Original Article

Evaluation of psychological stress in orthodontic PG students in India

ABSTRACT

Introduction: Psychological stress is associated with many professions including dental surgery and is commonly encountered among BDS students, which later increases during post graduation (MDS). In this study we intended to identify the perceived sources and the extent of the psychological stress in the Orthodontic post-graduate students, and also evaluate the influence of different variables on overall stress and the effect of various stress relievers among the PG students.

Material and Method: A questionnaire type of survey was conducted among 80 Orthodontic post graduate students (39 male and 41 female). A total of 22 factors were shortlisted for the questionnaire and were grouped under three broad categories as Personal, Curriculum Factors and Clinical Factors which were scored on a four point scale as 0- Not applicable, 1- Mild stress, 2–Moderate stress, 3–Severe stress.

Result: The result showed that the majority of the PGs were definitely stressed, with females being more stressed than males, though the difference between two genders was statistically non-significant for most of the perceived sources of stress except for home sickness . In overall stress scores for different variables, the difference was statistically non-significant in all of them. Among the stress busters use of social media, alcohol and smoking were significantly associated with some of the student characteristics.

Conclusion: The stress levels in PG curriculum definitely exist and the students should adopt proper stress busters to relieve the stress so as to work efficiently during their course.

Key words: Orthodontics; postgraduate students; stress.

Introduction

According to the World Health Organization, "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Mental health is defined as a state of well-being, in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community. The mental health depends on the psychological stress of an individual in his or her day to day life.

Psychological stress is described as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being."[1] Stress is associated with many professions including dental surgery. Several studies have shown that dentistry generates more stress than other professions because of the nature and working conditions of dentists. A UK-based study revealed the proportion of the final year dental students (BDS), suffering from stress to be as high

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as 72%.[2] A survey in seven European dental schools showed more than a third of the total sample of students having psychological distress (morbidity) at a level of concern.[3]

The increasing awareness and demand has built up a trend for the graduates to pursue a master's degree after BDS in any of the desired specialties. "The Master of Dental Surgery (MDS)" program in India is a 3 years full-time course with training in both theoretical and clinical arenas. Given the rigorous nature of the program, it is logical to assume that the students could encounter stressful situations during the course.[4] Unlike graduation, postgraduation comes up with new challenges in a student's life and builds up an entirely different scenario in his/her career, like working under the same faculty members, studying the same subject, and working for the same specialty, for 3 long years. These can bring up a different level of stress in postgraduate students when compared to graduate students.

Among various specialties, orthodontics is the oldest discipline and can be considered as one of the toughest branches of dentistry; thus, more stress can be anticipated in this department during postgraduation. Every educational institution has a fundamental duty of providing an optimal learning environment for students, and the first essential step toward this is the identification and understanding of the potential stressors.[4]

A study conducted by Madhan *et al*.[4] assessed a high stress level among the orthodontic postgraduate students in India and also analyzed the influence of age, gender, and the year of study on these stressors. Several surveys have been conducted to assess the level of stress in dental undergraduate students[5,6] and among general postgraduate dental students;[7] however, very few studies have been conducted to determine the stress level of orthodontic postgraduate students. Furthermore, the influence of certain other undetermined variables such as time gap between BDS completion and MDS joining and marital status on these stressors has not been evaluated as of now. Hence, we intend to identify the perceived sources and the extent of the psychological stress in the orthodontic postgraduate students in India and evaluate influence of different variables on overall stress. We will be also determining the effect of various stress relievers among the PG student.

Materials and Methods

A questionnaire type of survey [Table 1] was conducted among 120 orthodontic postgraduate students (sixty male PG students and sixty female PG students). The questionnaires were distributed among the postgraduate students gathered for the 50th Indian Orthodontic Conference held at Hyderabad. The completed questionnaires were collected back on the same day from the participants at conference. The participants were asked not to disclose their identity, and the participation was voluntary.

A total of 22 factors were shortlisted for the questionnaire and were grouped under three broad categories as personal, curriculum factors, and clinical factors. The perceived degree of stress associated with each factor was scored on a four-point scale as 0 - not applicable, 1 - mild stress, 2 - moderate stress, 3 - severe stress. The participant was considered to be stressed if his/her score was 2 or >2.

