



Strategies to Reduce the Cost of Medical Education in India: A Narrative Review

Saurabh R. Shrivastava¹ Prateek S. Shrivastava¹

¹Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Ammapettai, Nellikuppam, Chengalpet District, Tamil Nadu, India

Avicenna J Med 2022;12:100–104.

Address for correspondence Saurabh R. Shrivastava, MD, FAIMER, PGDHHM, DHRM, FCS, ACME, M.Phil (HPE), Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Sri Balaji Vidyapeeth (SBV)–Deemed to be University, Thirupporur–Guduvancherry Main Road, Ammapettai, Nellikuppam, Chengalpet District 603108, Tamil Nadu, India (e-mail: drshrishri2008@gmail.com).

Abstract

Background The global population is being plagued by several diseases and health conditions, and this calls for the need to adopt a strategy to enable people from all socioeconomic backgrounds to have the freedom and choice to opt for a medical profession as their career. The purpose of the current review is to explore the reasons which make medical education expensive and identify the strategies by which the cost of medical education can be minimized.

Methods An extensive search of all materials related to the topic was performed on the PubMed search engine and web site of the National Medical Commission. Relevant research articles focusing on costs in medical education published in the period 2005 to 2021 were included in the review. A total of 37 articles were selected based on their suitability with the current review objectives and analyzed. Keywords used in the search include medical education and cost in the title alone only.

Results We have to accept the fact that medical education is quite expensive and that's not the case with one nation but the trend is worldwide. It is the need of the hour to plan and implement strategies that make medical training accessible and available to people from all socioeconomic classes and regardless of other variables.

Conclusion In conclusion, the process of training medical students is expensive and accounts for a wide range of impacts on the medical aspirants. Thus, there is an indispensable need for the policy makers and the concerned stakeholders to join their hands together and take appropriate steps to minimize the overall cost of medical training, and thereby making it affordable to everyone.

Keywords

- ▶ cost
- ▶ government
- ▶ medical education
- ▶ India
- ▶ accreditation
- ▶ technology
- ▶ community

Introduction

The global population is being plagued by several diseases and health conditions, with people from rural and remote settings being the most affected owing to the challenges linked with

ensuring access to health care services.^{1,2} This does not mean that people living in urban settings are better placed, rather they have their own share of health problems, including non-communicable diseases and mental issues.¹ All these ground realities justify the need to expand the health workforce, so

published online
August 23, 2022

DOI <https://doi.org/10.1055/s-0042-1755333>.
ISSN 2231-0770.

© 2022. Syrian American Medical Society. All rights reserved.
This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial-License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)
Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

that more doctors are available to take care of the rising and variable health-related needs of the community. It would not be wrong to state that we have to adopt an inclusive approach, wherein people from all socioeconomic backgrounds, races, ethnicities, gender, etc., have the freedom and choice to opt for a medical profession as their career.¹⁻³ The purpose of the current review is to explore the reasons which make medical education expensive and identify the strategies by which the cost of medical education can be minimized.

Methods

An extensive search of all materials related to the topic was performed on the PubMed search engine and web site of the National Medical Commission. Relevant research articles focusing on costs in medical education published in the period 2005 to 2021 were included in the review. A total of 42 studies similar to the current study objectives were identified initially of which 5 were excluded due to the unavailability of the complete version of the articles. Overall, 37 articles were selected based on their suitability with the current review objectives and analyzed. Keywords used in the search include medical education and cost in the title alone only (viz., medical education [ti] AND inclusivity [ti]; medical education [ti] AND cost [ti]; medicine [ti] AND enrollment [ti]; private institution [ti] AND financial stress [ti]; medical student [ti] AND career [ti]; doctors [ti] AND rural [ti]; public[ti] AND private [ti] accreditation [ti] AND medical college [ti]; medical [ti] AND scholarship [ti]; technology [ti] AND medical education [ti]; doctor population ratio [ti]). The articles published in English language only and with full text were included in the review (→ Fig. 1). The collected information is presented under the following subheadings, namely, "Medical Education Is Expensive: Why? Potential Consequences, Strategies to Minimize the Cost of Medical Education, Solutions Spearheaded by Policy Makers, Involving Private Sector, Relaxing Norms of Accreditation, Institutional Reforms, Adoption of Information Technology, Addressing the Issue of Fees."

Medical Education Is Expensive: Why?

