

# Dental Fear and Anxiety Associated with Patients Seeking Esthetic/Restorative Dental Procedures in Riyadh, KSA

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**Abstract Objective:** Anxiety towards dental procedures is common that may be experienced by dental patients. This study specifically focused on evaluating the esthetic/restorative procedures related to dental anxiety/fear frequency and its relationship with age, gender, and educational level among patients visiting clinics in Riyadh, Saudi Arabia. **Methodology:** The present cross-sectional study was conducted between March 2020 to May 2020. A convenience sampling was performed and the data was collected from the patients seeking esthetic/restorative treatment (aged 20 years or more). A questionnaire-based on questions related to general and esthetic/restorative procedures was presented to a patient before treatment. A Chi-square test was performed to compare the level of anxiety/fear among the patient concerning age, gender, and education level ( $P < 0.05$ ). **Results:** A total of 1500 filled-in questionnaires were collected. Most of the participating patients were aged between 20-30 years (38.3%), and 66.2% of participants were female. Additionally, anxiety/fear is not associated with age and education ( $P > 0.05$ ). However, females are more prone to anxiety/fear compared to males ( $P < 0.05$ ). **Conclusions:** The findings of this survey strongly suggest that esthetic/restorative procedures might also be highly fearful to most of the patients.

**Keywords:** anxiety, fear, age, gender, esthetic/restorative procedures

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## 1. Introduction

Dental anxiety is a serious issue that affects people of different gender, age, and countries [1]. Dental anxiety's etiology is multifactorial and not fully known yet. The etiological reasons may include previous adverse dental interactions and psychological distress, a greater perceived need for dental care, and parents with dental anxiety [2]. Therefore, multiple dental anxiety management strategies involving both pharmacological agents and allied methods, such as behavioral stimulation, have been used to alleviate dental anxiety.

Generally, dental procedures are perhaps stressful for many patients. The factors such as physical (e.g., fear of pain) and psychological factors (e.g., unforeseeability, loss of control) often invoke fear and stress among patients [3]. This fear and stress may result in postponing or canceling dental visits or even avoiding treatment completely [4,5]. Moreover, anxiety may potentially affect the patient/dentist relationship and contribute to misdiagnosis [6]. Such

patients might be a source of stress for dental practitioners and can compromise their clinical practice.

Data suggest that about 80% of the Americans are highly nervous and uneasy regarding the dental procedure and 5-14% of them are critically anxious [7]. Research studies have also reported that fear and anxiety are more common among women [5,8]. Timely spotting of a patient's dental anxiety assists in shaping-up a patient-dentist relationship. Dental anxiety and fear appear to vary according to the type of treatment. Surgical or endodontic procedures have been shown to cause higher levels of anxiety/fear than restorative or prophylactic treatments [9].

Plenty of studies have explored the phenomena linked with fear and anxiety. Whereas numerous researches have endeavored to relate levels of patient satisfaction with different treatment modalities, also dentists' attitudes and behaviors with patient satisfaction. Dental practitioners need to detect the patient's level of anxiety/fear so they may opt for appropriate management options [6].

In contemporary times, esthetically pleasing appearance has become the utmost vital, and given that the facial features matter most to first impressions, in particular, a

pleasant smile is key [10]. An appealing smile is greatly admired and desired for today's dental patient, owing to which the urge for esthetic dental treatment has superseded functional dentistry [11]. Although, several scales have been introduced such as the dental fear survey (DFS) or Corah's dental anxiety scale (CDAS) to check the level of anxiety/fear. However, none of these scales have targeted cosmetic dentistry patients. Not to mention, there are many esthetic/cosmetic dentistry procedures that may become a source of anxiety/fear among the patients. Therefore, this cross-sectional study would employ tailor-made questionnaire to target the location population and analyze anxiety/fear among patients who visit dental clinics for esthetic/restorative procedures. The effect of variables such as age, gender, and level of education would be evaluated to find their association with anxiety/fear. The null hypothesis is that there would be no difference between the level of anxiety/fear concerning age, gender, and patient's level of education.