Statistical analysis

The data from the returned questionnaires were tabulated in Microsoft Excel and was independently cross-checked. The descriptive statistics (frequency distribution, median, mean, and standard deviation) were calculated to summarize the obtained data. Ranking for stressors was done, and adequate comparisons were made for different variables.

Results

Table 2 shows the scores for perceived sources of stress for male and female participants and also shows comparison between scores of male and female students.

Considering the participant to be stressed if score was 2 or >2, the male students were stressed for all the perceived sources except differentiation due to religion, caste or region, marriage or having children during curriculum, and competition with batch mates. Similarly, the female students were stressed for all the stressors except for homesickness, self-sustenance such as food and transport lodging, gender-based bias, differentiation due to religion, caste or region, and marriage or having children during curriculum.

Both the genders were affected most by the curricular sources of stress, whereas both of them were least affected by the personal stressors. The male students were more affected by the personal factors than female students. Among the participants, female students showed comparatively more stress than male students. Statistically, the difference between two genders was nonsignificant for most of the perceived sources of stress except for homesickness ($P = 0.005$).

The three maximum perceived source of stress for both the gender in all the three categories are tabulated in descending order in Table 3.

Table 1: A Survey to evaluate the psychological stress in orthodontic pg students in India

Age :
Sex:
Year of BDS completion:
Year of MDS Joining:
Familial history of psychosomatic disorder: Yes/ No
Married: Yes/ No

Stress factors	Score- wise Frequency distribution (Tick below)			
	Mild	Moderate	Severe	Not Applicable
Personal factors				
1. Lack of time for relaxation and neglect of personal life				
2. Financial Limitation				
3. Home Sickness				
4. Self sustainance like food, transport, lodging etc				
5. Punctuality/ College timing				
6. Gender based bias and discrimination				
7. Differentiation due to religion, caste or region				
8. Marriage or having children during curriculum				
9. Fear of unemployment after the course				
10. Peer pressure				
Competition with batchmates				
Politics among Co- pg's				
Curricular factors				
11. Too much work load and inadequate time				
12. Stress of academic activities like Seminar, JC, Case presentation				
13. Criticism from staff for academics and clinical work				
14. Coping with faculty mood swings				
15. Attending CDE/ Conference				
Scientific Presentations				
Financial Stress				
16. Thesis and library dissertation				
Stress to meet deadline				
Financial stress				
17. Inadequate library support				
Clinical factors				
18. Lack of adequate materials and equipments				
19. Lack of adequate number of patients				
20. Lack of patient compliance				
21. Intra faculty differences regarding treatment plan of patients				
22. Need to complete treatment of the patients for presentation in university exam.				

"As methods to reduce stress....."

Which of the following option you would prefer the most to relieve your stress? (Tick maximum 4 options).
1) Music
2) Take a break and hangout with friends
3) Social Media like Whatsapp, Facebook etc
4) Alcohol
5) Smoking
6) Meditation
7) Frequent bunking of classes and absence from college.

For both male and female students, stress of academic activities such as seminar, Joint Commission (JC), and stress to complete treatment of the patient for presentation in university examination were the most perceived stress source among the curricular and clinical factors, respectively, whereas among personal factors, males were more stressed because of uncertainty in employment and females were maximally stressed due to financial limitations.

In Table 4, mean scores of perceived sources of stress were compared based on gender, age, gap between BDS and MDS, year of curriculum, marital status, and presence or absence of depression. As none of the

Table 2: Descriptive Statistical analysis for perceived sources of stress in male and female participants of the study

