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ACADEMIC PERFORMANCE;

A DESCRIPTIVE STUDY BASED ON ACADEMIC PERFORMANCE OF MBBS STUDENTS OF CENTRAL PARK MEDICAL COLLEGE OVER A PERIOD OF FIVE YEARS.

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ABSTRACT... **Objectives:** To explore the factors affecting academic performance of undergraduate MBBS students in Central Park Medical College Lahore. **Background:** In medical education, academic achievement tends to be an important aspect of professional development later in the life of medical graduates. In Pakistan, pre-admission grades are one of the most important criteria for admission in medical colleges. Several other factors are also believed to play an important role to predict performance of undergraduate students in medical colleges. A detailed study of these factors can help to improve the performance of students in medical colleges. **Study Design:** Cross-sectional analytical study. **Setting:** Central Park Medical College, Lahore. **Materials and methods:** Two MBBS batches (n=200) of Central Park Medical College. Student data regarding gender, parent occupation, being a boarder or day scholar, marks scored in Fsc and MCAT along with the score obtained in all professional examinations was collected. The data was analyzed using SPSS 23.0. **Results:** This study revealed that there was a positive correlation between preadmission grades of students and their academic performance throughout the five year period of medical college. There was no significant difference (p-value >0.05) between the academic performances of students from parents of medical background as compared to those from parents without any medical background. The performances of students living in hostels were almost same as their counterparts who were day scholars (p-value >0.05). The overall performance of students was better in the final years of medical colleges as compared to the initial years with females performing better than males. **Conclusion:** The findings of this study support the fact that pre admission grades may prove to be a predictor of performance later in professional college life. Factors like parent occupation and place of accommodation have little role in predicting the academic achievement of medical students. Learning through interactive manner tend to help in achieving better grades as compared to students who learn through less interactive/didactic lecture technique.

Key words: Predicting factors, medical education, achievement, student performance, parent occupation.

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INTRODUCTION

Many factors in a student's life can determine his or her achievement during academic years. In our setting, these predictors or factors are believed to play a role in the final achievement of student during the college years and afterwards. Many studies in the past have tried to define these factors. These factors can be profession of parents, home environment, being a day scholar or boarder and learning methodologies like interactive or didactic lectures only.¹⁻³ Studying

these factors may prove to be beneficial in improving students' overall performance and in turn building their confidence in future.

Many studies till now have been conducted to identify the factors which affect students' achievement in a negative or positive manner and the process of this identification is extremely complex. According to Crosnoe and his colleagues, the factors playing important role in predicting the future performance of students can

be the impact of family, students' own activities, effect of schooling and the teachers' role in building the academic career of student.⁴

House et al found that students' lifestyle, environment in which they learn and the method of instruction effectively contribute to their achievement.⁵ In another study conducted by Credé and Kuncel, it was revealed that study habits and attitudes towards learning has an important relationship with academic performance of students.⁶

Majority of studies have stated that one of the most important factor which predict the students' ability to perform in class is both academic ability in the past and English language proficiency.^{6,7} In another study it was found that students tend to perform better if they belong to a family with an average or above average income.⁵

Unfortunately, the proper identification of these predictors and finding the correlation between them is very difficult. However, all of the above mentioned factors can play a pivotal role in improving the overall performance of students in medical college. The improvement in students' academic achievement has always been one of the major goals in medical education. A medical student's performance in his or her academic career entices the attention of professionals involved in the process of health education. Many of these health education professionals are concerned about student's performances during the course of their medical education because it is related with their specific areas of interests.⁷

Our study was designed to find the impact of parents' occupation, performance in pre-medical examination and either being a day scholar or boarder on students' overall academic performance throughout the period of five years of their medical college. Our study was also aimed to find the general trend of academic achievement in the initial years of medical education as compared to the final years where study is a mostly based on student and patient interaction.

MATERIALS AND METHODS

It was a cross-sectional analytical study conducted on two batches of MBBS class (year 2009 & 2010) of Central Park Medical College, Lahore. A total of 200 medical students (n=200) were included in the study. There were 123 females and 77 male students. All the students passing the professional examination (annual/supply) were included in the study. The students who failed to fulfill the criteria of assessment and attendance required to appear in examination were detained and not included in the study.

