Commentary

Journal of Advances in Medical Education & Professionalism

Addressing the physicians' shortage in developing countries by accelerating and reforming the medical education: Is it possible?

MUSTAFA AL-SHAMSI[1*]

[1]*Department of Public Health & Continuous Medical Education, Ministry of Health, Basra, Iraq*

Abstract

Introduction: Doctors' shortage has remained a concern worldwide. The developed countries started aids to recruit international medical graduates (IMG) to cope with the defects that the health care system suffers from; however, this solution may not work in developing countries that have a limited resource and poor budget to spend on the health care system. This study aims to present an alternative way to approach the physicians' shortage by accelerating undergraduate medical education and reform some post-graduate courses in order to cope with this problem.

Methods: The literature in PubMed/Medline and Google scholar were searched using such keywords as undergraduate medical education, physician shortage, health care reform, physicians' performance, medical curriculum.

Results: The finding revealed that performance during undergraduate medical school does not have a relationship with the physician's performance post-graduation. Moreover, the overloaded curriculum and the years spent in undergraduate education have a negative impact on the students in terms of burn out, lack of competency, and loss of motivation in medicine. The method of education was found to have a positive effect on preparing good students and ultimately good physicians.

Conclusion: Since performance in undergraduate years does not have an impact on the practice post-graduation, the developing countries may consider the option of changing the context, and abbreviating undergraduate medical education as a solution for physicians' shortage dilemma. Moreover, modifying some post-graduate majors such as family physician, and general practitioner to allow the physicians enter the practice in areas of need is recommended.

Keywords: Medical education; Physicians; Developing countries

**Corresponding author:*
Mustafa Al-Shamsi,
Department of Public Health & Continuous Medical Education,
Ministry of Health,
Postal Address: 42001
Basra, Iraq
Tel: +964-7810-421939
Email:
mustafatalibb@yahoo.com

Please cite this paper as:
Al-Shamsi M. Addressing the physicians' shortage in developing countries by accelerating and reforming the medical education: Is it possible?. J Adv Med Educ Prof. 2017;5(4):209-212

Received: 13 May 2017
Accepted: 10 July 2017

Introduction

The world suffers from physicians' shortage for different reasons such as emigration, rural/urban mal-distribution, and change in population demography (1). This is especially true for rural areas and developing countries where the number of population is high, and there is already established shortage of the health care professionals. Several approaches have been suggested to solve this shortage; for example, the developed countries started a number of aids and encouragements for international medical graduates in order to recruit them in the health care system (2). Other countries started to increase the number of applicant pool in medical schools. An alternative approach is

introduction of telemedicine as a solution for the problem of physicians' shortage in remote areas (3). However, there are drawbacks as human workforce is indispensable in many critical situations that require an individual's interaction. Nevertheless, the issue of physician shortage is still dominating in the developing countries as the former solutions may be not practical because of the limited resources to spend on recruiting foreign physicians or increasing the number of medical schools and its applicant's pool. This prospective article aimed to examine the possibility of approaching the physician shortage issue through changing the context of the classical medical education to address the demand of the health care systems.

Does performance in undergraduate medical school predicts performance in the postgraduate period?-No

A meta-analysis by Hamdy et el. found only a low to moderate correlation between medical school performance and postgraduate trainee performance (4). Harfmann and Zirwas reviewed the studies that have correlated the medical students' performance with residency performance; they found inconsistent results for most measures and stated that no one medical student factor can be used to predict performance in residency (5). A male from low social background and academic difficulties during the undergraduate period may be more liable to professional misconduct in the future, but this is an independent risk factor (6). Moreover, even the residents who face difficulty in passing the examination at first may eventually reach a similar competency level to those who performed well in the medical school if given further time and opportunity (7).

A systemic review by Terry et al. revealed that the assessment used in the curriculum does have a positive correlation with the student performance in the clinical setting, but the study focuses more on objective structured clinical exam (OSCE) which may not be taught in several medical schools worldwide (8). Moreover, there is a wide variation in the strength of the relationship between the studies analyzed, and there are multiple factors that influence this relationship, i.e. OSCE is a weak predictive factor and should be used with caution in assessing the undergraduate students. Conversely, the performance of the hospital residents under training does not correlate with their undergraduate GPA and any clinical exam taken during the undergraduate period (9).

It is concluded that the performance in the undergraduate period does not necessarily predict the future clinical outcome of the students. Although there are controversy in the literatures, from the previous review, it becomes rationale to claim that changing the classical undergraduate medical education does not necessarily affect the future clinical performance of the medical professionals.

