



THE TYPE OF SCHOOL BOARD EXAMINATIONS FOR CLASS 12 DOES NOT PREDICT PERFORMANCE OF FIRST YEAR MEDICAL STUDENTS IN BIOCHEMISTRY

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Abstract : Students entering medical colleges pass qualifying examinations of different boards of school examinations, each of which has its own syllabus. It is our observation that students who qualify from state board examinations have more difficulty with Biochemistry in the first year of the medical course than students who have passed other board examinations, such as the Central Board of Secondary Examinations (CBSE) and the Indian School Certificate (ISC) examinations. This study was carried out to test the hypothesis that the students who qualify from the CBSE and ISC boards perform better in biochemistry in the first year of the medical course. To do this, an attempt was made to determine whether the academic performance of first year medical students correlated with the school board they qualified from. The results obtained showed no such correlation. We conclude that the type of school qualifying examination does not predict performance of first year medical students in Biochemistry.

Keyword : State Board, CBSE, ISC, Medical first year students, Marks, Biochemistry.

INTRODUCTION

There are numerous professional courses availed of by students. One of these is the medical course, which is termed Bachelor of Medicine and Bachelor of Surgery (MBBS). Eligibility for admission to the course, according to the regulations of the Medical Council of India (MCI), is successful completion of class 12 examinations with overall minimum 50% marks in the science subjects (MCI regulations, 1997). In India, there are different academic bodies that are responsible for curricula in schools. These include State Boards of Examinations different states of the country, the *Central Board of Secondary Education* (CBSE) and Council for the Indian School Certificate Examinations (CISCE) which conducts the Indian School Certificate (ISC) examination. Each board has its own syllabus and different academic standards for assessment. State Board syllabi are followed commonly in schools in most small cities in India. Schools following the CBSE and ISC curricula are usually found in larger cities. The CBSE and ISC syllabi are generally considered to be of a higher standard than those of the State Boards, while the academic standard of the ISC board is considered to be higher than that of the CBSE. All India entrance examinations for medical and engineering courses are based on the CBSE syllabus, while the corresponding state level entrance examinations are based on state board syllabi. Our college is among the leading

medical colleges in India. Students from all over the country compete in the annual entrance examination to seek admission to the medical college. Students are short-listed based on their performance in the examination and invited for personal interviews that are held over 3 days. The final selection is made based on performances in both the entrance examination and interviews. Selections are unbiased in terms of board of examination from which the students have passed their qualifying class 12 examinations, domicile, family status etc. Each year's intake of students is composed typically of students from all parts of the country. It has been our observation that students who have completed State Board examinations often find Biochemistry difficult in first year of the medical course. They appear to have greater difficulty with it than students from the CBSE and ISC streams. One reason for this may be that students from the latter 2 boards would have studied some of the basic aspects of anatomy, physiology and biochemistry during their last 2 years of schooling, as their syllabi cover these aspects. The state board syllabi do not cover such topics. This study was carried out to test the hypothesis that students from school boards of a higher academic status perform better in Biochemistry in the first year of the MBBS course.

METHODOLOGY

Study subjects

Sixty first year MBBS students admitted in 2011 were the subjects of the study. Data on various aspects of their academic performance were compiled. These included marks obtained in for the qualifying class 12 examinations, various periodic assessments during the first year of the MBBS course (theory tests, viva voce and practical examinations), model examinations and the final examination at the end of the year, which was conducted by the Dr. MGR Medical University to which our college is affiliated. The number of classes attended by each student over the course of the year was also noted. These data were obtained from the records maintained in the department. A questionnaire was also administered to the students. This was done to obtain baseline personal details, including information on the type of school qualifying examination that they had passed and the marks that they had obtained in these. A copy of the questionnaire used is shown in appendix 1.

Statistical analysis

Data was analysed using Statistics Package for the Social Sciences (SPSS) software package, version 16. Normality distribution of the parameters in the study was determined using the

onesample Kolmogorov-Smirnov test. Student's t test was used to compare the means of parameters of students from the central and state boards. Students who qualified from central boards were also categorized into those who studied in the ISC and CBSE streams. Analysis of variance (ANOVA) was used to compare means of three groups in this case. A post-hoc test with Bonferroni's correction was used for pair-wise multiple comparisons. Kruskal-Wallis and Mann-Whitney tests were used for the data that were not normally distributed. Statistical significance was indicated by a p-value of less than 0.05.

