Journal of Scientific Research & Reports
2(2): 711-718, 2013; Article no. JSRR.2013.018

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Dental Fear- a Cross Sectional Study among Various Age Groups of South Indian (Chennai) Population

V. Anand Kumar[1], Seenivasan Madhan Kumar[1*], Shanmuganathan Natarajan[1], Padmanabhan T. Veeravalli[1], Karthigeyan Jeyapalan[1] and Fathima Banu[1]

[1]Department of Prosthodontics, Sri Ramachandra University, Chennai, India.

Authors' contributions

This work was carried out in collaboration between all authors. Author VAK designed the study, wrote the protocol, authors SMK and SN wrote the first draft of the manuscript, author PTV done the final formatting of the article. Author KJ made literature searched for the present study. Author FB analysed the study and made statistical analysis. All authors read and approved the final manuscript.

Research Article

Received 10th May 2013
Accepted 28th August 2013
Published 6th September 2013

ABSTRACT

Aims: People who suffer from dental anxiety often fail to visit the dentist for routine care. Apprehension prior to or during dental treatment is a normal human reaction, but higher levels of anxiety and fear can be a barrier to receive regular dental care and to maintain good oral health. Several factors, especially direct and indirect conditioning have been reported to contribute to dental fear and anxiety among people of different age groups. This study evaluates the various levels of dental fear and anxiety in south Chennai population of different age groups using Likert rating scale.
Study Design: Cross sectional verbal survey.
Place and Duration of Study: Chennai, 3 months duration.
Methodology: A randomized cross sectional verbal survey was conducted on about 550 adults aged above 18 years, by utilizing the Likert rating scale. A significance level of data was analysed using IBM SPSS 19.0 version. Pearson's chi-square tests were used for comparison of means and relationship between the attributes.
Results: Mean value represented people above 50 years of age were found to have high

**Corresponding author: E-mail: madhanshashwath@gmail.com;*

levels of dental fear; 30-50 years had moderate levels, whereas, people of 18-30 years age group were found to have comparatively least levels of dental fear. But there was no significant difference in levels of dental fear between different age group and sexes.
Conclusion: The study shows that dental fear was high among the research participants irrespective of their age. Higher dental fear was found among those who were 50 years and above.

Keywords: Age groups; Chennai; South Indian population; dental fear; anxiety.

1. INTRODUCTION

The Diagnostics and Statistics of Psychic Disorders DSM-IV [1] have identified dental fear as one of the most frequent and common. The aetiology of dental fear has been discussed in various aspects, including a general subject's inclination for anxiety and fears, and a response to certain specific stimulus. Anxiety about dental treatment remains globally widespread and is considered a major barrier to dental treatment. People with high dental fear have poor oral health and often suffer significant social and psychological impacts associated with their oral state [2,3,4,5]. People with dental phobia may also suffer from a variety of anxiety disorders, mood disorders, personality and behavioural disorders as well as from multiple other specific fears. With regard to the source of the anxiety, they are either exogenous or endogenous, Weiner and Sheehan [6]. Exogenous fear is referred as a conditioned response to aversive stimuli and the endogenous fear as constitutional vulnerability [7-12]. The correlation between dental fear and general fears in literature is rather controversial**.** The early study of Bergrren and Carlsson [13] done in 1984 failed to note a difference in the level of general fear from that of the dental fear among those with dental anxiety, but in 1992, they proved the fact that patients with dental fear had additional fears. A surprising large percent, that is 93%, had at least one strong fear, whereas, 50% had a number of additional fears [14]. Many studies pointed out that patients with dental fear often experienced constant fear of unknown cause or apprehension about painful dental procedures [9].

Early investigators found that dental fear is not homogenous in our populations but vary along a continuum. The fear ranges from mild apprehension to object phobia which prevents any dental procedures from being successfully completed [15]. Anxiety is a psychological phenomenon that is difficult to measure because patients may hide their feelings regarding dental treatment, syringes and instruments. Dental phobia is a severe form of fear that can be psychologically and physically debilitating to the person suffering. Instead of communicating problems about dental anxiety or fear with their dentist, many people "white knuckle it" through their dental visits and do not ask for help in resolving the fear. Even though dentists and their staff may consider much of the treatment they provide to their patients to be routine, the psychological impression and apprehension many patients have when they visit the dentist is comparable with reactions to surgery. Dentists who excel in helping anxious patients are very aware of this situation, and deliver both compassionate and technically skilled care in order to provide patients with safe and comfortable treatment**.** Though many studies and investigators have estimated the prevalence and determinants of dental anxiety yet these have been carried out on populations from industrialized countries and not in the developing countries such as India**.** So also, 'culture' an important aspect that acts upon dental fear varies from country to country; therefore, it is important to identify the factors responsible for dental anxiety in specific to Indian population[3]. Also, the assessment of anxiety is important for two general reasons:

1) To assist the dentist in the management of anxious patients.
2) To provide evidence based research into the psychological constraint which has showed to predicted dental avoidance.

The aim of this present study is to determine, the variance in the percentage of research participants reporting dental fear in accordance with their age. The research participants were of various age groups living in Chennai, South India.

