

FEAR IN RESIDENTS OF BATHINDA CITY REGARDING DENTAL TREATMENTS: – A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: The study explored the expectations and experiences of a sample of general population of the residents of Bathinda city in relation to anxiety evoking and alleviating impulses in the dental clinics. **Material and Methods:** A cross-sectional study using e-survey constructed through google forms was circulated amongst Bathinda residents. The study sample comprised of 500 subjects (208 males and 292 females). Demographic data along with the Modified Dental Anxiety Scale (MDAS) and an additional open-ended question enquiring about the dental anxiety reason was used to assess the effect of the dental procedure on anxiety levels of participants. Chi-square test was used to find association between different variables. **Results:** Among the study group, 41.6% were men and 58.4% were women. Based on Modified Dental Anxiety Scale (MDAS), females reported higher total MDAS scores (11.38 ± 4.89) compared to males (10 ± 4.740). Significant relation was seen between anxiety and fear of non-tolerance of pain ($p=0.02$ and $p=0.04$ respectively) and fear of doctor/treatment/result. **Conclusion:** The study concluded that apprehension regarding dental anxiety and fear has a wide prevalence rate encompassing both genders. A plethora of factors like age, gender, education, previous dental visits along with their experiences influences the dental fear to various levels. Non-tolerance of pain was stated as the most quotidian reason for the participants who were anxious about the dental check-up followed by the advised treatment.

KEYWORDS: Dental, Anxiety, Treatment, Fear, MDAS.

INTRODUCTION

Dental anxiety is a state of mind and body's reaction prevalent worldwide. It is defined as aversive emotional state anticipating a stimulus of fear, uneasiness and distress created in response to dental treatment which remains a serious cause of concern for dental practitioner and patient as well.^{[2][5][7]} It relates to psychological and physiological variations of a non-pathological fear response to a dentist's appointment or treatment.^[8]

Oral health has a significant impact on the quality of life of an individual and can be upgraded by reducing the anxiety of the patient when a dental concern arises for an

individual.^[1] Implications that arise include appointment cancellations, impaired health outcomes and intensified perceptions of pain. Modified Dental Anxiety Scale (MDAS) is commonly used to measure anxiety which comprises of five questions and has an advantage due to its conciseness, straight-forward and cost-effective instrument for population based research.^[1] The practise among dentists to screen and assess the dental anxiety and fear in patients before treatment is not customary, and so this study aims to evaluate the dental anxiety and fear in a patient and its significance with correlation to patient's age, gender, education, post-traumatic experiences and frequency of dental check-ups.^[2] The

current study aims to measure and assess factor influencing dental anxiety using an e-questionnaire comprising of Demographic Data along with the Modified Dental Anxiety Scale (MDAS).

MATERIAL AND METHODS

This was a cross-sectional population based study including individuals aged 20 years and above and living in the region of Bathinda city, Punjab, India.^[3] The study was conducted from June 2019 to August 2019. A structured e-questionnaire along with the MDAS scale comprising fourteen questions was designed to assess the level of anxiety in the general population. The e-questionnaire contained 2 parts. One part comprised of Demographic data like age, gender, education. The second part comprised of the MDAS scale in which the responses were coded in a 5 point Likert Scale including 5 options (Not anxious, slightly anxious, fairly anxious, very anxious and extremely anxious). However, during analysis it was reduced to a 3 point scale. At the end an open ended question enquiring about dental anxiety reason was also added. Before the start of final study, a pilot testing was done to check the operational feasibility.

The study was approved by the ethical board of clearance and was done with the consent and understanding of each subject. The purpose of the study was explained to each patient and verbal consent was obtained from those who agreed to participate.^[2] The sample was selected based on exclusion and inclusion criteria.

Inclusion Criteria

- Subjects who were willing to participate in study.
- Subjects above the age of 20 years.
- Subjects who were the residents of Bathinda city.
- Subjects able to read and write in English language.
- Subjects having android mobile phones.

Exclusion Criteria

- Subjects not willing to participate in study.
- Subjects not using android mobile phones.
- Subjects not able to read or write in English language.
- Medically compromised patients.
- Subjects with physical and mental disability.
- Subjects with known history of psychiatric illness.
- Edentulous patients.

