

ORIGINAL ARTICLE

CHALLENGES OF MEDICAL EDUCATION IN SIALKOT: A COMPARATIVE STUDY OF PUBLIC AND PRIVATE MEDICAL COLLEGES

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Background: Medical education in Pakistan is hindered by infrastructure deficiencies, outdated curricula, shortage of qualified faculty, and limited clinical exposure, which collectively impact the quality of healthcare training. This study highlights challenges in medical colleges of Sialkot affecting educational standards and compares the challenges faced by medical education between public and private medical colleges, focusing on infrastructure, curriculum, faculty quality, clinical training, and assessment methodologies. **Methods:** An analytical cross-sectional study was conducted in public and private medical colleges of Sialkot from October 2023 to March 2024, after approval by the Institutional Review Board of Sialkot Medical College. Data from 200 medical students were collected via convenience sampling and analyzed using a questionnaire covering infrastructure, curriculum, faculty, clinical exposure, and assessments. SPSS-21 and Chi-square tests were used for analysis. **Results:** A total of 200 students participated from the public and private sectors. Notable differences were observed in laboratory resources, curriculum transparency, and problem-based learning availability, with public colleges generally faring better. However, critical thinking promotion, student-teacher interaction, and clinical rotations did not significantly differ between the two sectors. **Conclusions:** The study identified shared and distinct challenges in medical education within public and private sector medical colleges of Sialkot. Public colleges showed superior resource allocation and curriculum transparency, yet both sectors need improvements in faculty development and clinical training. These findings suggest targeted reforms to enhance standards of medical education and outcomes in Pakistan.

Keywords: Medical Education, Challenges, Public, Private, Medical Colleges, Infrastructure, Curriculum, Faculty

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INTRODUCTION

Medical education in Pakistan is facing a complex web of challenges that pose significant barriers to the development of a proficient and skilled healthcare workforce. These challenges, spanning from infrastructure deficiencies and outdated curricula to a shortage of qualified faculty and limited clinical exposure, collectively impact the quality of medical education and, consequently, the healthcare system at large.¹ With the increasing demand for well-trained healthcare professionals, it is crucial to comprehensively assess and address these issues to ensure high-quality healthcare education and services.²

A fundamental problem lies in the inadequate allocation of resources to medical education institutions, resulting in a lack of modern facilities and essential equipment for effective practical training.³ The resource allocation issue is underscored by Khan *et al*,⁴ who conducted a situational analysis of medical education in Pakistan, highlighting the challenges stemming from inadequate resources.

This resource gap is exacerbated by outdated curricula and teaching methodologies that struggle to keep pace with the rapid advancements in medical science and technology.⁵ One of the primary problems

in medical education in Pakistan is the outdated curriculum. The curriculum used in many medical universities across the country is still based on traditional didactic lecture-based learning, which does not promote student engagement or teamwork as also reported by a study done at King Abdul Aziz University of Saudia.⁶ The shortage of qualified faculty further compounds the challenges, hindering the delivery of up-to-date and comprehensive education.⁷ The scarcity of qualified faculty is further elucidated by Baig *et al*,⁸ who examined the perceptions of medical students regarding the quality of clinical teaching.

Insufficient exposure to real-world clinical settings represents a critical challenge in medical education. The scarcity of practical training opportunities not only impedes the development of essential skills among students but also compromises their ability to navigate the complexities of actual healthcare scenarios.⁹ The absence of standardized assessments and accreditation processes contributes to variability in the quality of medical education across different institutions.¹⁰ Ejaz *et al*¹¹ emphasize the need for reforms in medical education, pointing to the limitations in curricula and teaching methodologies. A cohort study conducted in a medical college of

Muzaffarabad, Pakistan assessed the impact of an integrated module on students' performance in the basic medical sciences, emphasizing the need for comprehensive education.¹²

The global challenges posed by the COVID-19 pandemic, as discussed by Gill *et al*¹³ have further underscored the need for adaptability in medical education at a time of physical distancing. In addition to these challenges, there is also a lack of standardized accreditation and evaluation processes for medical education in Pakistan. The impact of self-assessment on learning, as explored by Sharma *et al*, speaks to the importance of empowering students in their educational journey.¹⁴

The intricate nature of these challenges necessitates a comprehensive examination to understand their underlying causes and potential solutions. This study aims to delve into the multifaceted problems plaguing medical education in Sialkot, Pakistan providing valuable insights to inform evidence-based reforms and improvements. This study aims to dissect these challenges, drawing on a diverse set of references to inform evidence-based solutions and contribute to the enhancement of medical education in Pakistan.

