



Research Article

Association of dental anxiety with personality traits among Al Azhar arts students in Thodupuzha, Kerala

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Received : 17-December-2018

Accepted : 16-February-2019

Published : 29-March-2019

DOI

10.25259/JGOH-7-2018

Quick Response Code:



ABSTRACT

Introduction: Dental anxiety remains a barrier to dental care for a considerable proportion of the population. The psychological profile of patients dentally anxious but not highly anxious is quite similar to normal (non-anxious) patients' profile.

Aims and Objectives: The aim of the study is to assess personality traits and prevalence of dental anxiety and to find an association between dental anxiety and personality traits in arts students.

Materials and Methods: A cross-sectional study was conducted among 130 arts students out of which 86 were males and 44 were females. Modified dental anxiety scale was used to measure dental anxiety using a five-point Likert scale. Personality trait was assessed using the short-form revised Eysenck personality questionnaire scale which consisted of 48 questions. Statistical analysis was done using independent *t*-test with statistical significance at 5%.

Results: Overall prevalence of dental anxiety was 56.93% (males 53.38% and females 63.63%). The mean score of dental anxiety for males was 9.6 ± 3.7 and for females 11.3 ± 4.2 , and difference was statistically significant ($P < 0.05$). A total of 30 (23.07%) were classified as extraversion, 24 (18.46%) as neuroticism, 32 (24.61%) as lie scale, and 20 (15.38%) as psychoticism according to the scale used. In the present study, there was no association between dental anxiety and personality trait.

Conclusion: In general, dental anxiety is not gender related, but in the present study, females had higher dental anxiety (63.63%) compared to males (53.38%).

Keywords: Dental anxiety, Personality traits, Prevalence.

INTRODUCTION

Over the last decade, the demand for dental services has increased, mostly due to increased awareness among the public about the consequences of poor dental health. As the demand for dental services increases, there has been a proportional increase in the number of people who experience symptoms ranging from dislike to phobia regarding dental treatment.^[1]

Anxiety is defined as "a state of apprehension resulting from the anticipation of a threatening event or situation."^[2] Dental anxiety is historically deeply rooted in people. Many individuals experience anxiety at the thought of visiting a dentist for routine checkup. In fact, epidemiological surveys indicate that approximately 50–70% of individuals experience feelings of apprehension before and during visits to the dentist.^[3]

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Dental anxiety has been ranked fifth among commonly feared situations. Given its high prevalence, it is not unexpected that patients with dental anxiety avoid dental visits. Only a minority of patients claim to have no anxiety in the dental environment.^[4]

Although such fear and anxiety is no doubt multifactorially determined, an important set of determinants consist of psychologically based factors such as personality traits, satisfaction with life and thought suppression, fear of pain, past traumatic dental experiences particularly in childhood (conditioning experiences), the influence of dentally anxious family members or peers which elicit fear in a person (vicarious learning), and blood-injury fears.^[4,5]

Personality is the characteristic behavior-response pattern that each person develops, both consciously and unconsciously, as his or her style of life. Neuroticism is the only trait that exhibits a significant correlation with dental anxiety. Neuroticism is a relatively stable, enduring aspect of the personality. Individuals who score high on this trait tend to experience more negative effect, such as anxiety, fear, sadness, embarrassment, and guilt.^[1] Investigations of the association between personality and dental anxiety have yielded inconclusive results.

In the literature, there are few studies conducted among arts students, especially regarding dental anxiety, and to the best of the author's knowledge, no studies have been conducted with regard to personality traits. Hence, the present study was conducted with an aim to find an association between dental anxiety and personality traits and with objectives of assessing types of personality traits and levels of dental anxiety.

MATERIALS AND METHODS

A cross-sectional survey was conducted in Al Azhar College of Arts and Science (during September 2018) among 130 students who were chosen randomly to find an association between dental anxiety and personality. The sample size of 130 included 86 males and 44 females. Sample size was calculated based on the formula $n = P(1-P)/D^2$ where P = Expected proportion; ethical approval was obtained from the institutional review board. A validated questionnaire was adapted from the survey used by Sourabha and Puranik^[6] in a previous study with some modification. Data collection was done by distributing questionnaires among the students during the lecture hours with prior permission. The questionnaire included 50 closed questions which were divided into five sections. The first one was a "modified dental anxiety questionnaire," included five questions with five options each, which were given scores ranging from 5 to 1 (the options were not anxious, slightly anxious, fairly anxious, very anxious, and extremely anxious). The other sections were "extraversion" (12 questions), "neuroticism" (12 questions), "lie scale" (10 questions), "psychoticism" (11 questions) with 2 options, yes/no, which were given score 2 and 1, respectively. The questions were incorporated after going through various literature related to that. The questionnaire prepared was then accessed by

