

Dental Anxiety and its Associated Factors Among Patients Visiting Outpatient Department of Different Tertiary Care Dental Hospitals of Karachi

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Abstract

Objective: To assess dental anxiety and its associated factors among patients visiting OPD of different tertiary care dental hospitals of Karachi.

Methods: A cross-sectional study was conducted from April 2018 to November 2018 in two public and two private dental colleges of Karachi namely Karachi Medical and Dental College, Dr. Ishrat-ul-Ibal Khan Institute of Oral Health Sciences, Hamdard Dental College and Baqai Dental College. Being aged ≥ 18 years of either gender were the inclusion criteria whereas refusal for a written informed consent was the exclusion criterion. After checking eligibility and taking written informed consent, a total of 247 participants were interviewed by the principal investigator using a questionnaire which included Corah's Dental Anxiety Scale and Dental Concerns Assessment. Data were entered and analyzed on SPSS version 20. Inferential analysis was performed using chi-square test and Mann-Whitney U test after checking normality. The significance level was kept at 0.05.

Results: The study findings revealed that 2.4% of the patients interviewed were severely anxious, 8.1% were highly anxious, 37.2% were moderately anxious while 54.3% were not at all anxious. Moreover, patients with younger age and monthly household income between 16000 and 75000 rupees had significantly higher mean dental anxiety scores.

Conclusion: The study findings revealed that up to 45.7% patients were anxious up to some degree. There is a need for better understanding of factors potentially increasing anxiety in dental patients in order to avoid them as negative experiences in past are known to trigger dental anxiety in future.

Key words: Dental Anxiety, outpatients, tertiary healthcare, baqai institute of health sciences.

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Introduction

Anxiety is natural human response, an indeterminate, displeasing feeling followed by the foreboding that something unpleasant is going to happen¹. It is described as an emotional state that precedes the encounter with any frightening stimuli that at many times is not even identifiable². Dental anxiety specifically is defined as a patient's re-

sponse to stress arising in a dental situation¹. Emergence of terms such as dentophobia, odontophobia and dental fear is simply the fear of going to dentist or dental clinic. Terms dental anxiety and dental fear can be use synonymously but there usage is different; dental anxiety refers to the state of anxiety arising in response to dental care whereas dental fear refers to the actual emotional response to the perceived threat or danger associated with dental care. Fear and anxiety occur differently for different individuals and both can involve physiological, cognitive, emotional and behavioural components³.

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Dental anxiety and dental phobia typically starts during childhood and resultant avoidance of dental care leads to oral health problems⁴. Literature identifies younger age and greater number of siblings to be associated with higher dental anxiety in children⁵. Later in life, one of the most important factor affecting people's decision to visit their dentists regularly is dental anxiety and is therefore a significant obstacle in seeking dental care¹. Dental anxiety response is often related to past unpleasant experiences⁶⁻⁸.

Fear or anxiety can result in gagging or choking of any instrument or material³. Dentally anxious patients report sense of powerlessness while placed in a reclined position. Usually the procedures performed by the dentist inside the mouth of a patient cannot be viewed by that patient and this can be perceived as an absence of control³. A dental practitioner should be aware of uneasy situations that patients suffer while in a reclined position with little or no control over the situation³. It is also observed that fear of dental drilling and filling is among the key hurdles when it comes to seek dental treatment³.

It is observed that the patients who have dental anxiety can subsequently have a substantial number of dental problems due to avoiding dental treatment at an earlier stage⁹, and a lower quality of life⁴, while the patients who visit dentists regularly are familiar with the atmosphere at the health facility and therefore are less anxious and do not avoid necessary dental care. Before planning any treatment assessing the presence and extent of anxiety of a dental patient is foremost step as the success of treatment depends upon it. It is therefore a prime duty of a dentist to adequately manage dentally anxious patients and reassure them about their well-being to minimize their anxiety.

When talking about alleviating dental anxiety, taking a comprehensive pertinent history, increasing awareness and gradual revelation of the treatment modalities is of utmost importance. Dental anxiety patients respond very positively to reassurance both at the start and end of treatment as poor communi-

cation has been shown to negatively influence both dental anxiety and the dentist-patient relationship¹⁰. It is the duty of a dental practitioner to calm the patient and plan the treatment as to start from the minor procedures as small filling or apply pits and fissure sealants that even don't require drilling. Any detailed treatment plan shouldn't be rushed into and they should be continuously asked for their feedback. Taking consent at every step is also of prime importance to ease the patient's anxiety³.

