Research Paper

Volume : 4 | Issue : 10 | October 2015 • ISSN No 2277 - 8179

Identifying Factors Influencing the Academic Performance in an Indian Undergraduate Dental Student Sample

Medical Science

KEYWORDS : academic performance, demographic impact, socioeconomic impact, educational pattern

Dr Rucha Kashyap

Department of Prosthodontics, People's College of Dental Sciences and Research Centre, People's Campus, Bhanpur, Bhopal - 462010, India.

ABSTRACT

Identifying factors influencing the academic performance of undergraduate dental students will provide evidence regarding the impact of demographic, socioeconomic and educational patterns on the same. Improved knowledge of this relationship will provide a basis to guide the design of dental education programs, thus playing an important role in the current context of increasing demand for higher standards of education. Our findings provide encouraging evidence for more focus on the emotional and psychological needs of dental students for better academic performance and, thereafter, better clinical performance. Assessment of the impact of today's societal and economic changes and expansion on dental care systems in characteristics of freshman undergraduate students is important for the context of expansion of higher education.

INTRODUCTION –

In dental education literature, there is little to no evidence regarding the impact of demographic, socioeconomic and educational patterns on the academic performance. This is an especially relevant issue in developing countries, where major inequality in the distribution of wealth is a serious social concern. Improved knowledge of this relationship will provide a basis to guide the design of dental education programs, thus playing an important role in the current context of increasing demand for higher standards of education. Thus, the aim of this study was to identify natural segmentation of undergraduate dental students based on demographic, socioeconomic and educational variables, and to subsequently investigate their impact on academic performance. Reports by authors such as Fredericks , Dhalla et al about the process of socialization and professionalization of dental students stressed that the matrix of social relationships in which a student internalizes attitudes and values will strongly determine his/her professional behavior. [1–5] Bernard et al in 1966 did a retrospective analysis of wastage of students from dental schools and the associated factors .[6] Undergraduate dental education in India and many developing countries is facing new challenges today. In spite of the best teachers applied to the dental students, performance of students as well as doctors in the community is perceived to have largely declined. Multiple stressors including academic burden, parental and peer pressure and even psychological ailments affect dental students and this show up in their performance. Depression, burnout and stress are seen more commonly among dental students. [7-8] Earlier studies have shown a phenomenon of "burn out" that affects dental students. This increases psychiatric morbidity and affects performance.

MATERIALS AND METHOD –

A prospective, cross sectional study was designed to include all undergraduate students who were studying in ten dental colleges across the country. These dental institutes have a 5-year curriculum and offer 100 places each annually to new incoming students. In the first 2 years of the graduation course, basic and non-clinical courses are offered predominantly, while in the three subsequent years dental and clinical courses are predominant. Data were retrieved from questionnaire providing the demographic, socioeconomic and educational variables. The questionnaire in English was emailed to all the students from second to final year through individual representatives in each college and their responses were accumulated, which took more than six months. Because the medium of instruction in the institutions is English, and the questions were fairly straightforward, it was assumed that there was no difficulty on the student's part to understand them. There were no reports of not understanding the questions. The questionnaire was based on a study by Santen et al, where they assessed the prevalence and associated factors leading to burn out among medical students, and was modified by a practicing psychiatrist to suit our objective whereupon it was validated. We recorded all the responses from the 1610 students who participated in the study anonymously.

The questionnaire randomly asked questions focusing on the following area:-

- Assessment of sincerity – lack of interest / concentration / regularity
- Language / expression / understanding problems
- Familial / socioeconomic problems and support systems
- Self-assessed medical / psychiatric problems and degree of optimism regarding future prospects

Overall academic performance refers to the grade point average from all undergraduate courses. Academic performance in course groups relates to performance in basic and dental, and non-clinical and clinical courses. The term 'basic courses' refers to biomedical and behavioral sciences, i.e. non-dental courses, while 'non-clinical courses' represents those that don't involve clinical practice, including dental courses. SPSS 16.0 software (SPSS Inc., Chicago, IL, USA) was used for all computations related to descriptive analysis and the two-step cluster analysis.

Statistical analysis was performed using statistical software GRAGH PAD PRISM version 4.03 for Windows (Graph Pad Software Inc., San Diego, CA, USA). Standard tests for descriptive statistics were applied, which commonly included the use of percentage. Association between poor performance and other parameters was made using odds ratio (OR). P-value of less than 0.05 was considered to be statistically significant.

RESULTS –

Of the total of 1610 students who participated in the study, 1370 students were females. Of these 1610 students, 1560 had cleared their first professional examination at first attempt and only 50 had cleared it in the second attempt.

The broad results from the study and the association of the study parameters with academic performance are depicted in table 1.

From our study, we found that 50.9 % did not aim to be doctors. Of course, a large majority (49.1%) had originally wanted to pursue other careers. We enquired about addictions and did not get satisfactory feedback. Only few male students admitted that they smoked and no other addictions were reported. We discarded evaluation of this question due to our inability to assess the rate of various addictions.

