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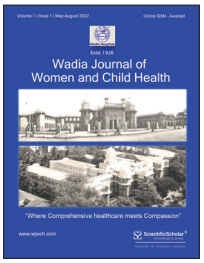

Invited Review

Perspective on medical education in India

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ABSTRACT

Medical education was first mentioned in world literature in the Flexner report way back in 1910, while in Indian literature it dates back to the ancient era of Charaka and Sushrutha who had their indigenous way of treating and teaching Medicine. The 22nd century has witnessed major erosions in the field of medical education in our country. The reasons behind the weakening of the system include changes in the thought processes and attitudes of the present generation of students along with changing community requirements, and rapid advancements in medical science and technology coupled with the digital revolution. To cope with the change medical teachers, need to update their method of imparting knowledge and skills to the students. The present curriculum does not provide opportunities to develop soft skills of counseling, communication, empathy, humanity, competence, and professionalism which are the major tenets to be inculcated in every student. In a medical institute, the administrative arm should work along with medical faculty in tandem to complement each other and streamline undergraduate and postgraduate training. The need is to bring back the lost art and science of clinical medicine in a way that's relevant to the present era of the digital revolution. Strategic changes would be required in medical education along with regulation, appropriate surveillance, and monitoring. There is a need to divert from the traditional, teacher-centered, content-oriented model of education to the student-centered, and outcome-oriented medical education system. Decoupling clinical education from clinical services, case-based approach learning, and emerging digital technologies such as simulation programs integrated into some aspects of skill-based education may be the way forward. Medical education in the country needs to undergo a paradigm shift to make an Indian Medial Graduate at par with an International Medical Graduate, capable of catering to the requirement of health care delivery systems across the boundaries of countries. The status of medical education in the country parallels that of what is global. Most of the medical institutes in the country try to strike a balance among the four pillars of medical academia which are patient care, administrative responsibility, education, and research all in one model. The same has been true for the Nowrosjee Wadia Maternity Hospital and Bai Jerbai Wadia Hospital For children, the two premier prestigious institutes built for Women and Children are today completing nine and half decades of meritorious service in the field of clinical service, medical training, and research.

Keywords: Medical education, Current needs, Skill-based training, Outcome-oriented teaching, India

INTRODUCTION

For the inaugural issue of the Journal of Women and Child Health, an official publication of the Wadia Hospitals, perhaps this is the right time in my medical career of the last four decades to pen down a few thoughts on medical education in the country. Looking back at the past, reflecting on the present, and having a peek into the future makes me ponder that maybe most of us are medical teachers by default having allowed teaching and training to be a part of an "additional" responsibility, rather than being proactive and taking it as a lead role. Medical education was first mentioned in world literature in the Flexner report way back in 1910, while finds mention in Indian literature from

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the times of Charaka and Sushrutha who had their indigenous way of treating and teaching medicine.[1,2] At the time of British rule, early in the 20th Century, medical colleges were established to give formal training to Indian youths in medical science. Allopathy as well as alternative medicine were practiced and depending on their faith, the people had their physicians who were respected as Gods.[3] It was then that, these two prestigious institutes of mother and child health care were established and to date display the vision and philanthropic ideals on the part of the founders-the Wadia family.[4]

I have been fortunate to have trained in an era of master teachers. These senior teachers emphasized bedside clinical medicine and taught that even with the same final diagnosis, patients could have different clinical presentations and examination findings and this made clinical rounds fun to learn and understand.

Over 2–3 training years, the students built a strong clinical thought process and an ability to think deeply. This "self-learning" helped them to build an effective and rewarding clinical acumen to confidently practice medicine. The same held true for overall clinical medicine-from pediatrics to geriatrics. This, of course, meant a lot of time investment by both the mentor and the mentee. Unfortunately, this art is beginning to disappear into oblivion.