2. MATERIALS AND METHODS

A verbal survey was conducted of a randomized sample trial on about 550 adults aged above 18 years that included 332 males and 218 females. A written consent was obtained from those who were willing to participate in the survey. The sample included the patients, who visited the Department of Prosthodontics and Implantology to the Faculty of Dental Sciences, Sri Ramachandra University and Hospital, Chennai, India. Inclusion criteria was that the patient had first dental visit. The patients having severe physical illness, psychiatric illness and mental sub normality were excluded from the study. This study was conducted for a period of three months. The data collection period was designed for three months, and also other specifications, such as the number of patients was chosen in accordance to minimize the bias related to length of waiting period. The questionnaire is usually self-administered. Due to different literary levels, a face-to-face interview was conducted in privacy to minimize biased responses.

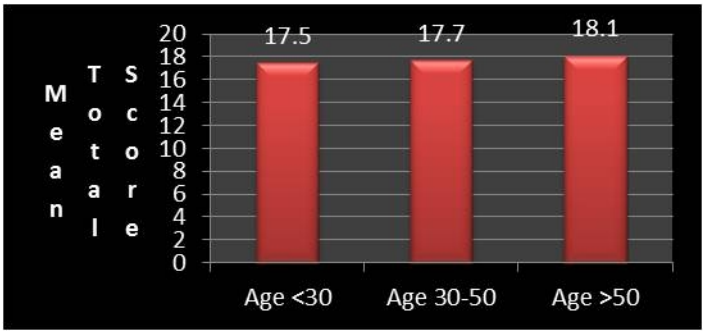
Table 1. Questionnaire for surveying dental fear

SL. No	Questionnaire	Likert Score
1.	Are you afraid of going to hospital?	
2.	Are you afraid of going to doctors?	
3.	Are you afraid of going to dentists?	
4.	Are you afraid of people in white uniform?	
5.	Are you afraid of having somebody look at you?	
6.	Are you afraid of having a stranger touch you?	
7.	Are you afraid to open your mouth?	
8.	Are you afraid of somebody examining your mouth?	
9.	Are you afraid of having somebody put instruments in your mouth?	
10.	Are you afraid of noise of dentist drilling?	
11.	Are you afraid of the sight of dentist drilling?	
12.	Are you afraid of getting an injection?	
13.	Are you afraid getting choked?	
14.	Are you afraid of having the nurse clean your teeth?	
15.	Did somebody tell you about a bad experience with dentist which prevents you from going to a dentist?	

A single five point Likert rating scale with alternatives was used to assess the general fear experienced by the patients. The tool comprised 15 multiple choice items to elicit the individual reaction to various dental situations. (Table 1) A significance level of data was analysed by using IBM SPSS 19.0 version. Pearson's chi-square tests were used for comparison of means and relationship between the attributes.

3. RESULTS

The study group of 550 had 332 male participants aged above 18 years, of which 54 were in the less than 30 years, 141 in the 30-50 years and 137 from more than 50 years. The female participants were 218, of which, 31 were in the less than 30 years, 105 in the 30-50 years and 82 were more than 50 years. Table 2 and the histogram 1 depict the dental fear of these participants. The descriptive details shows that approximately 60.35% of the participants were males and most of them, 42.46%, belonged to the age range 30-50 years and 41.23%, were from more than 50 years and a minimum of 16.27% from 18-30 years of age. Among the female participants 39.65 %, the highest of 48.1% were from the age group of 30-50 years followed by 37.6% from more than 50 years. From the histogram 1 it is understood that research participants over 50 years had the highest mean total fear score value



Histogram 1. Age wise comparison of the participant's level of fear

On analysing statistically, the following results were obtained; (P value< 0.05 which was considered statistically significant.)

1. For males, the mean total fear score value was highest in the age group > 50 years (17.2 ± 5.2) followed by the age group 30 – 50 years (17.2 ± 4.4) and the lowest in the age group 18- 30 years (17.2 ± 4.2) There was no significant difference in mean total fear score values of males of all three age groups (P = 0.58).
2. For females, the mean total fear score value was highest in the age group > 50 years(18.7 ± 5.0) followed by the age group 30 – 50 years (18.4 ± 4.9) and lowest in the age group 18-30 years (18.0 ± 5.1)There was no significant difference in mean total scores of females of all three age groups (P = 0.55).
3. Totally, the mean total fear score value was highest in the age group > 50 years (18.1 ± 5.1) followed by the age group 30 – 50 years (17.5 ± 4.5) and lowest in the age group 18-30 years. There was no significant difference in mean total fear score values among the three different age groups (P = 0.33)

Table 2. Comparison of mean total score among different age groups with respect to gender

	Age group	Number	Mean ± S.D**.	Overall P-value*	Significant Groups
	I [<30]	85	17.5 ± 4.5		
Total	II [30-50]	246	17.7 ± 4.6	0.33 *	NIL
	III [>50]	219	18.1 ± 5.1		
	I [<30]	54	17.2 ± 4.2		
Male	II [30-50]	141	17.2 ± 4.4	0.58 *	NIL
	III [>50]	137	17.7 ± 5.2		
	I [<30]	31	18.0 ± 5.1		
Female	II [30-50]	105	18.4 ± 4.9	0.55 *	NIL
	III [>50]	82	18.7 ± 5.0		