Data for gender, parents' occupation, student status of being a boarder or a day scholar, marks scored (percentage) in F.sc, MCAT and marks scored (percentage) in each professional examination were collected. All of this data was collected from the students' personal record files maintained in the medical education department of Central Park medical College. Statistical analysis was carried out using SPSS 23.0. Correlation between marks scored in F.sc and students' score in all the professional examination was calculated using Pearson correlation coefficient. Effect of parents' occupation and place of accommodation on students overall performance in medical college was studied using independent sample t test. Marks scored in all professional examinations were studied separately to find out the general trend in performances of students in medical college.

RESULTS

There was a significant positive correlation (p-value<0.05) between the students' performance in pre-medical examination and their overall performance throughout the period of 5 years in medical college.

	F.sc score	
	Pearson correlation	p-value
Combined score (%) in all MBBS classes	0.223**	0.002

Table-I. Pearson correlation of pre-admission grades (marks scored in F.sc / equivalent marks) with overall performance of students in medical college. Correlation is significant at 0.05 level.

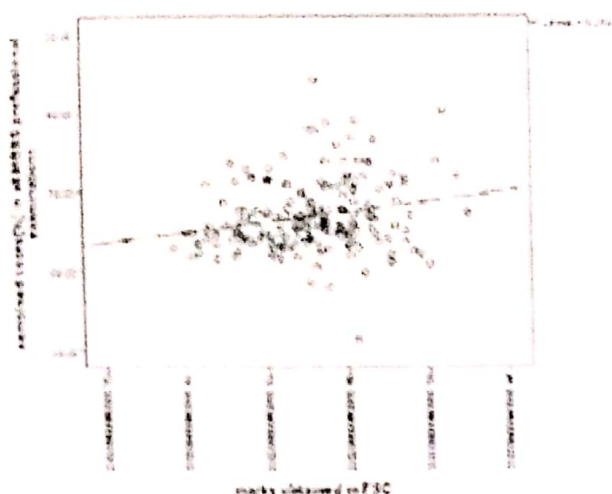


Figure-1. Pre-admission grades (marks scored in Fsc / equivalent marks) and overall performance of students in medical college showing the relationship between these two.

There was no statistically significant difference between the performance of student whose parents were doctors as compared to those whose parents were non doctors (p -value > 0.05). The difference between the overall performance of students who lived in hostel and those who were day scholars was statistically non-significant (p -value > 0.05).

Student groups	No of students	Statistical difference between academic performance (p -value)
Father doctor	26	0.536
Father non doctor	174	
Mother doctor	30	0.201
Mother non doctor	170	
Day scholar	96	0.532
Hostel resident	101	

Table-II Impact of different factors on academic performance of students in medical college

There was an overall improvement in students' academic performance throughout their 5 year period in medical college. Students' appeared to perform better in their final professional examination as compared to their initial years in medical college.

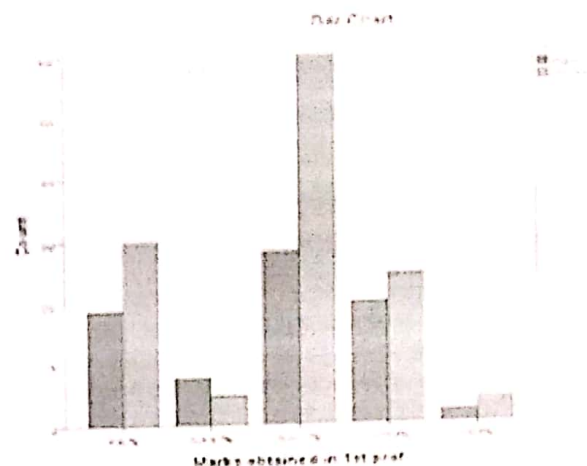


Figure-2. Performance of students in medical college during first professional examination

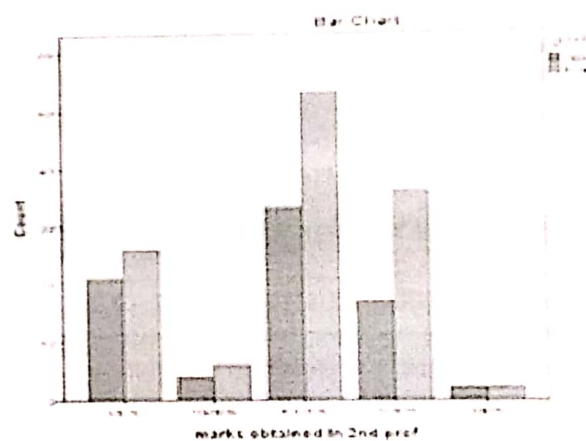


Figure-3. Performance of students in medical college during 2nd Prof. examination

