

Procrastination among Dental Postgraduate Students in Maharashtra, India

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ABSTRACT

Aim: To assess the level of procrastination among dental post graduate students in Maharashtra, India.

Materials and Methods: A cross-sectional study was conducted among 414 first, second and third year dental post graduate students of 9 specialities. A sixteen-item questionnaire was used to assess the level of procrastination among these students.

Results: The mean procrastination score of students across three years was 47.49 (SD 16.66). Highest percentage of high procrastination scores were found for Oral Pathology dental post graduates (28.57%) and lowest percentage of high procrastination scores were found for Orthodontics (7.84%). Female participants (18.6%) were found to have high procrastination scores than the male participants (7.8%). First year dental post graduates showed high percentage of moderate (75.90%) and high (40.09%) procrastination scores, while third year dental post graduates showed high percentage of low procrastination scores (36.6%)

Conclusion: Highest percentage of high procrastination scores were found for Oral Pathology dental post graduates; moderate procrastination scores were found for Oral Medicine and Radiology dental post graduates and low procrastination scores were found for Orthodontics dental post graduates. First years showed high procrastination scores compared second and third years. Dental post graduates with below average showed high and moderate procrastination scores.

Keywords: Procrastination, Academic performance, Dental post-graduates.

INTRODUCTION

Procrastination is a prevalent and pernicious form of self-regulatory failure^{1, 2}. The lack or absence of self-regulated performance has been labelled procrastination, the tendency to put off or completely avoid an activity under one's control³. The term "procrastination" has been defined as "the act of needlessly delaying tasks to the point of experiencing subjective discomfort or putting off that which is necessary to reach some goal"⁴. It has

been proposed that procrastination results from a combination of (a) disbelieving in one's own capability to perform task⁴, (b) being unable to postpone gratification, and (c) assigning blame for one's own "predicament" to external sources^{6, 7}. Procrastination is a current topic of interest across multiple fields, from finance (as people defer dealing with their financial troubles) to health care (as people delay seeing their physicians)⁸. Unfortunately, procrastination has also been

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associated with numerous negative outcomes including neuroticism, depression, anxiety, impulsivity, aversiveness, task delay, and low self-efficacy and conscientiousness, in addition to its facets of self-control, distractability, organization, achievement motivation, and poor academic performance⁹. Hence, such negative outcomes are believed to interfere with task performance. Postponing a task frequently leads to a larger task and more serious problems like stress, a sense of guilt and crisis, severe loss of personal productivity, and social disapproval for not meeting responsibilities or commitments. When these feelings are combined, they may promote further delays or procrastination¹⁰. In fact, Watkins has stated that "chronic procrastination may be a sign of an underlying psychological disorder¹¹.

Many reasons have been offered as to why people procrastinate. Either situational or temporary factors are related to procrastination such as task aversiveness, evaluation concerns and poor time management skills, either procrastination has been conceptualized as an aspect of personality and has been linked to low self-confidence, self-esteem, and self-efficacy, as well as perfectionism and fear of failure².

Procrastination is clearly prevalent. Though virtually all of us have at least dallied with dallying, some have made it a way of life. Estimates indicate that 95% of college students engage in procrastination¹², approximately 75% consider themselves procrastinators¹³, and almost one-half do it consistently and problematically¹⁴. It was also demonstrated that among students, high procrastination was associated with lack of self-determined motivation and low incidence of flow state. Also in the medical field it was reported that procrastination on the part of patients is a major problem^{15, 1}.

