

# Stress level in dental students performing pedodontic procedure

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## ABSTRACT

Dental education has been asserted as one of the challenging and stressful fields of the study as dental students are expected to acquire diverse competencies such as academic and clinical competencies and interpersonal skills. Practitioners and students dealing with the field of pediatric dentistry have reported high-stress level on the basis of patient management. The aim of this study is to assess the level of stress among dental students and methods of managing children while performing pedodontic procedure. A self-designed questionnaire was given to 275 undergraduates and 21 postgraduates, the data obtained were analyzed using Chi-square test, and the stress levels were compared. Third-year students found it difficult to overcome the stress and were less confident while treating a child patient. Overall, 43% of students were more stressed while giving local anesthesia and 27.7% students were more stressed during extraction. Among students of all years, 50.3% of students preferred tell-show-do method for managing a child patient. Acceptance and spiritual methods were preferred by most of the students of all years as coping strategies to overcome stress. This study reveals that stress level was generally high among the beginners of clinical practice and decreased on continuous practice. Students who had knowledge on child's psychology and behavioral management techniques agreed that it helped in reducing stress level.

**Key words:** Dental student's anxiety, pedodontic procedure, stress

## Introduction

Stress is defined as pressure or worry caused by problems in somebody's life.<sup>[1,2]</sup> The practice of dentistry is associated to one of the high levels of occupational stress. Gorter *et al.* stated that stress encountered during dental education is more pronounced than during medical education.<sup>[3]</sup> Epidemiological studies demonstrated that dental students experience considerable stress during their training and they are more anxious than the general population.<sup>[4,5]</sup> Dental students have identified the development of stress due to many assignments, competition with other students, poor relationship with other students and teachers, anxious patients, fear of failure, complicated treatments and possible conflicts with patients, and limited time to perform and finish the planned treatment.<sup>[6]</sup> Stress gives a negative impact to the physical and mental health of the dental students.

Kieser and Herbison found that 3<sup>rd</sup>-year dental students reported being most anxious about surgical procedures.<sup>[7,8]</sup> In particular

to pediatric dentistry, dental student's anxiety and stress level is elevated to the peak as managing a child in the dental chair is a great challenge for any dentist. Pediatric dental care is influenced by pedodontic triangle which consists of parents, child patient, and the dental team. No part of this triad can be viewed in isolation. The relationship between child, parent, and the dentist is interrelated and their communication is reciprocal.<sup>[9]</sup> To develop a good rapport with a child patient, the dental student must be equipped with confidence, knowledge of the treatment, and behavioral management methods before performing the treatment. Hence, the purpose of this study is to analyze and compare the prevalence of stress in dental students performing various pedodontic procedures as well as to evaluate the techniques used to manage child patients and methods to overcome the stress.

## Materials and Methods

The study received the approval from university review board (STP/SD12 BDS 081).

A pilot study was performed with a self-designed questionnaire regarding stress experienced by dental students while performing pediatric procedure with 20 students initially, and required modifications were made in the questionnaire. The modified questionnaire was then distributed among third, final year and interns of undergraduate dental course and master of dental surgery students at the university in Chennai. The questionnaire was verified by a senior academic faculty member.

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The questionnaire contained demographic details of the participants. Following it, the questionnaire was divided into four sections. Section A contained questions regarding preference of dental students in performing pedodontic procedure. Section B consisted of questions related to stress and anxiety faced by the students while treating pediatric patients. Section C included various behavioral management techniques implemented by dental students toward pediatric patients. Section D dealt with methods the students followed to cope up the stresses.

The completed questionnaires were collected back on the same day and the data were analyzed. The collected data were analyzed with IBM. SPSS statistics software 23.0 version. To describe about the data, descriptive statistics, frequency analysis, percentage analysis were used for categorical variables and the mean and standard deviation were used for continuous variables. To find the significance in categorical data, Chi-square test was used. In the above statistical tool, the  $P = 0.05$  is considered as significant level.

## Results

Among 296 dental students, 100 final year students, 95 3<sup>rd</sup>-year students, 80 interns, and 16 postgraduates from various specialties participated in this study. The study sample consisted of 16.9% males and 83.1% females (Chart 1).

