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Research Article

Perceived Causes of Stress Among Clinical Year Dental Students of Manipal University College Malaysia

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Abstract

A cross-sectional study was done to determine the potential sources of stress in clinical year dental students of Manipal University College Malaysia; institutional ethical approval was obtained for the study. 203 students filled Dental Environmental Stress (DES) questionnaires and the data was statistically analysed using Kruskal-Wallis and Mann Whitney U-test. Results showed higher stress in females; and academic performance (mean =< 0.001), personal issues (mean = 0.047) and learning clinical skills (mean = 0.008) were the top sources of stress among the students.

Keywords: Stress; Dental; Students; Clinical Year; Malaysia

Introduction

Stress is the degree to which an individual feels overwhelmed or unable to cope with mental or emotional pressure [1]. Stress is experienced by most if not everyone in varying social, academic and work settings. This experience is very much normal to some extent and may instigate motivation, but excess stress can do more harm than good [2]. Students are one of the individuals that are often subjected to a lot of stress which affects their social, mental and physical health.

Dentistry is widely known to be a very demanding and stressful profession. The stressful nature of dentistry starts early as dental students, especially those in their clinical years need to acquire an array of theoretical knowledge, clinical competencies and patient management skills [3]. This stress can result in physical and psychological distress which will affect productivity and cause burnout in the students [2]. Symptoms of distress include depression, anxiety, fear and tension along with physical complaints namely sleeplessness, fatigue, dizziness and gastrointestinal system distress [4].

Data from previous studies have shown that stress among dental students are multifactorial, some of which include academics, examination, clinical training, financial resources and fear of unemployment [3].

It is vital to have a better understanding of the students' take on the factors causing stress which would ultimately aid in building a more productive and stress-free learning environment [2]. Thus, the aim of this study is to determine the perceived sources of stress among clinical year dental students of Manipal University College Malaysia.

Material and Methods

Study design and participants

A cross sectional study was carried out among all dental students currently undergoing clinical training in Manipal University College Malaysia (MUCM). Consent was taken and identities were kept anonymous. The study was approved by the Research and Ethics Committee of MUCM. Inclusion criteria for the study included all dental students that are currently undergoing clinical training in MUCM (i.e., year 3, 4 and 5) and the exclusion criteria were dental students who are not willing to participate and dental students on medications for psychological stress and anxiety.

Questionnaire development and validation

A validated modified version of the DES questionnaire was used to collect information regarding stressors for dental students. This

questionnaire was originally developed and validated by Garbee., *et al.* 1980. The modified questionnaire has been used in a previous study done by Muneer G. Babar., *et al*; where the Cronbach's alpha was 0.8 (significant internal consistency). The DES questionnaire comprised of 38 questions and is divided into 6 sections. Section 1 identifies consent and section 2 identifies demographic information. Section 3, 4, 5 and 6 consist of 32 questions relating to domains as follows: personal issues (questions 1-12), academic performance (questions 13-19), education environment (questions 20-24), learning clinical skills (questions 25-32); which were based on a 7-point Likert scale with 1 being not stressful at all to 7 being very stressful.

Universal Sampling method was used to collect the sample and sample size calculation was calculated using this formula

$$n \geq \frac{NZ^2_{1-\alpha/2}p(1-p)}{d^2(N-1)+Z^2_{1-\alpha/2}p(1-p)}$$

n: study sample
N: population size
Z: Z-score
α: significance level
p: estimated proportion
d: estimated error

Finally, the sample size calculation was calculated to a minimum sample size required was 134 along with the non-response it was a total of 168. Data collection method is explained in the figure 1.

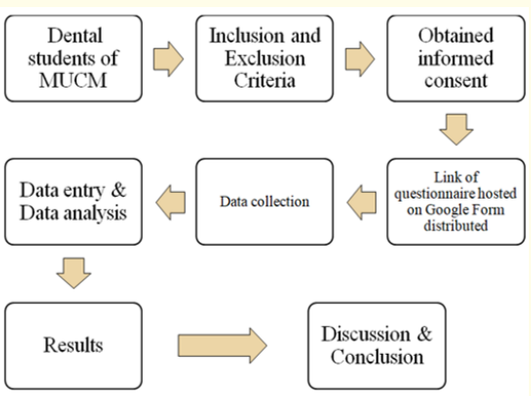

Figure 1: Data Collection.