carrying out a pilot study among the experienced psychologists, and the necessary corrections were made accordingly. Reliability of the questionnaire was found to be good ($k = 0.83$). The answers were received on the same day of survey and analysed. Prior written consent was obtained from all the participants and also from the school authorities to conduct the study. Two investigators were present on the data collection room for 1 h (max time allotted to answer the questionnaire) to avoid participants discussion and also to provide any clarifications on the questionnaire. Remaining authors were contributed to the designing and analysis part of the study. After one hour, the questionnaires were collected. Incomplete responses were excluded from the study and given neutral value. The professional qualifications of the participants were considered. Statistical analysis was performed using the statistical package for the social science (SPSS) software 20.0; significant level was kept at 5%.

Questionnaire

It was self-administered questionnaires' consisting of two parts:

1. General information regarding demographic data.
2. Modified dental anxiety questionnaires' and revised Eysenck personality questionnaire (EPQ).

Revised EPQ Scale^[6]

The EPQ-R scale consists of 48 questions, 12 questions for each personality traits.

Scoring keys'	
Extraversion (E) :	Yes=3,7,11,15,19,23,32, 36,44,48
	No=27,41
Neuroticism (N) :	Yes=1,5,9,13,17,21,25,30, 34,38,42,46
Lie scale (L) :	Yes=4,16,45
	No=8,12,20,24,29,33,37,40,47
Psychoticism (P) :	Yes= 10,14,22,31,39
	No=2,6,18,26,28,35,43

High E scores indicate extraversion, and individuals who score high tend to be outgoing, impulsive, uninhibited, have many social contacts and often take part in group activities.

High N scores indicate strong emotional lability and overactivity. Persons with high scores tend to be emotionally over responsive and encounter difficulties in calming down. High psychoticism scores display tendencies to developing psychotic disorders while at the same time falling short of actual psychotic conditions. Persons with high P scores are inclined toward being cruel, inhumane, socially indifferent, hostile, aggressive, not considerate of danger, insular, glacial, and intolerant.^[6]

Statistical Analysis

The data were analyzed using SPSS version 6.0. $P < 0.05$ was considered as statistically significant. Statistical analysis was done using independent t -test.

RESULT

S. No	Sex	n (%)
1.	Male	21 (70)
2.	Female	9 (30)

Modified Dental Anxiety Questionnaire

1. How anxious would you feel if “you visit your dentist for treatment tomorrow”?

S. No	Option	n (%)
1.	Not anxious	3 (10)
2.	Slightly anxious	3 (10)
3.	Fairly anxious	4 (13.3)
4.	Very anxious	6 (20)
5.	Extremely anxious	14 (46.6)

2. How anxious would you feel if “if you were sitting in the waiting room”?

S. No	Option	n (%)
1.	Not anxious	4 (13.3)
2.	Slightly anxious	4 (13.3)
3.	Fairly anxious	4 (13.3)
4.	Very anxious	11 (36.6)
5.	Extremely anxious	7 (23.3)

Extraversion

S. No	Question	Yes n (%)	No n (%)
1.	Are you a talkative person?	25 (83.30)	5 (16.6)
2.	Are you rather lively?	16 (53.3)	14 (46.6)
3.	Do you enjoy meeting new people?	0 (0)	30 (100)
4.	Can you usually let yourself go and enjoy yourself at a lively party?	22 (73.3)	8 (26.6)
5.	Do you usually take the initiative in making new friends?	27 (90)	3 (10)
6.	Can you easily get some life into a rather dull party?	9 (30)	21 (70)
7.	Do you tend to keep in the background on social occasions?	17 (56.6)	13 (43.3)
8.	Do you like mixing with people?	24 (80)	6 (20)
9.	Do you like plenty of bustle and excitement around you?	17 (56.6)	13 (43.3)
10.	Are you mostly quiet when you are with other people?	13 (43.3)	17 (56.6)
11.	Do other people think of you as being very lively?	15 (50)	15 (50)
12.	Can you get a party going?	17 (56.6)	13 (43.3)

Neuroticism

S. No	Question	Yes n (%)	No n (%)
1.	Does your mood often go up and down?	22 (73.3)	8 (26.6)
2.	Do you ever feel “just miserable” for no reason?	12 (40)	18 (60)
3.	Are you an irritable person?	11 (36.6)	19 (63.3)
4.	Are your feelings easily hurt?	18 (60)	12 (40)
5.	Do you often feel “fed-up”?	14 (46.6)	16 (53.3)
6.	Would you call yourself a nervous person?	14 (46.6)	16 (53.3)
7.	Are you a worrier?	8 (26.6)	22 (73.3)
8.	Would you call yourself tense or “highly strung”?	14 (46.6)	16 (53.3)
9.	Do you worry too long after an embarrassing experience?	18 (60)	12 (40)
10.	Do you suffer from “nerves”?	13 (43.3)	17 (56.6)
11.	Do you often feel lonely?	9 (30)	21 (70)
12.	Are you often troubled about feelings of guilt?	11 (36.6)	19 (63.3)

