

ORIGINAL ARTICLE

Pain Education in Undergraduate Medical Curricula: In Depth Situation Analysis

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DOI:<https://doi.org/10.62848/bjpain.v1i1.4651>

Received 02 January 2021

Accepted 05 April 2021

Abstract

Background: Pain is one of the most common symptoms for which people seek help from physicians. However, it is not well emphasized over the curriculum and evaluation methods of medical, dental or nursing curricula. In countries such as Bangladesh, where public health is the most important topic in the health sector, pain is often overlooked. To address this problem and establish a solution, changes should be made to the curriculum by analyzing the current requirements of modernization and robust evidence of disease burden.

Methods: This was an observational study that evaluated undergraduate medical, dental and nursing education. Topics and Key words were used for evaluation of curriculum and written questions. Six universities in Bangladesh that followed the same curriculum and their written questions papers from 2014-2016 were assessed. "Curriculum of undergraduate dental education in Bangladesh-2016" and "BSc Nursing Curriculum 2018" were also explored.

Results: In the undergraduate medical curriculum, no dedicated module is allocated for pain, but they are taught under the general module, which consists of only 19 hours among 7198 hours. In BSc nursing, a total of 2412 hours are allocated, of which only 25 hours are for pain management. The highest 7.11% in Dhaka University and lowest 0% marks in University of Science and Technology, Chittagong, were allocated.

Conclusion: Dedicated pain curricula with purpose, planning for implementation, and encouraging learners can make a difference in motivating healthcare professionals for better pain management situations in Bangladesh.

Keywords: Pain Education, Pain Management, Developing Countries, Medical Schools, Medical Education.

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Citation: Parveen M, Arif MH, Arifina R, Islam SA, Akhtaruzzaman AKM. Pain Education in Undergraduate Medical Curricula: In Depth Situation Analysis. Bangladesh J. Pain.2021;1(1):3-8. doi:10.62848/bjpain.v1i1.4651

Introduction

The perception of pain is a universal experience of mankind. It is a common symptom that brings patients to see a physician¹. In Bangladesh, among visiting patients of the Outpatient Department (OPD) of Bangabandhu Sheikh Mujib Medical University (BSMMU), 89.8% presented with pain as the primary symptom². Srilanka, another region in Southeast Asia, 67% of patients reported suffering from chronic pain³. In low-resource settings, people have limited access to skilled pain care and innovative technologies. It is suggested that approximately 35% of people in developing countries are living with chronic pain⁴. However, treating this symptom is not equally emphasized by health care providers. Being deficient in pain education is repeatedly notified as the major barrier for pain management worldwide⁵. In Pakistan, 90% of general practitioners (GPs) regularly treat patients with chronic pain, but 85% of GPs have severely deficient knowledge about pain medicine and modern methods⁶. To change this scenario, bridging the gap between knowledge and practice is necessary to confront the challenge of pain management. Today's approach to pain education mostly emphasizes the subcellular and cellular levels of pain. This context does not adequately prepare trainees to assess and treat pain in every day practice⁷. Therefore, different bodies are approaching the formulation of a new pain curriculum. The American Pain Society proposed reframing the pain curriculum from its current formulation 'biophysiological' to top down 'socio physiobiological'⁸. The International Study of Pain developed a new curriculum for pain education. This curriculum focuses on the clinical trajectory of a patient with pain and notifies it from emotional and social aspects⁹. Interdisciplinary collaboration and understanding others' views for the management of pain are also suggested in this approach¹⁰. The International Association for the Study of Pain have initiated a core curriculum to improve pain education. To provide healthcare needs for a person in pain, medical students should be given opportunities to develop knowledge and professional attitudes. To fulfill this aim, efforts to improve today's curriculum should be based on a robust comprehensive understanding of pain education and how it is delivered to the students. It is a pressing need to

evaluate whether we are preparing our trainees to meet this challenge and coping with the current standard of pain education worldwide in Bangladesh. In this scenario, this study was undertaken to evaluate pain education at the undergraduate level in Bangladesh.