## 2. Methodology

The targeted population of this cross-sectional study was from Riyadh, Saudi Arabia. Convenience sampling was done, and the data was collected from the patients (aged 20 years or more) visiting different public and private dental clinics from March 2020 to May 2020. The respondents were supposed to complete the questionnaire anonymously, and no personal data except gender, age, and level of education were collected from them.

The study protocol was approved by the ethics committee of Riyadh Elm University, Riyadh, Saudi Arabia. Informed consent was obtained from all the participating patients after clarifying the purpose of this study before their enrolment. A pre-treatment questionnaire with a set of twenty-one questions was employed. The first four questions were related to the patient's demographic information. The remaining seventeen questions were

used to probe the level of anxiety/fear among the participants. The response format (i.e., not at all, a little, moderate, a lot) were provided for every item of this section. The first few items were related to general dentistry procedures. However, the remaining items in the questionnaire were specific to analyze the anxiety/fear in patients seeking esthetic/restorative dentistry procedures.

An interpreter was present with the participants to explain any item in the questionnaire which might be confusing to them. Only those participants seeking esthetic restorative treatment were targeted in this study. The patients for other dental procedures such as prosthodontics, orthodontics, and surgical procedures were omitted out.

### 2.1. Statistical Analysis

SPSS software (ver. 23.0; SPSS Inc., Chicago, IL, USA) would be employed for entering and analyzing the data. Descriptive statistics with frequencies would be calculated and tabulated. Chi-square test would also be performed to compare the level of anxiety/fear among the participants concerning age, gender, and education level. P-values < 0.05 would be considered statistically significant.

## 3. Results

A total of 1500 filled-in questionnaires were collected from the public and private dental clinics of Riyadh, KSA. The demographic details of the participating patients are shown in Figure 1. Most of the participating patients were aged between 20-30 years (38.3%), and 66.2% of participants were female. The participants of this study were mostly having a graduate/diploma degree (75.1%), and the majority of the participants had a previous dental treatment experience as well (97.3%). Only a very few were going through the dental treatment for the first time (2.7%).