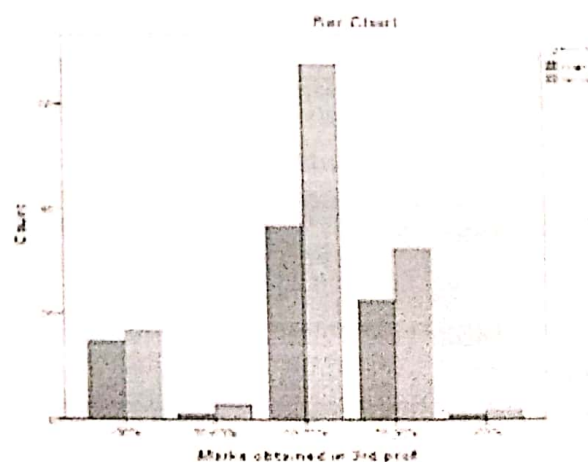


Figure-4. Performance of students in medical college during 3rd Prof. examination

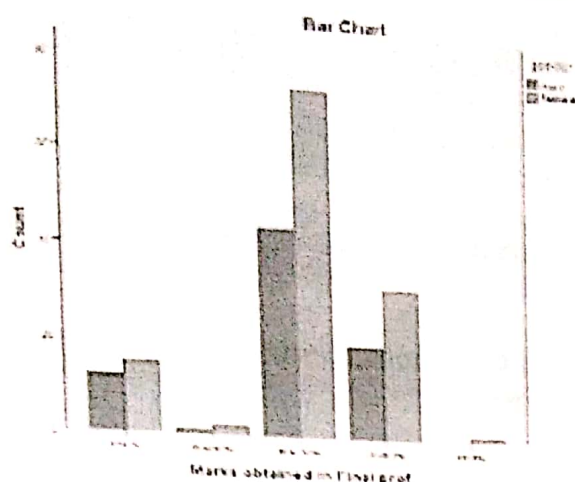


Figure-5. Performance of students in medical college during final Prof. examination

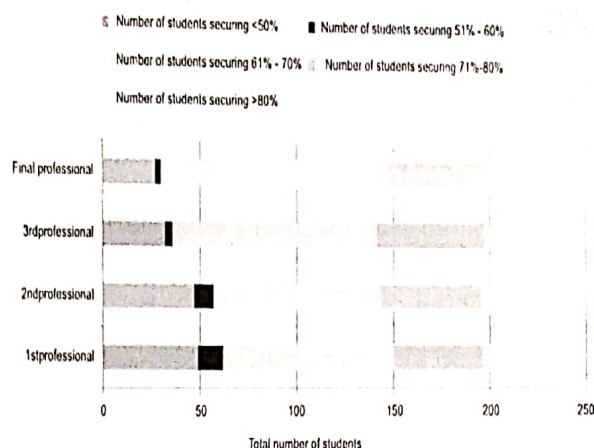


Figure-6. Diagrammatic representation of Performance of students in all MBBS professional examinations

Examination	Number of students securing <50%	Number of students securing 51% - 60%	Number of students securing 61% - 70%	Number of students securing 71%-80%	Number of students securing >80%
1 st professional	42(21%)	20(10%)	88(44%)	46(23%)	4(2%)
2 nd professional	47(23.5%)	10(5%)	86(43%)	53(26.5%)	4(2%)
3 rd professional	32(16%)	4(2%)	105(52.5%)	56(28%)	3(1.5%)
Final professional	27(13.5%)	3(1.5%)	117(58.5%)	52(26%)	10(0.5%)

Table-III. Performance of students in all MBBS professional examinations.

DISCUSSION

Many factors play an important role in determining the academic performance of medical undergraduates and to find out the correlation between these factors and academic achievements of students is necessary. Many studies indicate that various factors affect undergraduate and post graduate students' performance in their professional colleges and also determine whether they can become a successful professional or not.