Stress appears to be an unavoidable and common aspect of daily life. It may have positive aspects that some individuals may feel challenged and may be able to raise productivity and standard to meet increasing demands^{16, 17}. However, among students, work related stress and anxiety have been shown to lead to a morale and poorer work performance and to adversely affect the quality of work delivered^{16, 18, 19}. Stress, burnout and overload are factors in the

underperformance²⁰. Dental students are no exception for procrastination because they frequently must balance their academic, preclinical, and clinical responsibilities simultaneously. In dentistry there are nine different specialties in post-graduation, among this there are clinical and non-clinical specialties. Depending on the clinical and non-clinical specialties the workload varies. The dental post graduate students are under continuous stress to achieve the impeccable standards expected by the trainers. Lack of time management can lead to procrastination of academic and clinical tasks that ultimately could impact their academic performance. With so many scheduled activities on students, they must possess the skills needed to set goals, achieve those goals and in the process, avoid procrastination¹⁰. According to Sujit et al., "better time management skills, precludes 'cramming' for examinations at the last minute and can result in diminished anxiety and improved academic performance²⁰. It is very important to identify such students and make them aware of the negative impact of procrastination on their academic performance. So this study was aimed to assess the level of procrastination among dental post graduate students of Maharashtra, India.

MATERIALS AND METHODS

A cross-sectional study was conducted among 414 dental post graduate students of nine different specialties in Maharashtra, India. Prior to the commencement of the study, ethical clearance was obtained from the Institutional Review Board. The study was conducted over a period of 2 months from August to September 2017. A list of dental colleges with post-graduation training programme was obtained from the state university. Out of thirty four colleges in the state with post-graduation training programme, proportionately five colleges were randomly selected by lottery from different university regions of the state. All dental post graduate students of different speciality from the selected colleges who gave an informed consent and who were present on the particular day of data collection were involved in the study.

Data collection:

Data was collected using a self-administered questionnaire containing three parts. First part recorded the demographic details, which include

the speciality of post-graduation training programme and the year of the post-graduation. Second part collected information pertaining to the level of procrastination using sixteen-item, prevalidated questionnaire (Bruce W. Tuckman, 1991)²¹. Finally data was collected to assess the participant's academic performance by collecting their grades in previous university examination. A pilot study was conducted among thirty dental post graduate students prior to the start of main study to evaluate the reliability of the questionnaire. The resulting reliability coefficient was $r=0.97$ at $p<0.00001$ and Cronbach's alpha is 0.8.

The questionnaire was administered to the participants in their respective departments. Interaction among participants were minimised to prevent distortion of the results. Students were instructed not to disclose their names in the questionnaire and anonymity was maintained. If difficulties were encountered in understanding the questionnaire, the investigator explained the questions in simple terms.

The range of procrastination scores obtained from the students was divided in to three groups. Group 1 included those students in the 33.3 percentile or lower range, who were considered to have low procrastination scores. Group 2 included those students in the 33.4 percentile to 66.6 percentile, and they were considered moderate procrastinators. Group 3 included those students in the 66.7 percentile, and they were considered to have high procrastination scores (Nagesh L et al). This same methodology was employed for dividing academic performance based on their grades in previous university examination into below average (Group 1), average (Group 2), and above average (Group 3). Using these classification criteria, the assigned scores for procrastination were interpreted as follows: 16-36 for low procrastination (Group 1), 37-41 for moderate procrastination (Group 2), and 42-64 for high procrastination (Group 3). When classifying academic performance, scores of $\leq 60\%$ were interpreted as below average, scores of 61-68% equaled average, and scores of $\geq 69\%$ were considered to be above average (Nagesh L et al).

The completed questionnaire was collected from the participants and the raw data obtained were

Table 1: Distribution of dental post graduates according to their demographic characteristics.

Variable	n=414	Percentage (%)
Males	191	46.13
Females	223	53.86
Age		
23-27 years	291	70.28
28+ years	123	29.71
Year		
First Year	166	40.09
Second Year	128	30.91
Third Year	120	28.98
Departments		
Oral Medicine & Radiology	42	10.14
Public Health Dentistry	32	7.72
Oral & Maxillo Facial Surgery	50	12.07
Oral Pathology	42	10.14
Prosthodontics	50	12.07
Endodontics	50	12.07
Pedodontics	46	11.11
Orthodontics	51	12.31
Periodontics	51	12.31

classified, tabulated and subjected to statistical analysis using SPSS version. The chi-square test was used to assess the relationship of procrastination with academic performance. Multiple logistic regression was applied to check the interaction effect of age, gender, year and academic performance on the procrastination.

