

Assessment of the Level of Anxiety Related to Dental Treatment among Undergraduate Students in a Dental College of Bengaluru, Karnataka, India: An Online Pilot Survey

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ABSTRACT

Background: Anxiety is an unpleasant feeling that occurs when something undesirable is going to happen, while fear is the expecting threat from an identifiable source.

Aim and objective: To assess the level of anxiety related to dental treatment among undergraduate students in a dental College of Bengaluru.

Materials and methods: For data collection, an online digital survey App, namely, SurveyMonkey.com was used. At the outset, the said App was installed. A questionnaire containing four relevant questions was prepared and sent to the respondents/participants, that is, all the undergraduate dental students of a dental college in Bengaluru through e-mail.

Results: In the survey carried out among 334 respondents, 75.08% were female and remaining 24.92% were male. There were seven age categories based on year of study (1st year to IV-year BDS). The seven age categories were distributed as follows: 18 years of age (8.08%), 19 years of age (22.46%), 20 years of age (27.54%), 21 years of age (21.56%), 22 years of age (11.68%), 23 years of age (3.59%), and 24 years of age (5.09%). Further, the percentage of respondents based on year of study is as follows: First year BDS (27.03%), second year (33.33%), third year (19.52%), and fourth year (20.12%). The results revealed that the dental students experience less fear and anxiety during dental treatment due to their familiarity and awareness toward the subject.

Keywords: Dental anxiety, Dental attitude, Dental pain, Dental undergraduate students, Psychosocial factors.

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INTRODUCTION

Behavioral sciences has been considered as an important component in dental education and research. It is applied as psychological method for the study of behavior and attitude related to health, illness, and health care, particularly in management of fear and anxiety about dental pain in the field of dentistry.¹⁻³ Anxiety is defined as an intuitive, vague, and unpleasant feeling that something undesirable is going to happen, while fear is the anticipation of threat obtained by an identifiable source.^{3,4} However, both are used synonymously. There has been improvement in field of dentistry by advancement of technology and techniques of understanding patients' needs, but both these are hindered by the drawback in reduction of fear and anxiety related to dental pain during treatments. Studies have shown those restorative procedures, the site, sound and vibration sensation of rotary drills, and sight and sensation of dental local anesthetic injection are the major causes of dental anxiety.^{3,5} Studies also revealed that uninvolved and non-interactive behavior of the dentist towards the patients also provoke fear.^{3,6} Anxiety sensitivity (AS) refers to the fear of anxiety-related symptoms or bodily sensations resulting from the belief that such sensations have harmful somatic, social or psychological consequences.⁷⁻¹¹ Anxiety sensitivity explains why level of anxiety and fear are increased.^{7,10} The concept of AS can also be valuable in the context of dentistry. In few studies, the investigators studied to what extent AS increased the expected and experienced pain before and during dental treatment in patients with different levels of fear. Their results showed that dentally fearful patients scoring high on AS both expected and experienced more pain than those who scored low.^{7,12} All patients in

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the abovementioned study had undergone restorative procedures, including excavation and filling. For most patients, dental treatment is painful and scary.¹³ Anxiety and tension to dental treatment also cause some mild nature systemic complications, such as syncope and hyperventilation.¹³ But in few scenarios, patient may also experience acute heart failure or cerebrovascular accidents. In general, anxiety and fear may enhance pain.¹³⁻¹⁸

Dental anxiety is a most common problem seen among dental patients. It is a reaction perceived to threat or danger.^{3,19,20} It reflects as alterations in the physical, mental, and social state. Dental anxiety causes a dilemma for patients and also for the dental professionals. Treatment also becomes more difficult to be successfully completed.^{3,21,22} Oral diseases are already a major public health problem, and dental anxiety also adds on to the process.^{3,23,24} Dental anxiety also influences dentist-patient relationship and

masks the most important diagnosis of important dental problems resulting in deterioration of oral health status in patient.^{3,25,26} Dental anxiety and fear are considered the major reasons for avoidance of dental care, thus resulting in deterioration of personal oral health. Statistics show that it is the 25–26-year-olds who tend to experience higher dental anxiety than older people.^{27,28} This can be attributed to various psychological factors that are seen in this age-group that induce dental anxiety including dental students. Some studies show that women tend to be more affected by dental anxiety than men, but statistical significance is not reached in most cases.^{29–31} Some research studies suggested that dental students have lower levels of dental anxiety compared to students in other major fields which may be due to lack of adequate dental health education that results in high level of dental anxiety among nondental university students.^{29,32} The purpose of the present study was to assess the level of anxiety during dental treatment among undergraduate students in a dental college, Bengaluru.

