"PSYCHOSOCIAL IMPACTS, PERCEIVED STRESS AND LEARNING EFFECTS ON UNDERGRADUATE STUDENTS DURING TRANSITION FROM PRECLINICAL TO CLINICAL DENTAL EDUCATION."

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ABSTARCT:

Dentistry stands out as one of the most demanding and stress-inducing professions. The transition from preclinical to clinical stages is widely recognised as a pivotal phase for dental students. Throughout this period, individuals commonly encounter distinctive emotional and social challenges, contributing to heightened levels of stress, anxiety, and depression.

METHODS AND MATERIALS:

A cross-sectional questionnaire-based study was undertaken involving second and third-year dental undergraduates across various dental colleges in Pune with a sample size of 300 participants. Statistical analysis with a significance level set at P= 0.05 was observed.

The research employed questionnaires—the Dental Environmental Stress (DES) scale comprising 25 items. The questionnaire was crafted using Google Forms and disseminated through WhatsApp. The data collection, and responses from 307 self-selected participants were gathered for subsequent statistical analysis. Descriptive statistics, including mean and P value, were employed to identify primary stressors and assess their perceived intensity. Participants' responses were documented on a 4-point Likert scale.

RESULT:

This study encompassed a participant pool of 307 individuals, comprising 180 females (41.4%) and 127 males (58.6%). As per the Dental Environmental Stress (DES) scale results, the educational environment and clinical domain emerged as the most stress-inducing domains with variable mean values. The top five stressors identified included a lack of relaxation time, fear of failure, financial burden, criticism at work place , and examinations/grades.

CONCLUSION:

The findings from this study suggest that dental undergraduates undergo elevated levels of perceived stress, psychosocial impacts, depression, and anxiety during the transition from the preclinical (2nd year) to clinical (3rd year) practice. An essential psychosocial factor identified in this study was the collegiality between teachers and students. Furthermore, the ability to communicate effectively with patients is believed to contribute to stress reduction.

ABSTRACT:

INTRODUCTION:

Dental education stands out as one of the most demanding and stressful academic domains. A pivotal phase in dental education is the transition from preclinical to clinical instruction, a subject of considerable interest to researchers.Stress is a physiological response that demands attention due to physical, emotional, or psychological strain.During the years of transition, the students are exposed to multiple stress factors such as heavy workloads, schedule pressure and mastering technical skills[1]. Individuals exhibit various stress level manifesting in physical symptoms, psychological distress, emotional exhaustion, and burnout[2].During the clinical stage, additional stressors come to the forefront, including managing patient interactions, shouldering patient care responsibilities, and grappling with the challenges of acquiring manual skills[3].Dental Environment Stress (DES) is commonly attributed to various factors, including frequent exams, time constraints in achieving course goals, clinical and laboratory assignments, patient handling, high performance expectations, financial concerns, and inadequate relaxation time[4].Dental undergraduates grapple with a multitude of challenges, including academic demands, clinical responsibilities, and communication skills with patients, peers, and faculty. These psychosocial impacts contribute to elevated perceived stress levels, complicating the transition from preclinical to clinical .Dental students also grapple with significant rates of burnout, negatively impacting patient engagement and interpersonal communication with peers and colleagues .These aspects are pivotal for successful treatment, patient satisfaction, and the quality and efficacy of Medical care[2,5].   As undergraduates enter clinics, the application of basic and preclinical knowledge to clinical training becomes imperative.The presence of knowledge gaps and disparities between what students have learned in preclinical versus clinical encounters has been identified as a source of stress and psychosocial stress. This, in turn, contributes to unfavourable emotions in their interactions with patients and staff, negatively impacting self-confidence and performance in the Clinical setting[3].

MATERIALS AND METHODS:

A cross-sectional questionnaire-based study was conducted among dental undergraduate students at different dental colleges in Pune with a sample size of 300 participants.

INCLUSIVE CRITERIA:The participants in this study comprised second and third-year dental undergraduate students who voluntarily agreed to take part in the research.

EXCLUSIVE CRITERIA: Individuals who were unwilling to participate were excluded from the study.

STUDY PROCEDURE:

Questionnaire: The study tools used in the present study were the Modified Dental Educational Stress (DES) questionnaire (25 items).

QUESTIONNAIRE:

The questionnaire consists of 5 sections each including first section including name of the topic
Second section including name ,mail, age ,gender and academic year
Section three includes stress due to personal factors
Section three contains stress due to educational environment
Section four includes Stress due to academic work
Section five includes stress due to clinical factors.