To assess the prevalence of anxiety, 700 people residing in Bathinda city were approached and further received the structured questionnaire on whatsapp. Out of 700, 504 participants reverted back with answering the e-questionnaire; out of which 4 responses were excluded due to incomplete data. Therefore, a sample size of 500 were selected and further subjected to analysis.

Statistical Analysis

Descriptive Statistics were used and data was tabulated and analysed using SPSS Version 24 (SPSS 24 for

Windows). Analysis was performed with Chi- Square Test to find association between different variables. p Value < 0.5 was considered significant.^[2]

RESULTS

Among the 500 respondents, 41.6% were males and 58.4% were females. (Diagram-1)

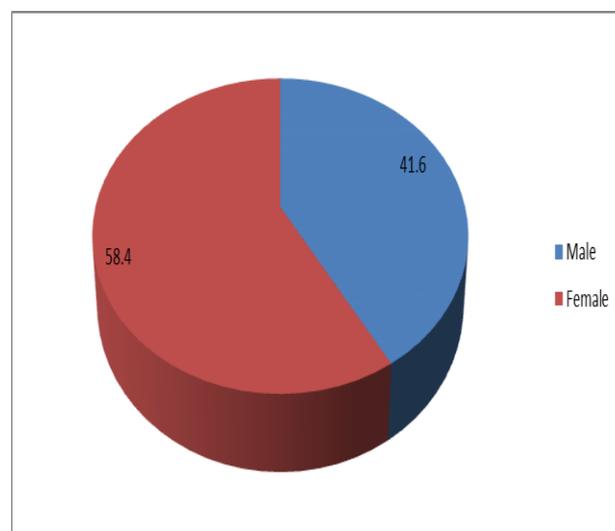


Diagram-1: Pie chart depicting gender-wise distribution of study subjects.

Mean age of the participants was 37.11 ± 5.17 and it was seen that majority of the respondents belonged to age group 31-50 years (49.8%). Analysis of the educational status showed that 228 respondents (45.6%) were post-graduates and 14 respondents (2.8%) were matric passed. Regarding distribution of subjects based on the dentist visit, 75.2% have visited the dentist. 41.8% subjects experienced their last visit before a year ago. It was revealed that out of the total sample size, 79.2% subjects had a good previous dental experience. Around 38% respondents postponed their visit to the dentists. Among the various types of treatments, maximum number of participants amongst the given sample size, underwent oral prophylaxis followed by filling/ drilling of teeth. The lowest number of participants (7.4%) underwent orthodontic treatment. The mean, standard deviation, median of the five anxiety – provoking stimuli were evaluated of Modified Dental Anxiety Scale (MDAS).^[1] On assessment it was observed that 74.8% of the respondents will feel not anxious if they went to dentist for treatment tomorrow and 13.6% of respondents would feel extremely anxious. 71% felt that they would not feel anxious while sitting in the waiting room for their appointment, 31% felt that getting their tooth drilled would make them anxious, and around 13% would be extremely anxious if they have to undergo oral prophylactic treatment. On investigating the respondents regarding receiving a local anaesthetic injection, 32% respondents stated that they would feel extremely anxious and around half of the subjects (50%) will be not anxious.

Table 1 show that around 36% males and 50% females stated that they experienced dental anxiety due to non-tolerance of pain during the dental treatment.

Table 1: Gender wise comparison of dental anxiety.

Reason	Male (208)		Female (292)		Total		p value
	N	%	N	%	N	%	
Due to non-tolerance of pain	76	36.54	148	50.68	224	44.8	0.02*
Due to lack of treatment knowledge	23	11.06	28	9.59	51	10.2	0.27
Due to previous bad experience	26	12.50	44	15.07	70	14	0.07
Costly treatment	23	11.06	39	13.36	62	12.4	0.18
Fear of doctor/treatment/result	13	6.25	28	9.59	41	8.2	0.04*
Hard to open mouth for so long	12	5.77	17	5.82	31	6.2	0.87
Don't know	6	2.88	15	5.14	21	44.8	0.12

*: statistically significant

11.06% males and 9.59% females experienced dental anxiety due to lack of treatment knowledge. Previous bad dental experience was a reason for 14% of the respondents and 12.4% of subject's stated costly treatment as their precipitating anxiety reason. In the given sample size 13 males and 28 females gave the reason to be fear of doctor/ treatment/ result etc. Approximately 5.7% males and 5.8% females quoted that long durations of opening their mouth was a reason for their anxiousness towards dental treatment. The results showed that significant difference was found gender wise in males and females stating the anxiety reason due to non-tolerance of pain. ($p=0.02^*$). Out of the total subjects who quoted fear of doctor/ treatment/ result as a cause, females outscored the males and the difference was statistically significant. ($p=0.04^*$)

DISCUSSION

Despite the awareness among both the dentists and the patient and the various technological assistance in the field of modern dentistry, the anxiety regarding dental treatment and the fear of pain associated with it remains prevalent.^[4] The impact of dental anxiety on an individual's life determines the constancy of dental visits availed and has a long-term ramification in maintaining the oral health status of the patient.