We have to accept the fact that medical education is quite expensive and that is not the case with one nation but the

trend is worldwide.⁴⁻⁷ Although several factors contribute toward the expensive nature of the medical nature, some of the important ones include mandatory norms set by the regulatory bodies or the accreditation agencies with regard to the space clause (viz., pertaining to the college, the hospital, lecture halls, demo rooms, laboratories, and others), required infrastructure, the logistics support which has to be there within the premises.^{4,5} Further, a significant part of the income generated in hospitals has to be paid in the form of salary to the different cadre of health care professionals, including doctors, postgraduate residents, and trainee interns as stipend.^{6,8}

The Learning Management System (LMS) has been introduced in some of the medical colleges as one of the curricular reforms to continue the learning process beyond the college working hours, especially at those times when the students are willing to learn. Not many institutions went for LMS within their set-up because it requires a lot of financial investment to adopt the same. However, with the emergence of the coronavirus disease, the novel coronavirus disease 2019 pandemic, which compelled the authorities to temporarily stop physical classes, LMS was adopted in many institutions to continue asynchronous learning. This resulted in significant amount of financial investment by the administrators and the management. Moreover, the administration has to also shell out money as compensation to senior physicians for extending their services either for patient care or for teaching undergraduate students or postgraduate residents.^{7,8}

In addition, considering the rapid advances made in the field of medicine, most of the available equipment and technologies become outdated, and this puts an added load on the administrators to replace them with the newer modalities which is again an expensive process.⁸⁻¹⁰ Further, owing to the continuous reforms in medical education, the introduction of electronic-learning (e-learning) in medical curriculum delivery has emerged as the need of the hour, and that is again a resource-intensive process (viz., technical support, establishment of learning management system, purchasing genuine applications and software, computers, technical manpower, training of faculty members, and others) which puts an immense load on the administrators.⁹⁻¹² The competency-based undergraduate curriculum that has been recently implemented across medical schools in India has called for the mandatory establishment of a skills laboratory which requires extensive financial investment.¹³ All these factors together have played a major part in making medical education expensive.⁴⁻¹⁴

Potential Implications

To begin with, it has been a dream of many parents to see their wards don the white apron and join the noble profession of medicine as a doctor.¹⁵ As the number of sanctioned seats in the government-approved medical colleges are limited, while the medical aspirants are many, they have to look toward private medical colleges for materializing their dreams.¹⁶ However, the fulfillment of dreams comes

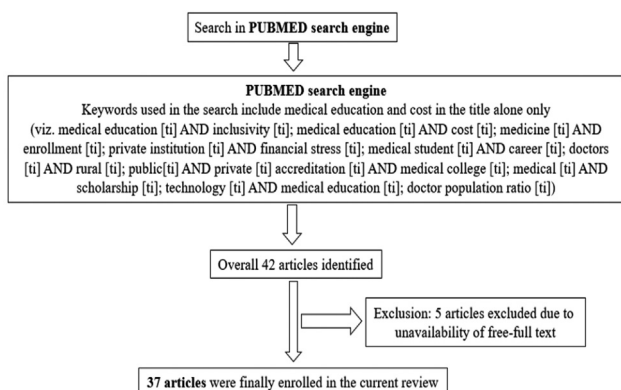


Fig. 1 Flow chart for selection of research articles.

with a huge financial burden, wherein parents/families go into debt, sell their properties, and spend their all savings just to ensure that their children complete the medical training.¹⁶ The magnitude of these problems tends to be immense for the students who are from middle- and lower-income families, and the resulting debt on families extends for years together.^{5-9,16}

To reduce the financial burden or probably to gain entry into medical schools, there has been a rise in the incidence of corrupt practices during the admission or examination which has questioned the transparency and integrity of the entire system. The medical students who have invested so much money for their training tend to have a different outlook toward the profession.¹⁷ As a matter of fact, the basic intention, with which they join medical schools (to help mankind and reduce suffering of people), gets drastically transformed to recover huge costs and debts.^{18,19} In other words, this tends to have a massive impact on the way these students practice medicine (viz., compromising medical ethics, adopting an unprofessional approach, reduction in altruism, and others).¹⁷⁻¹⁹

The consequences of expensive medical education do not stop at the undergraduate level, but then it is very much evident even at the postgraduate level.^{4,7} At postgraduate level, there is a drastic reduction in the number of seats (mismatch in the number of undergraduate vs. postgraduate seats) available for the students. Medical education at the postgraduate level is even more expensive, with some of the specialties attracting loads of capitation fees.^{7,14} This significantly affects the chances of medical students to take admission into a postgraduation course or make a choice about the specialties which they prefer to join.^{4,14} Finally, as these sets of students definitely have an intrinsic desire to recover the money spent in their training, many of them opt to go abroad with that intention (brain drain).^{17,19}

