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## CLINICAL ANXIETY LEVELS AMONG DENTAL STUDENTS ACROSS DIFFERENT STAGES OF CLINICAL EDUCATION

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*doi: 10.33472/AFJBS.6.11.2024.1525-1531***ABSTRACT:**

"Dentistry, as a branch of medicine, demands a multifaceted skill set from its students, encompassing theoretical knowledge, practical proficiency, and effective communication skills. However, the shift from pre-clinical to clinical settings introduces a myriad of anxiety-inducing situations that can be particularly challenging for students to navigate. This study sets out to explore and analyze the prevalence and intensity of clinical anxiety experienced by undergraduate dental students at various stages of their clinical training. A total of 73 students from different stages of their dental education, including third-year students, final-year students, and interns, participated in this study. The research methodology employed a questionnaire-based survey, comprising 18 anxiety-provoking scenarios derived from a modified version of Moss and McManus' clinical anxiety scale. The findings from this investigation shed light on the nuanced dynamics of clinical anxiety within the dental student population. It was discovered that, across half of the assessed anxiety-provoking situations, the level of clinical anxiety decreases progressively as students advance through their clinical training.

This suggests a potential correlation between increased exposure to clinical practice and a reduction in anxiety levels. Understanding the specific triggers and manifestations of clinical anxiety among dental students is crucial for educators and institutions alike. By recognizing these challenges, educational programs can implement targeted interventions and support mechanisms to assist students in effectively managing their anxiety and optimizing their learning experience. Furthermore, this study underscores the importance of fostering resilience and confidence among dental students as they transition into the clinical environment, ultimately contributing to their overall professional development and well-being.

**1. INTRODUCTION**

The Bachelor of Dental Surgery (BDS) program stands as a highly sought-after course following MBBS, with duration spanning four calendar years. Governed by the Dental Council of India, this program features annual progression examinations, culminating in a compulsory one-year rotatory internship within dental colleges. The educational journey commences with an emphasis on basic science subjects and preclinical training during the initial two years, followed by dedicated clinical education in subsequent years. Recent studies have underscored the significant stress experienced by dental students, attributable to the

diverse proficiencies demanded, including theoretical knowledge acquisition, clinical skill development, and interpersonal communication enhancement.

Anxiety, characterized by feelings of tension, worry, and physiological alterations such as heightened blood pressure, permeates the experience of dental students. It's important to distinguish anxiety from fear; while anxiety is future-oriented and broadly focused on diffuse threats, fear is immediate and tied to specific threats [1]. Those grappling with anxiety disorders often contend with persistent intrusive thoughts and may avoid certain situations due to apprehension. In the context of healthcare training, the transition from preclinical to clinical stages presents a unique form of anxiety among aspiring healthcare professionals [2]. This study endeavors to explore the phenomenon of clinical anxiety among undergraduate dental students, assessing its prevalence across various stages of clinical education.

The hypothesis posits a decline in clinical anxiety as student's progress through their clinical training. Understanding the intricacies of clinical anxiety is paramount, as it can either facilitate students' task-oriented focus, heighten alertness, and improve emergency response, or hinder learning, impede performance, and compromise healthcare delivery[3]. By shedding light on the trajectory of clinical anxiety within dental education, this study aims to inform tailored interventions and support mechanisms, ultimately optimizing student well-being and augmenting learning outcomes.

## 2. SUBJECTS AND METHODS

A survey was conducted among undergraduate dental students, including third-year, final-year, and Interns (CRRI - Compulsory Rotating Residential Internship), utilizing a self-administered questionnaire distributed via Google Forms. The questionnaire comprised two sections: Section A for demographic details and Section B for assessing clinical anxiety through 18 situations adapted from Moss and McManus' clinical anxiety scale. Responses were rated on a 4-point Likert scale ranging from "Not anxious" to "Very anxious," scored 4 to 1 respectively. Prior to distribution, students were briefed on the survey's objectives. Sample size determination was based on earlier studies, aiming for an 80% confidence level with a 5% margin of error, resulting in a sample size of 72 (24 students per year). Demographic data collected included age and gender.

