A comparative study of stress among students of Dental and Engineering Colleges of Annamalai University

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Abstract
University students are exposed to various level of stress due to ever increasing load of their curriculum that might not match with their academic outcomes. The objectives of the study was undertaken in order to assess the proportion of stress among students of dental and engineering colleges, and the association of stress with various social and health-related factors. Comparative cross sectional Study was conducted over a period of six month in Rajah Muthiah Dental College and Engineering college of Annamalai University, Annamalai Nagar and Chidambaram. Self-innovated proforma to elicit the socio demographic data like name, age, sex, education-course studying were obtained. Standard Process Stress Assess (SPSA) - The standard process stress assess scale was used to assess the level of stress among professional students.

Results: *Out of the 200 students mild stress was present in 26 students (13%), while 155 (77.5%) had moderate stress and 19 (9.5%) had severe stress. According to the students' field of education, 68.4% dental students, (31.6%) engineering students had severe stress. In terms of the student residence, 16 students from rural areas (84.2%) had severe tress as compared to 3 from the urban area (15.8%).*

Conclusion: *high proportion of severe stress was found in dental students, which is independently associated with increased morbidity leading to reduced performance. Early identification and treatment of these will enhance the quality of life through an improvement in biological and behavioural mechanisms related to deterioration of illness.*

Keywords: *Stress, Standard Process Stress Assess (SPSA).*

Introduction

Stress can be defined as 'any challenge to homoeostasis', or to the body's internal sense of balance[1]. Stress can be described as a circumstance that disturbs, or is likely to disturb, the normal physiological or psychological functioning of a person. It may lead to poor decision-making with an increased prevalence of psychological problems such as depression, anxiety, substance abuse, and suicide ideation[2]. In Psychology, stress refers to "the mental, emotional, or physical adaptation or adjustment

that an organism makes in the face of any tangible, or perceived, pressure or demand. Any stress is a threat to the physical, emotional, and mental health of an individual. Stress doesn't spare anybody; whether at work place or at home. Students are no exception to this. In fact, they are the ones who are worst hit by stress due to various factors. Stress results in various psychological disorders such as depression, anxiety, posttraumatic stress disorder, emotional strain (such as dissatisfaction, fatigue and tension), maladaptive behavior's (such as aggression and substance abuse), and cognitive impairment (such as problems in concentration and memory). These conditions may lead to poor concentration on work, and biological reactions and more so University students are exposed to enormous threat due to ever increasing load of their curriculum that might not match with their academic outcomes[3]. However, in today's competitive environment, students of various disciplines face great stress which may be due to extensive studies, examinations, busy schedules, peer contest, or even teachers' and/or parents' expectations[4, 5]. Various studies around the globe have emphasized that students studying in medical and dental courses experience higher stress. Engineering students take half-yearly examinations, as compared to the annual examinations taken by medical and dental students. Theoretically, the higher frequency of examinations may lead to a higher prevalence of stress among engineering students. However there are few studies on this topic in India, especially on populations in smaller cities. The objectives of the study was undertaken in order to assess the proportion of stress among students of dental and engineering colleges, and the association of stress with various social and health-related factors.

Material and Methods

Study Setting

Study was conducted in Rajah Muthiah Medical College, Rajah Muthiah Dental College and Engineering College of Annamalai University, Annamalai Nagar, Chidambaram.

Sample: A total of Two hundred students, so that hundred students from each group studying in II year Dental and Engineering colleges.

Study Design

A Comparative Cross sectional study

Inclusion Criteria

1) Students of both sexes are included.
2) Students between 18 to 25years of age.
3) Students who are willing to participate in the study.
4) Students with absence of any prior psychiatric illness.

Exclusion Criteria

1) Students below 18 years and above 25 years of age.
2) Students having significant stress who are on medication.
3) Students who are not willing to give consent or not willing to participate in the study.

Data Collection

Data collection was done by principal investigator by using pre tested questionnaire. Students studying II year in Rajah Muthiah Dental College and Engineering College of Annamalai University will be randomly selected. The nature of the study and its objectives will be explained to the students. A written informed consent will be obtained from the students. The assessment will be conducted in single session lasting for an hour. The study was completed over a period of six months.