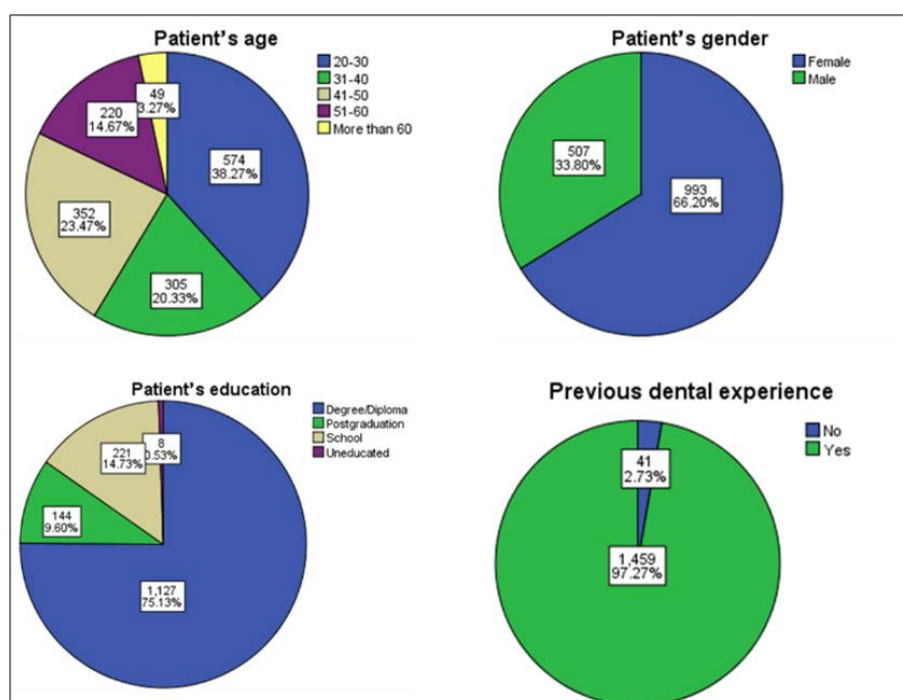


Figure 1. Demographic information of the participants of this survey study

**Table 1. Level of fear among the patients visiting dental clinics specifically for general dental procedures**

Statement	Response	n	%
Do you feel nervous/afraid while sitting in the waiting area for your turn?	A little	473	31.5
	A lot	231	15.4
	Moderate	387	25.8
	Not at all	409	27.3
Do you feel nervous/afraid when sitting on the dental chair and seeing different instruments?	A little	479	31.9
	A lot	398	26.5
	Moderate	364	24.3
	Not at all	259	17.3
Do you feel nervous/afraid if a dentist is tapping/pushing on a sore tooth?	A little	391	26.1
	A lot	561	37.4
	Moderate	561	37.4
	Not at all	191	12.7
Are you afraid of X-rays if taken for tooth/teeth diagnosis?	A little	287	19.1
	A lot	90	6.0
	Moderate	237	15.8
	Not at all	886	59.1
Are you afraid of anesthetic injection?	A little	400	26.7
	A lot	614	40.9
	Moderate	307	20.5
	Not at all	179	11.9
Do you feel nervous/afraid if the length of dental sitting is long?	A little	312	20.8
	A lot	512	34.1
	Moderate	445	29.7
	Not at all	231	15.4

**Table 2. Level of fear among the patients visiting dental clinics specifically for esthetic dental procedures**

Do you feel nervous/afraid when the dentist is drilling your tooth?	A little	329	21.9
	A lot	692	46.1
	Moderate	333	22.2
	Not at all	146	9.7
Which dental treatment do you fear the most?	Extraction	508	33.9
	Filing	63	4.2
	RCT	878	58.5
	Scaling	51	3.4
Are you afraid of tooth preparation for crowing or bridging the teeth?	A little	396	26.4
	A lot	221	14.7
	Moderate	438	29.2
	Not at all	445	29.7
Are you afraid of teeth sensitivity during the bleaching process?	A little	467	31.1
	A lot	273	18.2
	Moderate	429	28.6
	Not at all	331	22.1
Are you afraid of the depigmentation of the gingiva procedure?	A little	482	32.1
	A lot	241	16.1
	Moderate	373	24.9
	Not at all	404	26.9
Are you afraid of rotary instrumentation and the sound of it used in the enamel microabrasion process?	A little	437	29.1
	A lot	377	25.1
	Moderate	415	27.7
	Not at all	271	18.1
Are you afraid of gingivectomy procedure using surgical trimming/removing tissue around teeth?	A little	208	13.9
	A lot	833	55.5
	Moderate	371	24.7
	Not at all	88	5.9
Are you afraid of soft tissue graft procedure?	A little	246	16.4
	A lot	711	47.4
	Moderate	428	28.5
	Not at all	115	7.7
Are you afraid of dental implant procedures (i.e., raising the flap, drilling bone, and inserting metal screw)?	A little	172	11.5
	A lot	970	64.7
	Moderate	286	19.1
	Not at all	72	4.8
Are you afraid of taking an impression of your teeth for crown/bridge preparation?	A little	292	19.5
	A lot	177	11.8
	Moderate	269	17.9
	Not at all	762	50.8
Are you afraid of using laser therapy for tooth preparation?	A little	433	28.9
	A lot	186	12.4
	Moderate	367	24.5
	Not at all	514	34.3

**Table 1** presents statements related to general dental procedures and responses of the patients. Regarding the questions, related to nervousness while sitting in the waiting area or on the dental chair turn, the majority of the participants were less anxious (31.5% and 31.9%, respectively). However, for other general dental procedures such as dentists injecting anesthesia and touching a sore tooth, the higher frequency of the participants seemed to highly anxious (40.9% and 37.4%, respectively). Even, the majority of the patients were highly anxious due to prolonged sitting time (34.1%). On the contrary, 59.1% were not at all anxious for x-ray procedures. Only 6% were highly worried about going through the x-ray process.

