



## Causes Influencing to fear and anxiety of medical/dental students, studying in medical/dental College, administering their first local anesthetic injection before, during and after the minor surgical procedure

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### Abstract

*Operator's anxiety can adversely affect the efficiency and outcome of the procedure performed. This is maximum seen during the first procedure performed by the students in their clinical postings. It is essential to identify and accordingly tackle the factors contributing to this fear and anxiety before, during and after the procedure. In this study, we designed a two page, 15 point questionnaire and asked 200 participants (100 from third year and 100 from final year) to fill out the form from a range of 1 – 5, with 1 being strongly disagree and 5 being strongly agree. The data collected was then analyzed and it was concluded that patient apprehensiveness was the biggest fear in the mind of the operator (58% strongly agreed), maximum students felt perspiration at the time of procedure (51% strongly agreed) and that theory and demonstrations helped ease this fear the most (63.5% strongly agreed)*

**Aim:** *The aim of this study was to identify and evaluate the factors contributing to fear and anxiety of undergraduate MBBS/ BDS students in their third and final year at the time of delivering their first Local Anesthetic injection.*

**Method:** *A total of 200 students participated in this study, 100 third year and 100 final year students. A two page questionnaire was developed with a 15 point evaluation criteria and a scoring range of 1 – 5, with 1 being strongly disagree and 5 being strongly agree. The score was then calculated with minimum being 15 and maximum of 75. The data was compiled and analyzed.*

**Results:** *It was statistically shown that patient apprehensiveness was the biggest fear in the mind of the students (58% strongly agreed), maximum students felt perspiration at the time of procedure (51% strongly agreed) and that theory and demonstrations helped ease this fear the most (63.5% strongly agreed)*

**Conclusion:** *Students' anxiety and fear can be mainly attributed to patient apprehensiveness and chances of patient going into syncope, with maximum feeling perspiration at the time of procedure. It was concluded that presence of theory and demonstrations greatly eased this fear.*

**Keywords:** *Operator fear, Anxiety, Medical/Dental Students.*

### Introduction

Fear is a moment of intense energy. It is an otherwise inconsequential occurrence transformed

beyond its original context. If the fear is not overcome with effective action, aversion to the activity or even phobia may result.

Surgeons spend most of their time dealing with the anxiety, stress, fear, and aversion associated with oral and maxillofacial surgery care. Fear affects practice and the willingness of patients to accept surgical treatment plans that offer benefits to their health and results in ending up with phobias. The prevention of fear in the clinical setting is one of the best means we have of improving access to care. Clinically oral and maxillofacial treatment is an intensely frightening situation (Desjardins, 2000), however no survey can be found in the literature on individual and group-specific treatment anxiety of oral and maxillofacial patients.

This anxiety is seen in students performing their first procedures. However, fear and anxiety can adversely affect their efficiency and the results of the procedure performed. This fear and anxiety can sometimes, also become ingrained in the minds of the students and alter their work capabilities in the future. Hence, it is imperative to identify and manage the factors contributing to the same and minimize their occurrence in medical/dental school students.

Own investigations should gain information about subjective and objective intensity and content of treatment-related anxiety. Influence of demographic and surgical factors should be identified.

In the specialized literature, several factors have been linked with students anxiety as a consequence of their endeavor to meet the academic and professional tasks requested in medical/dental school. The most commonly cited have been grade competition, heavy workload (e.g., Burk et al., 2005), difficulties in meeting procedural clinical requirements (e.g., Westerman et al., 1993; Yap et al., 1996), inconsistent feedback from faculty, perceptions of receiving unjustified criticism on preclinical and clinical exercises, tensed relationships with faculty members (e.g., Sanders & Lushington, 2002) and student annoyance due to the absence of schooling advocacy or the lack of time for relaxation (e.g., Aktekin et al., 2001). Also, different individual

characteristics (such as personality type or emotional intelligence) and social support have been reported to have a role in one's responses to stress (e.g., Muirhead & Locker, 2008). Moreover, sociocultural and gender differences, as well as various institutional and curricular factors have also proved to be related to perceived stress (Polychronopoulou et al., 2009).

Fear and anxiety has been linked to both preoperative, intraoperative and post operative procedures. Students often complain of fear of their self image and confidence in front of the patient. Apprehensive patients often increase the anxiety levels of the students. Presence of demonstrator has also been associated as a contributing factor. Post operatively, chances of patient developing complications associated with local anesthesia also precipitate fear in the student's mind. Anxious students often exaggerate the apprehensiveness of the patient, further increasing the fear of the student.

Hence, with the help of this study, we have tried to identify all such factors and derive an inference that would aim in reduction of such instances and help the students gain more confidence, which would improve their efficiency.

Research has shown that dental students experience considerable stress during their training and that dental students are more anxious than the general population. Kieser and Herbison found that third year dental students are reported as most anxious about surgical procedures and failed local anesthetic. Not only is this high anxiety concerning, but it has also been shown that dental students' stress negatively affects their physical and psychological well being.