Data Collection tool

1. Self-innovated proforma to elicit the socio demographic data like name, age, sex, education-course studying were obtained.
2. Standard Process Stress Assess (SPSA) - The standard process stress assess scale is an observer rated scale consisting of 20 items. Each items rated as 1 to 5score, and the total score ranging from 20 being low stress and 100 being high stress. Total score categories as mild, moderate and severe stress.

3. Self- reporting questionnaire (SRQ-20) - The SRQ was developed as part of a collaborative study coordinated by W.H.O, on strategies for extending mental health care. The SRQ was originally designed as a self-administered questionnaire. Scoring each of the 20 items is scored yes or no. A score of yes indicates that the symptoms was present during the past month, a score of no indicates that the symptom was absent.

Ethical Consideration

The institutional human ethics committee approved the study. Informed written consent was obtained from all the participants, after explaining the study. Confidentiality of study participants was maintained throughout the study.

Statistical Method Employed

The collected data was entered in Microsoft excel and analyzed using Epi info software (version 3.5.4). Cross sectional study was carried out for quantitative variables. Various socio demographic parameters (Age, Sex, Education, etc.,) were considered as explanatory parameters. The occurrence of stress among the Dental and Engineering students was considered as the primary outcome variables. Proportion will be obtained for all the nominal, ordinal and other variables. Chi square test will be applied to proportions to test the level of significance between Dental and Engineering students and 95% Confidence interval values will be constructed around each proportional values p value less than 0.05 was taken as significant.

Results

Table 1: Socio Demographic Characteristic of the study participants

Category	Number of students (N = 200)	Percentage (100%)
Age in years		
18 to < 19 years	115	57.5%
19 to < 20 years	76	38.0%
20 to < 21 years	9	4.5%
Sex		
Male	82	41.0%
Female	118	59.0%
Socio Economic Status		
Upper	82	41.0%
Upper Middle	92	46.0%
Lower Middle	26	13.0%
Education		
Dental students	100	100%
Engineering students	100	100%
Area of Resident		
Rural	135	67.5%
Urban	65	32.5%

The mean age of the students was 19.47 years and standard deviation to be ±0.58. Total 200 students were screened over six month out of which 115 (57.5%) and 76 (38.0%) were between 18 to <19 and 19 to <20 years respectively. Out of all the students in the study, 118 (59.0%) were female and 82 (41.0%) were male. In Socio economic status based on modified Kuppuswamy scale 82 (41.0%) of the students from upper and 92 (46.0%) upper middle class. Most of the students, 135 (67.5%) were from rural area and 65 (32.5%) from urban areas.

Table 2: Self-reporting questionnaire among Dental and Engineering students

Self-reporting questionnaire	Dental students n = 100	Engineering students n = 100	Total N =200	Chi square	p value
Head ache	49 (52.1)	45 (47.9)	94	0.32	0.571
Poor appetite	39 (59.1)	27 (40.9)	66	3.26	0.071
Bad sleep	46 (48.9)	48 (51.1)	94	0.08	0.777
Easily Frightened*	36 (41.4)	51 (58.6)	87	4.58	0.032
Presence of Tremors	25 (51.0)	24 (49.0)	49	0.03	0.869
Feels Nervous Tense or Worried*	55 (42.0)	76 (58.0)	131	9.76	0.002
poor digestion	31 (54.4)	26 (45.6)	57	0.61	0.434
Trouble thinking*	55 (42.6)	74 (57.4)	129	7.88	0.005
Feeling unhappy	56 (50.0)	56 (50.0)	112	0.00	1.000
Unusual cry*	42 (63.6)	24 (36.4)	66	7.33	0.006
Difficulty to enjoy daily activity	48 (49.5)	49 (50.5)	97	0.02	0.887
Difficulty to Making Decisions	61 (52.6)	55 (47.4)	116	0.74	0.390
Daily work suffering*	45 (42.1)	62 (57.9)	107	5.81	0.016
Unable to play useful part in life	49 (49.0)	51 (51.0)	100	0.08	0.777
Lost interest in things*	58 (59.8)	39 (40.2)	97	7.23	0.007
Feeling worthless	31 (48.4)	33 (51.6)	64	0.09	0.762
Thought of ending life*	28 (63.6)	16 (36.4)	44	4.19	0.041
Feeling tiredness all the time	38 (57.6)	28 (42.4)	66	2.26	0.133
Uncomfortable feeling in stomach	38 (48.7)	40 (51.3)	78	0.08	0.772
Getting easily tired*	67 (65.7)	35 (34.3)	102	20.49	0.001