Research Question

Does dental anxiety have effect on dental treatment among undergraduate students in a dental college?

Null Hypothesis

Dental anxiety does not have any effect on dental treatment among undergraduate students in a dental college.

Aim

To assess the level of anxiety to dental treatment among the undergraduate students of a dental college.

OBJECTIVES

- To look into the subjective rating of dental anxiety among dental students.
- To reveal the impact of knowledge and awareness toward dentistry on the level of anxiety.

MATERIALS AND METHODS

Study Population

This is a pilot study on dental anxiety among potential dental healthcare professionals in India. It is a cross-sectional and quantitative study and is undertaken at reputed dental college. The population of this study was 334 undergraduates from dental college from the first to fourth year as of April 2020. The age range of this study was 18–24 years.

Study Design

Descriptive observational study, online survey

Sampling Technique

Census sampling

Duration of Study

The study was conducted over a period of one month (April 02, 2020–May 01, 2020).

Ethical Clearance

After review of the study protocol by Institutional Review Board of the college, later Ethical clearance (IEC NO. RRDCHET/07PHD/2020) was given to conduct the study.

Collection of Data

An online-administered Dental Anxiety Survey questionnaire was used in this study. The questionnaire was in English, as medium of education of the study population is English. The questionnaire was sent via e-mail through the online survey platform surveymonkey.com, and reminders to participate in the survey were sent twice during the course of the study. The questionnaire contained an informed consent required to be filled by each participant prior to participating in the survey; hence, all the participants took part in the study voluntarily.

The questionnaire consisted of two sections: Section A consists of the experience of the respondent in regard to a dental appointment. Question 1 relates to the symptoms of anxiety experienced by the respondent regarding their upcoming dental appointment the following day. Question 2 asks the patient to respond based on their feelings during their waiting period in the dental office, while they wait for their turn. Questions 3 and 4 assess the anxiety level of the respondent as a whole as he/she awaits their dental treatment while on the dental chair. Section B consists of the participant's demographics: their age, gender, and year of study.

Each question, excluding the first, was assessed by five options, namely, (a) relaxed, (b) a little uneasy, (c) tense, (d) anxious, and (e) so anxious that I sometimes break out in a sweat or almost feel physically ill.

Statistical Analysis

Online data were collected from software (surveymonkey.com), analyzed, and represented in form of graphs.

RESULTS

Demographics Data

In the survey carried out among 334 respondents, 75.08% were females and remaining 24.92 were males. There were seven age categories based on year of study (first year to fourth-year BDS). The seven age categories were distributed as follows: 18 years of age (8.08%), 19 years of age (22.46%), 20 years of age (27.54%), 21 years of age (21.56%), 22 years of age (11.68%), 23 years of age (3.59%), and 24 years of age (5.09%).

Further, the percentage of respondents based on year of study is as follows: first-year BDS (26.94%), second year (33.23%), third year (19.46%), and fourth year (20.06%). However, 0.29% of the participants were nonrespondents. The demographic characteristics of the survey respondents by gender, different age-groups, and year of study are summarized in Figures 1 to 3, respectively.

Results on assessment of anxiety regarding going to dentist for a check-up revealed maximum respondents of 33.23% as reasonably enjoyable experience. On the contrary, minimum respondents of 4.79% felt very frightened as to what the dentist would do. Further, 28.74% of the respondents found the situation a little uneasy. Almost equal number of respondents felt that they would not care for the situation (16.47%) and afraid that there would be unpleasant and painful experience (16.16%). Nonrespondents were 0.59%. The abovementioned results are depicted in Figure 4A.

For a question regarding anxiety during the waiting period in a dental office, the results revealed that maximum respondents of 38.92% experienced little uneasiness, as against a minimum of 2.08% who felt anxious and even experienced sweating and subsequent physical sickness. In addition, 32.03% of