Strategies to Minimize the Cost of Medical Education

It is the need of the hour to plan and implement strategies that make medical training accessible and available to people from all socioeconomic classes and regardless of other variables.^{2,3,15} The planned strategies should be formulated and implemented in such a way that it covers undergraduate education, postgraduate education, and continuous professional development activities.²⁰⁻²² However, this cannot happen by bringing out reforms at the Government level alone, rather it will require the support and involvement of different stakeholders in the overall mission to reduce the cost of medical education.²⁰⁻³⁸

Solutions Spearheaded by Policy Makers

To minimize the cost of medical education and to simultaneously enhance the number of doctors to improve the doctor-to-population ratio, the measures have to begin at the policy makers level.²³ The most significant step has to be relaxing the existing restrictions which will minimize the

load on the administrators and private management.^{23,24} This can begin with permitting more number of students in the existing medical schools which will play an important role in enabling more number of students to join the medical profession, and indirectly reduce the incidence of unethical practices employed by people. Further, steps should be taken to ensure uniform distribution of medical colleges in different parts, including rural settings, keeping in mind the needs of the population.²⁵ This will aid the students from rural backgrounds to join medical colleges, who will be very much happy to serve the local communities on completion of their course.²⁵

The statutory requirement about acres of land for a medical college and the distance norms between the college and hospital can be relaxed which will ease the process of starting a medical college.²⁶ At the same time, medical institutions present in close vicinity should be allowed by the regulatory body to pool resources (viz., simulation centers, e-journal subscription, e-books, faculty members, simulation laboratories, and others), so that unnecessary duplication of resources can be avoided and money can be saved.²⁷ The government can even take a call about reducing the tax levied on medical colleges in the due course, so that the financial load can be minimized to them and indirectly the process of recovery for the same from medical students can be stopped. Further, specific steps can be taken to improve the ratio between undergraduate and postgraduate seats, and this can be accomplished by the initiation of integrated undergraduate plus residency programs, starting postgraduation courses beyond the purview of medical colleges and increasing the number of specialty courses.^{28,29}

Involving Private Sector

It is an undeniable fact that the private sector is an essential and integral part of the health care delivery system in any nation. Acknowledging this fact, the private sector has to be supported by the regulatory bodies. Often the private medical colleges are denied permission to continue medical education (and admission of medical students) on the grounds of less patient load. This forces many private administrators to opt for unethical practices, wherein patients are brought on the day of the inspection, just to get a green signal for continuing the course. But, the real losers are the students who do not get much exposure to patients and clinical cases during their training.

Another angle to this complex problem is that in most of the developing nations, the government-run hospitals are overburdened with patients. As the number of doctors working in these set-ups is limited, they all are overworked, live in stressful circumstances, and more often than not, the quality of delivered services is compromised. The best option to solve the entire spectrum of the problems will be to link a private medical college with government-run hospitals through an agreement.³⁰ This will have the dual benefit to both the involved stakeholders. The problem of fewer patients in private medical colleges will be sorted out, thereby students will get adequate clinical exposure, and

the administrators would not have to spend unnecessary money on maintaining fake records or patients. On the other hand, the quality of care offered to patients in government-run hospitals will also show improvement and there will be a significant reduction in the burden on the existing health care professionals.³⁰

Relaxing Norms of Accreditation

We must realize that the basic purpose of accreditation is to ensure a minimally acceptable level of institutional quality standards is maintained. However, it is quite unreasonable to adopt a “one-size-fits-all” approach, by the regulatory bodies, as each medical college or university differs from the other in varied ways and can have unique features. The accreditation agencies should focus more on quality parameters rather than giving preference to some age-old equipment or structures which are neither required nor will be adequately used. This calls for the need to be flexible during the inspection and accept and acknowledge the variability.^{32,33} In addition, a provision to incentivize medical colleges for their innovative practices and institutional distinctiveness should also be introduced. This will motivate the administrators to continue the good practices which also included enrolling students from different socioeconomic backgrounds and minorities and provision of scholarships to the students who cannot afford the expenses related to medical education.^{32–34}