Note: values in parenthesis are percentage. *p value <0.05 statistically significant

Self-reported questionnaire was used to assess the mental health care among dental and engineering students. Out of 200 students 51 (58.6) engineering and 36 (41.4%) of dental students were getting easily frightened which is statistically significant between this two groups. Feels Nervous Tense or Worried was high in engineering student which is 76 (58%) when compared to dental students. When asked about Trouble in thinking 55 (42.6%) dental and 74 (57.4%) engineering students reported to have some trouble in thinking. Unusual cry was present in 42 (63.6%) dental and 24 (36.4) engineering student. Majority of the engineering student, 62 (57.9) faces daily work suffering when compared to dental students which is 45 (42.1%). Higher number of dental student reported lost interest in things when compared to engineering students which is 58 (59.8%) and 39 (40.2%) respectively. Out of 200 students 44 students having the thoughts of ending life which was higher in dental (63.6%) when compared to engineering students (36.4%). Getting easily tired was existent in 67 (65.7%) in dental and 35 (34.3) in Engineering students. Other variables like Head ache, Poor appetite, Bad sleep, Presence of Tremors, poor digestion, Feeling unhappy, Difficulty to enjoy daily activity, Difficulty to Making Decisions, Unable to play useful part in life, Feeling worthless, Feeling tiredness all the time and Uncomfortable feeling in stomach was not found statistically significant.
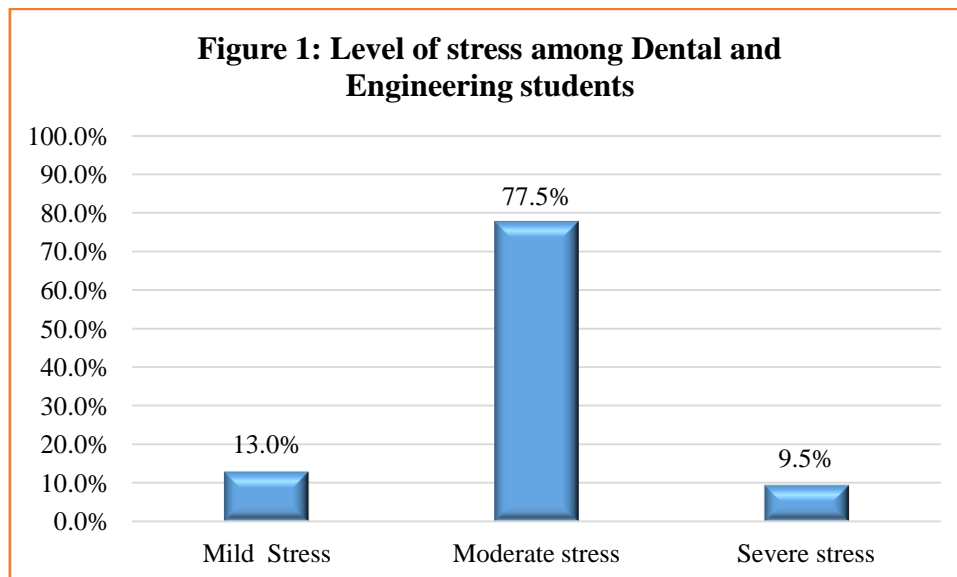
Figure 1: Level of stress among Dental and Engineering students

Out of the total respondents mild stress was present in 26 students (13%), while 155 (77.5%) had moderate stress and 19 (9.5%) had severe stress.

