

Difference in the Academic Performance of NEET and NON-NEET batch- A Cohort Study At Saveetha Dental College

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Abstract

In India, in 2016, the medical council of India introduced one single common entrance test called NEET- National Eligibility Entrance Test for admission to all the medical and paramedical courses after 12th standard. It allowed dental admission to all the colleges including the government as well as the private. Many developed countries have evolved dental admission tests based on the academic research surveys, student performances and other relevant parameters. Since NEET is the first attempt by the government of India to create a central admission process, it is clearly in its early process and there is an incredible need for scientific data to evolve the system. The aim of this study is to analyze if the admissions through NEET affected the quality of students with respect to their academic performance pursuing the undergraduate dental program, especially in the private colleges.

Key Words: NEET, Dental education, Dental school admissions, India, Dental graduates

Introduction

Dental education in India laid its foundation in 1920s, when Dr.Rafidin Ahmed started the first dental college in Calcutta.¹ Till the 1960s, all dental colleges were government-aided colleges. In 1966, first private dental college was established in India. Currently, there are 342 dental colleges in the country out of which 302 are privately owned and only 40 are run by the government.² The increasing number of dental colleges leads to a substantial increase in the number of dental graduates per year.³ The number of graduating dental students in 2000 was 26,000 compared to 1,370 in 1960.

Formerly, an aspiring student could gain admission to a dental college in India via two ways:

- 1) Government-administered entrance exam or
- 2) Private school-administered entrance exam

Government entrance exams again were at two levels. One was state level, entrance exams- specific for each state (domicile students of that particular state) and second at all-India level, for which students from all over the country could apply. All the private colleges conducted their specific entrance exams.⁴

Due to this system, the students had to appear for various tests and anticipate the results in different exams. There was no standardized exam at one level. This led to loss of their time, money and energy. In 2013, the medical council of India introduced one single common entrance test called NEET- National Eligibility Entrance Test for admission to all the medical and para-medical courses after 12th standard. It allowed dental admission to all the colleges including the government as well as the private. It suffered a lot of opposition and finally was systematically conducted in 2016.

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Many developed countries have evolved dental admission tests based on the academic research surveys, student performances and other relevant parameters. Since NEET is the first attempt by the government of India to create a central admission process, it is clearly in its early process and there is an incredible need for scientific data to evolve the system.

The aim of this study is to analyze if the admissions through NEET affected the quality of students with respect to their academic performance pursuing the undergraduate dental program, especially in the private colleges.

Materials and Methodology

The study was conducted in Saveetha Dental College and Hospital, Chennai with the ethical approval of the education review board of the institute. Two cohorts of batches were selected for the study, the 2015 batch (NON-NEET) whose admissions were done according to the Saveetha protocols which included a multiple choice exam conducted by the institute along with personal interviews and dexterity tests, while the second cohort was the 2016 batch who acquired admission through NEET, the centralized common entrance test. The academic performance was measured by comparing the Anatomy subject marks acquired by the students in their university exam at the end of first year of their BDS course.

The two cohorts:

Group 1- 2015 NON-NEET batch

The total sample for the 2015 batch was 96. They acquired admissions through the Saveetha entrance test, personal interview and the dexterity tests.

Group 2- 2016 NEET batch

The total sample for the 2016 batch was 49. They acquired admissions to the Saveetha Dental College through NEET- National Entrance Eligibility Test.

The datafile consisted of the final exam marks of the Anatomy subject of the two batches. The marks were obtained out of 200.

IBM SPSS software was used for data analysis. The mean was compared between the two years using the independent students t-test. The data was checked for normality of distribution. The analysis consisted of comparison in the academic performance of the two batches.

Results

The data followed a normal gaussian curve pattern (Fig.1). So the difference in sample size didn't interfere with the results.

There wasn't a significant difference (>0.05) in the academic outcome of 2015 and 2016 batch. The descriptive analysis is given in the table 1.

The mean score of 2015 ie the non NEET batch was 135.08 while that of 2016 ie the NEET batch was 131.78. A graph representing the means of Anatomy marks in 2015 (1) and 2016(2) is shown in Fig.2.

A comparison of marks based on the gender was also done between the two cohorts. The mean anatomy marks of females (0) decreased in 2016, while it increased for males (1). Following graph describes the difference in the marks within the gender (Fig.3).