Statistical analysis

Statistical analysis was performed using Epi Info Version 7.2.5.0. Detailed statistical results were obtained using mean, standard deviations, frequencies, and percentages. The data was analysed using non-parametric Mann Whitney U test for gender and Kruskal-Wallis test for academic level.

Results

Sociodemographic of study population

A total of 203 students participated during this study. Among them 54 were males (26.6%) and 149 were females (73.4%). Majority of respondents were Chinese (41.3%) followed by Indian (32.5%). The age range was between 20 to 27 years with a mean age of 23.5 years. Table 1 provides the detailed sociodemographic criteria of the study participants.

Variables	Frequency	Percentage (%)
Age Mean (SD)	23.5 (1.1)	-
Gender Male Female	54 149	26.6 73.4
Ethnicity Malay Chinese Indian Others	40 84 66 30	19.7 41.3 32.5 6.4
Academic Level Year 3 Year 4 Year 5	56 72 75	27.6 35.5 37.0

Table 1: Sociodemographic of study population (n = 203).

Stress level associated with personal issues

Female students showed higher overall mean score for stress compared to their male counterparts (Table 2). Significant difference was observed in 5 of the items. Year 4 students had the highest total mean score with 4 items with significant differences (Table 3).

Stressors category	Male		Female		Mean difference (95% *CI*)	p-value
	Mean	SD	Mean	SD		
Personal issues	46.2	14.0	50.5	11.8	4.3 (0.4, 8.2)	0.030
Academic performance	29.3	8.9	31.4	7.9	2.1 (-0.4, 4.7)	0.102
Educational environment	17.6	6.7	18.5	6.8	0.9 (-1.2, 3.1)	0.368
Learning Clinical Skills	32.6	9.1	35.5	8.9	2.9 (0,2, 5.8)	0.037

Table 2: Mean Dental Environment Stress (DES) questionnaire score and comparison among the gender.

*Unpaired T- test

Questions	Median (Q1, Q3)		p-value
	Male	Female	
Personal Issues			
2) Lack of confidence to be a successful professional	4.0 (3.0, 5.0)	5.0 (3.0, 5.0)	0.018
4) Lack of home atmosphere in living quarters/hostel	3.0 (2.0, 4.0)	4.0 (2.0, 5.0)	0.024
8) Lack of confidence in clinical decision making	5.0 (3.0, 5.0)	5.0 (4.0, 6.0)	0.006
10) Fear of being unable to catch-up if getting behind with work	4.0 (3.0, 5.0)	5.0 (4.0, 6.0)	0.002
12) Insecurity concerning professional future	4.0 (3.0, 5.0)	5.0 (4.0, 6.0)	0.004
Learning Clinical Skills			
27) Difficulty in learning clinical skills	4.0 (3.0, 5.0)	5.0 (4.0, 5.0)	0.007
31) Completion of clinical requirements	5.0 (3.0, 6.0)	5.0 (4.0, 7.0)	0.001
32) Shortage of allocated clinical times	5.0 (3.0, 6.0)	6.0 (4.0, 7.0)	0.003

Table 3: Specific significant stressors among gender.

*Mann- Whitney U Test

Stress level associated with academic performance

Lack of time for reflective learning was the top stressor among females (Table 2). Again, Year 4 students rated amount of assigned work, examinations and grade, and lack of time to do assigned work as top stressors in this category (Table 3).

Stress level associated with education environment

Lack of cooperation by faculty and patient and inconsistency on feedback of work by faculty members were the stressors that had significant differences observed in this domain (Table 3). No significant differences were detected between males and females.

Stress level associated with learning clinical skills

Once more, female student reported more stress than their male counterparts in learning clinical skills and the lack of time allocated for completion of clinical requirements (Table 2). Year 4 students have the highest total mean score with the top stressors being difficulty in learning and interpreting clinical skills and laboratory findings, faculty or patient being late or not showing up for their appointments and the atmosphere created by clinical supervisors (Table 3).

Stressors Category	Third year		Fourth year		Fifth year		p-value
	Mean	SD	Mean	SD	Mean	SD	
Personal issues	47.4	13.7	52.2	11.5	48.0	12.1	0.047
Academic performance	29.0	7.3	34.1	7.8	29.1	8.3	<0.001
Educational environment	18.8	6.8	19.1	6.6	17.1	9.6	0.167
Clinical skills	33.3	10.2	37.4	8.6	33.3	8.2	0.008

Table 4: Mean Dental Environment Stress (DES) questionnaire score and comparison among the three academic levels.