Table 3: Association of stress with age category, sex, education and Area of resident

Category	Stress			Chi square, df, p value
	Mild n = 26 (13.0)	**Moderate n = 155 (77.5)**	**Severe n = 19 (9.5)**	
Age in years				
18 to < 19 years	17 (65.4)	90 (58.1)	8 (42.1)	3.73, 2, 0.443
19 to < 20 years	7 (26.9)	59 (38.1)	10 (52.6)	
20 to < 21 years	2 (7.7)	6 (3.9)	1 (5.3)	
Sex				
Male	9 (34.6)	69 (44.5)	4 (21.1)	4.36, 2, 0.113
Female	17 (65.4)	86 (55.5)	15 (78.9)	
Education				
Dental students	17 (65.4)	70 (45.2)	13 (68.4)	6.49, 2, 0.039
Engineering students	9 (34.6)	85 (54.8)	6 (31.6)	
Area of Resident				
Urban	11 (42.3)	108 (69.7)	16 (84.2)	10.27, 2, 0.006
Rural	15 (57.7)	47 (30.3)	3 (15.8)	

Table 3 shows Age group between 19 to <20 years reported higher number which is 10 (52.6%) of severe stress when compared to other group. Concerning gender, severe stress was present in 15 female respondents (78.9%) as compared to 4 male respondents (21.1%). This association of stress with gender was not statistically significant. According to the students' field of education, 13 (68.4%) dental students, 6 (31.6%) engineering students had severe stress; the association was statistically significant. In terms of the student residence, 16 students from rural areas (84.2%) had severe tress as compared to 3 from the urban area (15.8%).

Discussion

This study is carried out as cross sectional study. This study aimed at finding the stress levels among the professional college students in Tamilnadu. The study was conducted among students in dental and engineering colleges at Annamalai University campus, Chidambaram, Tamilnadu.

In the current study, SPSA Questionnaire was used to assess the stress level among the professional students, each item rated as 1 to 5 score, and the total score ranging from 20 being low stress and 100 being high stress. Total score

categories as mild, moderate and severe stress. Out of the total respondents mild stress was present in 26 students (13%), while 155 (77.5%) had moderate stress and 19 (9.5%) had severe stress. Considering the field of education, 68.4% the Dental students were found to have severe stress when compared to Engineering students. The similar finding of increased stress among dental student was observed by Waghachavare et al. (2013)[2].

There was no significant difference between levels of stress when compared to age category. Among the age group of 20 to 21 year showed 50.55 + 14.41 mean score of stress which is slightly higher when compared to other age This study revealed that stress was found to be high in females, as mean score 50.08 (±15.041 SD) when compared to males, as mean 46.30 (±12.798SD), and the association with gender was statistically significant, the results strongly correlates with earlier study conducted by Waghachavare et al., (2013)[2].

In this study as per the SRQ being easily frightened, trouble thinking, unusual cry, daily work suffering, lost interest in things, thought of ending life, getting easily tired were found to be statistically significant with p values of 0.032, 0.005, 0.006, 0.016, 0.007, 0.041, and 0.001 respectively. The socio demographic factors significance in relation to stress was also found to be significant.

The present study findings are in line with earlier literatures that have demonstrated the existence of stress to be highly prevalent among professional college students. Thus early detection of psychiatric morbidity and treating them was found to improve the academic performance and enhance the quality of life among students. This knowledge is important in reducing the disease burden in the community. Additional consistent efforts should be directed in integrating efficacious approaches along with the conventional management techniques. The study would provide insight in to the stress levels of professional college students and also to the university authorities to make remedies based on the expectations and feedback of the students.

Conclusion

In conclusion, after reviewing the literature and the results of the present study we can't ignore the high prevalence of stress, which is independently associated with increased morbidity leading to reduced performance. Early identification and treatment of these will enhance the quality of life through an improvement in biological and behavioural mechanisms related to deterioration of illness.

Limitations

The study sample was that of students from dental and engineering departments of RMMCH (one selected institution). Hence the study population may not represent the entire community and so it could not be generalized to the community population. Even though the sample size was small and non-probable sample selection of the patient were limitations it was adequate for statistical analysis. Lack of a comparison group is another key limitation of the study. Addition of a control group would've added more weight age in arriving at more precise results.

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