	44(100%)
Severely anxious (15-20)	10(21%)	37(79%)	47(100%)

Table 1: Shows Dental anxiety scale before endodontic treatment

Variables	Not at all	Only a little	Some	Alot
Do you mind the dentist tapping or pushing on sore tooth?	7(3.5%)	52(26%)	82(41%)	59(29.5%)
Do you mind having multiple X-rays taken of your tooth?	19(9.5%)	41(20.5%)	85(42.5%)	55(27.5%)
Do you mind when an X-ray film was placed in your mouth?	15(7.5%)	45(22.5%)	81(40.5%)	59(29.5%)
Do you mind getting an injection for anesthesia?	29(14.5%)	56(28%)	68(34%)	47(23.5%)
Do you mind the drilling on your tooth?	19(9.5%)	48(24.1%)	68(34.2%)	64(32.2%)
Do you mind sensation of root canal files?	39(19.5%)	70(35%)	83(41.5%)	8(4%)
Do you mind the length of appointments required to do root therapy?	23(11.5%)	66(33%)	64(32%)	46(23%)
All things considered, are you fearful of having root canal work?	33(16.5%)	65(32.5%)	75(37.5%)	27(13.5%)
Is root canal treatment painful?	20(10%)	84(42%)	65(32.5%)	31(15.5%)
Have you ever cancelled or missed an appointment for root canal therapy because you were apprehensive or fearful?	42(21%)	130(65%)	27(13.5%)	1(1%)

Table 2: Shows analysis of fear after endodontic treatment

moderately anxious. Table 1 showed Dental anxiety scale before endodontic treatment. Sixty four (32.2%) of the patients were found to be afraid of drilling the tooth followed by 59(29.5%) of the patients were afraid of the x-ray film positioned in the mouth. Table 2 showed analysis of fear after endodontic treatment. Thirty nine (38.2%) of the female patients and 25(25.8%) of male patients were found to be afraid of drilling the tooth. Thirty nine (37.9%) of the female patients and 20 (20.6%) of male patients were afraid of the dentist tapping on sore tooth. Table 3 showed comparison of fear in relation to gender after endodontic treatment.

## Discussion

Dental anxiety, fear and phobia are known to extremely influence patients behaviors and felt experiences [27-30] Fearful patients are more likely to experience and remember more pain [27,29] and they also tend to avoid necessary treatment perpetuating a vicious cycle of dental fear and avoidance [27,30,31]. The present study reported that 20(19.4%) of the females and 11(11.3%) of males were highly anxious about root canal treatment. LeClaire, et al. [19] reported that 1(5.6%) of subjects who missed or got cancelled the appointments because of fear. Scott, et al. [32] in his study reported that high and low dentally anxious subjects did not differ significantly in the number of dental appointments cancelled. 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

Variables	Gender	Not at all	Only a little	Some	Alot
Do you mind the dentist tapping or pushing on sore tooth?	Male	6(6.2%)	32(33%)	39(40.2%)	20(20.6%)
	Female	1(1%)	20(19.4%)	43(41.7%)	39(37.9%)
Do you mind having multiple X-rays taken of your tooth?	Male	10(10.3%)	23(23.7%)	38(39.2%)	26(26.8%)
	Female	9 (8.7%)	18(17.5%)	47(45.5%)	29(28.2%)
Do you mind when an X-ray film was placed in your mouth?	Male	10(10.3%)	26(26.8%)	39(40.2%)	22(22.7%)
	Female	5(4.9%)	19(18.4%)	42(40.8%)	37(35.9%)
Do you mind getting an injection for anesthesia?	Male	22(22.7%)	29(29.9%)	28(28.9)	18(18.6%)
	Female	7(6.8%)	27(26.2%)	40(38.8%)	29(28.2%)
Do you mind the drilling on your tooth?	Male	15(15.5%)	26(26.8%)	31(32%)	25(25.8%)
	Female	4(3.9%)	22(21.6%)	37(36.3%)	39(38.2%)
Do you mind sensation of root canal files?	Male	26(26.8%)	38(39.2%)	30(30.9%)	3(3.1%)
	Female	13(12.6%)	32(31.1%)	53(51.5%)	5(4.9%)
Do you mind the length of appointments required to do root therapy?	Male	11(11.3%)	33(34%)	32(33%)	20(20.6%)
	Female	12(11.7%)	33(32%)	32(31.1%)	26(25.2%)
All things considered, are you fearful of having root canal work?	Male	24(24.7%)	34(35.1%)	30(30.9%)	9(9.3%)
	Female	9(8.7%)	31(30.1%)	45(43.7%)	18(17.5%)
Is root canal treatment painful?	Male	17(17.5%)	38(39.2%)	31(32%)	11(11.3%)
	Female	3(2.9%)	46(44.7%)	34(33%)	20(19.4%)
Have you ever cancelled or missed an appointment for root canal therapy because you were apprehensive or fearful?	Male	20(20.6%)	67(69.1%)	10(1.3%)	0(0%)
	Female	22(21.4%)	63(61.2%)	17(16.5%)	1(1%)

Table 3: Shows correlation of fear with gender after endodontic treatment

study reported that 57 (26%) were found to be moderately anxious, 44(22%) were highly anxious and 47(23.5%) were found to be severely anxious. Le Claire, et al. [19] in his study reported 18 (22%) subjects were found to be highly anxious. Physiologic stress peaks early in a RCT appointment, around the time of local anesthesia delivery and initial instrumentation [16,33]. The present study reported that subjects were least anxious during initial instrumentation and only 5(5%) of the females and 3(3.1%) of males were found to be anxious.

Hamedy R, et al. [34] 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. LeClaire, et al. [19] ranked use of the electric pulp tester; rubber dam, length of appointments among the least unpleasant aspect and X ray film placement, access opening of intermediate concern.

Ali S, et al. [35] 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. The present study reported that 36% of females and 22.7% of males, 28.2% of females were highly anxious when x-ray film was placed in mouth. 26.8% of males, were found to be highly anxious when multiple x-rays taken. 25.2% of females and 20.6% of males were highly anxious about the length 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. [19] 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. 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 [36]. Honkala S, et al. [37] reported that use of drill and injection were the highest anxiety arousing dental procedure.

Ali S, et al. [35] also reported the most feared dental procedure was fear of an injection/ needle.

The present study reported that 39(38.2%) of females and 25(25.8%) of males were highly anxious about drilling the tooth and 29 (28.2%) of females and 18(18.6%) of males were ranked highly anxious.

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 [38]. 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 [39,40]. Kanegane, et al. [41] reported no relation between gender and dental anxiety, Masoud, et al. [42] in his study reported that female patients demonstrate higher levels of dental anxiety than males. Similar results were reported by many authors that dental anxiety is more common in women [2,6, 9,10,43,44]. 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].

### Limitations

The limitation of the present study includes small sample size and that data collection was done from only one Dental College. Another limitation was the result of gender differences as the female subjects included in the study were from the same locality and this affected the outcome of the study. Pretreatment anxiety levels are assessed by Corah's 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 Corah dental anxiety scale before root canal treatment. It was also reported that female subjects after root canal treatment were also ranked highly anxious.

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