



Original Article

Navigating the Research Landscape: An In-Depth Analysis of Challenges Encountered by Public and Private Medical and Dental Undergraduate Students

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ABSTRACT

Understanding the challenges experienced by undergraduate students in different educational environments is crucial for navigating the evolving research landscape effectively. **Objective:** To review the challenges faced by undergraduate students enrolled in public and private sector dental and medical colleges in Khyber Pakhtunkhwa, Pakistan's. **Methods:** The study used a cross-sectional design and a tailored questionnaire that was distributed to undergraduate students in both sectors to gather data. Time limits, knowledge and research abilities, the availability of mentoring and training, institutional support, and language difficulties were covered by the questionnaire. The chi-square test and descriptive statistics were used to analyse the data. **Results:** Key findings include research engagement is low, particularly in the private sector. Time restrictions are a significant barrier that are particularly severe in the private sector. Significant barriers include a lack of research abilities and information, as well as inadequate mentoring and training programs. Particularly in the public sector, there is a dearth of institutional support. Language obstacles are typically not very severe. The chi-square test confirms a significant difference in challenges between public and private sector students. **Conclusions:** Both public and private sectors have low levels of research engagement, with the private sector having a larger non-participation rate. Both students in the public and private sectors encounter significant challenges, with private sector students identifying time restraints and a lack of information and research skills as the most significant barriers. Lack of readily available mentorship and training programs, as well as institutional support, is a significant barrier for students in both sectors.

INTRODUCTION

Globally, there have been significant pedagogical transformations utilized in the medical and the dental profession educational systems [1-4]. In order to foster an in-depth comprehension of the medical and dental sciences, integrated curricula have been employed at the educational institutions to bridge the gap between basic and clinical sciences. Along with the adjustment, problem-based learning strategies have become more widely used, emphasizing the application of knowledge in real-world situations and fosters students' critical thinking skills [5]. Understanding the challenges experienced by undergraduate students in different educational

environments is crucial for navigating the evolving research landscape effectively. This study focuses on specific challenges encountered by undergraduate students enrolled in medical and dental colleges in public and private sector in the Khyber Pakhtunkhwa Pakistan. The policymakers and medical education experts can employ the findings to establish tailored interventions and support systems to enhance the learning experience once they have an in-depth understanding of the distinctive challenges that students in multiple fields encounter. There isn't a lot of research available concerning the challenges encountered by medical and dental students in

KP or the comparison between public and private institutions there. However, certain studies provide useful information. In a regional study (2021) conducted in Saudi Arabia on the challenges and obstacles experienced by medical and dental students, found that the majority of students displayed a favourable attitude toward and moderate behaviour of research. This finding further suggests that training and support services be organized to overcome the difficulties and barriers in conducting research [6]. Another study by Aziz *et al.*, (2020) investigated the challenges faced by medical students in Pakistan, including factors such as examination stress, high workload, and family related problems, highlighted the need for better support systems and mentorship programs [7]. In the context of KP, a study conducted by Waheed *et al.*, (2021) examined the challenges faced by undergraduate students in the province, published in *The Professional Medical Journal*, their research focused on factors such as knowledge, attitude, inadequate faculty support, and difficulty in conducting research because of inadequate capacities. These findings underscore the need for targeted interventions to address the challenges specific to undergraduate students in KP. It is crucial to compare the challenges faced by students at public and private colleges in the context of KP. Public institutions deal with a lack of resources, poor facilities, lack of competent and experienced staff, lack of opportunities for research, and inadequate interaction between staff and students [8-10]. On the other hand, private institutions may experience difficulties such as high tuition fees, financial constraints, and access to clinical training opportunities [11]. Policymakers and educators gained a thorough understanding of the diverse experiences that students have at both private and public colleges through analysing these issues, allowing them to develop tailored plans of action to fulfil their needs. This study intends to add value to the existing body of knowledge by undertaking an in-depth review of the difficulties faced by undergraduate medical and the dental students in KP. The policymakers, educators, and institutions can use the findings as a valuable resource for developing targeted measures that address the specific issues that students at both public and private universities experience, eventually enhancing undergraduate medical and dental education in KP, which aid in the development of a skilled and adaptable healthcare staff, boosting healthcare outcomes for the people of the province.

METHODS

The cross-sectional study was conducted from April to June 2023 to document the difficulties encountered by undergraduate students enrolled in the public and private sector colleges in Khyber Pakhtunkhwa, Pakistan.