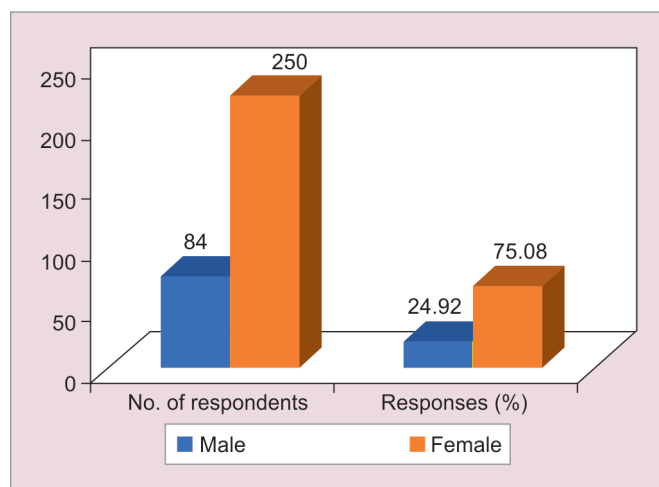


Fig. 1: Gender of respondents

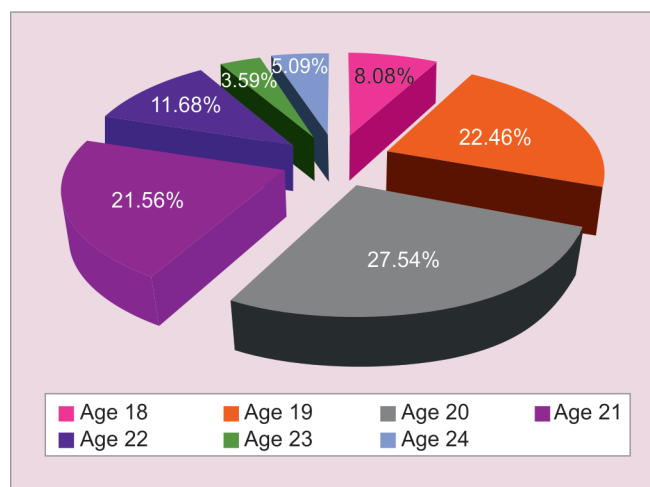


Fig. 2: Age of respondents

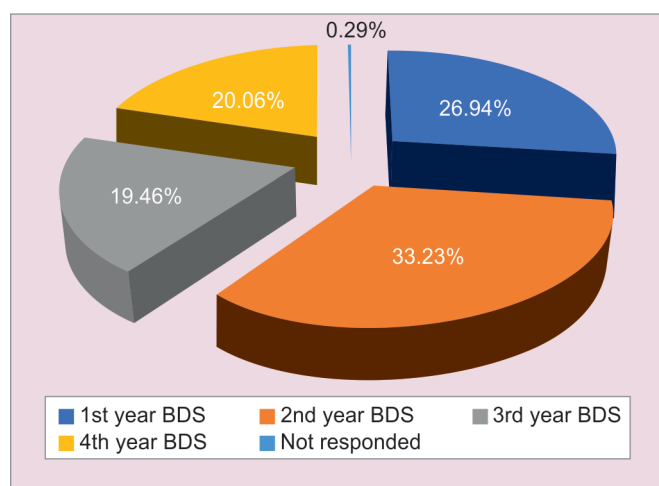


Fig. 3: Year of study of respondents. Subjective assessment of dental anxiety, knowledge and awareness

the respondents felt relaxed, while 15.56% were tensed and 10.77% experienced anxiousness. But 0.59% of the participants did not respond. The abovementioned results are depicted in Figure 4B.

When questioned about how anxious a person feels waiting on a dental chair while the dentist gets the drill ready to work on their teeth, the results revealed that maximum respondents of 37.12% felt little uneasy while minimum of 4.19% felt to be anxious and even experienced sweating and subsequent physical sickness. Further, 28.44% respondents were tensed, 15.26% were relaxed, 13.77% experienced anxiousness, and 1.19% of the participants did not respond. The abovementioned results are depicted in Figure 4C. When questioned about how anxious a person feels waiting on a dental chair while the dentist gets the scaling instruments ready to work on their teeth, the results revealed that maximum respondents of 41.61% felt little uneasy, while minimum of 1.49% felt to be anxious and even experienced sweating and subsequent physical sickness. Further, 23.65% respondents were relaxed, 22.85% were tensed, 10.47% experienced anxiousness, and 0.89% of the participants did not respond. The abovementioned results are depicted in Figure 4D.