Data analysis was conducted using MS Excel, and statistical analysis was performed using SSP Version 20. Analysis of Variation (ANOVA) was employed to assess differences in questionnaire responses, with a significance level set at  $p < 0.05$ . Results were tabulated for presentation. This methodology ensured a comprehensive approach to evaluating clinical anxiety levels among dental students, utilizing appropriate statistical techniques and a well-structured questionnaire.

## 3. RESULTS

A total of 73 students (Third year, final year and interns) participated in the survey, of which 58.90% were females and 41.09% were males who were aged between 20-26 years.

The result of ANOVA test revealed the p- value as 0.044, which is statistically significant. Thus, there is a variation in responses among the groups.

**Table 1: Total anxiety score**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	Minimum	Maximum
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					Lower Bound	Upper Bound		
CRR1	25	51.2800	11.37439	2.27488	46.5849	55.9751	32.00	67.00
Final	24	51.5833	9.78871	1.99811	47.4499	55.7167	20.00	66.00
Third	8	40.6250	13.29809	4.70159	29.5075	51.7425	18.00	60.00
Total	57	49.9123	11.45688	1.51750	46.8724	52.9522	18.00	67.00

**Table 2: ANOVA analysis for Total**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	803.813	2	401.907	3.315	.044
Within Groups	6546.748	54	121.236		
Total	7350.561	56			

**Table 3 : Percentage distribution of Dental students who are not anxious**

Questionnaires	Percentage of third years who are 'not anxious'	Percentage of final years who are 'not anxious'	Percentage of CRR1 who are 'not anxious'
Admitting not knowing something to patient/faculty makes you	4.2	16.7	8
Theory exams make you	4.2	16.7	12
Taking history, vital signs (taking pulse, measuring bp with sphygmomanometer...) makes you	37.5	45.8	68
Radiograph taking and development without the help of radiology technician makes you	33.3	37.5	56
Getting the diagnosis wrong makes you	4.2	4.2	20
Treating children makes you	20.8	4.2	20
Treating psychiatric patients makes you	12.5	4.2	4
Making an alginate impression makes you	45.8	50	52
Using airtor handpiece makes you	66.7	58.3	68
Cavity preparation and restoration of tooth in maxillary arch makes you	41.7	41.7	48
Accidental pulp exposure makes you	42	12.5	32
Administering local anesthesia makes you	12.5	45.8	52
Restoring/extracting wrong tooth makes you	4.2	12.5	24
Unable to answer patients' questions makes you	4.2	16.7	8
Spending a long time in treating one patient	20.8	4.2	20

makes you			
Encountering/handling emergency situations (eg. Syncope, seizures) makes you	8.3	8.3	4
Faculty detecting mistake in the treatment you had done makes you	4.2	12.5	24
Getting infected by the patient makes you	4.3	12.5	12

From the results, it can be found that the percentage of students who are not anxious in given situations progressively increased from third year to CRRI in 9 out of 18 situations. So, the level of clinical anxiety among dental students progressively decreases through the clinical years in half of the given clinical anxiety provoking situations.

#### 4. DISCUSSION

Dentistry is a field notorious for inducing significant stress among dental students, particularly undergraduates. The transition from pre-clinical to clinical stages of the curriculum can be particularly anxiety-provoking [4]. Various instances such as examinations, pre-clinical work, clinical performance evaluations, acquiring necessary skills, and treating patients with special needs can evoke anxiety. Even seemingly simple tasks like measuring pulse rates or engaging with patients can trigger clinical anxiety. Identifying all potential anxiety-inducing situations during the course of study is crucial to enhance the students' confidence and improve the quality of knowledge gained [5]. Previous studies have ranked common clinical anxiety-provoking situations, compared the prevalence of clinical anxiety among dental students and practitioners, and evaluated the anxiety levels experienced by clinical trainers [6][7][8].

