ORIGINAL ARTICLE

Correlation of Entry Test & the Future Academic Performance in A Private Medical College

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ABSTRACT

Objective: The objective of the study was to see the relationship/effect of Entry test marks and FSc marks on the future academic performance scores of first year medical students from year 2010 to 2014 (five years).

Study Design: This was a Cross-sectional Quantitative Correlational study.

Place and Duration of Study: The study was conducted and carried out at Islamic International Medical College Rawalpindi. The retrospective data of five years from 2010 -2014 was included. The study project was completed from March 2016 to August 2016.

Materials and Methods: The data was collected from the record of the college. Dependent variable were the student's academic performance scores i.e. scores of students in term of pass or fail and percentages obtained in first professional MBBS from 2010 to 2014. Independent variables were id no, gender, percentage marks obtained in FSc and entry test.

Results: Male female ratio varied from 23% male to a maximum of 33% and females from 67% to 77% during the five year with an average of 70% females and 30% male. Correlation in between entry test marks and marks obtained in first professional MBBS was found to be .828 which is a strong correlation. Weak correlation was found in between the FSc marks and marks obtained during first professional MBBS.

Conclusion: The study concludes that the students who perform well in entry test also have satisfactory performance in the first professional MBBS and their future performance can be predicted to some extent.

Key Words: *Academic Performance, Aptitude Test, Cognitive Construct, Entrance Test.*

Introduction

Medical school activity starts from the selection of the students which is an important but under resourced aspect of medical school. The intentions behind the entry test are to select the students on merit along with suitable personality and aptitude for admission in medical profession.[1] Appropriate selection of the students who have the correct attributes which is becoming the main pivot in many countries of the world. In many developed countries the governments are selected and rejected on the slogans of health care provision and the health care provision is facing the challenges of accountability and professional regulation.[2] Medical schools are facing two main shifts one is seeing the selection as first assessment and second using wider range of selection methods to select the right type of candidates though the cultural and regional differences do exist. Selecting brightest candidates on the basis of school leaving or university academic qualifications is not considered the appropriate method nowadays. Till date no method can be labeled as ideal one because course of study, nature of existing and future medical needs, services and their requirements are ever changing.[3] More objective methods can be tailored by the medical schools which can cater cognitive ability, professional attributes and behavioral e.g. non-technical skills. Nowadays a mix of application form, personal statement, interview, multiple mini interview (MMI), personality tests, and situational judgments tests (SJTs) are practiced in west.[4] Internationally and in many parts of the world it has been acknowledged the contribution of non-cognitive skills and qualities in an individual in predicting the performance of health professional education. Therefore this has lead the countries including the United Kingdom, United States of

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America and Canada, to introduce aptitude testing as part of the selection protocol for induction in medical college.[5]

Entry test is mandatory all over the world and in all countries with different formats, needs, designs and as per their requirement. UMAT is MCAT (Medical College Admissions Test) for the United State, UKCAT (UK Aptitude Test) in UK, GAMSAT (Graduate Medical Schools Admission Test) in Australia, UK and Ireland for graduate entry programs and these are conducted on a single day each year.[6]

The medical education system expanded very rapidly in Pakistan. In the recent past the number of medical colleges reached to 167 in Pakistan in the public and private sector. These two sets of medical schools public and private also differ in admission criteria. Public sector medical schools purely cater the admission which is on merit and residence based as candidate of one province cannot seek admission in another province. Whereas the private sector medical colleges cater socioeconomically privileged classes and those who cannot compete the public sector medical colleges. The attitude of our policy makers remained rigid due to which cluster of problems neither sorted nor weeded out as remedial measure and entry test is one of them.[7] Pakistan is among those countries where selection is on the basis of academic criteria alone. Pakistan needs cognitive, aptitude and personality testing to be combined in such a way to select the right candidates for admission in medical education that can contribute effectively in delivering health care. Till 1998 the students were selected only on FSc basis for admission in medical colleges.[8] There are number of Boards in different provinces whose syllabus and examinations are of different criteria. Another concern was that occasionally a reasonable number of candidates carry fake FSC, A level certificates and scores. This has created an environment that all the candidates must be subjected for their relative merit to a single examination. Therefore the exercise of entry test was introduced to satisfy the boards of secondary education, the admitting institutions, the candidates, the feeding schools, colleges and the community that they all share the benefits of best performance with the help of universal standardized test which was named entry test (MCAT) for the selection of medical students from all over the country.[9] The research question which the article addresses is "to see the relationship of entry test & FSC on the future academic performance scores of first year Medical students" in a private Medical College from year 2010 to 2014(five years).