MATERIAL AND METHODS

This cross-sectional study was done at Medical College of Sialkot from Oct 2023 to Mar 2024 after approval from the Institutional Review Board (IRB No. MRC/IRB/23018). Students from the three medical colleges, both public and private were included to ensure a comprehensive representation of the challenges faced by diverse institutions. The sample size³ was calculated using Raosoft sample size calculator to be 200 with a 95% confidence interval and 5% margin of error.

All medical students of Sialkot were included in the study who were willing to participate and available during the study period. Participants not giving consent were excluded from the study. Convenience sampling was done to complete the sample size. A questionnaire was used to collect data from the participants and was developed after an in-depth literature search. A pilot study was done on 20 people. Changes were incorporated in the final questionnaire. The questionnaire consisted of sociodemographic variables, infrastructure, curriculum and teaching methodologies, faculty shortage and quality, practical and clinical learning, assessments and accreditations. Confidentiality of data was maintained.

Data obtained were coded, entered and analysed using SPSS-21. For quantitative variables mean and standard deviations were calculated. For qualitative variables frequency and percentages were calculated. The chi-square test was used to compare challenges of medical education between public and private medical institutions, and $p \leq 0.05$ was taken as significant.

RESULTS

A total of 200 students were included in the study. The Mean age of the respondents was 22.17 ± 1.9 years. There were 53 (26.5%) males and 147 (73.5%) females. Regarding the infrastructure 154 (77%) were satisfied with the infrastructure of colleges.

Results of 200 medical students in Sialkot showed that 64% reported access to career counselling, and 93% felt their education promoted critical thinking. Interaction and collaboration were highly valued, with 94% experiencing effective student-teacher interaction and 93% engaging in group discussions. A significant emphasis on practical learning was evident, as 93.5% were involved in research and 91% participated in clinical rotations. Additionally, 93.5% had access to their curriculum, and 90.5% engaged in problem-based discussions, underscoring a focus on problem-solving skills. The educational environment was supported by unbiased assessments (93.5%) and access to mentorship programs (94%). Resource-wise, 87% were satisfied with laboratory equipment, and 91.5% had access to extracurricular activities, indicating well-resourced institutions. (Table-1).

Table-1: Medical education in Pakistan (n=200)

Variables		Frequency	Percentage
Career counselling available	Yes	128	64.0
	No	72	36.0
Promotes critical thinking	Yes	186	93.0
	No	14	7.0
Involves student-teacher interaction	Yes	188	94.0
	No	12	6.0
Involves group discussion	Yes	186	93.0
	No	14	7.0
Involves Research	Yes	187	93.5
	No	13	6.5
Involves clinical rotations	Yes	182	91.0
	No	18	9.0
The curriculum displayed and available	Yes	187	93.5
	No	13	6.5
Problem-based discussion held	Yes	181	90.5
	No	19	9.5
Assessment system unbiased	Yes	187	93.5
	No	13	6.5
Mentorship program available	Yes	188	94.0
	No	12	6.0
Laboratories have sufficient equipment	Yes	174	87.0
	No	26	13.0
Extracurricular activities available	Yes	183	91.5
	No	17	8.5

Bivariate analysis was done to compare public and private sectors regarding problems of medical education with slight but not significant preference for career counselling in public (71.7%) over private colleges (61.2%, $p=0.173$). Public colleges had a marginally higher emphasis on promoting critical thinking (98.1%) compared to private (91.2%, $p=0.089$), but without significant statistical difference. High levels of student-teacher interaction and research involvement

were reported across both sectors with no significant disparities. Significant differences emerged in curriculum transparency with 100% of public college students reporting visibility compared to 91.2% in private colleges ($p=0.025$), and problem-based discussions more common in public (98.1%) than private (87.8%, $p=0.027$) colleges. Public colleges also reported better sufficiency in laboratory equipment (98.1% vs 83%, $p=0.005$) and availability of extracurricular activities (98.1% vs 89.1%, $p=0.044$). (Table-2).

Table 2: Public and private sector comparison regarding medical education [n (%)]

