

Gender Differences in Academic Performance in the subject of Pharmacology: A study conducted in a medical college of South Punjab

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ABSTRACT

Background: The proportion of female students is increasing progressively in medical schools, but concern remains about differing performance in exams. A limited data is available on comparison of academic performance of male and female students from developing countries.

Aim: To compare them regarding their academic performance in the subject of pharmacology.

Methods: This comparative study was conducted at Pharmacology departments of Sheikh Zayed medical college Rahim yar khan and Quaid-e-Azam medical college Bahawalpur among 3rd yr MBBS students of sessions 2019 and 2020. The overall attendance of students was counted and compared as well as all the pharmacology test results were evaluated and compared on the basis of previous record of fortnightly, end of module, midterm and end term examinations.

Results: Girls outnumbered boys (528 girls vs 437 boys) in medical admissions. The girls were having better attendance and test results (92% vs 65% for better attendance & 26% vs 19% for better results) in both sessions 2019 and 2020. The results also showed that students from literate background and urban areas got more admission in medical college but more number of boys are boarders compared to girls who prefer to be day scholars due to social circumstances of South Punjab.

Conclusion: The female students tend to perform better than boys in pre clinical subjects. The number of female medical students is increasing progressively and they out perform their male counterparts both in attendance and internal assessments. The study is documentation of this fact, for future measures that can be done for improvement of male students performance.

Keywords: Gender difference, pharmacology, performance

INTRODUCTION

In this era of globalization and technological revolution, education is the prime step. People's awareness to get education is increasing progressively. There is high tendency to get professional education due to easy availability of jobs and good earning both among male and females.¹ Education is fundamental human right of every individual, irrespective of age, gender, race, nationality, religion or social groups. There exist differences in cognitive motivational functioning of males and females. Studies revealed that females show better performance in attitude, motivation, time management, self testing strategies and literature. While males using concentration, information processing and by selecting main idea strategies get high scores in mathematics².

In last few decades the number of female students has increased progressively. Among academics, gender issues are of high concern worldwide³. In most of studies, gender is a research question. Academic achievements depend upon various factors like student's perception, IQ (Intelligence quotient) dependency on teacher's style of teaching, self directed learning and group studies. Absenteeism can also affect the academic excellence of students^{4,5,6}. Educational process is influenced by various factors that include student self ability, professional behavior of staff, dedication level, faculty development programs, curriculum design, available resources, educational environment, psychological and social support and assessment tools⁷.

Male and female students have different study habits and learning style that influences their academic performance.⁸ Studies have shown that females have better grades in traditionally male content areas like math and physics while males have high scores in ability tests in these subjects. Females have better memory in general than male including episodic spatial, visual short term and specific memories like odor and past memories⁹.

Pharmacology is one of the foundations forming subject of medical curriculum. It is crucial subject for future medical practitioners. Both cramming and understanding the core concepts

is essential to study it & have a grasp on the subject.^{10,11} Regarding GPA, females medical students are significantly better than male. But male students perform better in some undergraduate courses and internship rotation as compared to female students.¹² In higher education settings, female students enter the universities with lower scores while later on, they excel in their studies and give better performance than their male counterparts¹³. The present study is designed to investigate:

- The difference in academic performance of male and female medical students in the subject of pharmacology.
- It also helps to find out the personal, social and demographic factors that may influence the differences in their performance.
- It highlights the factors that cause poor performance in one group compared to the other.

It is an attempt to find out major problems and obstacles that both male and females face to eventually reach gender equality not to reinforce these differences. This article contributes to current literature by specifically examining and comparing the factors that impact academic performance of male and female students.

The objective of the study was to compare them regarding their academic performance in the subject of pharmacology.

METHODOLOGY

This comparative study was conducted at Pharmacology departments of Sheikh Zayed Medical College, Rahim Yar Khan and Quaid E Azam Medical College Bahawalpur after approval from IRB. It comprised of 3rd year MBBS students of two sessions 2018-19 and 2019-2020. The research proposal was approved from institutional review board of Sheikh Zayed Medical College. The confidentiality of students was maintained. The data was collected from student section of both departments. There were 528 female and 437 male students in study. Two parameters of the student's performance were taken into consideration; attendance and test record. The overall attendance of the students was counted and compared, as well as all the pharmacology examinations was evaluated and compared on the basis of previous records of monthly, end of module, midterm and end of

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session examinations. The course contents included general and special pharmacology topics like autonomic nervous system, cardiovascular system, central nervous system, gastrointestinal tract, blood, autacoids, respiratory system, endocrine system and chemotherapeutic drugs. For evaluation, students were divided into 3 main groups. For attendance, they were divided into <50% attendance, 50-75% and >75% attendance groups. To evaluate academic performance in tests male and female students were divided into students with <50% marks, 50-70% marks and >70% marks. All enrolled 3rd year MBBS students were included in study.