Rounds these days start with the diagnosis and round up quickly into the tests ordered and their results. Documentation and paperwork take priority. Ward rounds are more compulsion and much less a passion like they used to be in the olden days. To add to it, faculty clinical rounds are disturbed by numerous phone calls and multiple non-academic and non-clinical interruptions. All this sadly, not only causes a loss of teacher-student bonding but also the clinical thought process suffers. Everything these days is fast-paced, hurried and majority of the clinical and surgical work being done by trainees remains unsupervised. This applies to everything in medicine, including literature search for students, who now have it all at the click of a button on mobiles and don't have to march to different libraries to read textbooks and journals, as in earlier times. Yet, the passion to advance their horizon is missing, students still struggle with teachers and the relationship has become more for completion of thesis and research work rather than the spirit of learning and mentorship.

The process of educating physicians in the past used to be informal, at the bedside with the mentors mentoring the mentee to analyze each case and elicit the physical findings after a detailed clinical history. This art of clinical analysis helped the clinicians in localizing the disease to the microanatomy level and helped in understanding the pathophysiology of the disease. This was followed by listing the probably etiology and ruling out complications based on the same, Later, the grade and severity of the illness were ascertained, all based on origin, duration, and progression of chief complaints in the order of their chronology. The diagnosis was then easy, and there would be arguments for and against common differential diagnoses.[5]

Rare are teachers who had the vast vision of the past and a great imagination to see the future.

THE CURRENT MEDICAL COLLEGE SCENARIO

After entry into medical college the main goal is syllabus completion and securing marks in exit exams. Sadly, students coming out of medical college, are confused about whether their passion is the field of medicine, about their goals in life, and eventually decide to pursue a career based on the availability of posts in the various post-graduate streams. There are still some students who enter the field of medicine more so because of peer or family pressure. They get into a particular post-graduate course due to the availability of seats rather than being driven by a passion for learning that subject or specialization. Education does not prepare them holistically nor gives them administrative insights, leadership abilities, or out-of-the-box thinking. In general, today's youth students can be easily triggered to follow a trend as they are not trained to think independently.

The grind of wanting to clear the exit exams and prepare for the next exams for further courses takes more precedence over actual learning of the subject and understanding the content. This is often coupled with some borrowed knowledge from faculty who also teach what they know rather than fundamental concepts.[6]

Long duty hours, at most times stretching to 36–48 h cause physical and mental fatigue and there is hardly any time for grasp of the subject or application of knowledge. Verbal abuses and intimidation that follow result in a lack of confidence and a defensive mode of practice. As they become seniors in the training, confidence to dodge the brickbats is mastered, and learning of the subject-both in concept and application has to be put in limbo till the exam leaves at the end of the training period, just before exit exams.

Recently introduced work-based assessment in some boards is a welcome change but is yet to be implemented uniformly across the country. It most definitely doesn't help that the exit exams in major divisions of UG and PG have been decentralized. This just makes assessment across the country nonuniform and at the discretion of the institute and examiners for the standards they set for passing.[7]

Trainees should be mentored to avoid snap judgments, embrace uncertainty, communicate effectively and deploy other skills that can help patient management. In general today's education sadly does not completely enable the furthering of knowledge to bring about discoveries,

innovations, inventions, and entrepreneurship. Mentors too should build up the art of practical thinking in students required for de-escalation and starting supportive therapy when no definitive therapy is available for a disease or for when all organ systems have failed.

There are no role models for the present trainees in medical education. Allowing private practice to teachers has made teachers more unavailable for academic interactions with students. Modern teachers need to innovate and follow a methodology to motivate students and push them towards excellence to achieve their maximum potential as a coach does with an athlete.[8]

WHY IS IT IMPORTANT TO REVIVE THE OLD ART OF CLINICAL MEDICINE?

Easy accessibility to a plethora of investigations and a vast therapeutic armamentarium makes the physicians feel that a clinical diagnosis is superfluous. If one has not arrived rationally at a working diagnosis, ordering expensive and indiscriminate investigations and starting empirically multi-therapy can be dangerous for the patient and disastrous for the community. Investigations should be ordered rationally to facilitate, and not eliminate the process of clinical analysis.