Are overloaded curriculum, and elongated undergraduate medical education enough to guarantee that we have good future doctors?-No

The student's performance in undergraduate period is an unreliable factor in predicting the student's outcome in practice (5). Loading the student with detailed curriculum does not ensure a good student as the personal motivation does. Even with the aggressive undergraduate medical education, the students are still poorly prepared to practice in many aspects such as diagnosis, treatment modality, and dealing with the emergency cases which represent the backbone for clinical practice, especially for fresh graduate doctors (10). In most of the medical schools worldwide, there is dissociation between theory and practice; the curriculum is based on memorization of unnecessary details limits connection to the real problem in practice, and hardly encourages innovative thinking process (11). This suggests that emphasis on the pre-clinical years should be less stressed as those topics may be irrelevant for practice rather than for academic pursuit but should not be ignored completely. The lack of integration between pre-clinical and clinical years has caused the students to fail to apply the knowledge to the clinical practice; subsequently, the students may be forced to become passive learners in order to pass the exams.

Finally, stress and anxiety cause the students to lose their motivation in studying medicine after facing with this intolerable burden (12, 13). On the other hand, the more years taken for the student to complete undergraduate education, the more likely will be drop out during college or the internship period (14, 15). Moreover, it is known that burnout and stress among medical students affects their motivations and performance in exams adversely; this is not without consequence as it may affect the students during the undergraduate year, and ultimately has effect on the patient care after graduation (16).

There is a need to lessen the knowledge overload of undergraduate education; such knowledge that is required only for the sake of passing the next exam does not help to prepare a good doctor in future. Instead, a curriculum that

complies with what physicians need in the real practice should be presented.

Does the method of education have any effect on preparing medical graduates to practice efficiently?-yes

The solution of medical education does not only lie in the syllabus alone, but also in the way in which the syllabus is presented. Learning in most developing countries is still traditional and characterized by teacher centered approach in which the teacher alone facilitates the course, i.e. teaching rather than learning. The modern education places emphasis on the student-centered approach where the students facilitate the course and are encouraged to take more responsibility under the supervision of mentors or teachers, resulting in a significant decrease in the number of lectures given (17, 18). Moreover, the majority of the teachers in medical schools are physicians who have a good knowledge in medicine, but not in education. Incorporation of well-trained educators that have knowledge in both medicine and education will help to prepare the students for real practice (19).

Medical knowledge is expanding rapidly, and hundreds of articles are published in biomedical journals every year; this makes it impossible to assimilate all the information to be presented to the students. Reducing the excessive theoretical information that is given during a course— which may be irrelevant to future practice— and instead presenting more practical education such as basic laboratory tests and bedside maneuver may enhance the quality of medical education, especially in developing countries. Currently, the basic skills needed to practice medicine in rural areas, for example, are under-represented in undergraduate curriculum because there is a mismatch between the magnitude of teaching in medical school and the real practice (20).

Discussion

The world population is rising steadily; this resulted in increased demands for physicians due to a change in gender patterns and a rise in workload and/or haphazard distribution of medical workforce. An inadequate supply of physicians remains the main problem, especially in developing countries, which are already suffering from doctors' migration (21). The world health organization predicts that the world needs an additional 10 million health care workers by 2030 (22). This calls for an urgent change in the educational system in order to cope with the defect in the health system. It should be noted that most of these defects are taking place in the primary care positions or, in other words, in the rural areas where the people are in need of basic medical care. Certain countries have introduced the new concept of recruiting assistant physicians who have graduated from a 3-4 year program like nursing but have received education on medical techniques (23), This solution economically incapable of spending much on medical education.

Over the past decades, many medical, pharmacological, and technological advances have increased medical specialization, causing the mean age of physicians entering medical specialty to increase. Generally speaking, the average post-graduate training period has increased worldwide as medical specialties have become more diverse, but the undergraduate period does not change. It is sometime rational to think in shortening medical education; for example, in surgical specialty, one of the important factors in acquiring competent surgical skills is performing multiple surgical procedures. The research years may not be essential for the surgeon who is going to practice, but it may be relevant for the physicians who are interested in the academic career (24).

Obviously, in order to the address the physicians' shortage, medical education years should be shortened to four years in developing countries, and should not be different from other professions. This may be true as physicians spend more years of postgraduate training compared with their nursing or dental peers. Although accelerating undergraduate education alone may not address the physician's shortage, this would allow the graduates to enter the practice earlier, and thus increase the number of physicians in practice. Furthermore, in developing countries where the resources are limited and endemic diseases are prevalent, teaching should focus on basic health issues and ignore the procedures and maneuvers that require special devices and facilities which may not be available. For example, teaching should be focused on the management of tuberculosis which is highly prevalent, rather than on procedures to which the physicians may not be expose, such as lung transplantation. If some countries or programs have some hesitation regarding the shortening of medical education, an alternative approach is that it may introduce a competency- based program, the one in which shortening the medical education occurs for a person who achieves competency early while further education is needed for a person who could not achieve it (25).

Conclusion

The medical education in most of the developing countries may need to be reformed to meet the

demand of the health care system. This can be achieved by changing the attitude of undergraduate education, for example, shortening the preparatory years and introducing modern methods of teaching. Moreover, as the shortage in these countries is usually encountered at the primary care positions, a simple solution for this issue could be shortening the general practice major and introducing shorter PhD courses in basic sciences and family medicine that covers the basic health needs in remote areas. An alternative approach is emerging the concept of physician assistant into health care system of developing countries.