Stress Factors	Male (n=39)				Female (n=41)				Statistical significance	
	0	1	2	3	0	1	2	3	χ^2	P
Personal Factors										
1. Lack of time for relaxation and neglect of personal life	2	8	20	9	0	8	21	12	2.404	0.493
2. Financial limitations	2	9	22	6	1	6	18	16	5.832	0.120
3. Home Sickness	1	17	15	6	7	18	4	12	12.855	0.005
4. Self sustainance like food, transport, lodging etc	4	12	16	7	3	18	11	9	2.470	0.481
5. Punctuality/College timings	7	10	15	7	1	17	13	10	6.941	0.074
6. Gender based bias and discrimination	10	10	16	3	14	14	9	4	3.388	0.336
7. Differentiation due to religion, caste or region	16	13	5	4	22	11	7	1	4.200	0.380
8. Marriage or having children during curriculum	26	4	5	4	17	6	6	12	8.730	0.068
9. Fear of unemployment after the course	3	14	5	17	3	12	12	14	3.279	0.351
10. Peer pressure										
Competition with Batchmates	9	16	9	5	6	10	16	9	5.041	0.169
Politics among Co-PGs	9	6	9	15	12	7	11	11	1.272	0.736
Curricular Factors										
11. Too much work load and inadequate time	0	2	20	17	0	6	16	19	2.507	0.285
12. Stress of academic activities like Seminar, JC, Case presentations	0	3	11	25	0	7	11	23	1.634	0.442
13. Criticism from staff for academic and clinical work	1	13	15	10	2	9	17	13	1.528	0.676
14. Coping with faculty mood swings.	0	8	19	12	1	12	15	13	2.262	0.520
15. Attending CDE/Conferences										
Scientific presentation	0	12	17	10	2	17	12	10	3.676	0.299
Financial stress	1	9	13	16	3	11	10	17	1.573	0.666
16. Thesis and library dissertation										
Stress to meet deadline	3	3	14	19	2	7	16	16	2.142	0.543
Financial stress	5	9	10	15	5	8	12	16	0.223	0.974
17. Inadequate library support	2	8	15	14	5	12	8	16	4.302	0.231
Clinical Factors										
18. Lack of adequate materials and equipments	1	9	17	12	3	9	16	13	1.982	0.739
19. Lack of adequate number of patients	4	16	14	5	4	18	14	5	1.179	0.881
20. Lack of patient compliance	5	14	18	2	2	16	19	4	2.598	0.627
21. Intra faculty differences regarding treatment plan of patients	5	12	14	8	4	8	13	16	4.031	0.402
22. Need to complete treatment of the patients for presentation in university exam	4	2	17	16	2	3	18	18	1.877	0.758
Mean Total Score±SD	45.51±9.33				47.17±10.51				t=0.745 P=0.459	

Table 3: Ranking Order of perceived sources of stress in participants of study

Stressors	Male	Female
Curricular Factors	1.Stress of academic activities like seminar, JC etc	1.Stress of academic activities like seminar, JC etc
	2. Too much work load	2. Too much work load
	3. Stress to meet deadline for Thesis and LD submission	3. Stress to meet deadline for Thesis and LD submission
Clinical Factors	1. Need to complete treatment of the patient for presentation in university exam	1. Need to complete treatment of the patient for presentation in university exam
	2. Lack of adequate Material and equipments	2. Lack of adequate Material and equipments
	3. Lack of adequate patients	3. Lack of adequate patients
Personal factors	1. Un certainty in employment	1.Financial limitation
	2. Lack of time for relaxation and neglect of personal life	2.Lack of time for relaxation and neglect of personal life
	3.Financial limitation	3.Un certainty in employment

participants had depression, this variable was excluded from the study.

The overall mean stress score was higher in females than in male. Considering age as a variable, the participants in the age group of 26–30 years were least stressed followed by the participants of age >30 years and then the participants below the age of 25 years. The overall stress increased as the time gap between BDS and MDS increased up till 5 years, but the participants who did MDS after a gap of 5 years had

stress score lesser than with a gap of 2 years. For the year of curriculum, participants in MDS II[nd] year were maximally stressed followed by MDS I[st] and then III[rd] year. The unmarried participants had more stress than married ones. Despite of these deviations in overall stress scores for different variables, the difference was statistically nonsignificant in all of them.

Table 5 showed number of participants adopting different stress coping strategies.

Music and taking a break topped the list among the stress busters.

Table 6 shows association of various methods as coping strategy with different student characteristics and demographic profile of the participant.

None of the student characteristics were significantly associated with stress busters such as music, meditation, bunking classes, and taking a break as a coping strategy. The use of social media as a coping strategy decreased significantly only with increased age ($P = 0.037$). Similarly, male students and unmarried participants showed a significant association with smoking as stress buster ($P = 0.005$ and $P = 0.025$, respectively), whereas association with other variables was nonsignificant, and the use of alcohol was highly significant among males ($P > 0.001$).

