

Editorial

The Impact of Artificial Intelligence in Medical Education: A New Frontier for Bangladesh

In recent years, artificial intelligence (AI) has increasingly permeated various sectors of the education system of the world, including medical education. In a developing country like Bangladesh, where disparities in teaching staff, infrastructure, and educational resources persist between government and non-government medical colleges, some institutions face serious limitations across all aspects.¹ Addressing these challenges is often delayed due to bureaucratic procedures. In this context, AI emerges as a promising solution to bridge these gaps, modernize the learning experience, and ultimately improve healthcare outcomes.

A comparison between the Bangladesh Medical and Dental Council (BMDC) curriculum of 2021 and that of 2012 reveals that the former is more modern, structured, and clinically oriented.² The 2021 curriculum emphasizes the use of advanced technological tools such as projection systems, virtual simulation platforms, projection microscopes, virtual anatomy dissection tables, and other multimedia aids.³ It also highlights the importance of training in modern diagnostic technologies, which are more effectively taught using virtual tools. However, many institutions continue to rely on outdated tools like X-ray view boxes and static illustrations, which lack the interactive features required for deep learning. While the new curriculum aims to integrate modern technology across all disciplines, inconsistent implementation has widened the gap among medical colleges. In this scenario, AI could offer strategic and immediate solutions to standardize education, enhance access to learning resources, and ensure quality training.

Despite the implementation of the 2021 BMDC curriculum, medical education in Bangladesh remains predominantly teacher-centered and heavily reliant on textbooks and traditional methods. These resources are often insufficient and must be shared among students, hampering

individualized learning. Some students require more time and personalized approaches to grasp complex topics, which the current system cannot adequately provide. In contrast, AI tools offer student-centered solutions that can personalize learning experiences, making education more accessible and efficient.⁴

In developed countries, medical schools have already adopted advanced AI-driven tools such as virtual 3D anatomy platforms, virtual patient simulations, PathAI (for AI-based pathology slide interpretation), and DICOM viewers like OsiriX for diagnostic imaging. These tools facilitate interactive, self-paced learning and help students strengthen both theoretical knowledge and clinical decision-making skills.⁵ While these are often subscription-based, the creation of an enabling environment where Bangladeshi students can access even free AI tools can significantly enrich their learning experience. Furthermore, AI can support overburdened faculties by automating assessments, providing timely feedback, and streamlining curriculum management. This can contribute to narrowing the knowledge gap between students in Bangladesh and those in more advanced countries.

However, significant challenges remain. Infrastructure limitations persist, and public perception of AI in Bangladesh is often skeptical. Many fear that AI could replace human jobs and express concerns about the ethical use and potential misuse of AI technologies. Misinformation and lack of awareness compound these issues.^{6,7} To truly benefit from AI in medical education, a shift in mindset is essential. Comprehensive training and awareness campaigns targeting all stakeholders in medical education—faculty, students, and administrators—are crucial to ensure responsible, effective use of AI.⁸

In conclusion, medical education needs urgent reform because healthcare is quickly changing with the use of artificial intelligence, big data, sensors, and robots. Doctors now must learn how to handle constant data flow, use AI tools to make decisions, and work closely with smart machines and other professionals. AI should not be seen as a replacement for humans, but rather as a powerful supplement. If embraced strategically, it has the potential to transform medical education in Bangladesh, producing a new generation of competent, tech-savvy doctors prepared to meet the evolving demands of modern medicine.

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