A short rotation into laboratories or incorporating the science of various diagnostic modalities into clinical medicine would help the students understand the interpretation of investigations ordered and the rationality behind them. Involving them in hospital infection control policies, antibiotic stewardship, quality control, and medico-legal solutions to common issues will help them improve their practice in the real world and build up their clinical and inter-social abilities and capabilities.

I would recommend a New York Times bestseller book, which I recently read titled "How Doctor's Think," by Jerome Groopman. It provides a window into the mind of the physician and an insightful examination of the all-important relationship between doctors and patients. It delves into the forces and thought process behind the thousands of decisions doctors make daily, and also highlights why doctors succeed and why they make errors.

Anchoring error (diagnosing based on knowledge already existing), Attribution error (based on linkages) and availability error (diagnosis based on existing disease diagnosis e.g., presently everything is COVID unless proved otherwise) fogs our judgment about the diagnosis.

The doctors should constantly analyze their mental database on patients who have been seriously misdiagnosed, as misguided care has been noted to result from thinking errors rather than technical mistakes. But there arises the question: Can doctors who work under extreme time pressures regularly think about their thinking? The task looks daunting but is worth the effort.

HOW CAN WE BRING ABOUT THE CHANGE WE DESIRE?

We should begin by encouraging students to ask constructive questions to avoid cognitive pitfalls.

As rightly said by Howard Gardner, Professor at Harvard school of education, there is no way to understand and retain new information, no single device to use in every situation where new knowledge will be helpful. Some may use images, others mnemonics, aiming to integrate a marvelous aspect of constructive questioning and narratives into their teaching exercise. A simple query such as "What else it can be?" could prompt a doctor to pause, think again, and extricate oneself from a cognitive trap. The satisfaction of the search should be encouraged in patients with complex symptoms to consider multiple causes of etiology for recurrent and persistent symptoms. Another question to note is to think of whether there exists a missing link in history or physical examination or laboratory tests that seems to be at odds with the working diagnosis.

It's time for like-minded medical educationalists and medical academicians of the country to come together and be the agents of change. A consortium could be formed with a single-point agenda of improving the standards of medical education and having a structured pattern of teaching and assessment all over the country. This could begin at every institutional level, university level followed by regional and national levels so that a wave of positive training spreads across medical colleges to bring about the change desired. The youth of today have innovative and creative ideas and in this era of digitalization, teachers can act as catalysts for the crystallization of their ideas. The basic need is to bring back the lost art and science of clinical medicine coupled with holistic care that includes soft skills of humanity, selflessness, compassion, and professionalism in the overall development of the students so that the budding doctor not just earns the degree but becomes a complete physician. Ethical practice is again another soft skill not taught in medical schools but picked up at the institute one trains or gets directly transmitted by the mentor to mentee.

LOOKING AT IT FROM THE STUDENTS PERSPECTIVE

Faculty at the Wadia groups of Hospitals are fortunate to brush shoulders with the young minds of students who train at these prestigious twin institutes as undergraduates, postgraduates, and fellows in super specialization. Some of the viewpoints of those who are presently working and a few who are now settling in their early career about what they

missed made me introspect that student feedback is very essential if we have to bring changes in medical education. Some of them are captured here for the readers.

A brief rotation in laboratory medicine and diagnostic imaging for postgraduates in the clinical field would help to build the core knowledge in clinicians, allowing them to better understand the tests they order. This is true, as in the past with a simple operating microscope a peripheral blood smear, urine, and stool routine were done in a "side room" of the wards by residents themselves. Principles of Western Blot and PCR technologies like GeneXpert (R) and their applications would greatly help students to understand diagnostics better and what tests to order for what disease/ syndrome. Epidemiology and biostatistics are other essential concepts to be understood and mandatory to stimulate the research aptitude in every student.

Presently no efforts are being made by postgraduates to understand the basics of statistics and thus most data collected for the thesis is not planned well to get meaningful outcomes. This is evident by the fact that every year across the country thesis is submitted but remains submitted to the university without ever being published.

Students should be also exposed to online portals like PubMed search, and Cochrane reviews and taught to curate from other databases. Computer training and its applications should also be made compulsory for the students to keep them abreast of knowledge and science in the field of medicine.

