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Fear and Anxiety in Patients Seeking Dental Care in the Makkah Region of Saudi Arabia

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ABSTRACT

Introduction: Anxiety toward dental procedures is a challenge to manage and causes patients to avoid dental treatment.

Aim: to identify factors influencing dental fear and anxiety (DFA) and investigate factors reducing DFA among Saudi adult patients in the Makkah region of Saudi Arabia.

Methods: Electronic surveys were sent to patients aged 18 years and older. The questionnaire was composed of five sections related to patients' demographics, fear levels of different dental procedures, factors that may reduce fear and a DASS-21 scale to estimate the DFA score. A chi-square test was performed to compare DFA levels of patients in terms of age, sex, and education level.

Results: Of 631 respondents, 77.3% were females (n=143) and 22.7% were males (n=143). The mean age of the participants was 33 years (SD ± 13.78). The participants reported tooth extraction to be the most fearful procedure (53.1%, n=335), and tooth drilling found the least fearful procedure (37.4%). Participants with a university degree (69.6%) demonstrated high DFA in terms of depression, anxiety and stress (p-value <0.07, <0.06, <0.01) compared to participants with lower educational levels. Anxiety was significantly associated with participants younger than age 40 (p-value <0.05). The participants agreed that a good reputation and attitude of the dentist, as well as good ambience and hygiene of the clinic, helped reduce DFA.

Conclusion: DFA was more noticeable in young age groups and highly educated individuals. It is recommended to take a thorough mental health history for patients because mental health is correlated with DFA. Moreover, further studies should focus on the psychological aspects of dental treatment.

Key words: Dental, Anxiety, DASS-21, Fear, Patients

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INTRODUCTION

Dental fear and anxiety (DFA) is a general term that refers to all forms of fear and anxiety associated with dental practice [1,2]. Dental fear is a multifactorial problem rising from physiological, behavioral, and emotional responses to one or more intimidating stimuli in dental practice, such as drilling of teeth or the notice of injection. Intense fear is defined as dental phobia [3,4]. Dental anxiety (DA) occurs when a patient experiences tension regarding a specific dental practice and thereby avoids dental care [5,6]. This avoidance makes dental problems worse and increases the need for emergency visits. DA is severe problematic affecting people of altered age, genders and backgrounds [5,6]. Previous data reveal that 15% of the adult population are significantly affected by dental anxiety [1]. In Saudi Arabia, a study conducted on adults between 18 and 45 years old showed a prevalence of dental anxiety (70.5%) [7]. Other studies have shown that women probably experience more dental fear, specifically of dental pain, than men [8].

Cohen et al. reported that dental anxiety affects a person's life in various ways, such as constrained smiling, decreasing self-esteem, and functional restriction due to pain [9]. There is a significant relationship between DFA and avoidance of dental treatment [10].

Knowledge of the etiology of DFA can enable clinicians to improve oral health services for patients [11]; accordingly, several dental anxiety management strategies, including both pharmacological agents and combined methods, such as behavioral stimulation, have been used to reduce dental fear [12].

A review of the published dental literature revealed a lack of studies on dental fear among Saudi adults. Previous studies on dental fear in Saudi Arabia have mostly focused on a specific group of the population, for example, children or adolescents.

The aim of this study was to identify factors influencing dental fear and anxiety (DFA), as well as factors that help reduce such feelings, among Saudi adult patients in the Makkah region of Saudi Arabia.

MATERIAL AND METHODS

Ethical approval was taken from the ethical research committee at Umm Al-Qura University, Faculty of Dentistry, Makkah, Saudi Arabia (IRB number HAPO-02-K-012-2020-11-498). In this descriptive cross-sectional study, a self-administered electronic questionnaire was used to collect data using from patients aged 18 and older seeking dental treatment at different public and private dental clinics in Makkah. It took around five minutes to the whole questionnaire. Informed consent was acquired from all applicants who voluntarily responded to the questionnaire. Data were amassed between November 2020 and January 2021. This study aimed to collect data from 1000 respondents using a precision level of 5% and a confidence interval of 95%. The self-administered validated questionnaire was provided in Arabic and English and adapted from a previous study [13].

For validity and reliability purposes, a pilot study with 10 respondents was carried out.