**Table 2** shows patients' responses concerning specific esthetic dental procedures such as tooth drilling or preparation, tooth bleaching or soft tissue graft procedure, *etc.* On inquiring about drilling the tooth, 46.1% were highly nervous, and 58.5% of patients were fearful of root canal treatment (RCT) procedure. Surprisingly, the majority of the participating patients were either moderately or "not at all" nervous for tooth preparation procedure. However, bleaching and gingival depigmentation procedures were less worrisome for the patients as the majority of the participants were less nervous (31.1% and 32.1%, respectively). For microabrasion procedures, a kind of mixed reaction was received from the participants. However, gingivectomy and implants procedures seemed to be a major concern among the patients (55.5% and 64.7%, respectively). Whereas, soft tissue graft procedures also a concern and source of fear among the patients to some extent (47.4%). On the contrary, the impression of teeth and laser therapy procedures do not cause any anxiety to most of the participating patients (50.8% and 34.3%, respectively).

## 4. Discussion

This study was employed to assess the anxiety/fear among patients visiting dental clinics for esthetic/restorative procedures. The null hypothesis is partially rejected: The level of anxiety/fear seems to be higher among females compared to their counterparts. However, age and educational levels found to be a statistically insignificant factor concerning anxiety/fear.

Usually, the clinicians consider esthetic/restorative procedures as unchallenging and easy. However, Anxiety/fear feelings among patients sitting in the waiting room or on a dental chair might be profound, and these feelings might have a great impact on the patient.

The total sample size of this study was 1500 out of which 993 (66.3%) were females. The higher count of female participants in the study could be due to their high concern about aesthetics. Moreover, a good number of patients were aged 20-30 years, suggesting more aesthetics concern among this age group. The bigger sample size was intended to validate the findings. The positive thing about the targeted population was their education (with graduate/diploma degree, 75.1%) and their previous dental treatment experience (97.2%). This might suggest that well-educated patients with their previous dental treatment experiences judge anxiety/fear more appropriately.

The findings of this survey suggest that a good number of patients, irrespective of their gender were anxious while sitting in the waiting area or on a dental chair. While patients are also afraid of tapping on a sore tooth. Even, if the length of the treatment prolongs, a greater number of patients become highly anxious/fearful. These attributes seem normal and natural. The dentists need to control these measures to lessen the patient's anxiety. On the contrary, injecting anesthesia plays a major role among patients in increasing their anxiety/fear. This seems natural as the idea of needle penetrating the body is terrifying, also pain attributed to injection [12,13]. The current results observed that the ratio of female anxiety is more than that of males, irrespective of age. This ratio was also found to be statistically significant ( $P < 0.05$ ). These findings are in line with the previous studies [6,14,15,16].

We observed that esthetic/restorative dental procedures were the reason for more anxiety/fear among patients compared to general dental procedures. On inquiring drilling, the tooth, 46.1% of patients were highly anxious. While 58.5% of patients were highly anxious if RCT is carried out. However, for tooth preparation, bleaching, and gingival depigmentation procedures, a smaller number of patients seemed highly anxious. This might be because these procedures are not painful and hence patients are less anxious. However, for microabrasion, gingivectomy, and soft tissue graft procedures, a great number of patients were highly anxious/fearful. This strongly suggests that procedures that require an incision of soft tissues create fear and anxiety, or those procedures that require equipment that make noise may also be a source of anxiety and fear [17]. We observed that patients were highly anxious/ fearful of implant procedures. This indicates that those procedures that require surgeries and at the same time are time-consuming, become a source of high anxiety among patients.

The findings of this survey strongly suggest that esthetic/restorative procedures are also highly fearful to most of the patients. In previous studies, dental anxiety/fear has been frequently reported to vary with gender, age, and education [6,8,18,19]. However, the study results showed no statistically significant difference in anxiety/fear levels between the age and education groups ( $P > 0.05$ ).

Fear and anxiety are common among patients worldwide [20]. This study envisaged targeting specifically the patients visiting dental clinics for esthetic/restorative dental procedures. The study would help us to improve the knowledge of the dentists practicing esthetic/restorative dentistry and how dental practitioners could cope with the anxiety/fear of the patients seeking procedures. Additionally, training of supporting staff is vital to handle anxious patients.

## 5. Conclusions

Within the limitation of this study, we may conclude that anxiety/fear is not associated with age and education. However, females are more prone to anxiety/fear compared to males. Furthermore, esthetic/restorative procedures could also be a source of anxiety/fear among patients compared to orthodontic or surgical procedures.

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