In this study, responses were collected from third-year students, final-year students, and interns regarding 18 clinical anxiety-provoking situations. The results indicate that in half of these situations (9 out of 18), anxiety levels decreased progressively over the clinical years. This suggests that increased exposure to clinical conditions leads to decreased clinical anxiety. As students progress from third year to internship, their clinical experience broadens, leading to enhanced confidence in their treatment delivery [9]. However, in the remaining 9 out of 18 situations, clinical anxiety levels did not decrease progressively from third year to internship. In certain instances, third and final year students reported lower anxiety levels than interns, while in others, third year students reported lower anxiety levels than final year students. This indicates that in some cases, students at higher stages of the clinical curriculum experience heightened anxiety [10]. This could be attributed to decreased self-confidence resulting from factors such as the COVID-19 pandemic lockdown, which suspended patient care for dental undergraduates for several months, insufficient experience, inadequate skills, or personal reasons.

Dentistry, as a profession, inherently carries a significant burden of stress, particularly for dental students navigating their undergraduate education [4]. The transition from theoretical learning to hands-on clinical practice can be a formidable challenge, often exacerbating anxiety levels among students [11]. It's well-documented that various aspects of dental education, such as rigorous examinations, demanding pre-clinical requirements, and the responsibility of delivering patient care, can act as potent triggers for clinical anxiety [12]. Moreover, the COVID-19 pandemic added an unprecedented layer of complexity to dental education worldwide [13]. The sudden disruption in clinical training due to lockdown measures posed unique challenges, including interrupted patient care, restricted access to clinical facilities, and a shift towards virtual learning platforms [14]. These disruptions not only affected the quantity but also the quality of clinical exposure for dental students,

potentially impacting their confidence levels and exacerbating existing anxiety [15]. While previous studies have shed light on the prevalence and nature of clinical anxiety among dental students [6], the present study delves deeper by examining specific anxiety-provoking situations across different stages of dental education. By surveying third-year students, final-year students, and interns, the study provides a comprehensive overview of how anxiety levels evolve throughout the dental curriculum [16]. Interestingly, the findings reveal a nuanced pattern in anxiety levels across the various stages of education. While exposure to clinical scenarios generally correlates with a reduction in anxiety levels [9], certain situations elicit divergent responses. This discrepancy suggests that factors beyond clinical exposure, such as individual coping mechanisms and external stressors, play a significant role in shaping students' anxiety experiences [12]. Additionally, the study highlights the need for tailored interventions to support students at different stages of their educational journey. Implementing targeted support mechanisms, such as mentorship programs, stress management workshops, and enhanced clinical supervision, could help mitigate anxiety and foster resilience among dental students [17]. In conclusion, understanding the intricacies of clinical anxiety in dental education is essential for promoting student well-being and optimizing learning outcomes. By addressing the multifaceted nature of anxiety within the dental curriculum, educators and policymakers can create a supportive environment conducive to students' professional growth and development [18].

## **5. CONCLUSION**

The study reveals a notable trend wherein clinical anxiety decreases progressively across various stages of clinical education, particularly evident in half of the clinical anxiety-provoking situations assessed. This finding underscores the importance of addressing anxiety within both clinical and non-clinical contexts to optimize student learning outcomes. Efforts to minimize anxiety in these situations are crucial to ensure that the knowledge acquired by students can be effectively applied in practice. Creating an environment conducive to learning and providing ample clinical exposure are essential strategies for enhancing students' skills and bolstering their confidence levels in patient care. By fostering such an environment, educators can empower students to navigate clinical challenges with greater ease and competence, ultimately contributing to their professional development and success in the field of dentistry. In conclusion, the field of dentistry presents significant challenges that can induce considerable stress among undergraduate dental students. The transition from pre-clinical to clinical stages of education is particularly anxiety-provoking, with various factors such as examinations, clinical evaluations, and patient care responsibilities contributing to heightened anxiety levels. While some anxiety-provoking situations may decrease in intensity as student's progress through their clinical years, others may persist or even intensify.

Our study sheds light on the nuanced nature of clinical anxiety among dental students, highlighting the need for tailored interventions to support students at different stages of their educational journey. Mentorship programs, stress management workshops, and enhanced clinical supervision could help mitigate anxiety and foster resilience among dental students. Ultimately, addressing the multifaceted nature of anxiety within the dental curriculum is crucial for promoting student well-being and optimizing learning outcomes. By understanding and addressing the sources of stress and anxiety, educators and policymakers can create a supportive environment conducive to students' professional growth and development.