The questionnaire was composed of 5 sections. The first section was related to the patient's demographic information, such as age, gender, profession, educational level, income, and previous dental treatment. The second section was related to the level of fear the patient experienced regarding general dental procedures, such as anesthetic injection, tapping on sore teeth, or taking diagnostic X-rays. The third section was designed to elicit responses to the level of fear patients experienced regarding specific dental procedures, such as tooth drilling, tooth extraction, tooth preparation and impression, root canal treatment, sensitivity after bleaching, gingivectomy and implant insertion. The fourth section was related to factors that may help reduce dental fear, such as the reputation and appearance of the dentist, explanation of the dental procedure, appropriate attitude of dental personnel, the ambience and hygiene of the clinic and limiting the wait time. Categorical response options were provided for most questions (not at all, a little, moderate, a lot).

The last section was concerned with measuring anxiety and fear in patients using the Depression, anxiety and stress scale (DASS-21) [13]. Five Likert-scale response options were provided in this section (ranging from 0 =did not apply to me at all to 3=Highly applicable or applicable most of the time).

Descriptive statistics were used to analyze the demographics, responses about feelings regarding different dental procedures, and the DASS-21 scale to probe the levels of anxiety of the respondents. A chi-square test was accomplished to compare the levels of anxiety among the patients with age, gender, and level of education. Statistical analysis was done by the Statistical Package for the Social Sciences (Version 16, SPSS Inc., Chicago, IL, USA). A P value of <0.05 was reflected statistically significant.

Table 1: Participants' demographic information.

Demographic Characteristics		N	%
Gender	Male	143	22.7
	Female	488	77.3
Education level	High school	166	26.3
	Diploma	26	4.1
	Bachelor	390	61.8
	PhD or master	49	7.8
Occupation	Non employed	399	63.2
	Governmental	140	22.2
	Private	92	14.6
Patient's income	Less than 5000 SR	315	49.9
	5000 -10000 SR	134	21.2
	11000 - 20000 SR	150	23.8
	More than 20000	32	5.1
Previous dental treatment	Yes	609	96.5
	No	22	3.5

Table 2: Level of fear among the patients visiting dental clinics for general dental procedures.

Statement	Response	n	%
Do you feel nervous\afraid while sitting in the waiting area for your turn?	Not at all	233	36.9
	A little	228	36.1
	Moderate	87	13.8
	A lot	83	13.2
Do you feel nervous\afraid when sitting on a dental chair and seeing different instruments?	Not at all	157	24.9
	A little	189	30
	Moderate	137	21.7
	A lot	148	23.5
Do you feel nervous\afraid of a dentist tapping\pushing on a sore tooth?	Not at all	101	16
	A little	157	24.9
	Moderate	154	24.4
	A lot	218	34.6
Are you afraid of anesthetic injection?	Not at all	96	15.2
	A little	155	24.6
	Moderate	124	19.7
	A lot	256	40.6
Do you feel nervous\afraid if the length of dental sitting is long?	Not at all	221	35
	A little	156	24.7
	Moderate	119	18.9
	A lot	135	21.4
Are you afraid of X-rays if taken for tooth/teeth diagnosis?	Not at all	416	65.9
	A little	119	18.9
	Moderate	60	9.5
	A lot	36	5.7

Table 3: Level of fear among the patients visiting dental clinics for specific dental procedures.

Statement	Response	n	%
Do you feel nervous/afraid when the dentist is drilling your tooth?	Not at all	104	16.5
	A little	158	25
	Moderate	133	21.1
	A lot	236	37.4
Are you afraid of tooth preparation for crowing or bridging the teeth?	Not at all	234	37.1
	A little	139	22
	Moderate	106	16.8
	A lot	152	24.1
Are you afraid of teeth sensitivity during the bleaching process?	Not at all	267	42.3
	A little	135	21.4
	Moderate	132	20.9
	A lot	97	15.4
Are you afraid of tooth extraction procedure?	Not at all	84	13.3
	A little	100	15.8
	Moderate	112	17.7
	A lot	335	53.1
Are you afraid of a gingivectomy procedure using surgical trimming/removing tissue around teeth?	Not at all	248	39.3
	A little	63	10
	Moderate	68	10.8
	A lot	252	39.9
Are you afraid of root canal filling procedure?	Not at all	111	17.6
	A little	113	17.9
	Moderate	123	19.5
	A lot	284	45
Are you afraid of dental implant procedures? (i.e., raising the flap, drilling bone, and inserting a metal screw)?	Not at all	266	42.2
	A little	62	9.8
	Moderate	65	10.3
	A lot	238	37.7
Are you afraid of taking an impression of your teeth for crown/bridge preparation?	Not at all	377	59.7
	A little	125	19.8
	Moderate	57	9
	A lot	72	11.4