The questions for this study were chosen from the original Dental Environmental Stress (DES) questionnaire, which, as mentioned earlier, initially consisted of 38 questions.Specifically, only the questions pertinent to second and third-year students were selected from the original DES questionnaire, which originally comprised 27 questions. The questions from Dental Educational Stress(DES) questionnaire were reframed for better understanding of the students.

DATA COLLECTION:

A validated questionnaire was distributed randomly to students across various institutes using Google Forms. To access the form, participants clicked on the provided link and were prompted to read and accept the informed consent before proceeding with the questionnaire. The assurance of confidentiality regarding their identification and data was communicated to all participants.Responses for the modified DES questionnaire were evaluated using a four-point Likert scale (0=not stressful to 3=extremely stressful). The scale values were interpreted as follows:

• 0-NOT STRESSFUL
• 1-FAIRLY STRESSFUL
• 2-VERY STRESSFUL
• 3-EXTREMELY STRESSFUL

• DEMOGRAPHIC PROFILE:

A comprehensive total of 307 students actively participated in the study, yielding
a response rate of 100%. The average age of the students was 21±2 years. The study predominantly comprised
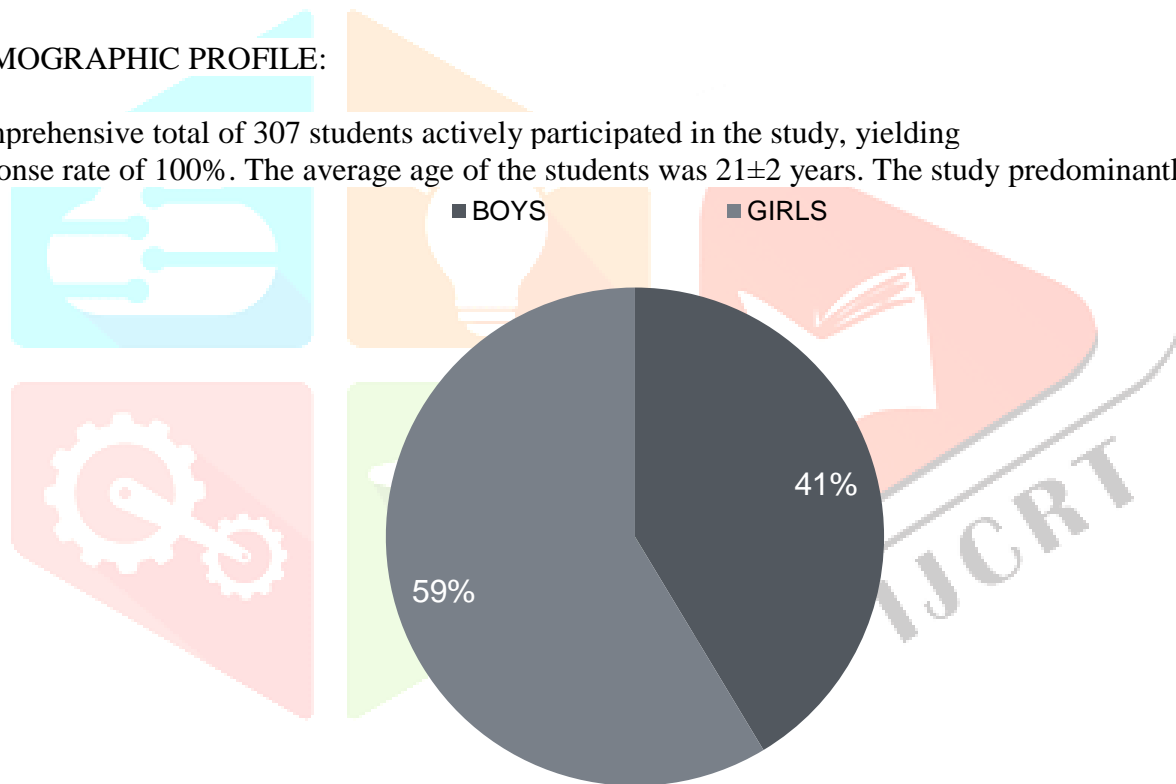
female participants, with a majority of 180 individuals, accounting for 41.4% of the total respondents. Further socio-demographic details are illustrated in the following pie chart.