RESULTS

A total of 414 dental post graduates aged 23-27+ years were involved in the study with a mean age of 26.64 ± 2.09 years with 53.86 percent being female participants. Majority of the participants were first years (40.09%) followed by second years (30.91%) and third years (28.98%). Majority of the participants were from the departments of orthodontics (12.31%) and periodontics (12.31%) (Table1).

Highest percentage of high procrastination scores were found for Oral Pathology dental post

Table 2: Relationship between level of procrastination and different specialities, age, sex and year of post-graduation.

Factors	Procrastination scores				Chi-square(χ^2)	p-value
	Low n (%)	Moderate n (%)	High n (%)	Total		
Departments						
Oral Medicine & Radiology	2 (4.76)	35 (83.3%)	5 (11.90%)	42 (10.14%)	25.89	0.0556
Public Health Dentistry	7 (21.8)	21 (65.6%)	4 (12.50%)	32 (7.72%)		
Oral & Maxillo Facial Surgery	13 (26%)	33 (66%)	4 (8.00%)	50 (12.07%)		
Oral Pathology	6 (14.2%)	24 (57.1%)	12 (28.57%)	42 (10.14%)		
Prosthodontics	11 (22%)	34 (68%)	5 (10.00%)	50 (12.07%)		
Endodontics	12 (24%)	32 (64%)	6 (12.00%)	50 (12.07%)		
Pedodontics	8 (17.3%)	31 (67.3%)	7 (15.22%)	46 (11.11%)		
Orthodontics	16 (31.3%)	31 (60.7%)	4 (7.84%)	51 (12.31%)		
Periodontics	15 (29.4%)	27 (52.9%)	9 (17.65%)	51 (12.31%)		
Age groups						
23-27yrs	49 (16.84%)	199 (68.3%)	43 (14.78%)	291(70.28%)	13.96	0.0009*
28+ yrs	41 (33.3%)	69 (56.1%)	13(10.57%)	129(29.71%)		
Sex						
Male	64 (33.5%)	112 (58.6%)	15 (7.85%)	191(46.13%)	33.06	0.00001*
Female	26 (11.6%)	156 (69.9%)	41 (18.39%)	223(53.86%)		
Year						
First year	13 (7.8%)	126 (75.90%)	27 (16.27%)	166 (40.09%)	35.95	0.00001*
Second year	33 (25.7%)	78 (60.94%)	17 (13.28%)	128 (30.91%)		
Third year	44 (36.6%)	64 (53.33%)	12 (10.00%)	120 (28.98%)		
Total	90 (21.74%)	268 (64.73%)	56 (13.53)	414		

Table 3: Relationship between level of procrastination and academic performance across first, second and third year dental post graduates, by number and percentage of total respondents.

Year	Academic performance	Procrastination scores				Chi-square(χ^2)	p-value
		Low n (%)	Moderate n (%)	High n (%)	Total n (%)		
First year	Below average	0	37(57.81%)	27(42.19)	64(14.49%)	68.41	0.001*
	Average	0	36(100%)	0	36(8.6%)		
	Above average	13(19.70)	53(80.30%)	0	66(15.94%)		
	Total	13(7.83)	126(75.90%)	27(16.27%)	166(40.09%)		
Second year	Below average	0	18(51.43%)	17(48.57%)	35(8.45%)	79.54	0.001*
	Average	0	23(100%)	0	23(5.55%)		
	Above average	33(47.14)	37(52.86)	0	70(16.90%)		
	Total	33(25.78)	78(60.94%)	17(13.28%)	128(30.19%)		
Third year	Below average	0	14(53.85%)	12(46.15%)	26(6.2%)	82.82	0.001*
	Average	0	21(100%)	0	21(5.07%)		
	Above average	44(60.27)	29(39.73%)	0	73(17.63%)		
	Total	44(36.67)	64(53.33%)	12(10%)	120(28.98%)		

Table 4: Multiple logistic regression analysis of procrastination with independent variables.