Are you afraid of using laser therapy for tooth preparation?	Not at all	371	58.8
	A little	120	19
	Moderate	93	14.7
	A lot	47	7.4

Table 4: Factors that help to reduce dental fear.

Statement	Response	n	%
Explanation of the dental procedure by the dentist	Not at all	38	6
	A little	143	22.7
	Moderate	170	26.9
	A lot	280	44.4
Proper attitude of dental personnel	Not at all	17	2.7
	A little	103	16.3
	Moderate	145	23
	A lot	366	58
The good appearance of the dentist	Not at all	61	9.7
	A little	110	17.4
	Moderate	162	25.7
	A lot	298	47.2
The good reputation of the dentist	Not at all	17	2.7
	A little	59	9.4
	Moderate	104	16.5
	A lot	451	71.5
The gender of the dentist	Not at all	236	37.4
	A little	111	17.6
	Moderate	137	21.7
	A lot	147	23.3
The elegance and cleanness of the clinic	Not at all	24	3.8
	A little	72	11.4
	Moderate	117	18.5
	A lot	418	66.2
The good behavior of receptionist	Not at all	147	23.3
	A little	127	20.1
	Moderate	169	26.8
	A lot	188	29.8
The reduced waiting time	Not at all	102	16.2
	A little	148	23.5
	Moderate	141	22.4
	A lot	238	37.8

Table 5: Presented percentages of depression, anxiety, and stress and DASS scores.

Levels	Depression N (%)	Anxiety N (%)	Stress N (%)
Normal	278 (44.1)	184 (29.2)	216 (34.2)
Mild	54 (8.6)	56 (8.9)	40 (6.3)
Moderate	90 (14.3)	48 (7.6)	89 (14.1)
Severe	40 (6.3)	50 (7.9)	92 (14.6)
Extremely severe	169 (26.8)	293 (46.4)	194 (30.1)

RESULTS

Demographic characteristics

A total of 631 respondents completed the questionnaire with a response rate of 63%; the demographic details of the respondents are shown in Table 1. We found that 33 years was the mean age of the respondents (SD=13.78). Most of the respondents were females (77.3%). The majority of the respondents had reached a bachelor's degree (62%), followed by a high school certificate (26%). Regarding past dental experience, 97% of the respondents had had previous dental treatment.

Level of fear of respondents regarding different dental procedures

The participants' levels of fear when visiting dental clinics for general dental procedures are presented in Table 2. Most patients were comfortable while sitting in the waiting area or the dental chair, even for a long time, seeing different instruments, and taking X-rays, whereas 40.6% were highly anxious during local anesthesia injection. Patients' responses to certain dental procedures, for example, drilling of a tooth or preparation, tooth bleaching, or procedures of soft tissue, are shown in Table 3. The respondents found tooth

extraction to be the most fearful procedure (53.1%), followed by root canal treatment (45.0%) and tooth drilling (37.4%). Surprisingly, most of the respondents were either moderately or "not at all" nervous about the tooth preparation procedure, tooth sensitivity after bleaching, and the dental implant procedure. In addition, the lowest fear level was reported for taking teeth impressions and laser therapy procedures.

Factors associated with DFA reduction

Factors that may be associated with reducing dental fear among patients are presented in Table 4. The analysis results displayed that dental fear was most reduced by the good reputation of the dentist (71.5%), followed by good ambience and hygiene of the clinic (66.2%), appropriate attitude of dental personnel (58%), good appearance of the doctor (47.2%), and explanation of the dental treatment by the dentist (44.4%). The gender of the doctor, good attitude of the receptionist, and a reduced wait time did not reduce dental fear.