Institutional Reforms

Several steps can be taken at the institution level to minimize the overall cost of medical education delivery. This can begin by outsourcing various services (viz., biomedical waste management, and others), and it will save the medical college from investing huge amounts of money. To enhance patient exposure, the institution can look to initiate standardized patient-related training or simulation-based teaching or cadaver-based training within their set-up.^{35–37} These initiatives will not only play an instrumental role in improving the knowledge, skills, and attitude of medical students but will also reduce the overall cost in the long term.^{35,36}

Adoption of Information Technology

Medical institutions can resort toward the employment of information technology and other applications to minimize the cost of medical education.³⁸ By any means, the conduct of a physical class requires more expenditure as people from different places have to reach a common place, and this will require a lot of travel expenditures if we see on a cumulative basis throughout the duration of training.^{12,38} In contrast, the investment made in information-technology enabled solutions is a one-time solution to all these issues. Subsequently, students can learn via online classes, access learning resources through e-books or e-journals or digital libraries, virtual reality-enabled patient care, and learn-cum-carry out an assignment through learning management systems (that

have provision for both synchronous and asynchronous learning).^{12,38}

Addressing the Issue of Fees

The real problem for all the medical aspirants and their family members is the rising fee structure in all the private medical schools.^{4,16} The government can sort out this problem by placing a limit on the tuition fees of the students, and by capping tuition fees for at least 50% of the seats in private medical colleges. The practice of rendering scholarships to meritorious and financially weak students can also be initiated, and due recognition for the same can be given to private medical colleges or universities during the inspection by accreditation bodies.^{33,34} Further, the government can initiate an innovative strategy of providing a central or state loan waiver to the students, in exchange for public service after completion of the training.

Conclusion

In conclusion, the process of training medical students is expensive as a lot of external and internal factors together determine the overall cost. However, this tends to have a wide range of impacts on the medical aspirants, and thus there is an indispensable need for the policy makers and the concerned stakeholders to join their hands together and take appropriate steps to minimize the overall cost of medical training, and thereby making it affordable to everyone.

Funding

None.

Conflict of Interest

None declared.

References

- 1 LeBlanc C, Sonnenberg LK, King S, Busari J. Medical education leadership: from diversity to inclusivity. *GMS J Med Educ* 2020;37(02):Doc18
- 2 Bangi S, Barve R, Qamar A. Recommendations for fostering inclusivity in medical education. *Acad Med* 2021;96(04):482–483
- 3 Jackson L. Social inclusivity - medical education's next hurdle. *Med Educ* 2021;55(03):283–285
- 4 Ng CL, Tambyah PA, Wong CY. Cost of medical education, financial assistance and medical school demographics in Singapore. *Singapore Med J* 2009;50(05):462–467
- 5 Walsh K. Medical education, cost and policy: what are the drivers for change? *Commentary. Ann Ist Super Sanita* 2014;50(03):205–206
- 6 Adashi EY, Gruppuso PA. *Commentary: the unsustainable cost of undergraduate medical education: an overlooked element of U.S. health care reform. Acad Med* 2010;85(05):763–765
- 7 Zendejas B, Wang AT, Brydges R, Hamstra SJ, Cook DA. Cost: the missing outcome in simulation-based medical education research: a systematic review. *Surgery* 2013;153(02):160–176
- 8 Walsh K. Cost and value in medical education: the factor of change management. *Pan Afr Med J* 2016;24:246
- 9 Cook DA, Beckman TJ. High-value, cost-conscious medical education. *JAMA Pediatr* 2015;169(02):109–111

