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Analysis of Distress among Dental Undergraduates Exposed to A Clinical Scenario

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Abstract
Aim: *The distress experienced by dental undergraduate can cause effects on cognitive functioning and learning of the students. This cross-sectional study is conducted to assess the stress among undergraduate students in a clinical scenario.*
Materials and methods: *A modified dental environment stress (DES) questionnaire was made according to the existing situation in a dichomatous scale. Students included in the study are those who are exposed to patient set up from third year to fifth year.*
Results:*This study result showed stress mainly due to academic reason of understanding the subject, teaching methods and fear of failure being very highly significant. Other criterion for stress included completion of quota, comparison with other profession and long teaching hours in the same order. Non-academic stressors did not show any significance but highest scored stressor was peer pressure.*
Conclusion: *Academic reason being the main cause of stress has to be managed by changing the education pattern, clinical set up and patient inflow for excelling the field and gaining confidence to overcome the fear of exam. Stress has to be reduced so there is improvement in physical and psychological health so field of dentistry can be made interesting.*
Keywords:*Stress, Dental, Undergraduate, Clinical, Modified DES.*

I. Introduction

The term "stress", as it is currently used was coined by Hans Selye in 1936, who defined it as "the non-specific response of the body to any demand for change".[1] But this definition could not convey what he meant as sense of having little or no control is always distressful. Stress was generally considered as being synonymous with distress. However, stress can be helpful and good when it motivates a person to accomplish more which is called as eustress. (Figure:1- Shows a graph of transition between eustress and distress).[1]

Dentists perceive dentistry as being more stressful than any other occupation. A study of more than 3500 dentists found that 38 % of those surveyed always or frequently were worried or anxious.[2]On entering clinical practice the number of stressors usually increases. Stressors associated with dentistry include time and scheduling pressures, managing uncooperative patients and the highly technical and intensive nature of work.[3] Chronic occupational stress of such kind can result in professional burnout, anxiety and depression. Professional burnout has potent adverse effect. It best relates to gradual erosion of a person by three coexisting characteristics. First, the person is exhausted mentally or emotionally. Second, the person develops a negative, indifferent or cynical attitude towards the patients, clients or co-workers. Finally, dissatisfied with their accomplishments and evaluate them negatively. These disorders may have certain negative effects on the dentists' personal relationships, professional relationships, health and well-being.[2]

Stress during the course in any academic institution can have both a positive impact and negative impact. Positive impact or eustress is due to a healthy competition between the peer, enthusiasm in learning new things. When the demands exceed the personal and social resources the individual is not able to adapt to the situation and there is a transition from eustress to distress. Symptoms of distress include anxiety, depression, phobia, hostility, fear and tension, as well as physical complaints such as sleeplessness, fatigue, dizziness, tachycardia, and gastrointestinal system distress. This study aims to list out the parameters which can cause distress.

In India the duration of bachelor of dental surgeon, undergraduate program is of four years with one year of compulsory rotatory internship. During the first two years of the course students are taught basic sciences of both medicine and dental subjects. In the rest three years they are exposed to clinical scenario and are trained to treat patients at any particular situations. Many studies have been conducted to evaluate the stress levels in these undergraduate students. In a study investigating sources of stress and psychological disturbance among dental students, Naidu et al.found that fear of failing and examinations to be the only two stressors that appeared across all five study years which appeared to cause psychological disturbances.[4] According to an Indian based study in undergraduate dental students, the overall mean stress scores reached peak in the third

year which is transition from pre-clinical to a clinical work which poses problem for many students.[5] Also, longitudinal changes in dental students' stress perceptions corresponded with transitions in the didactic, preclinical, and clinical phases of the curriculum as reported by a Greek longitudinal study.[6] Hence, this study included the subjects who are into treating patients who included the third year, fourth year and the final year.

Evidences suggests that not only academics but also non-academic reasons like family problems, peer pressure or any medical issues can worsen the situation and can cause distress. Consequently, the objective of our questionnaire based cross sectional study was to understand in a comprehensive way how dental students experience and perceive stress either due to academic or non- academic reasons.

II. Materialsand Methods

2.1 Study sample:

A cross sectional questionnaire based study was conducted during the middle of the academic year 2014–15 in a private dental institution. The study population comprised of undergraduate dental students from the third to fifth years enrolled in the Bachelor of Dental Surgery (BDS) program. Verbal consent was obtained from the respondents. All participants took part in the study voluntarily and no incentives were used for the respondents. Students present on the days of the survey were included. No attempt was made to trace the students who remained absent on the survey days and they constituted the exclusion criterion.