O'Shea et al. reported various behaviors that can be used to decrease patient anxiety. These behaviors included having a calm manner, smiling, welcoming face, being friendly to the patient, and giving emotional support to the patient throughout treatment. However, an anxious dental student may have difficulty engaging in these behaviors. Given the negative impact that anxiety has on the students

themselves, their academic performance, their dental work, and their patients' comfort level, it has been advocated that medical/dental students be provided with a stress management program during their dental training. A handful of studies have evaluated stress reduction programs for dental students.

Therefore, keeping in mind the importance of professional and academic stress, as it has been sustained by the extensive specialized literature, our goals within the current study were:

1. To analyze the way students perceived fear and anxiety.
2. To explore the different contributing factors leading to increased fear and anxiety.
3. To find out a reliable approach to minimize this fear and anxiety.

## Methods

### Test Instrumentary

A 2 page questionnaire was developed. 100 participants each from third and final year were selected and asked to fill out the form immediately before and after delivering their first local anesthetic injection.

Three major criteria were categorized as:

- A. Factors causing Fear
- B. How did the student feel at the time of procedure
- C. Final conclusion

The students were asked to fill out on a total of 15 points on a scoring criteria from 1 to 5, with 1 being strongly disagree and 5 being strongly agree.

A total score ranging from 15 to 75 was calculated and analyzed.

### Participants

The participants were students in MBBS/BDS third and final year, aged between 19 – 22 years, studying at Govt.SS Medical College Rewa MP, during the academic year 2017-2019. All of them were asked to voluntarily participate in this study by completing a series of self – report measures on the questionnaire prepared. Care was taken to ensure that the participants understood their rights

as research participants and the rationale for this study.

### Inclusion/exclusion criteria

Volunteer students over 18 years of age, studying in MBBS/BDS third and final year were selected. Students who had previously administered local anesthesia in patients were not included in this study.

### Patient selection

Patients referred to Department of Dentistry for exodontia were considered for this study. Patients with compromised medical status were not considered for this study.

### Results

200 students took part in this study ( n=200 ) aged between 19 to 22 years of age, currently studying at Govt. SS Medical College Rewa MP., during the academic years 2017-2019.

42% of the subjects partially agreed that their self image in front of the patient was one of the precipitating factors in their anxiety, only 6% of the total subjects strongly disagreed to this point.

54% of the total subjects strongly agreed that one of the major factors, causing fear was the chances of patient going into syncope. Only 7.5% were neither agreed nor disagreed on this factor.

Operator injury, due to getting pricked by needle, is another factor which was studied. 46% of the total subjects, were neutral in this aspect, they neither agreed nor disagreed. Only 6% strongly agreed to this factor causing fear and anxiety.

Apprehensiveness of the patient was the major factor for which 58% of the total subjects strongly agreed. Only 7% of the subjects felt that it was not a causative factor in anxiety.

35.5% of the subjects strongly agreed that presence of a demonstrator while administering the anesthesia was a contributing factor in anxiety..

51% if the subjects reported inability to locate the point of insertion of needle as another causative factor in their fear and anxiety. Only 3% if the subjects strongly disagreed to this.

At the time of administration, subjects were questioned on various signs of anxiety, 38% of the total subjects strongly disagreed with incidence of shivering of hands. Only 6% partially agreed to complain of shivering at the time of administration of block. An increase in heart rate was strongly agreed upon by 39.5% of the total subjects, 5.5% being neutral towards this sign. A majority of 57% subjects were neither agreed nor disagreed upon tensing of muscles during the procedure; with only, 1.5% partially agreeing to this factor. 51% of the total subjects strongly agreed upon feeling perspiration during the procedure, with only 1.5% partially disagreeing to this.

55% subjects strongly disagreed on eliminating the need for supervision next time. 5.5% of the total subjects partially agreed that supervision was not needed for their following cases. A majority of 63.5% subjects strongly agreed upon the need for thorough theory and practical demonstrations for administering local anesthesia, with only 5.5% strongly disagreeing to this fact. 56% subjects strongly agreed that the experience was actually better than expected and gained more confidence for future patients. 38% subjects reported that needleless approach can help reduce their fear and anxiety in the future.

### Discussion

“Anxiety” (lat. angustus: narrow) is a state of mind characterized by an individually distinctive switch off of the intellectual and deliberate personality control. Non-object-referring, diffuse anxiety is differentiated from “Real Anxiety” caused as a result of situations (Joehren and Sartory, 2002).

Anxious behavior on particular stimuli can be explained as a physiological mechanism of adaptation in unknown situations (Joehren and Sartory, 2002). Nevertheless, numerous negative effects of such a state of mind associated with surgical treatment have been proved by multiple studies conducted within the last 50 years.

All participants were entered into the study and their answers were evaluated.

42% of the subjects partially agreed that their self image in front of the patient was one of the precipitating factors in their anxiety, only 6% of the total subjects strongly disagreed to this point. Self image can be a factor Self-esteem is the degree to which we feel confident, consider ourselves valuable, and respect ourselves, and this greatly affects our well-being. Self-esteem exists on a continuum, from high to low, and low self-esteem is associated with self doubt, self-criticism, social isolation, suppressed anger, and shame. People with low self esteem often doubt themselves and hence, feel greater anxiety and fear. Thus, it is essential to identify this cause and give motivation to these students to help raise their self esteem.