* One- way ANOVA test.

Questions	Median (Q1, Q3)			p-value
	3rd Year	4th Year	5th Year	
Personal Issues				
3) Lack of time for relaxation	4.0 (3.0., 5.0)	5.0 (4.0, 6.0)	4.0 (3.0, 5.0)	<0.001
7) Fear of not having possibilities to pursue a postgraduate programme	4.0 (2.5, 5.0)	5.0 (4.0, 6.0)	5.0 (3.0, 6.0)	0.011
8) Lack of confidence in clinical decision making	5.0 (4.0, 5.5)	5.0 (4.0, 6.0)	5.0 (4.0, 6.0)	0.049
10) Fear of being unable to catch-up if getting behind with work	5.0 (4.0, 6.0)	5.0 (4.0, 6.0)	5.0 (3.0, 5.0)	0.018
Academic Performance				
13) Amount of assigned work	4.0 (3.0, 5.0)	5.0 (4.0, 6.0)	4.0 (3.0, 5.0)	<0.001
14) Examination and grades	5.0 (4.0, 5.5)	6.0 (5.0, 7.0)	5.0 (4.0, 7.0)	0.002

16) Lack of time to do assigned work	4.0 (4.0, 6.0)	5.0 (4.5, 6.0)	4.0 (3.0, 5.0)	<0.001
17) Unapproachability of teaching staffs	4.0 (2.0, 5.0)	4.0 (3.0, 5.0)	3.0 (2.0, 4.0)	0.002
18) Fear of failing a course or the year	4.0 (3.0, 5.5)	5.5 (4.0, 6.5)	5.0 (3.0,7.0)	0.044
19) Lack of time for reflective learning	4.0 (3.0, 6.0)	5.0 (4.0,6.0)	4.0 (3.0,5.0)	0.003
Learning Clinical Skills				
26) Faculty or patient being late or not showing for their appointments	4.0 (3.0, 5.0)	5.0 (4.0, 5.0)	3.0 (3.0, 4.0)	<0.001
27) Difficulty in learning clinical skills	4.5 (3.0, 5.0)	5.0 (4.0, 6.0)	4.0 (3.0, 5.0)	0.040
28) Atmosphere created by clinical supervisors	4.0 (2.5, 5.0)	4.0 (3.0, 5.0)	3.0 (2.0, 4.0)	0.040
30) Difficulty in learning and interpreting laboratory findings	4.0 (3.0, 5.0)	5.0 (4.0, 6.0)	4.0 (3.0, 5.0)	0.009
31) Completion of clinical requirements	5.0 (4.0, 6.0)	6.0 (5.0, 7.0)	5.0 (4.0, 6.0)	0.014
32) Shortage of allocated clinical times	5.0 (3.0, 6.0)	6.0 (5.0, 7.0)	6.0 (4.0, 7.0)	0.015

Table 5: Specific significant stressors among clinical years.

*Kruskal- Wallis Test.

Discussion

This study was conducted to provide a useful insight into a subject that is often not viewed as a priority. On completing the study causes of stress identified among the clinical year dental students was primarily; academic performance, personal issues and learning clinical skills.

The objectives of our study were to compare sources of stress among MUCM clinical year students between gender, where there were 54 male students (26.6%) and 149 female students (73.4%); and according to their academic level, where there were 56 year 3 students (27.6%), 72 year 4 students (35.5%) and 75 year 5 students (37%). Hence, the total number of respondents were 203 over 206 students as three students did not respond.

In our study, female students showed an overall higher mean score of stress in all aspects, with an average mean value of 34, compared to their male counterparts; with an average mean value of 31.

There were two statistical differences where females generally perceived more stress than males, which were in the personal issues and in learning clinical skills domains. This finding was in agreement with the study done by Al-Sowygh ZH., *et al.* [4], where this fact had been explained by Sanders and Lushington that in differing to different patterns of psychological morbidity, males are simply less expressive of their concerns. Another study done by Abu-Ghazaleh SB., *et al.* [9] in Jordan also showed that females scored higher than males with regards to stress level, which could be argued that the reason females showed more stress was because they were more comfortable in expressing it whereas males might be more inclined to hide stress as a show of strength.