DISCUSSION

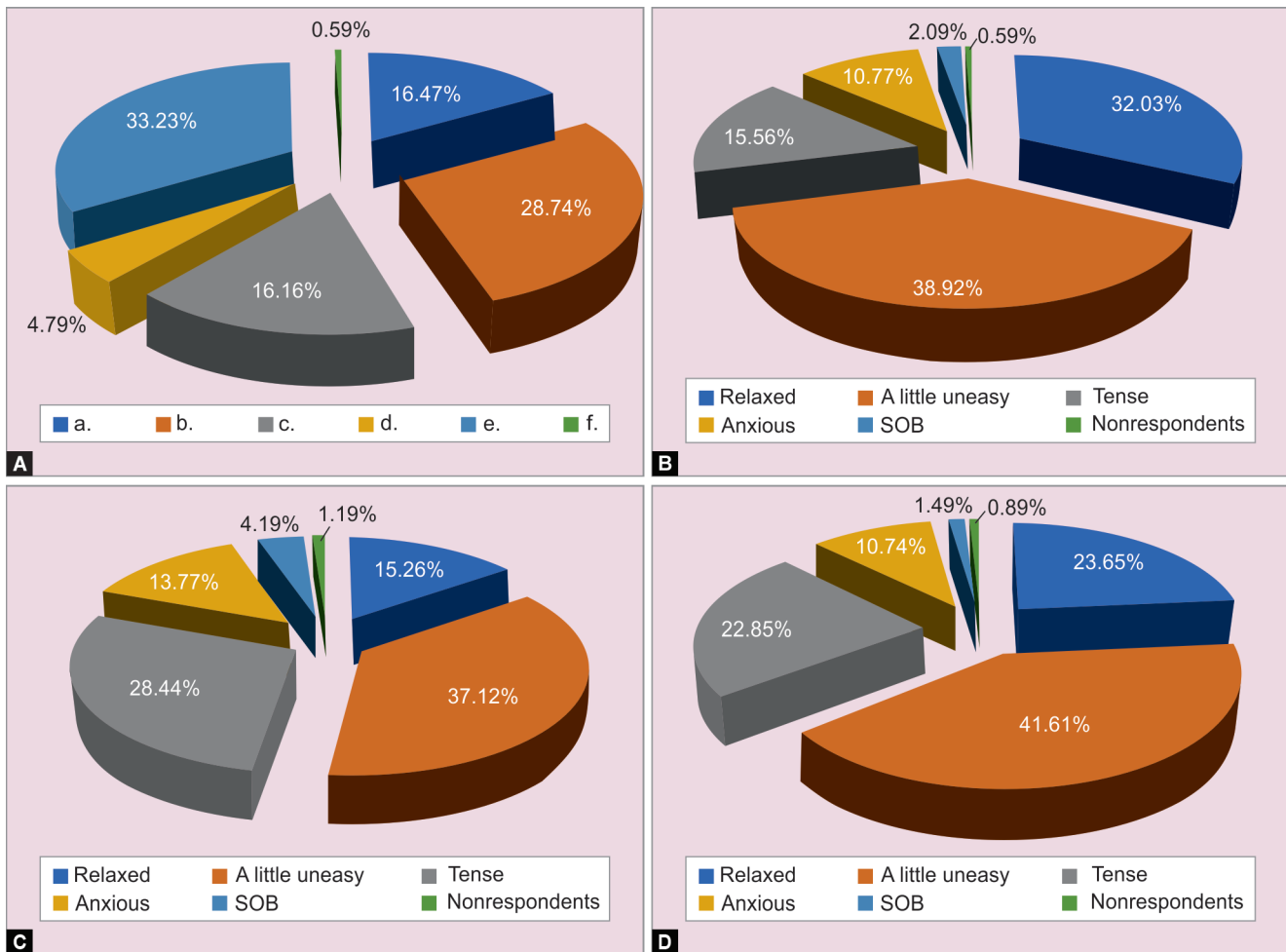
The following online survey was conducted to assess the level of the anxiety related to dental treatment among undergraduate students in dental college.

Dental anxiety is a state associated with the thought of visiting the dentist for preventive care and over dental procedures. It is an unknown emotional state that exists even before facing the actual situation.³³

Fear is a reaction to a known or perceived threat or danger. It leads to a fight-or-flight situation. Dental fear is a reaction to threatening stimuli in dental situations.³³ Phobia is persistent, unrealistic, and intense fear of a specific stimulus, leading to complete avoidance of the perceived danger.^{19,33} Both dental anxiety and fear evoke physical, cognitive, emotional, and behavioral responses in an individual which are most common problem in dental offices. Anxiety is associated with painful feeling with increase in pain perception which also makes the experience of pain more imprinted in the memory of patient. When such anxious patient visits the dentist, treating them becomes more complex and stressful, and this in turn results in more time and resources leading to bad oral health, with more missing teeth, decayed teeth, and poor periodontal status.^{22,33} Due to dental anxiety, patient tends to attend the dental clinic only at emergency conditions, which in turn makes treatment at the time more complex and traumatic resulting the continuation of vicious cycle of dental anxiety.^{4,6,33}