Detained students were not included in study. The frequency distributions of various variables were calculated using SPSS 19.

Table 1:

Session	No. Of students	Attendance			Test		
		<50%	50%-75%	>75%	<50%	50-70%	>70%
2019	484						
	Girls(278)	02(01%)	23(08%)	253 (91%)	24(09%)	196(70%)	58(21%)
	Boys(206)	11(05%)	45(22%)	150(73%)	69(14%)	124(73%)	13(13%)
2020	481	<50%	50%-75%	>75%	<50%	50-70%	>70%
	Girls(250)	04(02%)	13(05%)	233(93%)	19(07%)	152(61%)	79(32%)
	Boys(231)	18(08%)	79(34%)	134(58%)	63(27%)	108(47%)	60(26%)

DISCUSSION

To make an individual successful in a society, education plays a vital role. Education develops an individual's function and capacities. In broad terms, education is a process to attain knowledge, skills, and attitude that enables an individual to fit with their environment. Education is necessary tool for social and economical human development. It is also noted that individual's background characteristics affect their cognitive and non-cognitive abilities in academic performance.¹⁴ Cognitive motivational functioning of boys and girls are different. Boys use different strategies than girls. Girls show better results in literature as compared to boys who show good performance in mathematics.¹⁵ Grades of students in university entrance exam also guide the teachers to identify the students that could perform well.¹⁶ Female academic performance is changing in terms of numbers and results. The number of female students is increasing and getting better grades in all categories of subjects.¹⁷ It coincides with our research results in which number and performance of female students is better than their male counterparts.

The studies done in the past on the subject of gender differences showed mixed results. Some were in favor of boys, while others showed better female students results. Females have tendency to be more adaptive in learning in different environment, contrary to results in a study in Kenya among secondary school students, in which boys passing rate was more than girls. On the contrary, in some studies conducted on college students, no gender difference was found among male or female students^{1,16,18,19}. A Jordanian study, on the other hand, found better female students performance than male students.²⁰ Another study conducted at school level in Pakistan also showed that girls were better than their male counterparts.²¹ Saudi female students also demonstrated superior results academically than male students at medical schools²².

In our research, there is gross difference of performance among female and male students in which 93% females contrary to 58% males had better attendance and 32% females compared to 26% males showed good results in pharmacology. Our focus of study was the subject of pharmacology, because this subject study at undergraduate level involves more cramming than understanding. The female students are more capable of cramming than boys & even better to contain that short-memorized process of learning.

In last 30 years, civil societies and organizations are sensitizing females, more in education, skill, career development and women rights. Parents are also getting more sensitive about girls independency. Girls study more time at home after school

RESULTS

This article analyzed the differences in academic performance between male and female medical students in subject of pharmacology and provided information of 965 students, out of which 437 are male and 528 are female, all of them enrolled in 2018 to 2020.

In session 2019, total number of students was 484 out of which, 278 were girls and 206 were boys. Out of them, 91% girls and 73% boys had better attendance. While analyzing test results, 21% girls and 13% boys had more than 70% marks in tests overall.

Similarly in session 2020, out of 481 students, 250 were girls and 231 were boys. 93% girls and 58% boys had more than 75% attendance. In test results, 32% girls and 26% boys were getting more than 70% marks.

than boys who are involved in extracurricular activities and do not give proper time to studies like girls. It is strengthened by our socio biographic analysis as we see that girls from illiterate background are getting higher education progressively.²³

CONCLUSION

It is concluded from study that girls are better in attendance and internal assessment than boys in academics. The number of female students is also increasing progressively in medical colleges due to open merit. It is suggested to fix the number of seats of male and female students in equal ratio to avoid over saturation of female medical students and problem of shortage of medical personals in medical profession, as most of female medical graduates do not continue their profession in their future life due to personal and family issues.

Conflict of interest: No

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