Methods

This observational study started after obtaining approval from the Institutional Review Board of Bangabandhu Sheikh Mujib Medical University. Evaluation was performed in the matrix of the curriculum and assessment method. "Key phrases" were selected from the concept map, and these phrases were searched among the curriculum and written questions. For undergraduate curriculum evaluation, six different universities of Bangladesh, namely, the University of Dhaka, University of Chittagong, University of Rajshahi, Shahjalal University of Science and Technology, University of Science and Technology Chittagong, and Gonoshyasto Samajvittik Medical College, were chosen randomly. Updated curriculum for MBBS 2012 were followed in these universities¹³. The "Curriculum of undergraduate dental education in Bangladesh-2016" and "BSc Nursing Curriculum 2018"¹⁴ were explored. Curriculum, academic calendars, lectures, book lists and other materials which included pain objects were analyzed. Online soft copies of formal curriculum were used for this purpose. The formation and content were recommendation of IASP Interprofessional Pain curricula was used to weigh up this curriculum. Topics and keywords were taken into account for quantitative analysis. These were selected with four topics of pain in mind-what is pain and other synonyms of it, mechanism of pain, how pain is assessed and how pain is managed. Analysis of hours spent on pain was performed in the undergraduate curriculum. Written question papers are accreditations for measuring the outcomes of the curriculum. For this purpose, written question papers from those six universities for the 2014-2016 academic year were analyzed. Both short answer questions and multiple choice questions were included. Same topics and key words were used for this step.

Results

Allocated teaching hours for pain medicine-related content in the undergraduate medical curriculum. The undergraduate medical curriculum consists of 7198 hours, among which allocated hours for pain medicine content are only 19 hours. No dedicated module is allocated for pain, but they are taught under the general module. Different pain medicine topics are addressed in different subjects of the undergraduate curriculum. The highest 8 hours are allocated for pain in medicine, whereas surgery and gynecology have 2 hours and 0.5 hours respectively for pain education. Among basic and para clinical subjects, 7 hours are allocated in pharmacology under the topic of analgesics, opioid analgesics and nonsteroidal anti-inflammatory drugs. On the other hand, 0.5 and 1 hour are allocated for pain medicine in the curriculum of Anatomy and Physiology (Figure 1).

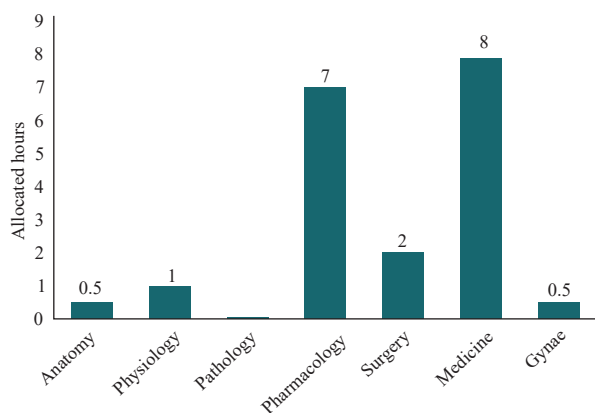


Fig. 1: Allocated hours for pain medicine in the undergraduate curriculum

In BSc nursing, a total of 2412 hours are allocated, where only 25 hours are for pain management and only 3 hours are for the pathophysiology of pain. The highest 12 hours out of 72 hours are allocated in the Midwifery and Obstetrics nursing curriculum. Six hours are allocated to 96 hours in adult and medical nursing (Figure 2).

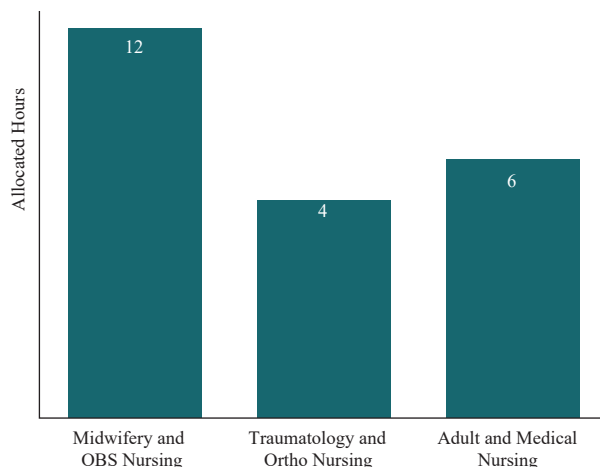


Fig. 2: Allocated hours for pain education in the nursing curriculum

However, large variation exists in different professional curricula. The curriculum for dental students has 11.5 hours of pain education content. Comparisons between different professions are described in Figure 3.