Although dental anxiety plays a very significant role when it comes to seek attention for bad oral health, the available recent local literature is limited at best. This study was therefore carried out with the objective of assessing dental anxiety and its associated factors among patients visiting OPD of different tertiary care dental hospitals of Karachi.

Subjects and Methods

A cross-sectional survey was conducted from April 2018 to November 2018 among patients visiting dental OPD of two public and two private tertiary care dental hospitals of Karachi. Taking the percentage frequency of anxiety among dental patients as 50% for a liberal estimate, with 95% confidence level and 7% precision, the sample size minimally required was 196 patients. Out of a list each of public and private tertiary care dental hospitals of Karachi, two hospitals were randomly chosen namely Karachi Medical and Dental College, Dr. Ishrat-ul-Ibal Khan Institute of Oral Health Sciences, Hamdard Dental College and Baqai Dental College. From each of these four hospitals, patients were approached by employing systematic random sampling technique and after taking a random start, every 3rd patient fulfilling the inclusion criterion was included. Being aged 18 years of either gender were the inclusion criteria whereas refusal for a written informed consent was the exclusion criterion.

After ascertaining their eligibility, the participants were interviewed by the principal investigator using a structured questionnaire that had two sections; the first section contained question regarding demographic characteristics while the second sec-

tion consisted of questions of Corah dental anxiety index which consists of four items related to unlike situations that can be experienced during a dental treatment. Various levels of anxiousness were assessed with five possible responses for each question. Scores were given for each question from 1 to 5 according to the increasing level of anxiety. The cut offs for defining different levels of anxiety are as follows: 4 - 8: not anxious, 9 - 12: moderately anxious, 13 - 14: highly anxious, 15 - 20: severely anxious.

Statistical package for social sciences (SPSS) version 20 was used for data entry and analysis. Inferential analysis was performed using chi-square test and Mann-Whitney U test. The significance level was kept at 0.05. The duration of study was 8 months.

Results

Data of total 247 participants were analyzed with a response rate of 100%. The study results revealed that the mean age of the dental patients was 36.48 ± 12.10 years, 56.7% of them were females, 25.9% of them were graduate or had higher qualification, 57.5% of them had monthly income between 16,000 - 75,000 Rs whereas 66.4% of them were currently married.

Analysis of Corah Dental Anxiety Scale revealed that 37.7% of the participants responded that they would be little uneasy about it if they had to go to a dentist tomorrow for a check-up whereas 33% of them said that they would be tense or anxious while they are waiting in dentist's office for their turn in a chair. 16% of them said that they would be afraid while the dentist gets the drill ready to begin working on their teeth whereas 21% of them responded that they would be tense or anxious while waiting when the dentist is getting out the instruments to scrape their teeth around the gums (Table 1).

Assessment of level of concern/anxiety among dental patients revealed that 30% of them were

moderately or highly anxious by the sound or vibration of the drill, 50% of them were moderately or highly anxious about being given the injection, 34.8% were moderately to highly anxious about root canal treatment, 68% were moderately to highly anxious about extraction procedure, 46.6% were moderately to highly anxious about needing a lot of dental treatment, 78.5% were moderately to highly anxious about the cost of the dental treatment whereas 72.4% were moderately to highly anxious by the number of appointments and the time required for the procedure.

The analysis of overall dental anxiety level showed that 2.4% of the patients had severe anxiety, 8.1% had high anxiety, and 37.2% had moderate anxiety while 54.3% patients had no anxiety. Moreover, assessment of association between various demographic characteristics and dental anxiety level revealed that none of the demographic variables had significant association with dental anxiety level (Table 2).

Comparison of mean dental anxiety score across categories of demographic characteristics revealed that only age and monthly household income had significantly different mean dental anxiety score ($p=0.013$ and $p=0.027$ respectively) where those who were up to 40 years of age had higher mean dental anxiety score than those who were above 40 years old (8.8 ± 2.88 vs. 7.92 ± 2.84). While those who had monthly household income between 16,000 - 75,000 had higher mean dental anxiety score than those who had monthly household income either up to 15,000 or 76,000 and above (8.87 ± 2.99 vs. 8.00 ± 2.68) (Table 3).