- 10 Asch DA, Grischkan J, Nicholson S. The cost, price, and debt of medical education. *N Engl J Med* 2020;383(01):6-9
- 11 Golub RM. At what cost?: medical education 2016. *JAMA* 2015; 314(22):2361-2363
- 12 Sandars J. The challenge of cost-effective technology-enhanced learning for medical education. *Educ Prim Care* 2011;22(02): 66-69
- 13 Upadhayay N. Clinical training in medical students during pre-clinical years in the skill lab. *Adv Med Educ Pract* 2017;8:189-194
- 14 Verduin ML, Balon R, Coverdale JH, Louie AK, Beresin EV, Roberts LW. The rising cost of medical education and its significance for (not only) psychiatry. *Acad Psychiatry* 2014;38(03):305-308
- 15 Johnson JL, Spivey CA, Chisholm-Burns M. Comparison of black student enrollment in US schools and colleges of pharmacy, medicine, and dentistry. *Am J Pharm Educ* 2021;85(09):8493
- 16 Moore A, Nguyen A, Rivas S, Bany-Mohammed A, Majeika J, Martinez L. A qualitative examination of the impacts of financial stress on college students' well-being: insights from a large, private institution. *SAGE Open Med* 2021;9:20503121211018122
- 17 Phillips JP, Wilbanks DM, Rodriguez-Salinas DF, Doberneck DM. Specialty income and career decision making: a qualitative study of medical student perceptions. *Med Educ* 2019;53(06):593-604
- 18 Hays RB, Lockhart KR, Teo E, Smith J, Waynforth D. Full medical program fees and medical student career intention. *Med J Aust* 2015;202(01):46-49
- 19 Burford C, Hanrahan J, Ansaripour A, et al. Factors influencing medical student interest in a career in neurosurgery. *World Neurosurg* 2019;122:e367-e374
- 20 Phillips JP. We must make the cost of medical education reasonable for everyone. *Acad Med* 2013;88(10):1404
- 21 Mattick K, Baumfield V. From cost to value in medical education. *Med Teach* 2016;38(05):533
- 22 Calvert MJ, Freemantle N. Cost-effective undergraduate medical education? *J R Soc Med* 2009;102(02):46-48
- 23 Kumar R, Pal R. India achieves WHO recommended doctor population ratio: A call for paradigm shift in public health discourse!. *J Family Med Prim Care* 2018;7(05):841-844
- 24 Prakash SS. Medical education in India: looking beyond doctor: population ratio. *J Family Med Prim Care* 2019;8(03):1290-1291
- 25 Walters L, Seal A, McGirr J, Stewart R, DeWitt D, Playford D. Effect of medical student preference on rural clinical school experience and rural career intentions. *Rural Remote Health* 2016;16(04):3698
- 26 Medical Council of India. Minimum standard requirements for the medical college for 150 admissions annually regulations, 1999 - Amended - up to January 2018. Accessed April 14, 2022 at: <https://www.nmc.org.in/wp-content/uploads/2017/10/Minimum-Standard-Requirements-for-150-Admissions.pdf>
- 27 Sanderson M, Allen P, Moran V, McDermott I, Osipovic D. Agreeing the allocation of scarce resources in the English NHS: Ostrom, common pool resources and the role of the state. *Soc Sci Med* 2020;250:112888
- 28 Shroff ZC, Murthy S, Rao KD. Attracting doctors to rural areas: a case study of the post-graduate seat reservation scheme in Andhra Pradesh. *Indian J Community Med* 2013;38(01):27-32
- 29 Lüscher TF. The London PCHF: a new postgraduate course on heart failure. *Cardiol J* 2019;26(02):109-113
- 30 Metzger N, Paciullo C, Chesson M, et al. Unique collaboration between a private college of pharmacy and a private academic health system. *Hosp Pharm* 2014;49(07):634-638
- 31 Nagra JS. Public private partnership - a case study of the Melaka-Manipal medical college. *Kathmandu Univ Med J* 2005;3(04): 451-454
- 32 Ajay K, Poka A, Narayan M. Impact of accreditation on documentation and staff perception in the ophthalmology department of an Indian medical college. *Indian J Ophthalmol* 2021;69(02): 337-342
- 33 Al Mohaimeed A, Midhet F, Barrimah I, Saleh MN. Academic accreditation process: experience of a medical college in Saudi Arabia. *Int J Health Sci (Qassim)* 2012;6(01):23-29
- 34 Parsonnet J, Gruppuso PA, Kanter SL, Boninger M. Required vs. elective research and in-depth scholarship programs in the medical student curriculum. *Acad Med* 2010;85(03):405-408
- 35 Petroski T, Lawrence L, Qiao H, Wrotniak BH. Using low-cost models for training first-year pediatric residents on 4 Accreditation Council for Graduate Medical Education-required procedures: a pilot study. *Pediatr Emerg Care* 2020;36(02):87-91
- 36 Moreno-Ger P, Torrente J, Bustamante J, Fernández-Galaz C, Fernández-Manjón B, Comas-Rengifo MD. Application of a low-cost web-based simulation to improve students' practical skills in medical education. *Int J Med Inform* 2010;79(06):459-467
- 37 Tjalma WA, Degueldre M, Van Herendael B, D'Herde K, Weyers S. Postgraduate cadaver surgery: an educational course which aims at improving surgical skills. *Facts Views Vis ObGyn* 2013;5(01): 61-65
- 38 Naseem A, Ghias K, Sabzwari S, Chauhan S. Perceptions of technology-enhanced learning in undergraduate medical education at a private medical college in Karachi, Pakistan. *J Pak Med Assoc* 2019;69(08):1108-1114