3. How anxious would you feel if “about to have a tooth drilled”?

S. No	Option	n (%)
1.	Not anxious	4 (13.3)
2.	Slightly anxious	5 (16.6)
3.	Fairly anxious	9 (30)
4.	Very anxious	6 (20)
5.	Extremely anxious	6 (20)

4. How anxious would you feel if “about to have your teeth scaled and polished”?

S. No	Option	n (%)
1.	Not anxious	0 (0)
2.	Slightly anxious	10 (33.3)
3.	Fairly anxious	4 (13.3)
4.	Very anxious	6 (20)
5.	Extremely anxious	10 (33.3)

5. How anxious would you feel if “about to have a local anesthetic injection”?

S. No	Option	n (%)
1.	Not anxious	6 (20)
2.	Slightly anxious	6 (20)
3.	Fairly anxious	4 (13.3)
4.	Very anxious	8 (26.6)
5.	Extremely anxious	6 (20)

Lie scale

S. No	Question	Yes n (%)	No n (%)
1.	If you say you will do something, do you always keep your promise no matter how inconvenient it might be?	22 (73.3)	8 (26.6)
2.	Were you ever greedy by helping yourself to more than your share of anything?	20 (66.6)	10 (33.3)
3.	Have you every blamed someone for doing something you knew was really your fault?	16 (53.3)	14 (46.6)
4.	Are all your habits good and desirable ones?	12 (40)	18 (60)
5.	Have you ever taken anything (even a pin or button) that belonged to someone else? ^[1]	15 (50)	12 (50)
6.	Have you ever broken or lost something belonging to someone else?	13 (43.3)	17 (56.6)
7.	Have you ever said anything bad or nasty about anyone?	13 (43.3)	17 (56.6)
8.	As a child were you every cheeky to your parents?	22 (73.3)	8 (26.6)
9.	Have you ever cheated at a game?	7 (23.3)	23 (76.6)
10.	Have you ever taken advantage of someone?	17 (56.6)	13 (43.3)

Psychoticism

S. No	Question	Yes n (%)	No n (%)
1.	Do you take much notice of what people think?	14 (46)	16 (54)
2.	Would being in debt worry you?	16 (54)	14 (46)
3.	Would you take drugs which may have strange or dangerous effects?	4 (13.3)	26 (86.6)
4.	Do you prefer to go your own way rather than act by the rules?	15 (50)	15 (50)
5.	Do good manners and cleanliness matter much to you?	24 (80)	6 (20)
6.	Do you think marriage is old-fashioned and should be done away with?	9 (30)	21 (70)
7.	Do you enjoy co-operating with others? 28 Does it worry you if you know there are mistakes in your work?	17 (56.6)	13 (43.3)
8.	Do you think people spend too much time safeguarding their future with savings and insurance?	20 (66.6)	10 (33.3)
9.	Do you try not to be rude to people?	16 (53.3)	14 (46.6)
10.	Would you like other people to be afraid of you?	13 (43.3)	17 (56.6)
11.	Is it better to follow society's rules than go your own way?	16 (53.3)	14 (46.6)

There were 70% males and 30% females. In the present study, 30 (23.07%) of them were extravert, 24 (18.46%) exhibited neuroticism, 32 (24.61%) belonged to lie scale, 20 (15.38%) showed psychoticism trait, and 24 (18.46%) had mixed personality. 23.25% males, and among females, 22.72% females were extroverts [Table 1].

In this study, anxiety was seen among 26.16%, mild anxiety among 30.77, and no anxiety was present in 43.08% of the study participants. The level of anxiety was higher among females (13.85%) when compared to males (12.31%) [Table 2].

The mean anxiety was higher among females (11.34 ± 4.2) as compared to males (9.69 ± 3.7) which was statistically significant ($P < 0.05$) [Table 3].

Personality with neuroticism exhibited higher anxiety compared to other type of personalities [Table 4].