The first entry test for the admission in medical colleges of Punjab was conducted in 1999. The Government decided that all the candidates must be subjected for their relative merit to a single examination. Entry test is carried at provincial level and the selection also is made at provincial level for public sector medical colleges and for private medical colleges test of one province is acceptable for the other and all the individual college prepare their own merit list as per the criteria laid down by the PM&DC.[10] This was the philosophy of entry test, as now twenty two years passed it's the right time to review the policy. Scientific research is required to see the correlation of FSc and entry test on the future academic performance of the students. This study will help in establishing the relationship and review the future policy and planning for the student selection.

Materials and Methods

This was a Cross-sectional Quantitative Correlational study. All the students who got admission in MBBS from 2009 to 2013 and appeared in first professional MBBS exam from 2010 to 2014 for five years were analyzed for the objectives of the study. The data was collected by specially designed data collection instrument from the record of the college and the non-response rate was zero as all the record was available. The study project was completed from March 2016 to August 2016. Dependent variable were the student's academic performance scores i.e. scores of students in term of percentages obtained in first professional MBBS 2010 to 2014 and pass or fail. Independent variables were id no, gender, percentage marks obtained in FSC, percentage marks obtained entry test.

Universal sampling as all the students from 2010 to 2014 who got admission in first year MBBS and appeared in first professional MBBS examination was used. All the students who succeeded in getting admission from the year 2009 to 2013 and appeared in exam from 2010 to 2014, completed their first professional MBBS studies, appeared in first professional MBBS examination, their result was

declared and record available in admission branch is available were included.

The students of other medical colleges, students who got admission before 2009 or after 2014 in the same medical college, students who did not completed their study of the respective year, left the college and not appeared in first professional MBBS examination or their result was not declared or record is not available or retrievable of respective years from 2010 to 2014 were excluded from the study. Data was analyzed on Statistical package for social sciences version 21 for frequencies, cross tabulation, correlation in between FSc marks, entry test marks and marks obtained in first professional MBBS (in percentages) to see the relationships. Independent t test and chi square was also used where required to eliminate the chance element and to see the effect of entry test and FSC marks on future performance. *P* value equal to or less than 0.05 was considered as statistically significant.

Results

Male ratio varied from 23% to 33% and females from 67% to 77% during five years with an average of 70% females and 30% male during five years study research period.

Table I: Percentage of Students and Marks Obtained In FSC and Entry Test

	Year 2010		Year 2011		Year 2012		Year 2013		Year 2014		Total	
% Marks	FSc	Entry Test	FSc	Entry Test	FSc	Entry Test	FSc	Entry Test	FSc	Entry Test	FSc	Entry test
<60	0	28	0	22	0	32	0	11	0	0	0	93
60-70	19	49	7	65	8	39	6	52	4	14	44	219
71-80	40	22	48	13	37	28	47	35	30	74	202	172
81-90	41	1	45	0	55	1	47	2	66	11	254	15
>90	0	0	0	0	0	0	0	0	0	1	0	1
Total	100	100	100	100	100	100	100	100	100	100	500	500

There is inconsistency among the marks obtained by the students in FSc and entry test. The students who were selected for MBBS were having marks more than 60% in FSc, no student was selected who had less than <60% marks in FSc but 93 students (18%) had less than 60% marks in entry test . There were 44(9%) students who scored 60-70% in FSc and 219 (44%) who scored the same in entry test. There were 202(40%) in FSc and 172 (34%) in entry test who scored 71-80% marks. There were 254 (51%) %) in FSc and only 15(3%) in entry test who scored 81-90%. test. There was no student in FSC who scored above 90 % and only one student who scored above 90% in entry test.