Procrastination	Independent Variable	p-value	Odds ratio(CI)
Low	Age	0.8	1.1(0.3-3.1)
	Gender	0.02*	0.6(0.3-0.9)
	Academic performance	0.00*	4.7(2.1-10.3)
	Year	0.01*	0.4(0.2-0.8)
Moderate	Age	0.7	0.8(0.3-1.9)
	Gender	0.03*	2.0(1.0-3.9)
	Academic performance	0.00*	0.2(0.1-0.5)
	Year	0.9	0.9(0.6-1.5)

Note: The reference category (procrastination) is high. *p<0.05 is significant, CI=confidence interval

graduates (28.57%) and lowest percentage of high procrastination scores were found for Orthodontics (7.84%). Highest percentage of moderate procrastination scores were found for Oral Medicine and Radiology dental post graduates (83.3%) and lowest percentage of moderate procrastination scores were found for periodontics (52.9%). Highest percentage of low procrastination scores were found for Orthodontics dental post graduates (31.3%) and lowest percentage of low procrastination scores were found for Oral Medicine and Radiology periodontics (4.76%). Study participants aged 23- 27 years showed highest percentage of moderate (68.3%) followed by low (16.84%) and high (14.78%) procrastination scores. Female participants showed highest percentage of moderate (69.9%) followed by high (18.39%) and low (11.6%) procrastination scores. Male participants showed moderate score (58.6%) followed by low (33.5%) and high (7.85%) procrastination scores. First year dental post graduates showed high percentage of moderate (75.90%) and high (40.09%) procrastination scores, while third year dental post graduates showed high percentage of low procrastination scores (36.6%) (Table 2)

First years with below average academic performance showed moderate procrastination scores (57.81%) followed by high (42.19%). First years with average academic performance showed moderate procrastination scores (100%). First years with above average academic performance showed 80.30% moderate procrastination scores. Second years with below average academic performance showed moderate procrastination scores (51.43%) followed by high (16.27%). Second

years with average academic performance showed 100% moderate procrastination scores. Second years with above average academic performance showed 60.27% low procrastination scores. Second years with below average academic performance showed moderate procrastination scores (53.15%) followed by high (46.15%). Third years with average academic performance showed 100% moderate procrastination scores. Third years with above average academic performance showed 53.33% low procrastination scores (Table 3).

Association between procrastination and other independent variables was assessed using multiple logistic regression analysis. Gender, academic performance and year of post-graduation were identified as independent risk factors which were significantly associated with procrastination in dental post graduates (Table 4).

DISCUSSION

Procrastination is a current topic of interest across multiple fields from finance to health care⁸. The dental post graduate students are under continuous stress to achieve the impeccable standards expected by the trainers. Lack of time management can lead to procrastination of academic and clinical tasks that ultimately could impact their academic performance. Stress, burnout and overload are factors in the underperformance²⁰. Dental post-graduate students are no exception for procrastination because they frequently must balance their academic, preclinical, and clinical responsibilities simultaneously. In our study first, second and third year dental post graduates with their previous university examination grades were taken because, their academic performance could

be measured. The scale used to classify academic performance of students as below average (≤ 60 percent), average (61-68 percent), and above average (≥ 69 percent) is applicable and relevant only in India, so it would need to be revised for the other countries depending on the local standards.