2.2. Questionnaire:

The instrument of study used in this research was based on the Dental Environment Stress (DES) questionnaire[7]relevant to young undergraduate dental student populations. The DES questionnaire was modified to make it applicable to the current milieu.

The modified version had 23 questions which were further divided into stressors related to academic reasons and non-academic reasons. The reliability and validity (content, construct and face) of the modified questionnaire were assessed. Demographic information (class, gender, locality and age) was also obtained; personal information (marital status and family type) was also recorded. Students were asked to respond to the questionnaire parameters (on a dichomatous scale) as yes or no. Questionnaires were distributed by the authors during one lecture for each year with prior permission from the dean of the institution and the aims of the study were explained. The time allocated for completion of the questionnaire was 15 min.[5]

2.3. Statistical analysis

The data were analyzed using the Statistical Package for the Social Sciences statistical software (SPSS Pc+ version 16.0) was used. Pearson Chi-Square was used to assess the significant differences between pairs of individual years. The level of significance was set at $p < 0.05$.

2.4. Reliability of modified DES questionnaire

The reliability of the questionnaire was calculated by Cronbach's alpha method. Reliability scores were given for overall questionnaire and for the parameters in each of the two stressors that is the academic and non-academic.

The overall reliability for all the parameters included in the study was 0.685 which indicates significant internal consistency. The adequacy of parameters for both the factors was assessed by calculating the range of cronbach's alpha value (Table 1).

III. Results

3.1. Demographic profile:

A total of 167 students participated in the study out of 207 registered undergraduate students in the study giving an overall response of 80.7 %. Out of the overall response of 167; 56 of them were 3rd year, 67 of 4th year and 44 of 5th year. The response of males and females of all the years is 86.8% and 13.2% respectively and the difference in their stress levels is not statistically significant. Depending on the locality majority were from urban (80.8%) and limited from rural (19.2%). The urban population showed statistical significance when compared with rural population (Table 2).

3.2 Personal profile:

The majority of the respondents were single (97.6%) and few of them were married (2.4%). The family type basically was nuclear (97.0%) and joint type was minimal (3.0%). There was no statistical significance when personal profile was taken into account for both marital status and family type (Table 3).

3.2. Academic stress levels:

The DES scores were compared among all the academic stressors. Stress scores for each stressor are summarized in Table 4 according to the percentage of stress levels and p value. The parameters related to understanding the subject, teaching methods and fear of failure (Figure:2,3,4) ranked the top most in preference to others with a very high significant value. Completion of the quota was also quiet significant statistically. Rest of the parameters did not show any statistical significance but comparison with other profession and long teaching hours were nearing to statistical significance.

3.3 Non-academic stress levels:

The DES scores are summarized in Table 5 according to the percentage for each year and the p value. There was no statistical significance for any of the parameter related to non-academic reasons. Peer pressure, Family problems, Home sick and Family expectations were near to being significant in the respective order.

3.4 Overall stress levels:

The overall stresses by the stressors were more due to academic reasons when compared to non-academic reason. This study results to academics as the main source of stress in undergraduate students representing the significant vale in the graph (Figure 2).

IV. Discussion

How much stress a person can tolerate comfortably varies not only with the accumulative effect of the stressors, but also with such factors as personal health, amount of energy or fatigue, family situation and age. Stress tolerance usually decreases when a person is ill or has an inadequate amount of rest. In the present study apart from academic considerations which can cause stress non-academic parameters were also taken into account. The results of this study reinforce the existing affirmation in the literature, indicating that undergraduate dental students are subject to numerous work-related and academic stressors that may adversely affect their physical health, psychological health or both.

The primary cause of the stress accounted to understanding the subject, teaching methods and fear of failure regardless of the year or gender. This is in accordance with another Indian study where fear of failure is considered as prime cause of stress.[8] A change concerning attitude of staff towards the academic environment where examination and grades are given prime importance may need to be altered as was intended at Tokyo Medical and Dental University (TMDU) where the faculty plans to launch a new curriculum including problem-based learning and early exposure system, along with providing greater flexibility for students to develop their professional attitudes. They designed a new curriculum to enhance students' well-being and academic performance as well as clinical skills for which faculty should conduct workshops for both teaching staff and students in accordance with Tokyo Medical and Dental University.[9] Completion of quota is also considered as one of the major risk factor in this study as in accordance with the study by Z.H. Al-Sowygh et al. in whose study the prime risk factor was academic workload.[10] In many of the Indian colleges the patient inflow is less and students are required to get their own patients for completing the quota. This poses a greater amount of stress among undergraduate students. It can be overcome by the combine efforts of management and staff by increasing the awareness of dental needs and conducting many camps in and around the area for good patient inflow.[11] So, the students stress to an extent can be decreased. Comparison is one of the main sources of stress though in this study when compared with other profession there was no clinical significance but a comparative study of professional students' stress showed that dental students had greater levels of stress than medical students owing to additional technical excellence required in dentistry.[12]Wegmaninvestigated the body postures of students and found that as students assumed unnatural body postures, there was an increase in physical stress that adversely affected work performance.[13]