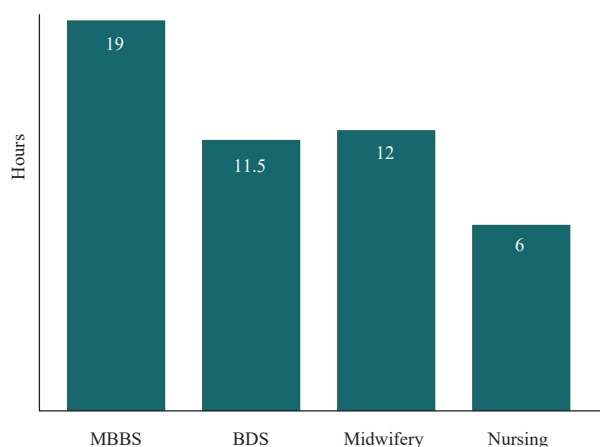


Fig. 3: Allocated hours for pain education in different professional curricula

Written papers are one of the assessment methods used to evaluate knowledge related to pain management. The highest 7.11% in Dhaka University and the lowest 0% marks in University of Science and Technology, Chittagong, were allocated between 2014 and 2016 (Table I).

Table I: Allocated marks for pain in question papers of written examination of 6 universities of Bangladesh

Name of the Universities	Marks allocated on questions related to selected phrases			
	2014	2015	2016	2014
Dhaka University	11.95/168 (7.11)	7/168 (4.16)	7/168 (4.16)	11.95/168 (7.11)
Chittagong University	6.9/168 (4.12)	9.7/168 (5.77)	2/168 (1.19)	6.9/168 (4.12)
Rajshahi University	7.5/168 (4.46)	10.5/168 (6.2)	7/168 (4.16)	7.5/168 (4.46)
Shahjalal University of Science and Technology	3.5/168 (2.08)	5.2/168 (3.09)	10.6.5/ 168(6.31)	3.5/168 (2.08)
University of Science and Technology, Chittagong	0/168 (0)	0/168 (0)	7/168 (4.16)	0/168 (0)
Gonoshyastho Samajvittik Medical College	5/168 (2.98)	7.2/168 (4.28)	3.5/168 (2.08)	5/168 (2.98)
Total	34.85	39.6	37.1	34.85

values are expressed as number, within parentheses are percentage over colume total.

Discussion

Suboptimal pain management is a contributing factor to increased morbidity and mortality¹⁵. Moreover, access to pain relief medications in low- and middle-income countries are only 0.03%¹⁶. Prejudice and misconception about pain management are one of the barriers to this crisis¹⁷. Deficient in pain education is held responsible for this scenario. To change this, pain education for health professionals at all levels has been recognized as an important step repeatedly¹⁸. There is a deficiency of pain-related content in most medical school curricula internationally. A study conducted in Australia and New Zealand included 23 medical schools and revealed that 5 to 43 hours are allocated for pain medicine during the entire medical curriculum¹⁹. In Europe, an average of 12 hours are dedicated to the compulsory module, and 9 hours are discrete in other courses for pain education²⁰. Thirteen hours are spent teaching pain in the UK; in the USA, it is only^{9,21,22}. In Bangladesh, there are 11 subjects in the undergraduate curriculum. Pain was taught in 6 subjects among

them. The curricula showed that 0.26% (19/7198 hours) of the time was devoted to the nonspecific pain module at the undergraduate level. The mechanism of pain, prevalence, and pharmacology may be covered well, but assessment, psychological impact, and nonpharmacological interventions are not included. Moreover, there is no dedicated module for education, but they are discrete among the 6 subjects in the undergraduate curriculum. There is a scarcity of data about dedicated pain modules, allocated hours, and content in other countries of Southeast Asia, which makes it difficult to reveal a clear scenario. In 2018, the global year for excellence in pain education, the International Association of Study of Pain recommended outlines of curricula in Pharmacy, Psychology, Physical Therapy, Occupational Therapy, Nursing, Medicine, Dentistry, Social Work and Interprofessional Education²³. This attention toward integrating pain education into undergraduate curricula was markedly deficient in developing countries compared to the developed world. A recent study of medical centers from 7 developing countries (India, China, Indonesia, the Philippines, Thailand, Nigeria, and Guatemala) revealed that there was “no” or “some” access to pain education in acute pain management in medical, nursing, or pharmacy schools, except Thailand²⁴. The situation is more or less the same in Bangladesh. A comprehensive survey of the Special Interest Group on Pain Education of the British Pain Society included 19 higher education institutes with 11 universities offering 108 undergraduate programs and found that less than 1 percent of the university-based teaching for health care professionals offered pain education²². Modular training, well thought out curriculum, accreditation criteria, training assessment, faculty development, and clearly defined examination patterns of the various boards and faculty of pain medicine are lacking in India¹⁰. The scenario is almost the same in other Southeast countries, such as Bangladesh and Pakistan. Management of pain is a multimodal approach and teamwork. Nurses play a vital role in the assessment and evaluation of pain. The IASP outlines knowledge and skills related to pain management for entry-level pain management. In Bangladesh, only 3 hours are spent on the pathophysiology of pain in BSc nursing. A total of 61.5% of nurses in Bangladesh used a tool for the assessment of pain, whereas in Canada, the number was almost 98%^{25,26}. These differences in practices may