Preparing an evidence-based approach to manage dental anxiety among the identified patients becomes very important at initial stage (i.e., during initial dental visit) which will aid in better management of such patients in future. Subjective evaluation by interviews and self-reporting on fear and anxiety scales and objective assessment of blood pressure, pulse rate, pulse oximetry, finger temperature, and galvanic skin response can greatly enhance the diagnosis and enable categorization of these individuals as mildly, moderately, or highly anxious or dental phobic.³³

Dental anxiety can be managed by psychotherapeutic interventions, pharmacological interventions, or a combination of both. Pharmacologically, these patients can be managed using either sedation or general anesthesia. Behavior modification therapies aim to change unacceptable behaviors through learning and involve muscle relaxation and relaxation breathing, along with guided imagery and physiological monitoring using biofeedback,



Figs 4A to D: Questions related to subjective assessment of level of anxiety to dental treatment: (A) If you had to go to the dentist tomorrow for a check-up, how would you feel about it? (a) I wouldn't care one way or the other (b) I would be a little uneasy about it. (c) I would be afraid that it would be unpleasant and painful. (d) I would be very frightened of what the dentist would do. (e) I would look forward to it as a reasonably enjoyable experience. (f) Nonrespondents; (B) When you are waiting in the dentist's office for your turn in the chair, how do you feel? (C) 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? (D) Imagine you are in the dentist's chair to have your teeth cleaned. While you are waiting and the dentist or hygienist is getting out the instruments which will be used to scrape your teeth around the gums, how do you feel? (SOB, so anxious that I sometimes break out in a sweat or almost feel physically sick)

hypnosis, acupuncture, distraction, positive reinforcement, stop-signaling, and exposure-based treatments, such as systematic desensitization, "tell-show-do", and modeling.^{33,34}

Cognitive strategies are intended to change negative cognitions and enhance control over them. Cognitive behavior therapy is a combination of behavior therapy and cognitive therapy and is currently the most accepted and successful psychological treatment for anxiety and phobia.³³

The present study was conducted to identify factors influencing and impact of dental anxiety among dental undergraduate students of a reputed dental college and hospital in Bengaluru. Based on the obtained results, it was shown that majority of them had mild to moderate level of dental anxiety to dental treatment.

Among a majority of the dental undergraduate students, about 33.43% felt going to a dental check-up as an enjoyable experience; however, 4.82% felt it very frightened. These findings are consistent with the results of other studies.^{32,35}

It was also observed in present study that only 2.11% of dental students felt anxious, experienced sweating, and subsequent physical sickness. Contrarily, 39.16% students were found to have a very little uneasiness when compared to normal population as seen in other studies like.^{32,35-37} This could be attributed to multiple factors such as poor oral health awareness, ignorance about dental treatment procedures, superstitious, and false beliefs about dental treatment cultural differences and view from the members of the family.

On question related to "The anxiousness while waiting for the dentist to get drills ready to begin working on their teeth and when he takes out the instruments which will be used to scrape the teeth around gums," majority of them, i.e. 37.58% and 41.99%, respectively, felt very little uneasiness compared to 4.24% and 1.51% of the students who felt highly anxious, sweating, and subsequent physical sickness. The possible reason for this is that they have more exposure in the dental college during clinical procedures, and they also have experience of assisting the staffs and postgraduates

during clinical procedures in the hospital resulting in adjustment to such environment.³⁸⁻⁴³

Limitation of the Study

Drawing a definitive conclusion from such an inconsistent pattern was not possible, and this probably could be attributed to the smaller sample size in those age-groups and inherent problem with self-reported questionnaire. Since the interpretation of dental anxiety was subjective in nature, it can also be one of the drawbacks of the present study.

CONCLUSION

The present study clearly demonstrated that dental students have less rate of dental anxiety because they have proper knowledge about the procedures and also understand the need and importance of it. Hence, awareness and proper guidance about dental procedures are the keys to reduce the dental anxiety and to promote the effectiveness of dental treatment. However, further studies are recommended at clinical and field setting in order to assess the dental anxiety among people.

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