Stress can be also due to reasons due to staying away from home was one of the stress factor. In times of emergency and hardship, a person can fall back upon his or her family for emotional and material support, which exists in those students who are staying with their family during the course tenure and lacks in those who stay in hostel. The expectation of the family increases which can be overcome by counseling their parents during their children's pre-university period about the ill effects of pressuring them to join an educational program against their wishes.[8] Family problems of any kind may also be the reason for stress. People whom your surrounded with determines the mental attitude. So, peers whom the students are surrounded with may affect the mental state and might be the reason for stress.

In a similar study assessing perceived stressors of dental student of Manchester University, Heath et al. found that potential stressors included: (1) information-input overload, (2) fear of not completing the quantity and variety of work, (3) inadequate and conflicting feedback regarding performance and, (4) approachability of faculty and staff. George et al. revealed that there were associations between personalities of dental students and

stress levels.[15] As for Australian dental students; it was found that perceptions of stress were due to an underlying tendency toward perfectionism based on an academic history of high achievement and powerful expectations of scholastic excellence.[16]

According to Dodge et al. students report significantly lower stress when clinical training and evaluation are not based on unit requirements.[17] In addition, the reconsideration of the existing educational system toward a more student-centered orientation could facilitate collaborative learning and reduce stress caused by academic domains.[18] According to Schwartz et al.the establishment of student advisors and counselors within a dental school, combined with a faculty advising system and student-oriented programs, have contributed to an improved educational environment.[19] Hence a stress reduction plan should be implemented with special attention toward female dental students. It appears that modification of the teaching curriculum and environment, as well as adopting strategies for stress management and providing resources to help reduce stress in dental education is important to help students succeed.[10]

From this study a conclusion can be drawn that understanding the subjects, fear of failure and teaching methods are the three main stressors which can cause the major amount stress in students in clinical set up. The study is just over a short period of time involving limited number of students. Many such longitudinal studies have to be carried out to evaluate the stress levels not only in academic field but also non-academic areas. The overall performance of a student depends on both his physical and psychological well-being.