DASS-21 scale

Depression, anxiety, and stress were shown by 56%, 70.8%, and 65.1% of the patients, respectively. The mean total results for the patients were 8.66 (SD ± 8.39) for depression, 10.51 (SD ± 9.78) for anxiety and 12.97 (SD ± 9.95) for stress, as displayed in Table 5. Females showed significantly higher grades of depression (p-value<0.030) and anxiety (p-value<0.001) than males, whereas there was no significant difference between the genders in the stress scores (p-value<0.524). Our results showed that respondents with a university degree had significantly higher depression, anxiety, and stress scores with a p-value <0.05 compared to those with a high school education level or lower.

DISCUSSION

Our study focused on investigating dental fear and anxiety (DFA) among Saudi adults in the Makkah region.

The results found a higher level of DFA in females than males, which agrees with the finding of previous studies [14-16]. This difference could be explained by the ability of females to express their feelings about dental visits, unlike males, who may avoid dental treatment to prevent these feelings from arising. However, this difference does not always hold true, as in the case of Kanegane et al. who found no relationship between gender and anxiety [17].

Our findings also showed that highly educated patients had higher DFA scores than those with lower education levels. This result may have been acquired because patients with a high level of education possess the skills to search online about the expected results of treatment and smile design or may be related to the characteristics of our sample. However, it has been shown in other studies that dental anxiety is not affected by the education level of the patient [18,19].

The mean DFA was higher for patients below 40 years old than among older patients, and this result was in agreement with those of many studies in which a self-administered questionnaire was used [19,20]. The inability of young people to cope and rationalize difficult situations may result in stress and fear.

DFA has several causes, and thus, is considered to be complex and multifactorial [21]. DFA appears to vary according to the type of treatment: higher DFA levels were found for injecting local anesthesia (40.6%), surgical procedures (53.1%) and endodontic procedures (45.0%) than restorative treatments, and this result was in dealing with those of other studies [19,22-24].

An analysis of the factors associated with DFA reduction showed that the good reputation of the dentist had the strongest influence on patients' feelings. Patients may feel assured and confident when they trust the dentist's skills and reputation, which can directly reduce DFA. By comparison, limiting the wait time before the appointment was not a significant factor in reducing dental anxiety and fear for our participants. This result is not matched with that of Gaffar et al. who found that dental anxiety increased with prolonged time in the waiting area [25]. Prolonged waiting is thought to provide a patient with more time to think about possible outcomes and ruminate on the worst-case scenario [25].

Various scales have been created to assess DFA. However, a gold standard has yet to be recognized, given that each of these scales has limitations. The DASS-21 is considered to be a simple and easy scoring test that can be used to help assess psychological status, including depression, anxiety, and stress.

The DFA levels observed in our sample (70%) were higher than those previously reported (31.9%) for the city of Jeddah by Al-Khalifa et al [26]. The significant reduction in the DFA levels for Jeddah compared to the level observed in this study may be explained by the large sample size and different scales used in our study.

Regarding technological advances in modern dentistry, anxiety about the dental procedures and fear of associated pain continues to influence a significant proportion of people universally of different ages and social levels, causing avoidance of dental treatment, infrequent attendance and/or reduced cooperation with the dentist [14].

Dental practitioners need to evaluate their patients preoperatively for DFA and use appropriate management techniques to provide higher-quality oral health care.

CONCLUSION

The present findings show that a considerable number of patients attending dental clinics exhibited DFA. Anxiety was more intense among female, young, and highly educated individuals. Tooth extraction was the most fearful procedure, whereas respondents experienced the lowest fear level during impression taking.

LIMITATIONS AND RECOMMENDATIONS

Self-reported assessment measures can provide valuable

information to dentists for evaluating and reducing patients' anxiety levels. However, the results of a self-administered questionnaire may over- or underestimate the actual DFA levels in a population. Therefore, future research studies with different designs, larger sample sizes, and different populations should be conducted to estimate the prevalence of DFA, and additional provocation and reduction factors for DFA should be investigated. In addition, the findings of this work may not be generalizable to male patients because the majority of our respondents were females.

Several recommendations can be made to reduce patient anxiety, such as good dentist-patient communication to enable patients to express anxiety, taking a thorough dental and mental history before starting treatment, and the use of relaxation techniques to help reduce DFA.

DATA AVAILABILITY

Data will be available on request.

CONFLICT OF INTEREST

The authors declare that there are no disagreements of financial, concern or others.

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