Discussion

Stress is associated with many professions including dental surgery. It is very common among the dental graduates, which further builds up during the postgraduation curriculum. Considering this, we intended to identify the perceived sources and the extent of the psychological stress in the orthodontic postgraduate students in India and influence of different variables on overall stress scores. We also determined the effect of various stress relievers among the PG students.

For this, a survey-based study was conducted among 120 orthodontic postgraduate students (sixty male and sixty females), in which the postgraduates were asked to fill a questionnaire with 22 factors, grouped under three broad categories as personal, curriculum factors, and clinical factors and scored on a four-point scale (0 - not applicable, 1 - mid stress, 2 - moderate stress, and 3 - severe stress).

If the scores for any perceived source of stress were 2 or more than 2, it was considered as a stressor in the present study. The male students were stressed for all the perceived sources except differentiation due to religion, caste or region, marriage or having children during curriculum, and competition with batch mates. Similarly, the female students were stressed for all the stressors except for homesickness, self-sustenance such as food and transport lodging, gender-based bias, differentiation due to religion, caste or region, and marriage or having children during curriculum.

Among the participants, female students showed comparatively more stress than male students which could be due to the fact that the females tend to do work more meticulously, hence more stressed. Statistically, the difference between two genders was nonsignificant for most of the perceived sources of stress except for homesickness. Our results were in contrast to the study conducted by Acharya[6] among Indian dental students which concluded that male students were under considerable stress than females and

Table 4: Association of Mean Stress Scores with student characteristics and demographics

Variable	*N*	Mean	SD	Statistical significance
Gender				
Male	39	45.51	9.33	$t=0.745$; $P=0.459$
Female	41	47.17	10.51	
Age (Years)				
<25	26	47.65	10.82	$F=0.303$; $P=0.740$
26-30	50	45.78	9.58	
>30	5	46.60	9.07	
Gap between BDS and MDS				
Nil	7	43.86	11.94	F=0.530; $P=0.663$
<2 years	48	46.21	10.10	
3-5 years	21	48.38	8.78	
>5 years	5	44.00	10.75	
MDS Year				
MDS I	34	45.29	11.35	$F=1.770$; $P=0.160$
MDS II	29	48.03	7.86	
MDS III	17	44.88	9.12	
Senior Resident Post MDS	1	65.00	-	
Marital Status				
No	41	46.84	9.69	$t=0.553$; $P=0.582$
Yes	15	45.52	10.44	
Depression	None of the participants had depression			

Table 5: No of participants adopting different Stress Coping Strategies

Strategy	No. of participants			Percentage		
	Male	Female	Total	Male	Female	Total
Music	37	34	71	94.9	82.9	87.7
Taking a break	31	30	62	79.49	73.17	76.5
Social media	14	19	34	35.90	46.34	42.0
Alcohol	16	3	19	41.03	7.32	23.5
Smoking	11	2	13	28.21	4.88	16.0
Meditation	13	17	31	33.33	41.46	38.3
Bunking	5	12	18	12.82	29.27	22.2

Table 6: Association of various methods as a coping strategy with Student Characteristics and demographic profile of the participants