### Stress level in dental students in attending pedodontic patients associated with the year of study (Table 1)

Among all students, 65.5% of students preferred child patients when given a choice. There was no significant difference when compared with the year of study and the preference of students attending pedodontic procedure. On average, students of all years of about 44.3% treated pedodontic patient once a week. Comprising all years, 45.3% students were quite stressful while performing their first

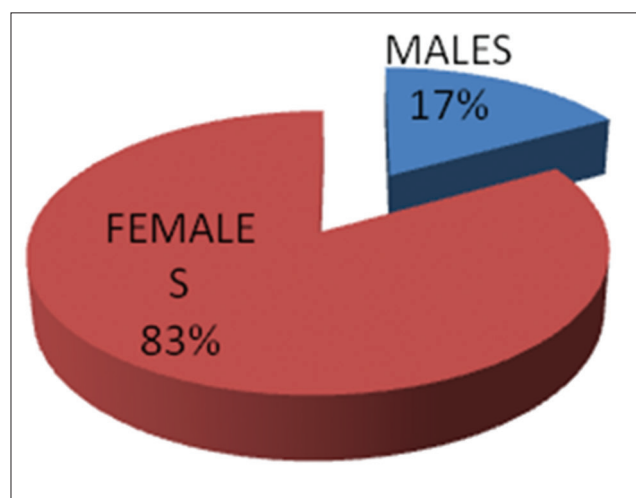


Chart 1: Gender of the participants in percentage

Sex	Males	Females	Total
Frequency	50	246	296
Percentage	16.9	83.1	100

pediatric dental procedure. When enquired about the scale of stress level, 58.8% of students among all years felt that there was decrease in the stress level after treating few pediatric patients.

### Stress level in dental students in performing various pedodontic procedures (Table 1)

Among all dental students, 34.5% of students were confident in identifying the teeth present in mixed dentition. There was a significant difference ( $P = 0.003$ ) that 3<sup>rd</sup>-year students were less confident in identifying mixed dentition.

Among all dental students, majority of 3<sup>rd</sup>-year students and few final year students were stressful while performing extraction, in which 43.2% students were stressful while giving local anesthesia (LA) while 27.7% students were stressful while performing extraction. There was no significant difference when the extraction procedure was compared with the year of study.

When determining stress while performing restoration procedure, 48% of students in total felt less stressful with a significant difference of 0.007.

On average, students of all years of about 58% were less stressful while taking radiograph in a child patient.

### Knowledge about child's psychology and behavior management methods by dental students (Table 1)

Among all dental students, 50.3% students felt that knowing theories of child psychology was important. When asked about behavioral management technique, 50.3% of students preferred tell-show-do technique, 29.1% students preferred positive reinforcement, and 10.5% students preferred voice-control methods. 79.4% students agreed that knowing behavior management methods helps in reducing stress level while treating pediatric patients.

When enquired about coping methods to overcome stresses caused while performing pedodontic procedure, 44.9% students stated that acceptance was the best coping methods while 33.4% students felt that spiritual belief was best coping method.

### Comparing the stress level of students while performing various procedures who prefer to attend pedodontic patients (Table 2)

Among students who prefer a child patient, 31.1% students had difficulty in performing extraction procedure, especially while giving LA. Statistical value was significant which stated that students, irrespective of their preference of child patient, were stressed while giving LA than extracting.

When compared with students who preferred child patient, 12.5% students had less stress in performing restorative procedure. Statistically, significant difference was seen which stated that, irrespective of their preference of child patient, students had less stress in performing restorative procedure.

Table 1: Stress level in dental students in attending pedodontic patients associated with the year of study