The biggest stressor, which was completion of clinical requirements in our college by the female students, where the median score is 5.0; coinciding with the results of the study done by Tayyaba Saleem., *et al.* [8], where the mean score value is around 3.27. The other contributors of stress in female students were due to their personal issues such as lack of confidence to be successful, lack of home atmosphere, lack of decision in clinical making, fear of being unable to catch-up if getting behind with work and insecurity concerning professional future.

However, the findings of our study were in contrast with a study done by Pachava. S., *et al.* [5], about the stress in dental students in Neo-capital states in India; where the study indicated that there was no gender discrimination in the distribution of stress levels. The study of Bamidele OB., *et al.* [6] also stated that there was no statistically significant difference in the perceived level of stress observed across gender. In disparity, a study conducted by Kumar., *et al.* [11] stated that males belonging to clinical years showed high stress levels due to the faculty and administration in comparison with females of clinical course.

Year 4 students in MUCM presented with greater level of stress when comparing the mean score to 3rd and 5th year students in domains related to personal issues (52.2), academic performance (34.1), and clinical skills (37.4).

In academic performance related domain, exams, grade stress along with the fear of failing was reported as one of the major stressors [3]. 4th year students considered "lack of relaxation" to be the biggest stressor in our college where the median score was 5.0. This may be indicated due to introduction to the clinical environment being a stressful event especially during the pandemic era; as well as difficulties in completing their academic tasks with increased coursework with each passing year, which ultimately increases the clinical activities, and reduces their social life. This finding can be attributed to; increase in coursework with time constraint, preparation for examinations and fear of failing. This finding result was similar to a study done [3]. where the 3rd year

students regarded this factor as the biggest stressor with a mean score of 3.61 and also coincided with the results of study done by Osagbemiro Babatope Bamidele., *et al*. [6] where lack of time for relaxation is a topmost stressor found in their study with a mean score of 3.14.

In our study, in the domain of learning clinical skills, completion of clinical requirements had attributed to stress among 4th and 5th year of dental students in MUCM with a median score of 6.0 and 5.0. This is similar to the study [4] which stated that "clinical requirements'' was the greatest stressor with the highest mean score for the fourth and fifth-year students. This can be explained by the fact that finishing clinical requirements is an integral part of each clinical course that should be fulfilled in order for the student to pass to the next level. The reason for the stress in our college may be also due to the fear of COVID-19 transmission to and from patients seeking dental treatment in our clinic during pandemic era.

Another main contributor of stress among 4th year MUCM students was the fear of failing a course or the year (median score:5.5) and due to the patient being late or not showing for their appointments (median score: 5.0), whereas study done by Ahmad MS., *et al*. [10] showed similar results with the 4th year students having fear of failing a course or year and stress when patients arrived late or not show up for appointment (97.5%).

In conjunction, amount of assigned work was also a contributor to stress faced most by the year 4 students of MUCM, with a median score of 5.0, which was in sync with the findings among dental students in Port Harcourt [6] which stated that "there was a trend of increasing stress from 4th year to the final year in this study due to increase in course-work in each passing year.

4th year students also had difficulty in completing clinical requirements; result of which matched up with the study [10], where the discussion stated that "the spike in stress levels among fourth year students points to the stress the students face when entering the clinical setting". [11] Students also found difficulty in finding their own patients and applying their clinical skills to treating these patients at an early stage while coping with the demands of the academic course load, especially those related to medical subjects. This is because there are clinical requirements for students to mandatorily fulfil before being allowed to sit for examination. Dental schools also put a heavy emphasis on clinical sciences and focus on producing graduates with competent clinical skills [13]. Some students feared they will not be able to catch up if they fall behind or fail a course or the year.

Finally, 4th year students had the highest feeling of lack the confidence in making clinical decisions with a median score of 5.0; which was confirmed by another study [10], where it is mentioned that "4th year students faced difficulties in applying clinical skills while treating patients at an early stage".

Conclusion

In conclusion, lack of time for relaxation and to complete assigned work, amount of assigned work, followed by patients being late or not showing for their appointment; are the top sources of stress among clinical year dental students of MUCM. Among academic years, academic performance was the most stressful of the four stress domains. To be precise, among the three clinical years, fourth year students were the most stressed group. Moreover, more stress was reported among female students when it came to completion of clinical requirements. Therefore, our study indicated that clinical years are indeed undergoing stress. Hence, there is a need of establishment of stress coping training and counselling. The recognition of the sources, and resolving it has to be caried out in order to provide improved wellbeing among clinical year students.

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