54% of the total subjects strongly agreed that one of the major factors, causing fear was the chances of patient going into syncope. Only 7.5% were neither agreed nor disagreed on this factor. Complications are an undesirable, yet unavoidable aspect of every procedure performed. Syncope is one of the most commonly faced side effects of local anesthesia. Patients’ fear, anxiety, any underlying systemic disease can be a precipitating factor. Students must thoroughly be taught about the physiology and management of syncopal attacks. Proper patient history, examination and prophylaxis, if required, can greatly reduce the chances of patients developing syncope and hence would ease the anxiety of the students as well.

Operator injury, due to getting pricked by needle, is another factor which was studied. 46% of the total subjects, were neutral in this aspect, they neither agreed nor disagreed. Only 6% strongly agreed to this factor causing fear and anxiety. Operator injury can easily be avoided by use of proper techniques and safety measures. Scoop technique, must be taught to the students to avoid needle prick injuries. If needle injury occurs, students should be taught about the management for the same.

Apprehensiveness of the patient was the major factor for which 58% of the total subjects strongly agreed. Only 7% of the subjects felt that it was not a causative factor in anxiety. Dental procedures, especially extractions, have always been associated with pain and stress. Patients show a great level of apprehensiveness which can cause anxiety to the student. The careful use of language can be key tools in helping nervous patients cope with dental treatment. When meeting an apprehensive patient for the first time, they will be scrutinizing every word and expression to decide if the operator is different from all the rest. The first few minutes are critical and create a fear in the minds of the students. Hence, such patients must be greeted with a confident and reassuring smile, eye contact must be maintained and it is essential to remove the fear of the unknown from the minds of such patients.

35.5% of the subjects strongly agreed that presence of a demonstrator while administering the anesthesia was a contributing factor in anxiety. The demonstrator should be reassuring and not imposing in their presence. Their role must be helping build up the confidence of the students. If intervention is needed, it must be done swiftly and it should be kept in mind that the student must not be scolded or remanded in front of the patient.

51% if the subjects reported inability to locate the point of insertion of needle as another causative factor in their fear and anxiety. Only 3% if the subjects strongly disagreed to this. Emphasis must be given to anatomical landmarks corresponding to various anesthesia techniques. Proper patient demonstrations, anatomic variations and direction and placement of barrel and needle must be taught to the students prior to their first patient.

At the time of administration, subjects were question on various signs of anxiety, namely:

1. Shivering of hands
2. Increase in hear rate
3. Tensing of muscles
4. Perspiration

38% of the total subjects strongly disagreed with incidence of shivering of hands. Only 6% partially

agreed to complain of shivering at the time of administration of block. An increase in heart rate was strongly agreed upon by 39.5% of the total subjects, 5.5% being neutral towards this sign. A majority of 57% subjects were neither agreed nor disagreed upon tensing of muscles during the procedure; with only, 1.5% partially agreeing to this factor. 51% of the total subjects strongly agreed upon feeling perspiration during the procedure, with only 1.5% partially disagreeing to this.

The students must be provided with a calm and confident environment for operating on patients in the clinics so as to reduce the stress factors and resultant symptoms associated with their higher anxiety levels.

Final conclusion was based on the need for:

1. Supervisions not required for next time
2. Need for Theory/Demonstrations
3. Experience was better than expected
4. Needleless alternative to reduce operator's fear

55% subjects strongly disagreed on eliminating the need for supervision next time. 5.5% of the total subjects partially agreed that supervision was not needed for their following cases. A majority of 63.5% subjects strongly agreed upon the need for thorough theory and practical demonstrations for administering local anesthesia, with only 5.5% strongly disagreeing to this fact. 56% subjects strongly agreed that the experience was actually better than expected and gained more confidence for future patients. 38% subjects reported that needleless approach can help reduce their fear and anxiety in the future.

Consistent with the statistical data, our study revealed that the students fear and anxiety can be reduced with certain changes to the teaching patterns. Theory and practical demonstrations greatly help in reducing the operators' stress levels. Knowledge of post operative complications and their management, along with proper patient management can greatly reduce the anxiety levels of the students.



The dental students experience high levels of general anxiety and apprehension at the time of their first local anesthetic injection, and use of proper stress management techniques can reduce this fear. Students who use poor coping strategies tend to experience heightened anxiety. We encourage the clinical faculty to continue to develop stress management interventions. We advocate that the educators should seriously consider and address dental student anxiety for the enhancement of the student, and their patients. This is mandatory for all dental students, especially with those who naturally choose poor coping strategies. Although not demonstrated in this study, we believe that effective stress management can reduce students' overall anxiety and fear, enhance their academic functioning, improve their performance, decrease their patients' anxiety, and ultimately benefit all aspects of their academic life.

### Conclusion

Students' anxiety and fear can be mainly attributed to patient apprehensiveness and chances of patient going into syncope, with maximum feeling perspiration at the time of procedure. It was concluded that presence of theory and demonstrations greatly eased this fear.

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### Conflict of Interest

No conflict of interest was reported at the time of this study.

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