Table II: Percentage of Students and Marks Obtained in Entry Test and First Professional MBBS Exam

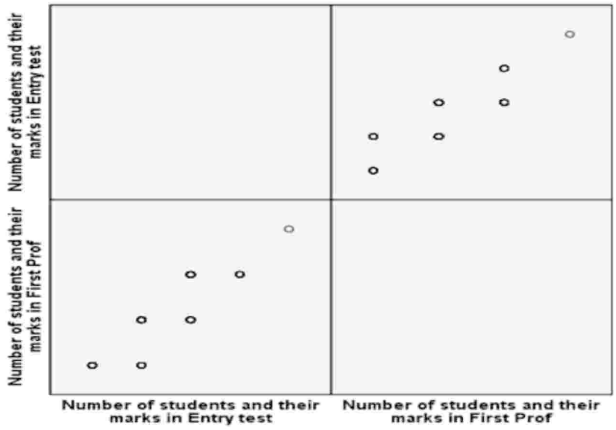
	Year 2010		Year 2011		Year 2012		Year 2013		Year 2014		Total	
% Marks	Entry Test	1st Prof MBBS	Entry Test	1st Prof MBBS	Entry Test	1st Prof MBBS	Entry Test	1st Prof MBBS	Entry Test	1st Prof MBBS		1st Prof MBBS
<60	28	13	22	20	32	20	11	18	0	27	93	98
60-70	49	56	65	56	39	72	52	71	14	68	219	323
71-80	22	30	13	24	28	8	35	11	74	5	172	78
81-90	1	1	0	0	1	0	2	0	11	0	15	1
>90	0	0	0	0	0	0	0	0	1	0	1	0
Total	100	100	100	100	100	100	100	100	100	100	500	500

Now we have to look upon performance in first prof in comparison to marks obtained in entry test and FSc. There were 19% students who got less than 60% in entry test and the same was achieved by 20% of students in first Prof MBBS. There is consistency in this group. The 60- 70 % marks were obtained by 44% of students in entry test and 65% of students in first Prof. The number of students who acquired more marks as compared to entry test in first Prof was 21%. The reverse of above was seen in group 71-80% marks which was 34% in entry test and 16% students got the same in this group. In group 81-90% and above 3% got in entry test and zero % in first Prof.

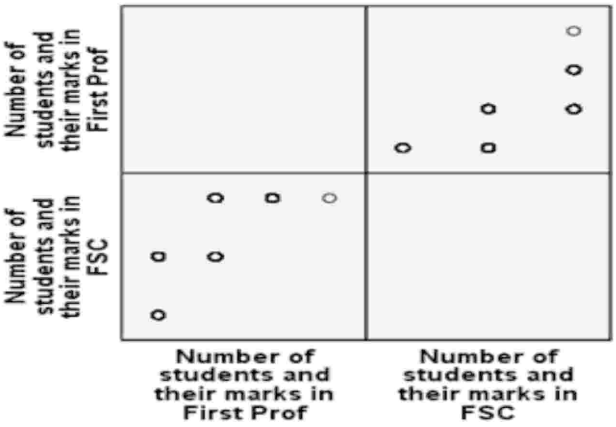
The comparison between FSc and first professional marks of the students shows that there is no consistency among the results. There was no student in FSc who acquired less than 60% in FSc but 20% students acquired less than 60% in first Prof MBBS. About 9% students got 60-70% marks in FSc and 65% students got the same result in first Professional examination.. In group 71-80% marks there were 40% students in FSc who achieved that but in the first

Table III: Co Relation Coefficient in between FSC, Entry Test and First Prof MBBS Marks

		Correlation Coefficient	Significance
1	Pearson Correlation in between FSc marks and Entry test marks	.793	.000
2	Pearson Correlation in between FSc marks and First Prof MBBS marks	.684	.000
3	Pearson Correlation in between First Prof MBBS Marks and Entry test marks	.828	.000
Correlation is significant at the 0.01 level (1-tailed).			