Variables		Public Sector	Private Sector	p
Career counselling available	Yes	38 (71.7)	90 (61.2)	0.173
	No	15 (28.3)	57 (38.8)	
Promotes critical thinking	Yes	52 (98.1)	134 (91.2)	0.089
	No	1 (1.9)	13 (8.8)	
Involves student-teacher interaction	Yes	52 (98.1)	136 (92.5)	0.141
	No	1 (1.9)	11 (7.5)	
Involves group discussion	Yes	52 (98.1)	134 (91.2)	0.089
	No	1 (1.9)	13 (8.8)	
Involves Research	Yes	52 (98.1)	135 (91.8)	0.112
	No	1 (1.9)	12 (8.2)	
Involves clinical rotations	Yes	49 (92.5)	133 (90.5)	0.666
	No	4 (7.5)	14 (9.5)	
Curriculum displayed and available	Yes	53 (100)	134 (91.2)	0.025
	No	0 (0)	13 (8.8)	
Problem-based discussion held	Yes	52 (98.1)	129 (87.8)	0.027
	No	1 (1.9)	18 (12.2)	
Assessment system unbiased	Yes	52 (98.1)	135 (91.8)	0.112
	No	1 (1.9)	12 (8.2)	
Mentorship program available	Yes	52 (98.1)	136 (92.5)	0.141
	No	1 (1.9)	11 (7.5)	
Laboratories have sufficient equipment	Yes	52 (98.1)	122 (83)	0.005
	No	1 (1.9)	25 (17)	
Extracurricular activities available	Yes	52 (98.1)	131 (89.1)	0.044
	No	1 (1.9)	16 (10.9)	

DISCUSSION

This comparative study has illuminated the varying perspectives of challenges to medical education between public and private medical colleges in Sialkot, Pakistan. The data indicated that, although students across different institutions face common challenges, there are also unique difficulties depending on the type of institution they attend. A key finding from the study is the significant disparity in resource availability, particularly in laboratories, between the public and private sectors. While 98.1% of students from the public sector reported having sufficient laboratory equipment, 83% from the private sector shared this sentiment. This significant difference could imply that public medical colleges, contrary to common perception, might be better equipped in certain areas compared to their private counterparts. This may be attributed to public institutions potentially receiving more stable government funding, whereas private colleges often

depend on tuition fees and private investments, which can be variable.¹⁵

The curriculum availability displayed a notable difference with 100% of public sector students stating that their curriculum was displayed and available, compared to 91.2% in the private sector. This finding suggests that public colleges may be more transparent or systematic in sharing educational content, which could contribute to a more structured educational experience. According to a study conducted in Punjab, Pakistan including 500 students out of which 239 (47.8%) students said that an academic calendar was provided at the beginning of the program, while 39 students were unsure about its availability.¹⁶

Another significant difference was found in the availability of problem-based discussions, a key component of modern medical education which promotes critical thinking and real-life problem-solving skills. The students in public institutions reported higher availability compared to those in private ones. This suggests that public institutions may be adopting more modern educational practices compared to private ones, possibly due to different regulatory standards or educational philosophies.¹⁷

It is worth noting that despite these differences, there were areas where no significant differences were observed, such as in promoting critical thinking and providing clinical rotations. This suggests that both sectors face common challenges and strengths in adapting to the rapid advancements in medical education and practice.¹⁸

The higher percentage of career counselling availability in the public sector compared to the private sector, although not statistically significant, suggests a trend that could be explored further in relation to student outcomes and professional development.¹⁹

Interestingly, the areas where private institutions seem to lag, such as in providing sufficient laboratory equipment and problem-based discussions, could be due to various factors such as financial constraints, prioritization of resources, or administrative decisions. These findings call for a closer examination of the allocation of resources and educational strategies in private medical colleges.² The overwhelming majority of students, regardless of the type of institution, affirmed that their education promotes critical thinking and involves significant student-teacher interaction and group discussion. This is a positive sign that reflects the evolving nature of medical education in Pakistan, which is shifting towards more interactive and student-centred approaches.⁶

The study also highlights the importance of mentorship programs and unbiased assessment systems in enhancing the quality of medical education. The high percentage of students from public and private institutes affirming the availability of mentorship programs and

unbiased assessments in both public and private sectors is encouraging and suggests a move towards more supportive and equitable educational environments. It aligns with a study at Universiti Kebangsaan Malaysia Medical Centre (UKMMC) showed that both mentors and mentees had positive perceptions of the mentoring system, with suggestions for improvement including additional mentor training and retaining the same mentor-mentee pairings.²⁰

LIMITATION OF STUDY

A constraint of the study pertains to its limited capacity to extrapolate the findings to the broader landscape of medical education in Pakistan, given that the data exclusively emanated from medical institutions within Sialkot.

CONCLUSION

This study highlights the diverse challenges faced by medical students in public and private medical colleges of Sialkot, including issues with resource allocation and curriculum updates. While both sectors promote critical thinking and student-teacher interaction, public colleges outperform in resources and curriculum transparency. The findings suggest urgent reforms to modernize curricula, improve teaching methods, and distribute resources equitably. Emphasizing mentorship and fair assessments, the study advocates for reforms that enhance medical education quality, crucial for advancing Pakistan's healthcare system and developing a skilled medical workforce.

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FU: Statistical analysis and literature review

AD: Revising it critically for important intellectual content

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