RESULT:

In this statistical analysis, a p-value less than 0.05 is considered evidence of a significant association. Researchers use this threshold to determine whether the results are likely due to random chance or if there's a meaningful relationship between variables.

During the CVR determination stage, the input from experts was considered, leading to the exclusion of a few items from the questionnaire due to having a CVR value below 0.54.

1	Is your home in the same city where you study?	Y e s N o	100 response 207 response	32.6% 67.4%	Chi = 3.48, p = 0.039*
2.	With whom do you stay?	Alone	28 response	9.1%	Chi = 4.87 p = 0.022*
		With family	175 response	57%	
		Flatmates	104 response	33.9%	
3	Do your accommodation provide appropriate environment to study?	Y e s N o	218 response 89 response	71% 29%	Chi = 5.98, p = 0.004*

The standardised questionnaire was administered, encompassing four sections addressing psychosocial impacts, perceived stress, and learning effects(stress due to personal factors, educational environment and clinical factors)

Among the initial sample size,307 students successfully completed the questionnaire. This group comprised 127 students (58.6%) identified as boys and 180 students (41.4%) identified as girls.

A notable relationship was observed between students' stress levels and accommodation (P=0.004), as well as the proximity of accommodation to the college (P=0.039).

SECTION 1:Stress caused due to Personal factors

There was a significant relationship discovered between the level of stress and the challenges faced in making new friends (p=0.036). A total of 57% of students reported finding this aspect stressful.

A significant majority of students (79.2%) indicated experiencing stress due to the in sufficient time available for relaxation, and this association was statistically significant (P=0.024).

4.	Level of stress and difficulty in making new friends?	Not stressful	132 response	43%	Chi = 5.682, p = 0.036*
		Fairly stressful	109 response	35.5%	
		Very stressful	41 response	13.4%	
		Extremely stressful	25 response	8.1%	
5.	Stress encountered due to inadequate time available for relaxation	Not stressful	62 response	20.8%	Chi = 3.48, p = 0.024*
		Fairly stressful	133 response	43.3%	
		Very stressful	74 response	24.1%	
		Extremely stressful	36 response	11.7%	

According to this study, no significant association was found between the level of stress and forming relationships with individuals of the opposite gender among students (P=0.011).

SECTION 2:Stress caused due to educational environment.

A substantial correlation was identified between the level of stress and patient compliance (P=0.011). Almost 56.7% of students reported finding it relatively stressful when patients did not show up for their appointments.

A significant association was found between stress and discrimination based on sex, religion, race, and origin (P=0.008). Among the students, around 52.8% reported it as not stressful, 10.4% considered it very stressful, and 11.4% deemed it extremely stressful.

A remarkable relationship was established between stress arising from criticism received in the workplace and the educational environment (P=0.008). Approximately 73.9% of individuals reported experiencing stress due to criticism in the workplace.

A noteworthy relationship was found in the level of stresss encountered while to adapt to teaching language(P=0.013) a considerable of 56.4% of students found difficulty in adapting new teaching languages.

It was determined that the rules and regulations of the institute/workplace had a remarkable impact on the stress encountered by the students (p=0.011). A total of 68.4% of students found this association to be stressful.

SECTION 3: Stress caused due to academic work

A majority of students experienced stress due to the existing level of competition for academic grades (P=0.045) it is stressful for 76.2% of students to compete for these grades.

An influential proportion of students, amounting to 75.6%, reported experiencing moderate to extreme stress in response to the changing patterns of the existing curriculum, syllabus, and topics (P=0.045).

It was discovered that the fear of exposure to hazardous substances at the workplace leads to stress in almost 70.7% of the students (P=0.038).

In 66.1% of students, the capability of learning and adapting to new
having an impact on the level of stress perceived by them (P=0.045).