Table 1. Corah Dental Anxiety Scale

| Variables (n=247) | (Frequency)% |
|---|--------------|
| If you had to go to dentist tomorrow for a check-up, how would you feel about it? | |
| I would look forward to it as a reasonably enjoyable experience | (3)1.2 |
| I wouldn't care one way or the other | (112)45.3 |
| I would be uneasy about it | (93)37.7 |
| I would be afraid that it would be unpleasant and painful | (36)14.6 |
| I would be very frightened of what the dentist would do | (3)1.2 |
| When you are waiting in the dentist's office for your turn in the chair, how do you feel? | |
| Relaxed | (94)38.1 |
| A little uneasy | (90)36.4 |
| Tense | (46)18.6 |
| Anxious | (14)14.7 |
| So anxious that I sometimes breakout in a sweat or almost feel physically sick | (3)1.2 |
| When you are in the dentist's chair waiting while the dentist gets the drill ready to begin working on your teeth, how do you feel? | |
| Relaxed | (89)36.0 |
| A little uneasy | (96)38.9 |
| Tense | (43)17.4 |
| Anxious | (15)16.1 |
| So anxious that I sometimes breakout in a sweat or almost feel physically sick | (4)1.6 |
| Imagine you are in a dentist's chair to have your teeth cleaned. While you are waiting and the dentist is getting out the instruments which will be used to scrape teeth around the gums, how do you feel? | |
| Relaxed | (107)43.3 |
| A little uneasy | (85)34.4 |
| Tense | (39)15.8 |
| Anxious | (13)5.3 |
| So anxious that I sometimes breakout in a sweat or almost feel physically sick | (3)1.2 |

Discussion

A total of 15.9% of the patients felt anxious or highly anxious while in the office of the dentist awaiting their turn. Contrary to the study findings, Bhola R & Malhotra R in 2014 reported that 54.1% of the subjects interviewed had highest level of anxiety¹¹. Moreover, 17.7% of patients interviewed were either anxious or very anxious when the drill was prepared by the dentist to start working on their teeth. Unlike the study findings, Bhola R & Malhotra R in 2014 reported that 78.3% subjects were highly anxious when their teeth were drilled¹¹.

Moreover, 15.8% of the patients were anxious or highly anxious when they had to go to dentist the next day for a check-up, unlike Bhola R & Malhotra R in 2014 who reported that 45.8% of the subjects had the highest level of anxiety they had to go to dentist the next day for a check-up¹¹. Similarly, unlike the study findings where 6.8% of the patients were anxious or highly anxious when they were waiting in the chair to have their teeth cleaned and the dentist was making preparations to scrape their teeth, Bhola R & Malhotra R in 2014 reported that 49.1% of the subjects had the highest level of anxiety¹¹. These differences in findings can be attributed to differences in study populations as the later study in both cases was conducted on college students.

The study results showed that 15.8% of the study patients were afraid or very frightened if they had to see a dentist the next day for a check-up. Similar findings were reported by Bano M et al. in 2017 where 12.3% of the patients were afraid or very frightened if they had a dentist appointment the next day¹². Moreover, 15.9% of the patients were anxious or so anxious when they were awaiting their turn in the dentist's office. Likewise, Bano M et al., in 2017 reported that 12.7% of the patients interviewed were anxious or so anxious while they were waiting their turn in the dentist office¹². Furthermore, 17.7% of the patients were anxious or very anxiously waiting in the dentist's chair while the dentist was preparing drill to work on their teeth. Similarly, Bano M et al. in 2017 reported that 9.9% of the patients were anxious or extremely anxious about drilling their teeth¹². Also, 6.5% of the patients were anxious or so anxious while they were waiting and the dentist was making preparations to scrape their teeth. Similarly, Bano M et al. in 2017 reported that 23.2% of the patients were either anxious or very anxious if their teeth get scaled or polished¹².

The study results revealed that only 2.4% of the patients had severe anxiety. Mohammed R B et al. in 2014 though reported 22.6% of the dental patients to have severe anxiety¹. Such a difference in

Table 2. Associations between Demographic Characteristics and Dental Anxiety Level

| Variables (n=247) | Dental Anxiety Level | | | P |
|-----------------------------------|----------------------------------|-------------------------------------|-----------------------------|-------|
| | Moderate (n=87) Frequency (%) | High/Severe (n=26) Frequency (%) | No (n=134) Frequency (%) | |
| Age | | | | |
| Up to 40 years | (60)37.0 | (21)13.0 | (81)50.0 | 0.097 |
| 41 and above | (27)31.8 | (5)5.9 | (53)62.4 | |
| Gender | | | | |
| Male | (39)36.4 | (6)5.6 | (62)57.9 | 0.087 |
| Female | (48)34.3 | (20)14.3 | (72)51.4 | |
| Qualification | | | | |
| Illiterate/Read and write/Primary | (32)31.7 | (12)11.9 | (57)56.4 | 0.59 |
| Secondary/Intermediate/Graduate | (55)37.7 | (14)9.6 | (77)52.6 | |
| Monthly Household Income | | | | |
| up to 15000/76,000 and above | (34)32.4 | (8)7.6 | (63)60.0 | 0.223 |
| 16,000-75,000 | (53)37.3 | (18)12.7 | (71)50.0 | |
| Marital Status | | | | |
| Never Married/Divorced | (33)39.8 | (8)9.6 | (42)50.6 | 0.568 |
| Currently Married | (54)32.9 | (18)11.0 | (92)56.1 | |

findings can be attributed to unique socio-demographic background of each of the two study populations as both studies were conducted in different countries.