In the current study, more females (61%) were able to get admission in medical colleges as compared to males (39%). This shift in more females getting admissions in professional medical colleges as compared to males is not only seen in Pakistan but also in other countries.⁸

In Pakistan, one of the major criteria of admission in Medical colleges is the high score achievement in F.sc exam and medical college admission test. Achievement high of pre- admission grades is

thought to be predictor of better performance later in medical colleges. To study this fact, we calculated correlation between student performance in F.sc exam (percentage) and their overall performance throughout the period of five years. A significant positive correlation ($r = 0.223$) was found between academic achievement of our students in F.sc and their overall performance in all professional examinations in medical college (Table-I, Figure-1). In 2012 and 2013 similar results were found in studies conducted by M Ayyaz and M Iqman respectively.^{10,11} Different other studies have also indicated that academic achievement in previous school/college years can be a good predictors of students' future performance in medical college.^{9,12,13}

However, in some studies it was shown that there is only a weak correlation or even no significant correlation between student performance in their pre admission years and their future academic achievement in medical college.^{14,15,16} Wingard and Williamson published a literature review about

the predictors of physicians' career performances in which they found that the factors behind the poor correlation between achievement in early academic years and that in the later professional years was thought to be poor selection criteria of medical school admissions and shortcomings in the grading system. According to Wingard and Williamson high achievers in early academic years merely represent the students who can memorize certain knowledge for some period of time and they may prove to be incompetent later in their professional life.¹⁷

In our study, there was no significant difference (p -value >0.05) in the academic performance of students whose parents were doctors as compared to those whose parents were non doctors (Table-II). A study conducted in 2015 showed that students whose parents had a formal occupational perform well as compared to those whose parents were without any formal occupation.¹ In another study conducted by Anne et al in 2015 it was shown that the students whose parents were of medical background did not show any advantage in medical university entrance exam or interview over those students whose parents were without any medical background.¹⁸

Also in the current study no significant difference (p -value >0.05) in the academic performance of students living in hostels as compared to day scholars (Table-II). This is in contrast to the study conducted in a Nigerian university in which it was shown that on campus students perform better as compared to off campus students.² On the other hand in a study conducted by Christopher Child in 2012 it was found that students who lived on campus had a lower GPA as compared to their off campus counter parts.¹⁹

In our study an improvement was observed in overall academic performance of over their five year period in medical college (Figure-2 to Figure-5). Twenty one percent (21%) of the students attained below 50% marks in their first professional examination and this number of students was reduced 16% and finally 13% in their third and final professional examination

respectively. On the other hand the percentage of students securing between 60-70% score in their first and second professional examination was 44% and 43% respectively. This proportion of students was increased to 52% in their third Prof. and finally improved to a percentage of 58% in their final professional examination who were able to score between 60-70% of score. (Figure-6. & Table-III) From this trend it may be assumed that students of central park medical college tend to perform better in their last years of medical college where interactive patient learning is more dominant over learning through didactic lecture. This is in close agreement with the study conducted by Batool et al in 2013 where it was found that undergraduate medical students performed better when learned through interactive learning as compared to lectures.²⁰ In 2014 a study was conducted in Iran where it was found that students enrolled in the study preferred evidence based learning over lecture based learning when offered a set of pediatric courses. According to this study evidence based learning gave a motivational boost to the students, helps in knowledge retention and is more attractive and useful.²¹ In another study conducted in Iran it was found that medical graduates found interactive learning as a better retaining medium in basic life support course and advance trauma life support course.²²

The results of this study provide us data which will be helpful in determining that whether high achievers in pre medical examination also perform good in their MBBS professional examinations or not. This can in turn help us to bring essential changes in the procedure of admissions in government and private medical colleges of Pakistan. A study in the recent past has shown that poor performers in medical school tend to become unsuccessful doctors later in their life. It is of utmost importance to identify the factors which help to predict the performance of students in the medical school and giving them proper support and guidance to improve their performance.

CONCLUSION

In this study we focused upon various factors which can play role in determining the students'

pattern of academic performance throughout their medical college stay. We found that pre-admission grades showed positive correlation with the academic performance of students later in their professional exams in medical college. We found no effect of factors such as parent occupation and being a boarder or day scholar on the academic achievement of medical undergraduates. The students of Central Park Medical College showed better results in their clinical years as compared to their initial year professional examinations. From this we can conclude that in our study, factors such as pre-admission grades and mode of learning had a positive influence on medical undergraduates' academic performance in medical college. Further studies on these factors can help medical education professionals to improve the standards of education in medical colleges, thus helping the medical students to become successful practitioners later in their life.


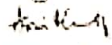


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AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Asim Mumtaz	Theme, Data collection, Resultls	
3	A.S Chughtai	Review and approval	
4	Ameelia Sadaqat	Data collection & Analysis	
5	Syed Imran Ali Shah	Data collection & Review	