THE ROLE OF GOVERNMENT MEDICAL POLICIES

To make an Indian Medical Graduate at par with an International Medical Graduate, the model of medical education needs to undergo a paradigm shift.

Having realized the perils the medical education was going through in the country, the Medical Council of India felt the need to divert from traditional teaching methods which were teacher-centered, time-based learning with little opportunity for feedback and which were focused on knowledge and assessment of that knowledge via written exams and viva voce, to competency-based medical education (CBME). In the CBME system, the training given is student-centered with a de-emphasis on time-based learning, with a formative work-based assessment and feedback on training.[9,10]

Strategic changes in the medical education curriculum have been made with surveillance and monitoring of the medical curriculum by the National Medical Commission (NMC). Implementation of AETCOM module (Attitude, Ethics, and Communication) that endeavors to strike a balance between the five identified roles of an Indian Medical Graduate viz; Clinician, Leader and Member of the health care team, Communicator, Life- long learner, and Professional.[11] The NMC has also recognized the pivotal role of effective interpersonal communication between doctor and patient in clinical training and practice, the Medical Council of India has introduced a Faculty Development Program in which medical college teachers are trained to acquire theoretical and practical skills in teaching.[12]

The true essence and spirit of learning are lost in the drudgery of working. Decoupling clinical service and medical education may be the way out as the zeal and enthusiasm of the student doing both jobs simultaneously is not lost due to exertion, lack of sleep, and tiredness of mind. Furthermore, case-based approach learning and application of emerging digital technologies such as simulation programs especially in surgical branches integrated into some aspects of skill-based education may be the effective way forward.[13]

An educational week of protected time for learning every few months during training may help the student to invest in knowledge and research. This will help the student to recharge physically, mentally, and spiritually. Periodic assessment will help to evaluate work-based competency and present-day formative assessment is much better than summative exams.

MEDICAL EDUCATION AS HOLISTIC DEVELOPMENT OF AN INDIVIDUAL

All work and no play make Jack a dull boy.

Present-day medical education takes anywhere between 6.5 years and 10.5 years and 14.5 years from graduation to specialist to superspecialist, including the bond years. This is the prime of youth where other aspects of life management are lost to medical education with no understanding of Work-Life balance. We need to help students develop a balanced physical, psychological, emotional, and spiritual well-being besides cognitive progress. Lifestyle diseases are setting in early even among doctors as their own health is very much neglected, due to increased working hours, stress, and family pressures, coupled with poor remuneration and at times three generations to support back home.

Fun-filled learning, games, capacity-building activities, appreciation meetings, talent shows, bonding, and friendship coupled with physical exercises and spiritual practices may help them to be a better person tomorrow. Family breaks, nature treks, short spiritual retreats, exchange programs to other institutes to break the monotony of one institute, team building activities, responsibility-taking, human resource development programs especially programs centered around building up confidence, professionalism and humanities will shape the clinicians of tomorrow better. This is in curriculum development in all professional courses other than medicine.

CONCLUSION

Medical education has its deep-rooted relevance regarding the creation of trained health manpower in the country capable of shouldering the onus and responsibility of ensuring an effective health care delivery system. Indian medical education is suffering from a maldistribution of resources, unregulated growth in the private sector, lack of uniform admission procedures, and traditional curricula lacking innovative approaches. Pushing doctors to see more patients in less time has led to physicians having to compromise thinking deeply about a clinical diagnosis. Can we halt this decay and teach our students to be more rational, ethical, competent, proficient, and diligent doctors? How empowered are we making our students face the world tomorrow? Every medical teacher in the country needs to ask themselves one profound question: Can we be the agents of change we want to see in Gen Z medical students of tomorrow? Overall, changes are required at all levels from student to teacher to regulatory authorities and should take into consideration community requirements, scientific advances, the digital revolution, and students' perspectives. We at Wadia Hospitals are at the forefront of the overall development of the medical graduate with curricular as well as non-curricular inputs for their holistic development, medical career has a lot of uncertainties, and a good teacher's handhold and guides their students through these choppy waters to achieve excellence and aim at best practices.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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