Our study finding revealed that mean dental anxiety score of females were 8.71 and for males 8.21. Similarly, Mohammed R B et al. in 2014 reported the mean dental anxiety scores to be 10.88 for females and 9.96 for males¹. Interestingly though, Farooq I & Ali Sin 2015 reported that mean dental anxiety score of female university students was 13.1 while that of male students was 11.91³. Possibly with positive treatment experiences the dental anxiety level in patients tend to decrease over time.

In our study, 13% of the patients aged up to 40 years were found to be highly or severely anxious as compared to those who were above 40 years of age where only 5.9% of the patients were highly or severely anxious, a finding supported by the previous literature. Mohammed R B et al. in 2014 reported that age had significant association with dental anxiety levels among dental patients where younger age groups had higher anxiety levels than older age groups¹. Raja GH et al. in 2015 also found dental anxiety to decrease significantly with age¹⁴. Fayad MI et al. in 2017, also reported

younger patients to have higher dental anxiety than older patients⁷. Similarly, Appukuttan D et al., in 2015 found younger patients to have significantly higher anxiety towards dental extraction procedure than older patients¹⁵. Egbor PE & Akpata O in 2014 also reported age to be inversely related with dental anxiety in patients¹⁶. Similarly, Deogade SC & Suresan V in 2016 also found younger patients to be more anxious than older ones¹⁷. Likewise, Appukuttan DP et al. in 2013, reported dental anxiety to decrease with increasing age⁸.

Table 3. Associations between Demographic Characteristics and Mean Dental Anxiety Score

| Variable (n=247) | Dental Anxiety Score Mean \pm S.D | P |
|-----------------------------------|--|-------|
| Age | | |
| up to 40 years | 8.8 \pm 2.88 | 0.013 |
| 41 and above | 7.92 \pm 2.84 | |
| Gender | | |
| Male | 8.21 \pm 2.61 | 0.286 |
| Female | 8.71 \pm 3.08 | |
| Qualification | | |
| Illiterate/Read and write/Primary | 8.28 \pm 2.90 | 0.277 |
| Secondary/Intermediate/Graduate | 8.65 \pm 2.88 | |
| Monthly Household Income | | |
| up to 15000/76,000 and above | 8.00 \pm 2.68 | 0.027 |
| 16,000-75,000 | 8.87 \pm 2.99 | |
| Marital Status | | |
| Never Married/Divorced | 8.63 \pm 2.90 | 0.589 |

Gender was not found to have a significant association with dental anxiety level in this study, albeit only marginally. Fatima Z et al. in 2018, though found females to be more anxious than males¹⁸. Fotedar S et al. in 2016, also found females patients to be more anxious than male patients¹⁹. Likewise, Yüzügüllü B et al. in 2014, reported that female gender was a significant predictor of dental anxiety²⁰. Similarly, Fayad MI et al. in 2017, reported females to have higher dental anxiety than males⁷. Likewise, Appukuttan D et al. in 2015, found females to have significantly higher anxiety towards dental extraction procedure than males¹⁵. Egbor PE & Akpata O in 2014 also reported females to have significantly higher dental anxiety than males¹⁶. Similarly, Deogade SC & Suresan V in 2016 also found female patients to be more anxious than males¹⁷.

Dental anxiety remains an obstacle in spite of the vast improvement in dentistry; and this raises an alarm with respect to communication factors in the patient dentist relationship²¹. By understanding its causes, hurdles in attaining high standards of oral health can be effectively dealt with²².

There is a need for better understanding of factors increasing dental anxiety in order to avoid them as negative experiences in past are known to trigger dental anxiety in future. Furthermore, there is also a need for practitioners to better understand how to counsel and reassure their patients while performing any dental procedure.

It is acknowledged that the study results may have suffered from limitation in recall, an inherent weakness of a cross-sectional study design. Also, lack of resources prevented the investigators to further increase the sample size taken in this study.

Conclusion

It can be concluded that almost half of the study participants had certain degree of anxiety related to dental treatments or procedures. Moreover, age and monthly household income of patients were found to be significant predictors of dental anxiety.

Conflict of Interests

Authors have no conflict of interests and no grant/funding from any organization.

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