be the result of ongoing professional training, staffing, and the presence of guidelines in developed countries. A lack of pain content in the curriculum of nurses in Bangladesh was also identified by coordinators of EPM courses in Bangladesh. Although the participants from the nursing background reported that this course was beneficial, modified pain management courses were recommended for better understanding by the coordinators¹¹. Teaching pain education should not be limited to classrooms. The IASP recommends case-based, problem-based, stimulation-based, team-based learning and clinical experience²⁷. Assessment are also needed to evaluate the application of knowledge in practice rather than just knowledge gathering. However, the current medical curriculum, especially in developing countries, where pain relief is the lowest priority, can rarely provide adequate pain education that can prepare future physicians for the management of pain.

Conclusion

Pain is an exceptional feature presented with different diagnoses and manifestations to health care providers. To reduce this burden, steps should be taken to prepare future physicians. Developing countries like Bangladesh need to modernize their current curriculum and assessment measures to combat this future challenge.

Declaration

Ethics approval:

Ethical approval was taken from the Institutional Review Board of BSMMU.

Author Contributions:

Conception and development of the idea: AKMA, MP

Data collection: MP, RA, SAI

Data analysis: AKMA, MP

Writing - Original Draft Preparation: MP, MHA

Review & Editing: AKMA, MP, SAI

Funding: Not applicable

Conflict of Interests: None

References

- 01 Friessem CH, Willweber-Strumpf A, Zenz MW. Chronic pain in primary care. German figures from 1991 and 2006. *BMC Public Health*. 2009;9(1):1–9.
- 02 Akhtaruzzaman AKM. Pain management and education in Bangladesh. In: SARPS Abstract Book. 8th ed. Dhaka, Bangladesh: South Asian Regional Pain Society Congress; 2018.24–5. (Last accessed: 30 March, 2022) <https://www.iasp-pain.org/group/sarps/>
- 03 Jayamaha R. Experience of a comprehensive pain care (CPC) clinic: from a Provincial General Hospital. *J Ceylon Coll Physicians*. 2016;46(1–2).
- 04 International Association for the Study of Pain (IASP). Pain Education in Low-Resource Countries. IASP. 2018;(8):7. (Last accessed: 30 March, 2022) https://sbed.org.br/wp-content/uploads/2019/02/factsheet8_paineducationin-low-resourcecountriesenglish.pdf
- 05 Bond M. A decade of improvement in pain education and clinical practice in developing countries: IASP initiatives. *Br J pain*. 2012;6(2):81–4.
- 06 Afshan G, Hussain AM, Azam SI. Knowledge about pain clinics and pain physician among general practitioners: a cross-sectional survey. *Pain Ther*. 2013;2(2):105–11.
- 07 Carr DB, Goudas LC. Acute pain. *Lancet*. 1999 Jun;353(9169):2051–8.
- 08 National Academies Press; 2011. 1. (Last accessed: 30 March, 2022) <http://www.nap.edu/catalog/13172>
- 09 Murinson BB, Gordin V, Flynn S, Driver LC, Gallagher RM, Grabois M. Recommendations for a new curriculum in pain medicine for medical students: toward a career distinguished by competence and compassion. *Pain Med*. 2013;14(3):345–50.
- 10 Watt-Watson J, Hunter J, Pennefather P, Librach L, Raman-Wilms L, Schreiber M, et al. An integrated undergraduate pain curriculum, based on IASP curricula, for six health science faculties. *Pain*. 2004;110(1–2):140–8.
- 11 International Association for the Study of Pain (IASP). Global year of excellence in pain education, fact sheet 8. IASP. 2018.1. (Last accessed: 30 March, 2022) <https://www.iasp-pain.org/advocacy/global-year/pain-education/>
- 12 International Association for the Study of Pain. Pain curriculum design models and implementation approaches, fact sheet 3. IASP. 2018. 1. (Last accessed: 30 March, 2022) <https://www.iasp-pain.org/resources/fact-sheets/pain-curriculum-design-models-and-implementation-approaches/>
- 13 Bangladesh Medical & Dental Council (BMDC). Updated Medical Curriculum. 2012. p. 1. (Last accessed: 30 March, 2022) <https://www.bmdc.org.bd/>
- 14 Bangladesh Medical & Dental Council (BMDC). Updated Dental Curriculum [Internet]. 2016;1. (Last accessed: 30 March, 2022) <https://www.bmdc.org.bd/>