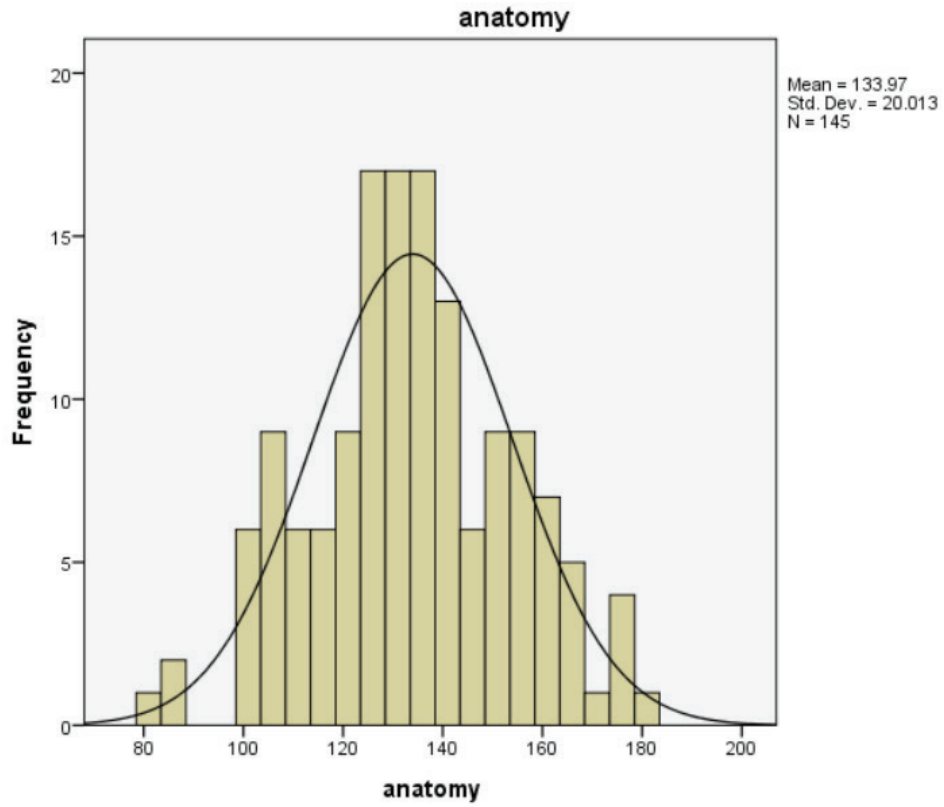


Fig 1: The normal gaussian curve obtained between the the data of the two cohorts.

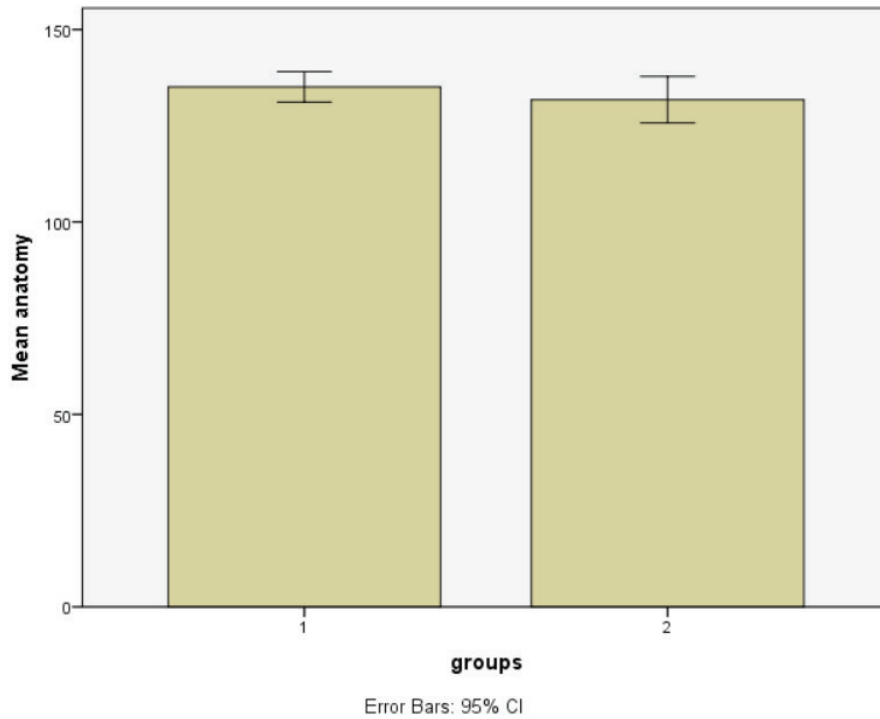


Fig 2: A bar graph representing the means of anatomy marks in the two cohorts along with standard error bars.