From the study, we conclude that early failures, self-assessed depression, burn out, sleep disorders, lack of concentration, uncertain perception about the future , different career aims and

perceived parental and peer pressure were significantly related to poor performance.

DISCUSSION –

Socioeconomic, demographic and educational characteristics play an important role in the development of students' intellectual and non-intellectual faculties, and may influence their commitment level to a profession [9]. Analysis of these variables of undergraduate students is important in understanding their background, priorities, and socialization and academic process [10-14]. Earlier studies have shown a strong association between poor performance in preclinical years, burn out and serious professional misconduct in later practice [15, 16]. Studies have shown that males from lower socioeconomic backgrounds who routinely performed badly in their initial years of dental study tend to perform serious errors in their clinical practice later. Other authors have noted that socioeconomic status and type of school attended did not affect academic performance [17]. From our study, we attempted to gauge some reasons that could affect the performance of undergraduate dental students. The present study assessed demographic, socioeconomic and educational status of Indian dental students and the impact of these characteristics on their academic performance.

Predominance of females among dental students is reported in Australia [19], Canada [22], Denmark, France [18], New Zealand [19], Nigerian, United Kingdom [21], and United States [20]. Besides a growing trend of feminization in the field of dentistry, previous studies have indicated that women follow a pattern different from their male counterparts in relation to working organization, time spent at work, and income [18,19]. Students of our research are young, with a mean age of 19 years at the time of dental school admission. In educational systems where students must possess a previous degree prior to entering dental school, this age is obviously higher. In Sydney, for example, Marino et al[19]. found that first-year dental students have a mean age of 24.6 years.

Most parents of dental students have high levels of education and income. Students are predominately single, without employment experience, reside with their parents, and are financially dependent [18-22]. Previously published trends that most dental students came from more privileged socioeconomic groups [18-22]. But since universities accept only a small fraction of applicants, only well-prepared students succeed in the university entrance exam. The school admission is carried out according to the student rank in the admission test, which includes issues of all disciplines of secondary education, considering a limited number of places. In our study, only 15 % of students had lower socioeconomic status than their colleagues, which imply that this group does not corresponds to a representative sample of the overall disadvantaged population. We also did not find the socioeconomic background to be a significant factor affecting performance. Our study however shows a significant association, almost 34% between students who have difficulty in understanding the medium of instruction (English) and academic performance.

Depression and perceived stress have been reported commonly among dental students, with studies showing that at least one-fourth of the dental students in their first 2 years of study are affected by depression, with females being more susceptible. In spite of the fact that the rate of depression among students entering dental school is similar to that among other people of similar age, the prevalence increases disproportionately over the course of dental school [8, 9, 23]. There are no concrete studies that study the effect of depression and stress on performance in the initial study years of dentistry. There is however a suggestion of depression in dental students affecting patient care [23].Studies also suggests that many dental students come in for psychiatric evaluation after their grades start suffering. Initially, many of them perceive depressive illness as stress of dental studies, which deters them from seeking help .A review also points out that most of the dental students work late into the night and do not get enough sleep. This makes sleep disorders as well as depression more difficult to diagnose[24]. In our study, depression, sleep disorders, self assessed burn out and self-reported stress was seen in 53.5%, 43.5% and 64 % of the students respectively. Therefore, there is a significant correlation between depression, inability to sleep adequately and poor performance in our study population.

Parental and peer pressure has been significantly related to students' mental well being and levels of stress. We found that a significant number of poor performers in our study felt that they would be rejected by their parents and friends alike if they performed badly. There were also a significant number of students, nearly 50 % among the poor performers in our study who had not aimed to be doctors. This dissatisfaction with the career choice that may have been forced on them could be a reason for lack of interest, lack of concentration, depression and, ultimately poor academic performance. We also noted that more than half of our study population was not optimistic about their future prospects. Thus we concluded that this pessimism could be the reason for poor performance in general.

Assessment of the impact of today's societal and economic changes and expansion on dental care systems in characteristics of freshman undergraduate students is important for the context of expansion of higher education [18, 19]. Progressive increases in the diversity of the student population will have an impact on undergraduate, continuing, and postgraduate education, professional retention, and practice location [22]. From the study, we conclude that early failures, self-assessed depression, burn out, sleep disorders, lack of concentration, uncertain perception about the future and perceived parental and peer pressure were significantly related to poor performance. Dissatisfaction with career choice was also related to poor performance. Socioeconomic status and regularity in class were not linked to academic performance. Thus the most important as well as correctable factors contributing to poor performance in our study population are psychological. Therefore, more focus on the emotional and psychological needs of dental students is warranted to ensure better academic performance and, thereafter, better clinical performance. Further studies are being planned from different dental institutions in order to gain a better insight into the matter.