7	Compliance of patients (patient turning up on their appointment)	Not stressful	133 response	43.3 %	Chi = 4.013, p = 0.011*
		Fairly Stressful	115 response	37.1 %	
		Very stressful	39 response	12.7 %	
		Extremely stressful	20 response	6.8 %	
8	Stress due to criticism at work place or educational environment	Not stressful	80 response	26.1 %	Chi = 4.079, p = 0.008*
		Fairly st	118 response	38.4 %	

		re ss fu l			
		Very stressful	67 response	21.8 %	
		Extremely stressful	42 response	13.7 %	
9	Stress and difficulty faces to adapt to teaching language	Not stressful	134 response	43.6 %	Chi = 4.09, p = 0.013*
		F ai rl y st re ss fu l	116 response	37.8 %	
		Very stressful	31 response	10.1 %	
		Extremely stressful	26 response	8.5%	
1 0.	How stressful is to face the rules and regulations at workplace?	Not stressful	97 response	31.6 %	Chi = 4.879, p = 0.011*
		F ai rl y st re ss fu l	135 response	44%	
		Very stressful	46 response	15%	
		Extremely stressful	29 response	9.4%	

11.	Discrimination due to sex, religion, origin and race	Not stressful	162 response	52.8%	Chi = 6.059, p = 0.008*
		Fairly Stressful	78 response	25.4%	
		Very stressful	32 response	10.4%	
		Extremely stressful	35 response	11.4%	

SECTION 4:Stress caused due to clinical factors

According to the study, stress is also attributed to the availability or unavailability of adequate clinical supervision, indicating whether or not a supervisor is present to oversee clinical work (P=0.021). A significant 72% of students find this factor comparatively stressful.

A significant correlation was found between the level of stress during the transition from pre-clinical to clinical periods (P=0.049). This association corresponds to stress among 67.1% of students.

The completion of quotas, allotted assignments, and meeting deadlines also plays a major role in contributing to stress, affecting approximately 79.5% of students (P=0.013).

12.	The level of competition for grades	Not stressful	73 response	23.8%	Chi = 2.679, p = 0.045*
		Fairly stressful	111 response	36.2%	
		Very stressful	77 response	25.1%	
		Extremely stressful	46 response	15%	
13.	Adapting to new curriculum, topic and syllabus	Not stressful	75 response	24.4%	Chi = 2.469, p = 0.045*

		Fairly stressful	132 response	43%	
		Very stressful	35 response	21.2%	
		Extremelystressful	22 response	11.4%	
14	Fear of exposure to health hazards at workplace	Not stressful	90 response	29.3%	Chi = 2.879, p = 0.038*
		Fairly stressful	128 response	41.7%	
		Very stressful	54 response	17.6%	
		Extremely stressful	35 response	11.4%	
15	Capability of learning and adapting new manual and clinical skills	Not stressful	104 response	33.9%	Chi = 2.979 p = 0.045*
		Fairly stressful	134 response	43.6%	
		Very stressful	41 response	13.4%	
		Extremely stressful	28 response	9.1%	
16	Adequacy/inadequacy of clinical supervision	Not stressful	86 response	28%	Chi = 2.948 p = 0.021*
		Fairly Stressful	149 response	48.5%	

		Very stressful	**41 response**	**13.4%**	
		Extremely stressful	**31 response**	**10.1%**	
17	**Transition from preclinical to clinical years**	**Not stressful**	**101 response**	**32.9%**	**Chi = 2.679** **p = 0.049***
		Fairly stressful	**122 response**	**39.7%**	
		Very stressful	**31 response**	**10.1%**	
		Extremely stressful			

No significant relationship (P=0.324) was found between stress and the availability of references and information sources for studying. However, 56% of students reported this as moderately stressful, while 7.2% of students considered it extremely stressful.

DISCUSSION:

According to Swetha P's[2] study, the clinical years are widely recognised as a crucial phase in the educational journey of dental professionals. The knowledge and expertise gained during this period play a significant role in shaping their future clinical practice. This rationale justifies our study, as it focuses on cultivating self-confidence and a positive attitude among students during this pivotal educational phase.

In the data analysis covering multiple dental institutions during the transition from the second year to the third year in this study, Roudsari[3] emphasised that the primary stressors are within the clinical and educational environmental domains, this aligns with the findings of our study, which also underscores the significance of these stressors during the same transitional period.In each of the five domains, the study by Shehada MR[1] identified significant stressors among dental undergraduate students, including concerns about insufficient relaxation time, fear of failure, responsibilities and financial burdens, workload allocation, and examination pressures. These findings provide validation for our study, as they align with and support the focus on similar stressors in our research.