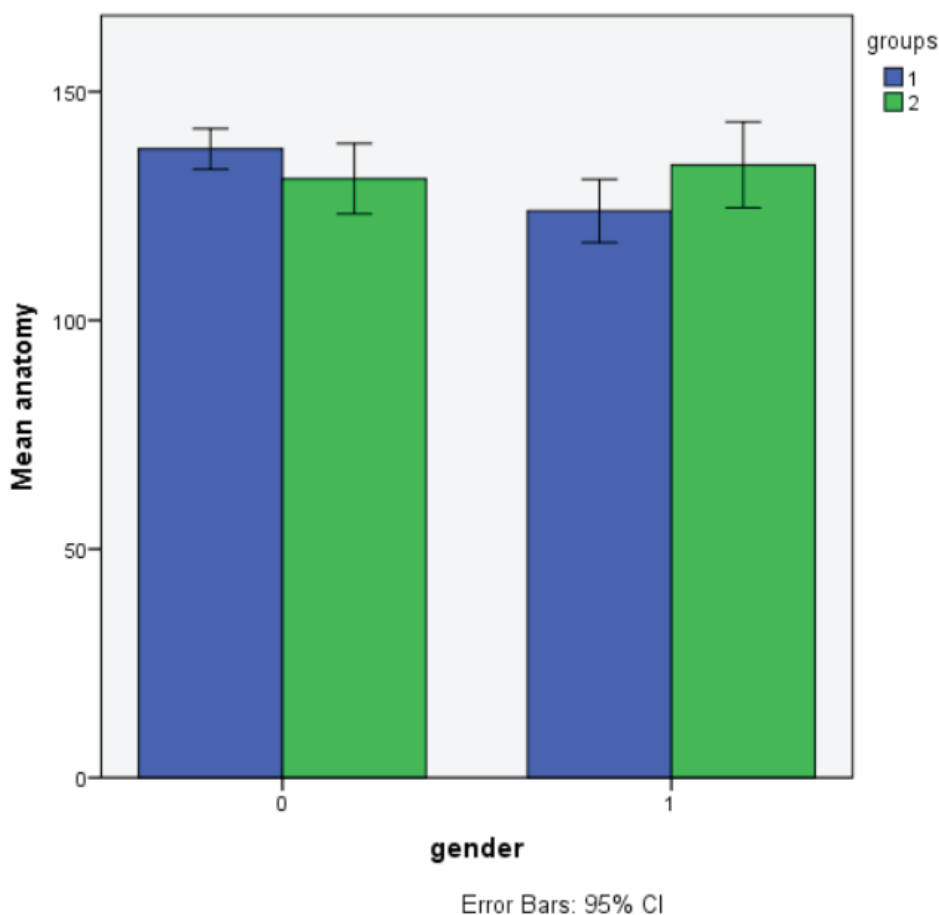


Fig 3: A bar graph representing the mean scores of females (0) and males (1) between the cohorts, blue (2015 batch) and green (2016 batch)

Table 1: It shows the descriptive analysis of the two cohorts with the mean marks obtained by each group.

Anatomy				
groups	N	Mean	Std. Deviation	Std. Error Mean
1	96	135.08	19.499	1.990
2	49	131.78	21.015	3.002

Discussions

From the above study, it is discovered that there is no significant difference in the mean anatomy marks of 2015 (NEET) and 2016 (NON-NEET) batches. Although, there is a significant difference in the academic performances of males and females, with males showing an improvement in the performance while vice versa for the females.