Graph I: Correlation Graph in between Entry test and First Prof MBBS Marks



Graph II: Correlation Graph in between FSC and First Prof MBBS Marks

Prof 16% students were able to achieve the same. In group 81-90% marks 51% of students achieved this target in FSc but only one student succeeded to achieve it in first Prof MBBS.

Discussion

Commonly it is mistaken that medical schools are selecting high meritorious students because most of the qualities which mater for the medical profession are not precisely measurable or quantifiable. Canonical traits like technical competence, human sympathy, wisdom and experience are the main traits to be considered in medical education, these are considered the most desirable attributes in the literature but the question again forms the mirror image that how they can be measured and applied in selection.[11] Selection is also vulnerable to criticism and even to legal challenges, therefore objectivity maters a lot and subjectivity cannot be given the due weightage. The study highlighted that there is large number of female candidates who succeeded in selection during 5 years of study period. The number varies from 67-78% of the total with mean of 70% which is according to the world trend but different from the Pakistani perspective. This trend changed from 1991, before that the female seats were reserved to a certain number and only few female medical colleges. This also indicates the women empowerment and healthy emblem of female literacy.[12] On the contrary, it reflects the limited access to women in the other professions like business and industry. Secondly this also arouses the serious concerns about the manpower needs of the country like Pakistan where more than 70% of the population is rural based and the cultural barriers have limitations for women to work and to work in the rural and primitive society where the taboos are still very strong. This needs attention of the policy and decision makers to revisit the situation. In the current scenario provision of health for all will remain a dream even after decades.[13]

The relationship/effect of Entry test marks on the future academic performance scores of first year medical students from year 2010 to 2014 was very interesting. These are consistent with their previous performance. It can be safely concluded that low achievers of entry test who succeed in getting admission achieve the same in future. Students who have better cognitive construct can improve or sustain their achievement in future. Literature also mentions that the entry test is the cognitive construct and also have some predictive validity also, which is reflected in this study. Pearson correlation in between entry test marks and marks obtained in first professional MBBS was found to be .828 which is a strong correlation. From this it can be concluded that the students performing good in entry test also show satisfactory performance in the first professional MBBS and their future performance can be predicted to some extent.[14]

Correlation in between FSc and First Prof score shows that there is no consistency among the results. The Pearson correlation in between the FSc and First professional scores was though positive .684 and significant at .001, but very less as compared to entry test and first professional score. Now the question arises that what characteristics, qualities, traits be given due consideration in selection.[15] The atmosphere of discussion revolves around the two distinctions one about the cognitive constructs and the other about non cognitive constructs.[16] What the patient expects from the doctor is more than knowledge and practice.[17] Patient likes to see the base of iceberg which is

personal values, opinion, imagination, expectations, beliefs, feelings, assumptions, intuitions and sixth sense, how these can be catered is question mark. This does not mean that the vital academic ability should be masked but how to select a future wise doctor.[18] The country and the medical colleges have to tailor selection methods according to their need depending upon the curriculum, the program, current and future medical needs and demands.[19]

Conclusion

From the study, it can be concluded that students who perform better in entry test also show satisfactory result in first professional MBBS and their future performance can be predicted to some extent. Good performance in FSc not necessarily mean that the student will perform good in entry test or in the future medical education but good performance in entry test can predict good academic performance in future

Recommendations

In our scenario where thousands of candidates are eager to seek admission for limited number of seats and the selection of appropriate candidate is a difficult task. Keeping in view the various models the most appropriate in our set up will be

A. Entry test for the cognitive constructs
B. For entry test eligibility, should be 60% and above FSc / A-Level
C. Those who come on the upper merit they should be subjected to multiple mini interviews (MMIs) in the ratio of 1:3 and this is manageable number for 100 seats and 300 candidates can be handled. The MMI is a method for conducting interviews for medical school built on the multiple station format of the objective structured clinical examination (OSCE).[20]

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