- 15 Gan TJ. Poorly controlled postoperative pain: prevalence, consequences, and prevention. *J Pain Res* 2017;10:2287–98. (Last accessed: 30 March, 2022) <https://www.dovepress.com/poorly-controlled-postoperative-pain-prevalence-consequences-and-preve-peer-reviewed-article-JPR>
- 16 Bhadelia A, De Lima L, Arreola-Ornelas H, Kwete XJ, Rodriguez NM, Knaul FM. Solving the global crisis in access to pain relief: lessons from country actions. *Am J Public Health*. 2019;109(1):58–60.
- 17 Knaul FM, Farmer PE, Krakauer EL, De Lima L, Bhadelia A, Kwete XJ, et al. Alleviating the access abyss in palliative care and pain relief—an imperative of universal health coverage: the Lancet Commission report. *Lancet*. 2018;391(10128):1391–454.
- 18 Doorenbos AZ, Gordon DB, Tauben D, Palisoc J, Drangsholt M, Lindhorst T, et al. A blueprint of pain curriculum across prelicensure health sciences programs: one NIH Pain Consortium Center of Excellence in Pain Education (CoEPE) experience. *J Pain*. 2013;14(12):1533–8.
- 19 Shipton EE, Bate F, Garrick R, Steketee C, Visser EJ. Pain medicine content, teaching and assessment in medical school curricula in Australia and New Zealand. *BMC Med Educ*. 2018;18(1):1–11.
- 20 Mezei L, Murinson BB. Johns Hopkins Pain Curriculum Development T. *Pain Educ North Am Med Sch J Pain*. 2011;12(12):1199–208.
- 21 Briggs E V, Battelli D, Gordon D, Kopf A, Ribeiro S, Puig MM, et al. Current pain education within undergraduate medical studies across Europe: Advancing the Provision of Pain Education and Learning (APPEAL) study. *BMJ Open*. 2015;5(8):e006984.
- 22 Briggs E V, Carr ECJ, Whittaker MS. Survey of undergraduate pain curricula for healthcare professionals in the United Kingdom. *Eur J Pain*. 2011;15(8):789–95
- 23 International Association for the Study of Pain (IASP). Incorporating Pain Competencies and IASP Curriculum Outlines into Professional Education [Fact Sheet No 4]. IASP. 2018. 1. (Last accessed: 30 March, 2022) <https://www.iasp-pain.org/resources/fact-sheets/incorporating-pain-competencies-and-iasp-curriculum-outlines-into-professional-education/>
- 24 Vijayan R. Managing acute pain in developing world. *Pain clinical updates*. XIX. 2011;3:1–7.
- 25 Rose L, Haslam L, Dale C, Knechtel L, Fraser M, Pinto R, et al. Survey of assessment and management of pain for critically ill adults. *Intensive Crit Care Nurs*. 2011;27(3):121–8.
- 26 Mondol S, Muhammad F, Chowdhury AA. Nurses' knowledge and practices related to pain assessment in critically ill patients in a selected private hospital in Bangladesh. *Int J Community Med Public Heal*. 2018;5(10):4219–24.
- 27 International Association for the Study of Pain (IASP). Interprofessional Pain Curricular Outline. IASP. 2012;1. (Last accessed: 30 March, 2022) <https://www.iasp-pain.org/>