Admissions committees for dental schools around the world have assessed the correlation between admission requirements and students' subsequent performance in order to decide what factors to use for predicting students' success. The Dental Education Eligibility Test (DEET) was developed in Republic of Korea to establish the criteria that would be applied to all dental applicants. The DEET was designed to determine which applicants

have the necessary cognitive abilities to successfully complete dental education programs in Korea. Although the DEET has been shown to have the ability to predict performance in the first semester, its ability to predict tends to decrease as students' progress to the end of the dental course.¹³

Dental Admission Test (DAT) is a multiple-choice standardized exam taken by potential dental school students in the United States and Canada.⁵ It is designed to provide dental education programs with a means to assess program applicant's' potential for success. The DAT consists of four tests based on: Survey of the Natural Sciences, Perceptual Ability, Reading Comprehension, and Quantitative Reasoning.⁶ It measures the cognitive ability of students and is considered as a predictor of dental school performance but only in the first and second years of dental training in a traditional curriculum.⁷ Similarly, NEET is a multiple choice entrance exam in India for medical, dental as well as paramedical courses, including nursing, physical therapy, pharmacy, and occupational therapy. There is no exclusive test only for dental admissions.²

There haven't been any studies in India which involve NEET. The present study assessed if the academic performance in the subject of Anatomy, of the first year dental program was affected by the introduction of NEET in turn indicating the difference in the academic quality of students enrolled in the dental school. There can be various other factors affecting the academic performance of the batches. These include the teaching methodology, exam pattern, exam toughness, examiners, the subject per se, the variety in the crowd due to national level exam and many more.

After the introduction of NEET, the total admissions of people from different states increased in colleges. This led to more people from outside state to be the part of institution which in turn increased the number of students staying away from their families. Studies have revealed that staying at a hostel away from family, has a significant effect on the academic performance.¹¹ This could be because a hostelite may come across various problems that could increase stress levels. Stress generated while staying in hostel is regarded as one of the main factors for under performance of medical students.^{12,13} Living at home with family members make a student emotionally

more stable and confident. This could possibly be one of the reasons for decreased performance in the NEET group of 2016. The other factors like the condition of the hostel, the culture of people in new area, the surrounding environment can be matched as both the groups belonged to the same institute.

Factors like teaching methodology and exam patterns were matched as there was no drastic change in them between the two years. The toughness of exam was matched for both the years by getting the papers analyzed by 5 examiners who graded the toughness of papers on a scale of 1-5. There was no significant difference in the results. There were different examiners for both the years and that could have created bias in the study.

The difference in the academic performances of males and females could have various factors affecting it. The improvement in the performance of males can be explained by their increased sincerity towards NEET which in turn implies better performance in the first year of BDS. Stress could be regarded as one of the factors affecting the performance of females. In an article by Lu Y et al, 2015, wherein the author studied the effect of competitive experience between genders, it was stated that females tend to get more stressed compared to males on experiencing more competitive environment.¹¹ This could lead to decreased performance in the females under the pressure of NEET.

Anatomy as a subject includes the cognitive as well as the dexterity skills. Knowledge of anatomy is highly relevant to dentistry especially when performing anesthesiological or surgical procedures. The theoretical knowledge of anatomy helps in the clinical skills of the dentist.¹² The academic performance in this subject depends on the students hard-work and understanding of the subject.¹³ Since there is no significant difference in the academic performances of both the batches, both the NEET as well as the NON-NEET students appear to be sincere and hardworking. One of the reasons for this could be as the NON-NEET batch in Saveetha was enrolled only after thoroughly clearing the various admission protocols as mentioned before.

The limitation of the study is that it was performed only in one institute and this could lead to bias in the results. An elaborate study needs to be conducted including all the dental institutes comparing the first year

marks of the BDS curriculum between the NEET and NON-NEET batches.

Conclusion

NEET- National Entrance and Eligibility Test did not significantly affect the academic performance of the 2016 batch compared to the 2015 batch in Saveetha Dental College and Hospitals, Chennai. The academic quality of dental graduates in first year of the BDS course could be considered similar for both the batches 2015 (NEET) and 2016 (NON-NEET).

A better understanding of the effects of NEET on the academic performance of first BDS could be made by conducting this study at multiple dental institutes. This could also help in achieving the comparison of the two batches, especially in private dental institutes where the admissions before the commencement of NEET were taken by respective college protocols. The ultimate test of validity will not be available for some years, until the current cohorts of students graduate.

Conflict of Interest – Nil

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