Variable (Total)	% adopting music	% Taking a Break	% adopting Social Media	% adopting Alcohol	% adopting Smoking	% adopting Meditation	% adopting Bunking
Gender							
Male	94.9	79.49	35.9	41.03	28.21	33.33	12.82
Female	82.9	73.17	46.34	7.32	4.88	41.46	29.27
χ^2	2.856	0.440	0.900	12.541	7.992	0.564	3.231
P	0.091	0.507	0.343	0.001*	0.005*	0.453	0.072
Age (Years)							
<25	96.2	92.31	57.69	15.38	11.54	42.31	30.77
26-30	84.0	68.00	38.00	28.00	18.00	32.00	20.00
>30	80.0	80.00	0	20.00	20.00	80.00	0.00
χ^2	2.623	5.665	6.578	1.552	0.592	4.697	2.670
P	0.269	0.059	0.037*	0.460	0.744	0.096	0.263
Gap between BDS and MDS							
Nil	85.7	100.00	42.86	28.00	28.57	42.86	14.29
<2 yrs	91.7	81.25	52.08	22.92	14.58	33.33	25.00
3-5 yrs	76.2	61.90	28.57	28.57	19.05	42.86	23.81
>5 yrs	100	60.00	0	0.00	0.00	60.00	0.00
χ^2	3.993	6.006	7.182	1.948	1.987	1.744	1.929
P	0.262	0.111	0.066	0.583	0.675	0.627	0.587
MDS Year							
MDS I	97.1	79.41	47.06	20.59	11.76	44.12	23.53
MDS II	86.2	75.86	44.83	24.14	17.24	27.59	24.14
MDSIII	70.6	70.59	29.42	29.41	23.53	41.18	17.65
χ^2	7.551	0.806	2.283	0.806	1.391	3.567	0.587
P	0.056	0.848	0.516	0.848	0.708	0.312	0.899
Marital Status							
No	87.8	75.6	41.5	34.1	26.8	31.7	17.1
Yes	86.7	86.7	46.7	13.3	0	40.0	26.7
χ^2	0.013	0.797	0.121	2.331	5.008	1.772	0.640
P	0.909	0.372	0.728	0.127	0.025*	0.621	0.424

also to the study by Madhan *et al*.[4] where gender of Indian orthodontic PG students did not make any significant difference in the perceived stress scores.

For both male and female students, stress of academic activities such as seminar, JC, and stress to complete treatment of the patient for presentation in university examination were the most perceived stress source among the curricular and clinical factors, respectively, whereas among personal factors, males were more stressed because of uncertainty in employment and females were maximally stressed due to financial limitations. The top three perceived sources of stress under curricular factors are basically related to time management, which when not followed leads to piling of workload leading to stress. For clinical category, it can be suggested that in orthodontics, it takes a longer time to finish a particular case with fixed mechanotherapy, and if patients are not started early or are not followed up properly, the stress to present a finished case in the examination builds up. Among the personal factors of stress, uncertainty of employment was the top stressor in males as this is the most basic criteria for marriage of males in our society. In females, financial limitation was the top stressor as they are aware of the fact that money will be spend in their marriage as well after the completion of education. However, in the previous study conducted by Madhan *et al*.,[4] dependency on alcohol, drugs, etc., and limitation of financial resources, politics, and psychological games played by the faculty, excessive workload, and forced postponement of engagement or marriage were the first five highly stressful factors for the students. The author also stated that the factors related to the personal life of the student were more common among the top few stressors.

Similar to the previous studies by Al-Shayea[8] and Madhan *et al*.,[4] the mean stress scores of our study were independent of student characteristics and demographic profile of the participant ($P > 0.05$). However, in the study by Al-Shayea,[8] married students reported lower levels of anxiety symptoms compared to their unmarried counterparts, but in our study, this difference was statistically nonsignificant.

The importance of stress coping strategies cannot be overlooked as it relieves or dissipates the stress of a student during PG curriculum and thereby will highly improve the work efficiency and overall performance of the PG students. Among the stress coping strategies, music and taking a break were found to be most effective, with 87.7% and 76.5% of participants finding this as the best stress busters. Smoking, alcohol, and bunking classes were found to be least opted stress busters by the participants.

None of the different variables such as gender, age, and year of curriculum were significantly associated with stress busters such as music, meditation, bunking classes, and taking a break as a coping strategy. However, the use of social media as a coping strategy decreased significantly with increased age ($P = 0.037$). Similarly, male students and unmarried participants showed a significant association with smoking as stress buster ($P = 0.005$ and $P = 0.025$, respectively), whereas association with other variables was nonsignificant. Moreover, the use of alcohol as a stress coping strategy was highly significant among males ($P > 0.001$).

Conclusion

It can be stated that PGs in orthodontics are definitely stressed with females being more stressed than males though it was statistically nonsignificant. It can be suggested that stress busters should be adopted by the students to relieve the stress, and institutions should organize extracurricular activities in the college to break the monotony of PG curriculum. Further as a PG student, we should try to do appropriate time management in completing the work assigned to us during the course.

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Conflicts of interest

There are no conflicts of interest.

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