V. Figures And Tables

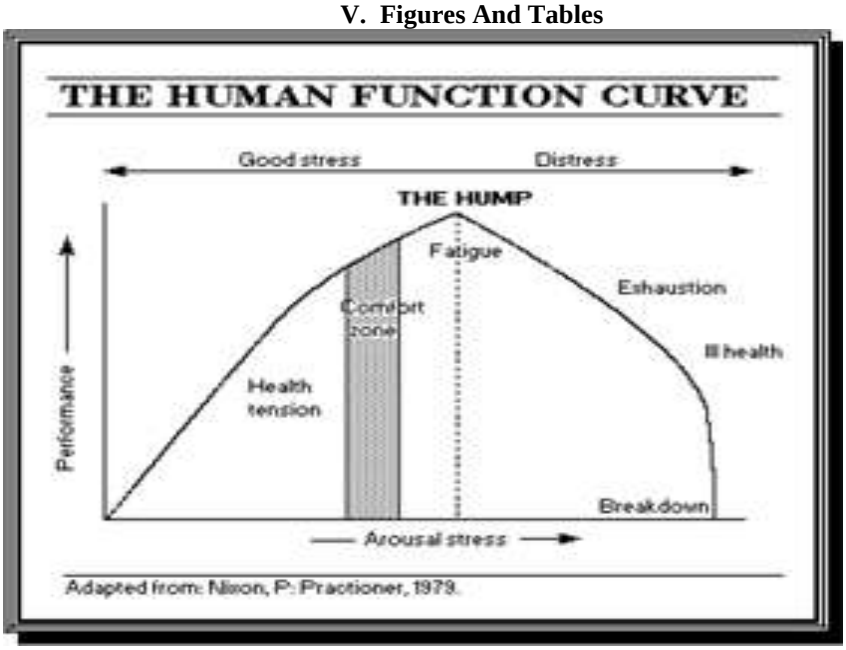

Figure 1: Difference between eustress and distress

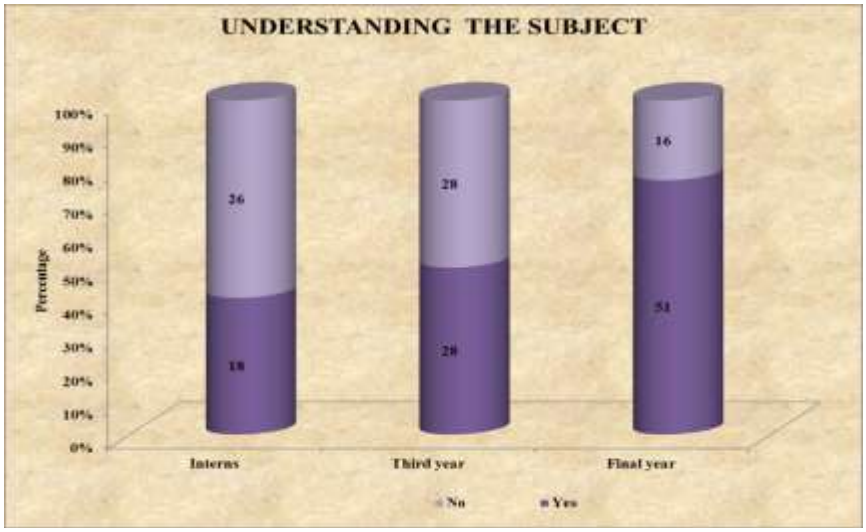

Figure 2: Graph representing understanding the subject between different years

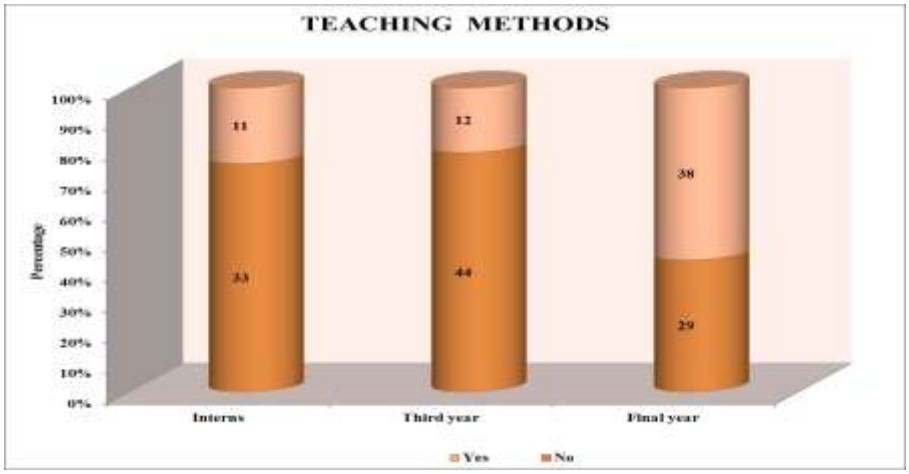

Figure 3: Graph representing teaching methods between different years

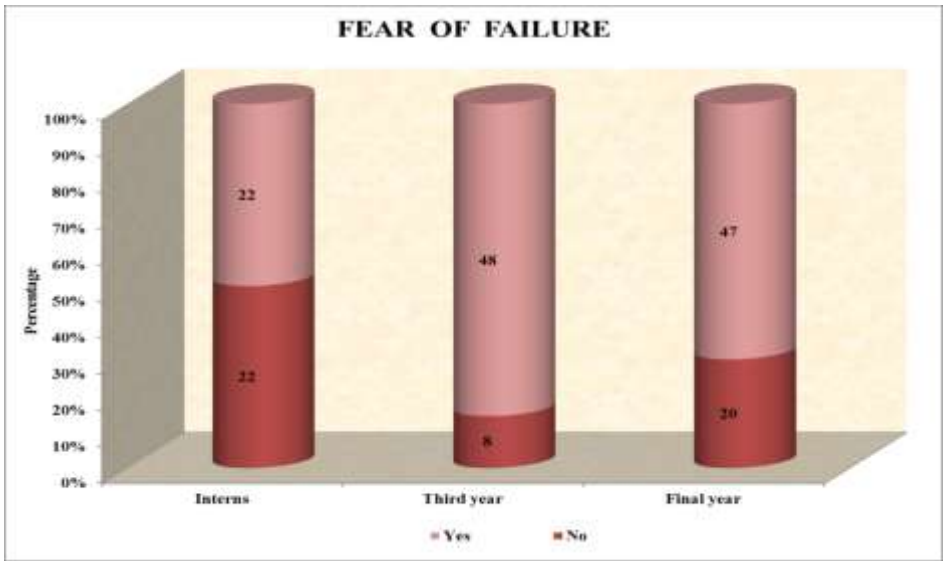

Figure 4: Graph representing fear of failure between different years

Table 1: Reliability of stress factors of modified DES Questionnaire

Factors	***Cronbach's alpha***
Overall	0.685
Academics	0.646
Non-academics	0.693

Table 2: Demographic stressors

Parameter	***% of causing the stress***				***pvalue***
	3rd Year	**4th Year**	**5th Year**	**Total**	
Gender					
Male	14.3%	14.9%	9.1%	13.2%	0.644
Female	85.7%	85.1%	90.9%	86.8%	ns
Locality					
Urban	71.4%	89.6%	79.5%	80.8%	***0.038***
Rural	28.6%	10.4%	20.5%	19.2%	***sig***

Table 3: Personal life stressors

Parameter	***% of causing the stress***				***p value***
	3rd Year	**4th Year**	**5th Year**	**Total**	
Marital status					
Single	98.2%	98.5%	95.5%	97.6%	0.551
Married	1.8%	1.5%	4.5%	2.4%	ns
Family type					
Nuclear	98.2%	97.0%	95.5%	97.0%	0.724
Joint	1.8%	3.0%	4.5%	3.0%	ns

Table 4: Academic stressors

Type of stressor	***% of causing the stress***				***P value***
	3rd Year	**4th Year**	**5th Year**	**Total**	
Understanding the subject	50.0%	76.1%	40.9%	58.1%	***<0.001 vhs***
Long teaching hours	66.1%	67.2%	47.7%	61.7%	0.085 ns
High workload	78.6%	86.6%	72.7%	80.2%	0.187 ns
Frequency of tests	44.6%	43.3%	31.8%	40.7%	0.271 ns
Teaching methods	21.4%	56.7%	25.0%	36.5%	***<0.001 vhs***