Question	Options	III (%)	IV (%)	CRRI (%)	MDS (%)	P value
Q1. Preference of pediatric patients, if given a choice	Yes	21.6	23.0	16.6	4.4	0.360
	No	6.8	5.4	3.7	1.4	
	Don't mind	3.7	5.4	6.8	1.4	
Q2. Frequency of taking up pedodontic patients	Once a week	10.8	12.2	10.1	3.7	0.014
	Once a month	13.5	18.6	10.8	1.4	
	Rarely	7.8	3.0	6.1	2.0	
Q3. Stress while performing first pedodontic procedure	Very stressful	10.5	11.8	7.1	1.0	0.071
	Quiet stressful	13.5	16.9	10.8	4.1	
	Not at all	8.1	5.1	9.1	2.0	
Q4. Confidence in managing a child in dental chair	Very confident	4.1	6.1	6.1	0.7	0.107
	Somewhat confident	23.6	26.0	19.9	5.7	
	Not at all confident	4.4	1.7	1.0	0.7	
Q5. Ability to manage child patient as adult patient	Yes, I can manage	10.5	11.5	4.7	3.4	0.082
	Depends on patients behavior	20.6	20.3	20.9	3.4	
	Not at all	1.0	2.0	1.4	0.3	
Q6. Change in regarding stress factor after treating few pediatric patients	Yes	18.6	19.3	16.2	58.8	0.861
	No	13.5	14.5	10.8	41.2	
Q7. Most problematic person during the treatment	Child	15.5	17.9	16.2	3.0	0.667
	Parents	14.9	14.5	9.8	3.4	
	Yourself	1.7	1.4	1.0	0.7	
Q8. Level of anxiety while diagnosing child's mouth	Very anxious	7.4	8.4	5.7	1.0	0.082
	Quiet anxious	18.2	16.6	11.1	2.7	
	Not at all	6.4	8.8	10.1	3.4	
Q9. Confidence in identifying the mixed dentition	Very confident	7.4	9.5	13.9	3.7	0.003
	Somewhat confident	20.6	22.0	11.5	3.0	
	Not at all confident	3.7	2.4	1.0	0.3	
Q10. Preference of behavioral management technique	Tell-do-show	16.2	14.5	15.5	4.1	0.344
	Positive reinforcement	9.1	12.2	7.1	0.7	
	Negative reinforcement	1.0	0.7	0.3	0.0	
	Distraction	3.0	2.4	0.7	0.7	
	Voice control	2.4	3.4	3.0	1.7	
	Modeling	0.3	0.7	0.3	0.0	
Q11. Stress in performing pedodontic extraction procedure	Very stressful	12.5	12.2	7.4	1.4	0.107
	Quiet stressful	16.9	19.9	15.5	5.4	
	Not at all	2.7	1.7	4.1	0.3	
Q12. Most difficult period of managing a child, administrating LA or extracting a tooth	While giving LA	11.8	15.5	12.5	3.4	0.279
	Extracting teeth	8.4	10.5	7.8	1.0	
	Both	11.8	7.8	6.8	2.7	
Q13. Stress in performing restorative procedure in a child	Very stressful	8.1	6.8	6.8	1.4	0.007
	Quiet stressful	17.6	18.9	9.1	2.4	
	Not at all	6.4	8.1	11.1	3.4	
Q14. Stress in performing crown preparation	Very stressful	15.5	12.2	8.8	0.7	0.045
	Quiet stressful	12.8	17.9	14.2	5.7	
	Not at all	3.4	3.7	4.1	0.7	
Q15. Student's feeling after treating child patients	Happy and satisfied	18.9	19.9	13.9	4.7	0.523
	Relieved	12.5	12.8	11.1	2.0	
	Irritated	0.7	1.0	2.0	0.3	
Q16. Stress in taking radiograph in a child patient	Very stressful	5.7	7.8	5.7	2.0	0.345
	Quiet stressful	21.6	18.9	14.5	3.0	
	Not at all	4.7	7.1	6.8	2.0	
Q17. Importance of knowing theories of child's psychology	Very important	17.9	16.9	11.8	3.7	0.726
	Important	12.2	15.5	13.2	3.0	
	Not important	2.0	1.4	2.0	0.3	

(Contd...)

Table 1: (Continued...)

Question	Options	III (%)	IV (%)	CRRI (%)	MDS (%)	P value
Q18. Methods of coping stresses	Acceptance	12.2	16.2	12.8	3.7	0.071
	Spiritual	14.5	9.8	7.4	1.7	
	Humor	3.0	3.0	4.4	1.0	
	Emotional support	2.0	2.4	2.4	0.3	
	Venting	0.3	2.4	0.0	0.3	
Q19. Does behavioral management technique help in managing stress	Yes	26.0	26.4	21.3	5.7	0.538
	No	5.4	7.4	5.7	1.4	
Q20. Do you opt any other methods to manage a child	Yes	2.4	3.0	2.4	2.4	0.001
	No	29.7	30.7	21.3	4.7	

LA: Local anesthesia, CRRI: Compulsory rotatory residential internship, MDS: Masters in dental surgery

**Table 2: Comparing the stress level of students while performing various procedures who prefer to attend pedodontic procedure**

Questions	Options (%)	Q1			P value
		Yes	No	Don't mind	
Q11	Very stressful	22.0	4.7	6.8	0.425
	Quiet stressful	37.8	10.1	9.8	
	Not stressful	5.7	2.4	0.7	
Q12	While giving la	31.1	8.1	4.1	0.007
	Extracting	17.9	5.1	4.7	
	Both	16.6	4.1	8.4	
Q13	Very stressful	12.5	6.8	4.1	0.050
	Quiet stressful	33.4	6.4	4.7	
	Not stressful	19.6	4.1	8.4	
Q14	Very stressful	22.3	5.7	9.1	0.061
	Quiet stressful	35.1	9.5	6.1	
	Not stressful	8.1	2.0	1.7	
Q15	Happy and satisfied	44.9	5.1	7.4	0.000
	Relieved	17.9	11.8	8.8	
	Irritated	2.7	0.3	1.0	
Q16	Very stressful	13.5	3.7	4.1	0.114
	Quiet stressful	35.8	10.5	11.8	
	Not stressful	16.2	3.0	1.4	

Among students who preferred treating the child patient, 44.9% students were happy and satisfied after performing pedodontic procedure.