Acknowledgement

I thank Dr Stephanie Waggle for editing and proof reading the draft version of this manuscript.

Conflict of Interest: None declared.

References

1. World Health Organization. The world health report: working together for health, 2006 [internet]. 2006; [cited 6 May 2016]. Available from: http://www. who. int/whr/2006/whr06_en.pdf.
2. Islam N. The dilemma of physician shortage and international recruitment in Canada. International Journal of Health Policy and Management. 2014;3:29-32.
3. Rai J, Acharya R. Evaluation of patient and doctor perception toward the use of telemedicine in Apollo Tele Health Services, India. Journal of Family Medicine and Primary Care. 2016;5:798.
4. Hamdy H, Prasad K, Anderson MB, Scherpbier A, Williams R, Zwierstra R, et al. BEME systematic review: Predictive values of measurements obtained in medical schools and future performance in medical practice. Med Teach. 2006;28:103-16.
5. Harfmann K, Zirwas M. Can performance in medical school predict performance in residency? A compilation and review of correlative studies. Journal of the American Academy of Dermatology. 2011;65:1010-22.
6. Yates J, James D. Risk factors at medical school for subsequent professional misconduct: multicentre retrospective case-control study. BMJ. 2010;340:c2040.
7. O'Neill LD, Norberg K, Thomsen M, Jensen RD, Brøndt SG, Charles P, et al. Residents in difficulty—just slower learners? a case–control study. BMC Medical Education. 2014;14:1047.
8. Terry R, Hing W, Orr R, Milne N. Do coursework summative assessments predict clinical performance? A systematic review. BMC Medical Education. 2017;17:40.
9. Kahn M, Merrill W, Anderson D, Szerlip H. Residency Program Director Evaluations Do Not Correlate With Performance on a Required 4th-Year Objective Structured Clinical Examination. Teaching and Learning in Medicine. 2001;13:9-12.
10. Monrouxe LV, Grundy L, Mann M, John Z, Panagoulas E, Bullock A, et al. How prepared are UK medical graduates for practice? A rapid review of the literature 2009–2014. BMJ Open. 2017;7:e013656.
11. Nasim M. Medical education needs to change in Pakistan. J Pak Med Assoc. 2011; 61(8):808-11
12. Firth J. Levels and sources of stress in medical students. BMJ. 1986;292(6529):1177-80.
13. Niemi P, Vainiomäki P. Medical students' distress – quality, continuity and gender differences during a six-year medical programme. Med Teach. 2006;28:136-41.
14. O'Neill L, Wallstedt B, Eika B, Hartvigsen J. Factors associated with dropout in medical education: a literature review. Med Educ. 2011;45:440-54.
15. Najimi A, Sharifirad G, Amini M, Meftagh S. Academic failure and students′ viewpoint: The influence of individual, internal and external organizational factors. Journal of Education and Health Promotion. 2013;2:22.
16. IsHak W, Nikravesh R, Lederer S, Perry R, Ogunyemi D, Bernstein C. Burnout in medical students: a systematic review. The Clinical Teacher. 2013;10:242-5.
17. Parsell G, Bligh J. The changing context of undergraduate medical education. Postgraduate Medical Journal. 1995;71(837):397-403.
18. Ikegami A, Ohira Y, Uehara T, Noda K, Suzuki S, Shikino K, et al. Problem-based learning using patient-simulated videos showing daily life for a comprehensive clinical approach. International Journal of Medical Education. 2017;8:70-6.
19. Royal KD, Rinaldo JCB. There's education, and then there's education in medicine. J Adv Med Educ Prof. 2016;4(3):150-4.
20. Sanchez del Hierro G, Remmen R, Verhoeven V, Van Royen P, Hendrickx K. Are recent graduates enough prepared to perform obstetric skills in their rural and compulsory year? A study from Ecuador. BMJ Open. 2014;4:e005759.
21. Mullan F. The Metrics of the Physician Brain Drain. New England Journal of Medicine. 2005;353:1810-8.
22. World Health Organization. Health workforce 2030: towards a global strategy on human resources for health [internet]. 2015; [cited 9 May 2016]. Available from: http://www.who.int/hrh/documents/15-295Strategy_ Report- 04_24_2015.pdf?ua_1.
23. Hutchinson L, Marks T, Pittilo M. The physician assistant: would the US model meet the needs of the NHS?. BMJ. 2001;323:1244-7.
24. Emanuel E, Fuchs V. Shortening Medical Training by 30%. JAMA. 2012;307:114.
25. Cangiarella J, Gillespie C, Shea J, Morrison G, Abramson S. Accelerating medical education: a survey of deans and program directors. Medical Education Online. 2016;21:31794.