Comparison with others	53.6%	47.8%	43.2%	48.5%	0.58 ns
comparison with other profession	66.1%	47.8%	47.7%	53.9%	0.081 ns
Fear of failure	85.7%	70.1%	50.0%	70.1%	***<0.001 vhs***
Completion of quota	94.6%	91.0%	77.3%	88.6%	***0.018 sig***
Inadequate facility in clinical set up	80.4%	77.6%	75.0%	77.8%	0.813 ns
Inaccessibility to teachers	33.9%	41.8%	36.4%	37.7%	0.654 ns

Table 5: Non-academic stressors

Type of stressor	***% of causing the stress***				***p value***
	3rd Year	**4th Year**	**5th Year**	**Total**	
Home sick	48.2%	65.7%	47.7%	55.1%	0.079 ns
Hostel food	67.3%	53.7%	65.9%	61.4%	0.242 ns
Problems with friends	21.4%	20.9%	13.6%	19.2%	0.553 ns
Family expectations	53.6%	65.7%	45.5%	56.3%	0.097 ns
Less recreation time	73.2%	73.1%	61.4%	70.1%	0.341 ns
Family problems	19.6%	11.9%	4.5%	12.6%	0.076 ns
Peer pressure	41.1%	22.4%	27.3%	29.9%	0.071 ns
Financial expenditure	51.8%	59.7%	56.8%	56.3%	0.676 ns
Relationship problems	14.3%	14.9%	20.5%	16.2%	0.664 ns
Drug abuse	7.1%	3.0%	9.1%	6.0%	0.376 ns
Medical illness	8.9%	6.0%	13.6%	9.0%	0.385 ns
No interest in profession	19.6%	14.9%	11.4%	15.6%	0.517 ns

ns: not significant
sig: significant
vhs: very highly significant

VI. Conclusion

Within the limits of the study we can conclude that academic reasons like comprehension of the subject, coaching by a tutor and fear of failure is the major factors causing stress. Though there was no clinical significance in relation to non -academic reasons but it cannot be neglected as psychological health also determines a person's mental state. Thus, a balance has to be created and taught to the students to excel both professionally and socially.

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