DISCUSSION

Dental anxiety is a recognized problem for both patients and dental health providers. Dental anxiety refers to patients' specific response toward dental situation-associated stress.^[7] It is a major issue concerning appropriate dental care which leads to irregular visits, delay in seeking treatment, or its avoidance altogether. It has been shown that dentally anxious individuals are more dissatisfied with dental treatment modalities than their non-anxious counterparts. Modified dental anxiety scale (MDAS) is utilized in the present

study as it is the most commonly used tool to measure dental anxiety. On the other hand, personality traits are closely related to dental fear and its course. Neuroticism and lower extraversion have been shown to be associated with extreme dental fear and a chronic course of fear, i.e., a tendency to maintain fear over time. In contrast, higher extraversion is more likely to predict remission of fear.^[5] Personality traits and the level of fear are linked to each other; the psychological profile of patients dentally anxious but not highly anxious is quite similar to normal (non-anxious) patients' profile.^[7] In the present study, revised EPQ is used as this scale can be used in individuals >18 years of age and it requires only 10–15 min to fill the questionnaire. Dental anxiety is gender related. In the present study, dental anxiety is seen more in females (11.34%) when compared to males (9.69%). This is similar to various studies conducted.^[7,8] This is in contrast to a study which showed males (10.9%) had higher anxiety compared to females (9.6%).^[6] There was no correlation found between dental anxiety and personality traits. This may be due to the tool selected which might not be sensitive enough to measure personality traits and dental anxiety. One study has shown negative correlation with dental anxiety among extroverts and positive correlation with neuroticism.^[7] In another study,^[9] it was conducted among university students who were shown similar result in which female students were found to have higher level of anxiety in all groups. This finding must be explained on the basis that the women have higher level of neuroticism than men and the anxiety is positively associated with neuroticism. Avoidance of dental care could be attributed to

Table 1: Distribution of study participants based on personality traits.

Category	Extraversion n (%)	Neuroticism n (%)	Lie scale n (%)	Psychoticism n (%)	Mixed n (%)
Males (n=86)	20 (23.25)	15 (17.44)	22 (25.58)	12 (13.95)	17 (19.76)
Females (n=44)	10 (22.72)	9 (20.44)	10 (22.72)	8 (18.18)	7 (15.91)
Total	30 (23.07)	24 (18.46)	32 (24.61)	20 (15.38)	24 (18.46)

Table 2: Distribution of study participants according to the level of anxiety.

Category	No anxiety n (%)	Mild anxiety n (%)	Anxiety n (%)
Males	40 (46.51)	30 (34.88)	16 (18.60)
Females	16 (36.36)	10 (22.72)	18 (40.91)
Total	56 (43.08)	40 (30.77)	34 (26.16)

Table 3: Comparison of mean anxiety scores among male and female (Student *t*-test).

Category	Mean	<i>t</i> -value	<i>P</i> value
Males	9.69±3.7	2.041	0.043
Females	11.34±4.2		

Table 4: Distribution of study participants according to personality traits and dental anxiety.

Category	No anxiety n (%)	Mild anxiety n (%)	Anxiety n (%)
Extraversion n (%)	12 (9.23)	8 (6.15)	7 (5.38)
Neuroticism n (%)	8 (6.15)	11 (8.46)	9 (6.92)
Lie scale n (%)	20 (15.38)	9 (6.92)	6 (4.62)
Psychoticism n (%)	11 (8.46)	6 (4.62)	8 (6.15)
Mixed n (%)	5 (3.85)	6 (4.62)	4 (3.08)

dental fear and anxiety in many patients. Dental anxiety might also affect patient–dentist relationship. Lack of dental health education might result in patient’s fear and anxiety which in turn might end with poor patient compliance; this will make it more difficult to manipulate patient’s and increase dental professional-related stress. Assessing level of anxiety before commencing dental treatment may offer invaluable insight into the patient attitude; behavior toward dental treatment which might be utilized in developing the best strategies to manage patient anxiety.^[10]

Limitations

Limitations in the present study could be selection of participants who gave consent on the day of visit. Second, previous dental experience was not considered which could have an influence on dental anxiety.

Recommendations

Hence future studies should be conducted among general population with better tools to determine whether there is an

association between dental anxiety and personality trait which can be considered during the treatment of dentally anxious patients in a clinical setting. Previous dental experience should be considered as one of the predisposing factors for dental anxiety.

CONCLUSION

The present study reported females having higher dental anxiety and difference was statistically significant ($P<0.05$). A total of 30 (23.07%) were classified as Extraversion, 24 (18.46%) as Neuroticism, 32 (24.61%) as Lie scale and 20 (15.38%) as Psychoticism according to the scale used. In the present study there was no association between dental anxiety and personality trait.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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How to cite this article: Saheer PA, Marriette TM, Alappat AT, Majid SA, Hafiz H, Jamal F, *et al.* Association of dental anxiety with personality traits among Al Azhar arts students in Thodupuzha, Kerala. J Global Oral Health 2018;1(1):25-30.