## Discussion

Controlling patient's anxiety adequately is an integral part in the practice of dentistry. Dental student's anxiety aggravates patient's distress during dental procedures.<sup>[7]</sup> This study was performed to assess the stress level of students performing pedodontic procedure so that it could be possible to come up with various coping strategies to help the students deliver effective treatment. Stress has been described as a double-edged sword that can either inspire and trigger the students to their peak performance or reduce the students to ineffectiveness.<sup>[10]</sup>

A study conducted in the USA identified higher prevalence of stress among the dental undergraduates in clinical years as compared to non-clinical years.<sup>[11]</sup> This may be probably because the students had to manage both theoretical and clinical part of curriculum. In our study, when compared to clinical years, 3<sup>rd</sup>-year students were more stressful than all the other years.

In the present study, among all students, 30.4% students were more stressed while performing their first pedodontic procedure. When compared to all years, 3<sup>rd</sup>-year students were less confident and had difficulty in treating child patients; this result was analogous to the study done by Ahmad *et al.*<sup>[11]</sup> and Tangade *et al.*,<sup>[10]</sup> which stated that 3<sup>rd</sup>-year students faced difficulty in learning clinical procedures both theoretically and practically.

In the present study, majority of the students felt that the child was more troublesome and few students felt that parents were more problematic before starting the dental treatment. This could be probably due to the fact that children were already anxious to face the dentist, attributing to this are also parents who were highly demanding that the child should open their mouth wider to cooperate with the treatment. In some instances, parents even hit the child if they were highly uncooperative which made the child restless. All these situations could contribute to an increase in stress level for the dental students.

In the present study, most of the students were less confident in identifying the mixed dentition; this could be due to lack of experience in differentiating between primary and permanent dentition. Among all years, 57.8% students were more stressful while extracting child teeth, in that 43.2% student felt that giving LA was stressful. These results correlated with the study done by Rasmussen *et al.* and Dower *et al.*, administering mandibular block to pre-school child being most stressful pain control method.<sup>[12,13]</sup> In the present study, many students felt that giving LA was more stressful which could be attributed to the fact that children were deadly fearful for injections and the experience of vaccination would pop out and the child would become more anxious about the pain. In the current study, 48% dental students were less stressful while performing restorative procedure and this results correlated with the study by Rønneberg *et al.*, which revealed that younger the child, the more frequently a dentist found it difficult to perform restorative procedures.<sup>[14]</sup>

In the present study, most of the students implemented behavior management techniques. In that, 79.4% students agreed knowledge of behavior management helped overcome stress and few students utilized other methods to manage a child such as play area in clinic, visual method of distraction, and favorite colors and gifts. Majority of the students in this study preferred tell-show-do technique, positive reinforcement, voice-control methods. These results were analogous

with the study done by Carr *et al.*, and oliveria *et al.* which stated that 64% dentists opted behavioral management techniques such as tell-show-do, voice-control, and positive reinforcement.<sup>[15,16]</sup> Another similar study by Manual SAbushal and Oredugba and Sanu<sup>[17,18]</sup> stated that most commonly followed behavioral management techniques were tell-show-do, positive reinforcement, and voice-control.<sup>[18]</sup>

Minimal amount of stress is always present while handling pediatric patients.<sup>[1,19]</sup> There are many coping methods to overcome stresses to continue the dental practice effectively. In this study, majority of the dental students preferred acceptance and spiritual methods as the best coping methods to overcome stress. A similar study revealed that praying or performing spiritual activities was also a popular stress reducing technique as it produces calmness.<sup>[1]</sup> A study done in the United States emphasized about yoga, meditation, listening to music as other coping methods that helped in reducing stress.<sup>[1]</sup>

## Conclusion

The stress in dental students performing pedodontic procedure is quite higher. Particularly, the stress level is at peak at the initial days of practice and gradually reduced during the course. Knowledge about child's psychology helped them in managing a child during treatment and knowledge about behavioral management technique helped reduce stress level in students better.

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