**N.S- Not significant; **S.D- Standard deviation.*

4. DISCUSSION

The oxford dictionary defines fear as an unpleasant emotion caused by the threat of danger pain or harm [16]. Fear could be looked at either as 'subjective', that which includes emotional and cognitive aspects or as 'objective' which includes behavioural or physiological aspects [16,17]. With regard to dentistry, the dental fear; dental anxiety and dental phobia are commonly used to express apprehension in undergoing dental procedures. Dental fear is considered to be stimulated by a real, instantly present, particular stimulus (e.g. Needles, drilling), however in the case of anxiety, the basis of the threat is uncertain, ambiguous, or not instantly present [17,18]. And so of these three terms, dental anxiety is more complex in nature as the source of threat is unclear, highly subjective and varies from person to person. However, only by understanding and gaining knowledge of individual's subjective fear can enable the dentist to provide a successful treatment in the present and channel all future correspondence. For a real development in the field of dentistry, importance should be given to build an insight into the subjective feelings of patients and particularly, approach their dental fear with concern and respect.

The aim of the present study was to determine, how the percentage of research participants living in chennai, south india reported dental fear with varied age groups. Thereby the quality of life of these people and quality of treatment care provided to them can be further improved. Further knowing about the patients possible dental fear before any procedure helps the dentist to handle the patient successfully this could be done by using a short clinical dental fear instrument. In this report, we have used five different levels of likert scale scores with regard to their anxiety level in a dental treatment situation which ranged from not anxious to extremely anxious.

The present study has showed the increased in fear levels in patients aged above 50 years though the significant difference could not be obtained. But, previous study relating fear and decayed teeth have showed reduced fear among elderly population [19]. General fearfulness is commonly reported to be an etiological factor in the literature, which predisposes people to the onset of dental fear [9,11,20]. However, the negative dental experiences include both the painful or traumatic experiences during dental treatment and unpleasant dentist contacts [7-10]. In addition to its multifactorial causes dental fear is a complex phenomenon consisting of different components, with fear of pain identified as a major contribution of dental fear [21-23]. Mcneil and Berryman [23] found that in addition to fear of pain, fear of being

closed(claustrophobia) and fear of mutilation(tissue damage) were also important components of dental fear; other concomitant factors included, fear of powerlessness, fear of loss of control, fear of unpredictable events, embarrassment or shame about poor dental status, economic excuses etc. In a sample of norwegian adolescents, dental fear was indicated as a prime reason for missed and cancelled dental appointments [24].

The present study has also found that there is no significant difference in fear level between different sexes. Earlier researches indicate that psychological states and conditioning experiences are important in the onset of dental anxiety. It should be borne in mind that the origins of dental anxiety are numerous and complex and have been shown in other parts of the world to be associated with a systematic, irregular attendance pattern, history of extractions, having a dentally anxious parent and is also related to memory distortions and personality types. The intensity of aversive dental events were overestimated by the highly anxious dental patients even if they have never experienced the particular experience before.

In general, dental fear plays an important negative role in a person's dental care utilization and oral health. It is well known that without an effective intervention or treatment of dental fear, high fearful dental patients with dental avoidance behaviour are likely to fall into a vicious cycle. Meanwhile dental fear interferes with the provision of dental care services from dentist's perspective. In the present study, generally people above 50 years were found to have high levels of dental fear; 30-50 years had moderate levels of fear whereas people of 18-30 year age group were found to have comparatively least levels of dental fear from the descriptive data. This was common for both males and females and there was no significant difference in levels of dental fear between males and females of same age group.

In this study there were certain shortcomings that, the study doesn't analyse the specific cause or etiological factor for anxiety or the variety of different treatments and other factors that may influence anxiety. Since our study research participants were from different educational levels and all standards of society, these samples were considered to represent the subjects of various levels in the general population. Thus by using internationally well-accepted instruments to assess dental anxiety in a substantial number of participants, it was able to characterize the level of this construct well in our population which should make the findings comparable to other settings. Immense care has been given to exclude the patients with psychological disorders that may interfere in presenting precise dental anxiety report. However, further studies are needed for examining the dental fear to specific negative experiences with dental treatment, attitude, communication skills of the patient, competency of the dentist and the patient management skills. In addition, the study being of cross-sectional design it is lack information on causality.

5. CONCLUSION

From the descriptive data of the present study, we can come to a conclusion that currently there is a decline in the level of dental fear among younger age group when compared to the aged population and this shows that there is a progress in dental awareness among youngsters. These findings will help to improve the quality of oral care, especially by increasing communication skills and also in turn, could lead to improved satisfaction of both patient and dentists these behaviour sciences should be made an integral part of dental curriculum and should be imparted in dental education.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this study.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history.php?iid=250&id=22&aid=1988