Convenience sampling was used as the sample method since it was appropriate to including all easily accessible participants within the intended audience. All academic years' undergraduate students at KP's public and private sector colleges enrolled in medical and dental colleges were considered eligible for the study. No particular requirements existed for exclusion. A customized questionnaire was developed to collect data regarding the challenges faced by undergraduate medical and dental students when conducting research. The questionnaire covered various aspects related to research and publication, including the availability of research resources, mentorship and guidance, time constraints, research skills, and publication barriers. A senior faculty member was selected from each of Khyber Pakhtunkhwa's public and private medical and dental colleges in order to ensure extensive engagement. The faculty members were included in a WhatsApp group that was used for communication during the research. The questionnaire was uploaded on Google Forms, and the faculty members were given access to it by way of a WhatsApp group. The questionnaire was distributed out to the undergraduate students by the faculty members. They either visited each class in every academic year in person or distributed the link to the survey through relevant WhatsApp groups for students. Before completing the survey, the respondents gave their informed consent, and their identities were kept confidential. The intended use of the data was made very clear. To encourage participation, two reminders were sent to the students through the faculty members. The reminders emphasized the voluntary nature of participation and the importance of their contribution to the study. It was made explicit that the information will be used for publication, group data presentations, and policy decisions aimed at enhancing the research environment in undergraduate medical and dental institutions. Descriptive statistics were used to summarize the responses. To analyse the significance of differences in challenges between different groups, the Chi-square test employed.

RESULTS

In total, 58 men and 138 women participated in the study. The public sector had a very balanced gender distribution in terms of sector representation, with 43 males and 52 females. With 15 males and 87 females participating in the study from the private sector, there was a substantial gender disparity. When assessing the gender distribution within the particular programs, there were 11 male and 28 female students enrolled in the study from public sector Bachelor of Dental Surgery (BDS) programs. In the private sector, there are 15 males and 80 females enrolled in the study from the BDS program. Regarding Bachelor of Medicine, Bachelor of Surgery (MBBS), 32 males were

enrolled in the study from the public sector, compared to 7 females and 0 males from the private sector. The study found that 32% of students in the public sector engaged in research projects throughout their academic careers, as opposed to 68% of those who did not. 63% of our participants from the private sector had not participated in research activities, compared to 37% of them. Regarding the challenges that medical and dental students face when conducting research, the study revealed a number of significant findings. Time constraints were found to hinder 29% of medical and dental students in the public sector with major obstacles, 35% with moderate challenges, and 36% with small challenges. In contrast, data from the private sector showed that more students (50%) viewed time restrictions as severe obstacles, 31% as moderate challenges, and 19% as minor challenges. A sizable portion of students from both sectors struggled with their lack of knowledge and research skills. 46% of respondents said it was a major hurdle in the public sector, 16% thought it was a moderate challenge, and 38% thought it was a minor challenge. Similar to how the public sector perceived it, 47% of the private sector saw it as a significant issue, 22% as a moderate challenge, and 31% as a minor challenge. The study also considered how readily available mentoring and training are, both of which are crucial for conducting research. In the lack of mentorship and training, 52% of students perceived a major problem, 33% a moderate problem, and 15% a minor obstacle in the public sector. In the private sector, 44% believed it was a minor obstacle and 6% thought it was significant. Another significant obstacle cited by students was the lack of institutional support for research efforts. 64% of respondents said it was a significant obstacle in the public sector, 14% thought it was a moderate challenge, and 22% thought it was a minor challenge. It was considered as a significant issue in the private sector by 42%, a moderate challenge by 25%, and a minor challenge by 12%.

Language barriers were discovered to be generally minor obstacles when it came to writing and publishing research papers. Only 10% of students thought it was a huge challenge in the public sector, 14% thought it was a moderate challenge, and 76% thought it was a small challenge. Similar to how the public sector felt, the private sector saw it as a small difficulty for 70%, a moderate challenge for 12%, and a major challenge for 18%. The data analysis was conducted using Microsoft Excel. The chi-square test was conducted to compare challenges of public vs private sector undergraduate students, yielding a chi-square test statistic of 79.966. Given that the computed p-value was less than 0.001, the result was considered to be highly significant. In conclusion, the chi-square test results showed a significant difference in the challenges faced by undergraduate students in institutions in the public and private sectors (p 0.001), indicating that there is a variation in the challenges faced by students between these two sectors.