TABLE 1

Association of various factors and academic performance among undergraduate dental students

Parameters	Least	More	Most
Language problem	85.7%	10.6%	03.7%
Low socioeconomic status	85.7%	13.0%	01.2%
Self assessed stress	36.0%	46.6%	17.4%
Clinical depression	46.6%	34.2%	19.3%
Sleep disorders	56.5%	28.6%	14.9%
Perceived parental pressure	79.5%	16.1%	04.3%
Perceived peer pressure	60.2%	26.7%	12.4%
Poor or uncertain perception of future	46.0%	32.9%	21.1%
Different career aims	49.1%	32.3%	18.6%
Difficulty in understanding the topic Lack of concentration	73.3% 37.9%	18.6% 36.0%	08.1% 26.1%
Lack of interest Lack of regularity	52.8% 76.4%	27.3% 18.6%	19.9% 05.0%

Volume : 4 | Issue : 10 | October 2015 • ISSN No 2277 - 8179

REFERENCE

1. Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Characteristics of first-year students in Canadian medical schools. Can Med Assoc J 2002: 166: 1029–1035. 2. Fredericks MA, Blanchet L, Mundy P. The relationship between social class academic achievement and National Board scores of students in a dental school. J Am Coll Dent 1973: 40: 174–181. 3. Fredericks M, Mundy P. The relationship between social class and national board scores of students in a medical school. Soc Sci Med 1969: 3: 104–110. 4. Fredericks M, Mundy P. The relationship between social class, stress-anxiety responses, professional attitudes, and National Board scores of students in a medical school. J Natl Med Assoc 1968: 60: 271–278. 5. Rabinowitz HK, Diamond JJ, Veloski JJ, Gayle JA. The impact of multiple predictors on generalist physicians' care of underserved populations. Am J Public Health 2000: 90: 1225–1228. 6. Barnard, P. D. and Siu, S. K. (1966), Academic performance of dental students. Australian Dental Journal, 11: 423–428. doi: 10.1111/j.1834-7819.1966. 7. Manickam LS, Sathyanarayan Rao TS. Undergraduate medical education: Psychological perspectives from India. Indian J Psychiatry 2007; 49:175-8. 8. Givens JL, Tjia J. Depressed medical students' use of mental health services and barriers to use. Acad Med 2002; 77:918-21. 9. Rosal MC, Ockene IS,Ockene JK, Barett SV, Ma Y, Hebert JR. A longitudical study of students' depression at one medical school. Acad Med 1997; 72:542-63. 10. Santen SA, Holt DB, Kemp JD, Hemphill RR. Burnout in medical students: Examining the prevalence and associated factors. South Med J 2010; 103: 758-63. 11. Fredericks M, Mundy P. The relationship between social class, stress-anxiety responses, professional attitudes, and National Board scores of students in a medical school. J Natl Med Assoc 1968: 60: 271–278. 12. Orenuga OO, da Costa OO. Characteristics and study motivation of clinical dental students in Nigerian universities. J Dent Educ 2006: 70: 996–1003. 13. Reeves PE, Watson CJ. An exploration of the attitudes, personality and performance of dental students. Med Educ 1985: 19: 226–237. 14.Sivaneswaran S, Barnard PD. Some social characteristics and background of first-year dental students, University of Sydney, 1976–85.Aust Dent J 1992: 37: 378–385. 15. Yates J, James D. Risk factors at medical school for subsequent professional misconduct: Multicentre retrospective case-control study. BMJ 2010; 340: C2040. 16. Dyrbye LN, Massie FS Jr, Eacker A, Harper W, Power D, Durning SJ, et al. relationship between burnout and professional conduct and attitudes among US medical students. JAMA 2010; 304: 1173-80. 17. Yates J, James D. Risk factors for poor performance on the undergraduate medical course: Cohort study at Nottingham University. Med Educ 2006; 41:65-73. 18. Hennequin M, Tubert S, Devillers A, et al. Socio-economic and schooling status of dental undergraduates from six French universities. Eur J Dent Educ 2002: 6: 95–103. 19. Marino RJ, Morgan MV, Winning T, et al. Sociodemographic backgrounds and career decisions of Australian and New Zealand dental students. J Dent Educ 2006: 70: 169–178. 20. Hung R, McClendon J, Henderson A, Evans Y, Colquitt R, Saha S. Student perspectives on diversity and the cultural climate at a U.S. medical school. Acad Med 2007: 82: 184–192. 21. Bedi R, Gilthorpe MS. Social background of minority ethnic applicants to medicine and dentistry. Br Dent J 2000: 189: 152–154. 22. Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Characteristics of first-year students in Canadian medical schools. Can Med Assoc J 2002: 166: 1029–1035. 23. Hirata FC, Lima MC, de Bruin VM, Nobrega PR, Wenceslau GP, and de Bruin PF. Depression in medical school: The influence of morningness-eveningness. Chronobiol Int 2007; 24: 939-46. 24. Rosenthal JM, Okies S. White coat, mood indigo-depression in medical school. New Engl J Med 2005; 353; 1085-8.