18	**Completion of quotas, assignments and other clinical requirements**	**Not stressful**	**63 response**	**20.5 %**	**Chi = 1.876,** **p = 0.131**
		F a i r l y st re ss fu l	**96 response**	**31.3 %**	

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		Very stressful	76 response	24.8 %	
		Extremely stressful	72 response	23.5%	

Clinical students in their third year demonstrate higher stress levels compared to preclinical students in their second year, this is particularly attributed to the lack of relaxation time and the quantity of assigned workload, as identified in the study by Swetha P's[2],these specific stressors align with the focus of our study, providing a basis for justification and relevance in relation to Swetha P's[2] findings.This research suggests that students accommodation contributes to an effective educational environment, contrasting with Shehada MR[1]et al's study that identifies the educational environment as a significant stress factor for undergraduate students.Also, patient interactions and acquiring clinical skills were found to be moderately stressful ,differing form Shehada MR[1] and Swetha P's[2] study that categorises them as a major stress domain .In the study conducted by Frese et al.[4], positive teacher-student relationships and effective cooperation were identified as factors that enhance students' well-being. Similarly, our study revealed that accurate feedback facilitates better learning, underscoring the importance of non-threatening feedback and fostering positive teacher-student relationships to reduce stress in the clinical educational environment. The alignment of these findings highlights the shared emphasis on these aspects across different studies.

The research conducted by Roudsari MS [3],Hauser[6], Bothelio[7] underscores the importance of "collegiality" among both students and teachers, which aligns with our own study's findings. This shared observation emphasizes the impact of interpersonal relationships, especially in clinical wards, on psychosocial well-being. It indicates the pivotal role of collegiality in influencing student self-management and facilitating effective learning experiences.In this study, undergraduate reported significant stress linked to insufficient relaxation time and differing opinions on specific topics among clinical staff, aligning with the findings of Saleem T et al.[5] and Alzahem AM et al.[8].

In the academic context, 36% of undergraduate students identified examinations and grades as significant stressors, aligning with similar findings observed in the studies conducted by Swetha P's[2], Pereira AT[9], and Kumar S[10]. This consistency across multiple studies highlights the common recognition of the stress associated with examinations and grades among undergraduate students.Ahmad MS[11]et al also found that undergraduate students encountered challenges with examinations , grades , and fear of failure mirroring the concerns identified in our study during preclinical examinations.In this study, students also conveyed apprehensions regarding adapting to the environment, adjusting to new curriculum, topics, and syllabus, as well as adhering to college rules and regulations. This aligns with similar findings observed in the study conducted by Shwetha P's[2], indicating a shared concern among students in both studies regarding the challenges related to adapting to the educational environment and complying with institutional norms.

In Shwetha P's[2] investigation, stressors were primarily concentrated in the clinical domain, involving aspects such as patient interactions, decision-making processes, and meeting quotas. This contradicts our study, which suggests that, for the majority of students, interacting with patients and meeting quotas may not be perceived as stressful. The divergence in findings between the two studies highlights variations in the experiences and perceptions of students.According to Malinta QU et al.[12], the data implies that the dental curriculum is rigorous, demanding both expertise and multitasking capabilities same as this study.Sarkar S et al.[13] have asserted that the most significant stressors, as indicated by their study, include meeting clinical quotas, managing the balance between theoretical exams and clinical work, and acquainting oneself with the extensive subjects necessary for graduation. This aligns with the findings of our study.The shift from preclinical to clinical stages appears to introduce a more demanding stress factor for third-year undergraduates. Kumar S's[10] study has also identified comparable patterns of stress during this pivotal transition, aligning with our own study findings. This similarity in observations across studies underscores the significance of recognizing and addressing the challenges associated with this specific stage in dental education.In our current investigation,

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clinical supervision by the faculty and administrative aspects emerged as primary stressors, diverging from the findings in the study conducted by Alzahem AM[8] and Ghazal G[14],this dynamic influences the faculty-student relationship, contributing to heightened stress levels and potentially impacting the efficiency of students in their clinical work.

In our study, contrary to the observations in the research conducted by Roudsari MS et al.[3], we determined that the ease of communication with patients is not a significant source of stress. However, our study aligns with theirs in identifying the most substantial learning impact associated with concerns about health hazards and infection control[3,7,15].In this study, it is noted that stress related to factors such as sex, religion, origin, race, and the process of making new friends is not a prominent stress domain, in contrast to findings in Swetha P's[2].

CONCLUSION:

The results of the current study suggest a growing level of stress among dental students at the undergraduate level as they transition from preclinical to clinical phases.The primary stressors identified overall included insufficient relaxation time, financial challenges, patient compliance, workplace criticism, workplace rules and regulations, and inadequate clinical supervision, as well as concerns related to student-teacher-patient relationships.

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