RESULTS

The intake of medical students for the year 2011 was 60, of which 42 were girls and 18 were boys. The students belonged to different parts of India and neighbouring countries. Among the students, 33.33% (20) were from Tamil Nadu, 18.33% (11) were from Kerala, 8.33% (5) each were from Karnataka, Andhra Pradesh and Maharashtra, 5% (3) were from West Bengal, 3.33% (2) were from Meghalaya and 1.66% (1) each were from Orissa, Haryana, Rajasthan, Assam, Madhya Pradesh, Goa and Delhi, and 1.66% (1) each were from Nepal and Sri Lanka. All the students had qualified from different states board, the CBSE and ISC streams. Of these, 36.66% (22) qualified from the state board, 43.33% (26) from the CBSE and 20% (12) from the ISC board. The marks obtained by students qualifying from the state, CBSE and ISC boards in the class 12 examination are shown in figure 1 (a to d). The mean percentage of marks in Physics for obtained by students from the state boards stream was 91.3 ± 8.4 , that from the CBSE stream was 87.2 ± 7.3 and that from the ISC stream was 89.9 ± 9.2 . The mean percentage of marks obtained in Chemistry was 91 ± 8.7 for state board students, 90.7 ± 6.3 for CBSE students and 89 ± 7.3 for ISC students. The mean percentage of marks obtained in biology was 90.5 ± 9.9 for state board students, 94.3 ± 3.1 for CBSE students and 88 ± 5.7 for ISC students. The average percentage of marks for the science subjects overall was 90.9 ± 8.1 for state board students, 90.7 ± 6.3 for CBSE students and 89 ± 5.7 for ISC students. There were no significant differences in these marks obtained by students from the 3 types of school boards. The performance of students, in Biochemistry during the first year of the MBBS, who qualified from the state boards, CBSE and ISC boards is shown in figure 2 (a to g). The percentage of marks obtained in theory assessments was 63.7 ± 11.4 for State board students, CBSE was 68.3 ± 11.9 for CBSE students and 64.5 ± 14.4 for ISC students. The percentage of marks obtained in viva voce assessments was 66.1 ± 9.7 for State board students, 70.1 ± 11.4 for CBSE students and 71.3 ± 10.6 for ISC students. For practical examinations, the percentage of marks obtained was 69.5 ± 7.6 for state board students, 72.3 ± 8.1 for CBSE students and 72.6 ± 7.8 for ISC students. The total marks in Biochemistry obtained by state board students was 199.4 ± 25.5 , for CBSE students it was 210.8 ± 28.7 and for ISC students it was 207 ± 30.1 . The overall percentage of marks obtained in Biochemistry was 66.4 ± 8.5 for state board students, 70.2 ± 9.5 for CBSE students and 69.3 ± 10 for ISC students. Marks obtained for record book writing was 8.1 ± 1.4 by state board students, 8.4 ± 0.6 by CBSE students and 7.7 ± 1.9 by ISC students. The percentage of classes in biochemistry attended was 93.4 ± 3.7 for state board students, 93 ± 5.2 for CBSE students and 92.9 ± 7.1 for ISC students. The various categories of marks and the attendance figures were similar among students from all the 3 school boards.

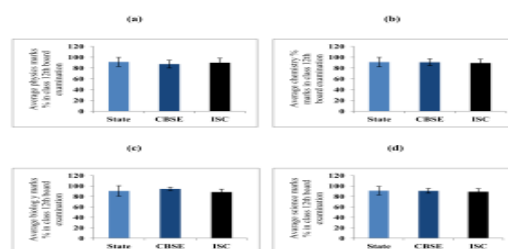
Figure 1: Marks obtained by students for their class 12 examinations

Figure 1. Marks obtained in physics (a), chemistry (b), biology (c) and overall in the science subjects

(d), by students who qualified from the state, CBSE and ISC boards, for their class 12 examinations. Values are expressed as mean \pm SD. Figure 2: Marks obtained by students in biochemistry assessments in 1st year MBBS\

Figure 2

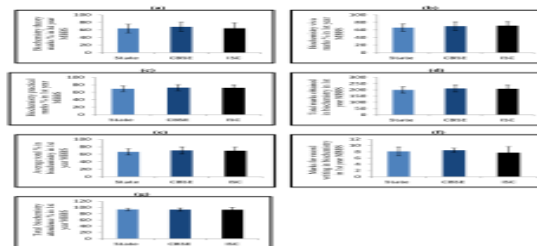
school boards. This is probably because students from the state boards work extra hard to make up the lacunae in their knowledge. On the other hand, students from the CBSE and ISC boards probably do not exert themselves unduly, when they find they can cope better than some of their classmates. In conclusion, we found that students from all 3 boards of school qualifying examinations performed to similar academic standards in Biochemistry in the first year of the MBBS course. Hence the type of school qualifying examination done does not appear to be a predictor of academic performance in Biochemistry in the first year of



the MBBS course.

References:

SALIENT FEATURES OF REGULATIONS ON GRADUATE MEDICAL EDUCATION, 1997 (PUBLISHED IN PART III, SECTION 4 OF THE GAZETTE OF INDIA DATED 17TH MAY 1997)



Proforma	
Name of student	
Age	
Sex	
Name and address of school where you completed 12 th standard	
Board of education for 12 th standard examination (State Board/CBSE/ISC/any other (please specify))	
Average percentage in 12 th standard board examinations (for only Physics, Chemistry and Biology)	
Percentage marks obtained in each subject in the 12 th standard board examinations	
Physics	
Chemistry	
Biology	