The first null hypothesis was that there was no relationship between the level of procrastination and academic performance among first, second and third-year dental post graduate students of Maharashtra, India. This hypothesis was rejected and significant results were found between the level of procrastination and academic performance in contrast with a study by Nagesh L et al where they found that dental under graduate students with a high level of procrastination scores performed below average in their academics¹⁰. These findings of a negative correlation between procrastination and academic performance are in agreement with a study conducted among university mathematics undergraduate students²³. The results of our study also are consistent in contrast with other studies found that procrastination was associated with below average academic achievement^{24, 25, 26, 27}. The reason for below average academic performance among students who procrastinate might be attributed to their low level of self-esteem and self-efficacy²⁸. Students seem to feel an implicit pressure from their peers and professors to produce very good ideas and research on the very first try. As a reaction to this socially-prescribed perfectionism, students delay their work. However, others have reported that procrastinators' performance is as sound as non-procrastinators on course exams and grades^{4, 29, 30}. Although procrastination affects virtually everyone to some degree, academic procrastination among college students is omnipresent, at levels perhaps as high as 95 percent⁶. However, among students, work related stress and anxiety have been shown to lead to a low morale and poorer work performance and to adversely affect the quality of work delivered^{16, 18, 19}. Academic success could be attributed to skills such as organization of time with execution of duties on schedule, determination of aims, prioritization of tasks, and creating a pattern of studying systematically.

The second null hypothesis was that there would be no difference in procrastination scores between

male and female participants in the study. This null hypothesis also was rejected because a higher percentage of females had high procrastination scores than males in contrast with the study by Nagesh L et al in under graduate dental students where they found higher percentage of males had high procrastination scores than females¹⁰. Several studies have emphasized that procrastination behavior does not vary according to gender, which is not consistent with the results^{31,32}. The anticipated influence of gender on procrastination is difficult to predict. Previous investigation into gender differences and the related construct of self-control has found mixed results³³. Men may score higher, lower, or the same as women depending on the measure. However, meta-analytic results do show that girls score higher on effortful control than boys³⁴. On balance then, one could expect procrastination to be weakly associated with males. In dental post-graduation training programme students are under continuous stress because of poor time management, fear, anxiety, restlessness, trouble concentrating, perfectionism, lack of interest, marriage and several other factors. The comments of the staff on the failures to meet standard of expected competence are felt as causative factors for procrastination. However, our study population was not equally distributed between male and female participants, so the gender difference found may be due to the unequal sample sizes, which could be a limitation of this study in contrast with the study by Nagesh L et al¹⁰ in under graduate dental students. Consequently, additional studies with an equal distribution of men and women are needed to determine if procrastination differs between males and females.

The third null hypothesis was that there would be no difference in procrastination scores between first, second and third year dental post-graduates in the study. This null hypothesis also was rejected because, first year were found to have higher procrastination scores than second and third year dental post graduate students. The reason behind the wide variation of findings may be due to the fact that first years whose personal encounter with staff and higher authorities would be much lower when compared to that of second and third year dental post graduates.

The fourth null hypothesis was that there would be no difference in procrastination scores between age groups of dental post-graduates in the study. This null hypothesis also was rejected because, age groups ranging from 23-27 year old were found to have higher procrastination scores (14.78%) than 28±year old (10.57%) dental post graduate students in this study. Age has a negative relationship with procrastination. As most people get older, they can better evaluate the benefits of the present and future, leading to a decline in the hyperbolic discounting of time. By increasing age, sensitivity to delay is decreased which causes the utility of a task to increase.

CONCLUSION

Highest percentage of high procrastination scores were found for Oral Pathology dental post graduates, moderate procrastination scores were found for Oral Medicine and Radiology dental post graduates and low procrastination scores were found for Orthodontics dental post graduates. Female dental post graduates showed high procrastination scores compared to males. First years showed high procrastination scores compared second and third years. Dental post graduates with below average showed high and moderate procrastination scores. Gender, academic performance and year of post-graduation were identified as independent risk factors which were significantly associated with procrastination in dental post graduate.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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