This study estimated the prevalence, magnitude and various components influencing dental anxiety in the sample of general population of Bathinda city. The relationship between the residents of Bathinda city and dental fear were illuminated through a structured questionnaire comprising of Demographic data and Modified Dental Anxiety Scale (MDAS). The questionnaire constituted 14 questions.

Out of the 504 participants, 4 were excluded due to incomplete data submission. The remaining 500 subjects were a mixed population of both male (41.6%) and females (58.4%). This is contrary to the distribution of sample population in studies by Appukuttan *et al* and Caltabiano *et al* where the males constituted the majority of the sample size.^{[1][5]} In contrary to the study of Subramanian *et al*, where the post-graduates constituted

9%, graduates were 51.4% and the school going participants were 36.3%; this study accounted for 45.6% subjects were post-graduates, 13.4% participants were passed post-matric and 2.8% of population were enrolled up to 10th grade.

In accordance to Appukuttan *et al* it was hypothesized that, anxious individuals and those with past negative dental experience usually postpone their visit to dentist.^[1] Similar behaviour was seen among this study population, thereby synchronizing with the observation of Nicolas *et al*, Acharya and Kumar *et al*.^[2]

The results of an open ended question enquiring about the reason of dental anxiety showed results that highest number of subjects stated their causative factor for anxious attack to be non-tolerance of pain among which the females again constituted larger fraction (50.68%).

Regarding distribution of subjects based on the treatment they underwent from the dentist 26.6% reported to have experienced oral prophylaxis, 20.6% have gone through filling/drilling i.e. conservative treatment of tooth. However, 38% participants reported to have prosthetic replacements as maximum subjects in the given sample size belonged to 31-50 years of age group which turns out to be a progressive result of functional disability in the oral cavity due to growing age further associated with compromised oral health status.

On the basis of Modified Dental Anxiety Scale (MDAS), female subjects (11.38 ± 4.89) reported higher anxiety provoking dental stimuli as compared to their male counterparts. This is in conformity with the study of Jeddy *et al*, Appukuttan *et al* and Caltabiano *et al*.^{[2][1][5]} The credible reason for this outcome could be attributed to the fact that women usually admit their fears more willingly as compared to their contrary gender. Females also tend to show lower tolerance to pain and exhibit higher level of Neuroticism.^[1]

The complexity of treatments received by the subjects is a limitation to this study. The descriptive design of the study acts as an impediment for behaviour assessment of

the subjects involved in the study. Longitudinal studies with more sample size should be conducted which would have given better results. The study portrays anxiety and fear amongst the educated class as conveniently only people known in the specific social circle were included. The study has a prominent effect of social desirability bias corresponding to which problem of false documentation of attested cases of anxiety or fear is evident.

Management of dental anxious individuals should be carried out through proper explanations regarding the complexity of various types of dental procedures. Moving further, administration of the fearful patient can be accomplished with varying degrees of success, via non-pharmacological and pharmacological means. Pleasant odours with lavender orange and Amanda apple scents including soft music show an anxiolytic effect on the patient with high intensity during the wait for dental treatment. With many new technologies such as plasma torch brush technique to ease the anxiety and other such innovations coming up, we can envision a fearless and anxiety free visit to the dentist in the future.

CONCLUSION

The current study established that dental anxiety was highly frequent in the population. Anxiety and “fear of the dentist” can be an impediment to the patient to seek dental care. The sequel of postponing and avoiding professional care can affect overall oral health status and quality of life. However, the entire compromised dental level can be averted by simply providing awareness, which is a more cost-effective alternative rather than the expensive dental procedures. Summarily, this epidemiologic study calls attention to crucial findings of significance of dental anxiety to dental practitioners and researchers, thereby enabling them in planning treatment and prevention programs.

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