DISCUSSIONS

The study found that 32% of students in the public sector and 37% of students in the private sector had engaged in research projects throughout their academic careers. Low levels of student involvement in research, is a reflection of the challenges involved in fostering a research culture in undergraduate medical and dental programs. The study found that 32% of students in the public sector engaged in research projects throughout their academic careers, as opposed to 68% of those who did not. In the private sector, 63% of participants had not participated in research activities, compared to 37% who had. The low research engagement among students, particularly in the private sector, reflects a significant challenge in fostering a research culture in medical and dental undergraduate education. Study conducted by Nadeem (2018), found a similarly low level of research engagement among medical students in Pakistan and recommended measures be taken to promote research opportunities and enhance student awareness [12]. For both students in the public and private sectors, time constraints were identified as an important obstacle. Only 29% of students in the public sector agreed, compared to 50% of students in the private sector who thought it was a significant challenge. These results underline the need of flexible involvement in research on the part of undergraduate students, as well as the need for efficient time-management strategies. Due to a research-focused academic environment, funding availability, experienced faculty, significant research prospects, and the perceived competitive advantage of research experience, private sector students—who typically have a demanding academic schedule, lots of

Comparison of Challenges Faced by Researchers in Public and Private Sectors

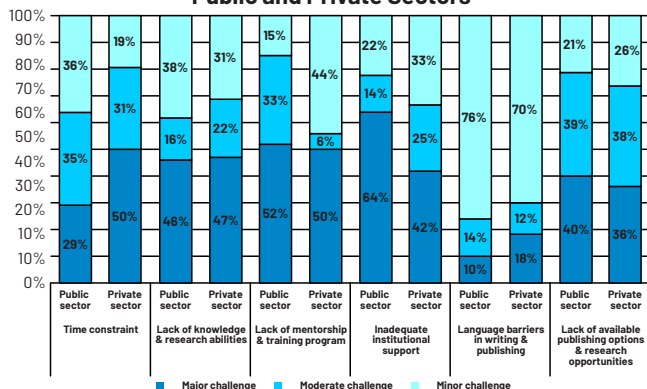


Figure 1: Comparison of Challenges Faced by Researchers in Public and Private Sectors

work, and little time for flexible scheduling—have a greater propensity for conducting research [13]. These findings highlight the need for effective time management strategies and flexibility in research involvement for undergraduate students. Similar findings were observed and time constraints including other factors have been identified as a major barrier to dental students' participation in research [14, 15]. The findings highlight the need for considering and incorporating set apart time for research activities into the curriculum to help students balance their research obligations with their academic responsibilities. Inadequate knowledge and research skills viewed as a significant impediment by 46% of respondents in the public sector and 47% of respondents in the private sector. These findings emphasize the importance of including research mentoring and training programs in undergraduate curricula [16-18]. Regional studies have also emphasized the challenges that dental students face in developing their research abilities [12, 16, 18]. The study also found that students in both sectors struggled since mentoring and training programs were not readily available. In the public sector, students thought it to be an important concern (52%), whereas in the private sector, they thought it to be a minor problem (44%). The undergraduate institutions ought to consider about establishing mentorship programs, seminars on scientific writing, and innovative techniques to enhance students' abilities to conduct research and provide them with the resources to promote research culture [15]. Students from the public and private sectors concurred that the lack of institutional support was a significant barrier. It was cited as a major problem by 42% of respondents in the private sector and a significant barrier by 64% of respondents in the public sector. These results highlight the importance of institutional support for research initiatives at educational institutions. Studies emphasise on how crucial institutional support and resources are for students who want to participate in research [12, 15, 19, 20]. Institutions should set aside funds to create specialized research divisions or departments that support research. Institutions should set aside funds to create specialized research divisions or departments that support research.

CONCLUSIONS

The impact of time constraints is felt in both the public and private sectors, yet students within the private sector experience more pronounced challenges. Inadequate knowledge and research skills hinder students' engagement in research endeavours, limiting their participation. Both sectors struggle to provide accessible mentorship and training opportunities, with the public sector facing particularly notable obstacles in this regard. Institutional support for students is lacking in both sectors,

though it's perceived as a more significant hindrance in the public sector. Research involvement among undergraduate students remains modest in both sectors, with the private sector exhibiting a higher percentage of non-participation compared to the public sector.

Authors Contribution

Conceptualization: WQ, AN

Methodology: WQ, AN

Formal Analysis: WQ, AN

Writing-review and editing: WQ, AN

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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