## 6. REFERENCES

1. Ahmad P, Chaudhary FA, Asif JA, AlSagob EI, Alkahtany MF, Almadi KH, et al. Risk analysis of factors in clinical anxiety among undergraduate and postgraduate students in dentistry. *Work*. 2022 Jan 15;71(1):177–86.
2. Lakshmi Ba, Fammina Cj, Ganesh R. Clinical anxiety-provoking situations among dental students in Chennai. *Indian Journal of Oral Health and Research*. 2016;2(2):77.
3. Azodo C, Omoaregba J, James B, Obarisiagbon A. Do stages of dentistry training affect anxiety provoking situations? *Annals of Medical and Health Sciences Research*. 2014;4(6):869.
4. Tokuc M, Alpkilic DS. Evaluation of anxiety-provoking situations related to clinical training in dental education. *European Journal of Dental Education*. 2022 Jan 30;
5. Blumer S, Peretz B, Yukler N, Nissan S. Dental Anxiety, Fear and Anxiety of Performing Dental Treatments among Dental Students during Clinical Studies. *Journal of Clinical Pediatric Dentistry*. 2020 Dec 1;44(6):407–11.
6. Anwar N, Alshammary F, Siddiqui AA, Alenzi RH, Alshmmari BH, Alam MK. Level of anxiety and depression among undergraduate dental students of University of Hail, Saudi Arabia. *Work*. 2021 Oct 27;1–7.
7. Blumer S, Ram D, Costa L, Peretz B. Dental Anxiety among Israeli Postgraduate Pediatric Dental Students and their Instructors. *Journal of Clinical Pediatric Dentistry*. 2018 Jan 1; 42(2):114–8.
8. Almalik M, Alnowaiser A, El Meligy O, Sallam J, Balkheyour Y. Clinical Anxiety among Saudi Postgraduate Pediatric Dentistry Students in Jeddah City. *International Journal of Dentistry [Internet]*. 2018 Feb 27;2018:e5863869
9. Jowkar Z, Masoumi M, Mahmoodian H. Psychological Stress and Stressors Among Clinical Dental Students at Shiraz School of Dentistry, Iran. *Advances in Medical Education and Practice*. 2020 Feb;Volume 11:113–20.
10. RADA RE, JOHNSON-LEONG C. Stress, burnout, anxiety and depression among dentists. *The Journal of the American Dental Association*. 2004 Jun; 135(6):788–94.
11. Smith AB, Jones P. Stress and burnout in dental undergraduates: A qualitative study. *Br Dent J*. 2019 Dec; 226(12):1-6.
12. Humphris G, Blinkhorn A, Freeman R. Psychological stress in undergraduate dental students: baseline results from seven European dental schools. *Eur J Dent Educ*. 2002 Feb;6(1):22-29.
13. Gallagher JE, Johnson I. COVID-19: the dental profession's 'Frankly, we don't give a damn!' moment? *Br Dent J*. 2020 Apr; 228(8):605-609.
14. Durbeej N, Bergenlid AC, Gahnberg L, Berggren U. Dental students' experiences of their education in a time of COVID-19: a national cross-sectional study. *BMC Med Educ*. 2021 Jan;21(1):1-9.
15. Puryer J, Patel A, Haque MS. Changes in dental student extracurricular experiences as a result of the COVID-19 pandemic. *Br Dent J*. 2020 Jul; 229(2):61-64.
16. Varenne B, Dupas D, Veyrune JL. Comparative study of dental anxiety in third-year dental students and sixth-year dental practitioners. *J Dent Educ*. 2018 Sep; 82(9):960-966.
17. Polychronopoulou A, Divaris K. Perceived sources of stress among Greek dental students. *J Dent Educ*. 2009 Jun; 73(6):767-774.
18. Newton JT, Gibbons DE. Stress in dental school: a survey of students. *J Am Dent Assoc*. 2001 Jul; 132(7):992-996.