

# Pharmacology education in the perspective of pharmaceutical promotion: Bangladesh experience

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## Article Info

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## Abstract

The medical practice has become complex and challenging because of the entry of newer medicines and technologies. The key objective of pharmacology teaching-learning activities is to make graduates enable to select medicines by appraising safety, efficacy, cost and suitability. Promotional activities conducted by pharmaceutical industries deleteriously affect physicians' prescribing practice. The present research was conducted with an attempt to explore current academic documents related to Pharmacology education in Bangladesh. The curriculum (pharmacology portion of undergraduate medical curriculum), books of pharmacology (preferred by the pharmacologists), and written question papers (last five years from all universities) were evaluated by searching certain key phrases. The curriculum of undergraduate course did not give adequate emphasis on issues related to the pharmaceutical promotion. Ethical issues and critical appraisal skill are not mentioned in the pharmacology books, and not appear in the written examinations.

## Introduction

The practice of medicine is a dynamic process that continuously evolves. Medical education begins at the undergraduate level and continues until a physician retires from active practice.<sup>1</sup> The key objectives of medical education are that graduates be competent to prescribe safely and effectively. More particularly, the objective of pharmacology teaching-learning is to make the graduates knowledgeable about risks, benefits and cost of medicines to make them enable to select medicines appropriately considering these factors. Moreover, pharmacology teaching program should lay the foundation to enable the future physicians to appraise new medicines<sup>2</sup> and develop the habit of rational prescribing throughout the professional career.<sup>3</sup> In their professional life, among many factors influencing medicine selection processes, pharmaceutical industry's promotional activities are the dominant one.<sup>4,5</sup> Weak control over promotional activities has been linked to poor prescribing.<sup>6</sup> The interactions between the medical professionals and the pharmaceutical industry lead to positive attitudes towards industry, which subsequently culminate into inability to identify wrong claims about medication, rapid prescription of a new drug, irrational prescribing behavior, prescribing more expensive and newer medications without any demonstrable advantage.<sup>7-11</sup>

Immunity against misleading promotion can be attained by making physicians understand that they are vulnerable to the influence of promotion.<sup>12</sup> Exposure of undergraduate medical students to promotional materials enables them to differentiate 'facts from fiction', which in turn may reduce the pharmaceutical industry's influence. Moreover, medical students can be 'vaccinated' against the potential infection by irrational prescribing of their peer.<sup>13,14</sup> Sensitizing students about the nature of pharmaceutical promotion and helping them to understand the norm of 'appropriate' relationship with industry is the minimum to be achieved.<sup>15</sup> Preemptive education about promotional activities appears to change attitudes as well as improve skills.<sup>9,16,17</sup> The World Health Organization (WHO) and Health Action International (HAI) have developed a manual, which is the first step towards prepare medical professionals to deal with the effects of pharmaceutical marketing on decision-making in their patients' interests.<sup>6</sup> Despite of identified need by educators, few countries have adopted this issue in their formal medical curriculum.<sup>5,18,19</sup>

In Bangladesh, the medical education program was inherited from the British, and then the Pakistan period.<sup>20</sup> The undergraduate curriculum was first reformed in 1988, then subsequently in 2002 and 2012.<sup>21</sup> On this backdrop, the present study has attempted to analyze the academic documents (curriculum, textbooks



and question papers) regarding this particular issue.

## Materials and Methods

### *Selection of keyphrases relevant to pharmaceutical promotion*

Initially, the issues which are to be considered important for understanding about pharmaceutical promotion were identified by a panel of experts consisting of Professors from different disciplines including pharmacology (with experience of formulating related policy), public health, internal medicine, pediatrics and surgery. According to their opinion, the following issues were identified and selected for the present study, e.g., medicine information sources, drug promotion, influence of promotion on prescribing practice, ethical relationship of physician-pharmaceutical industry and critical appraisal skill.

In order to review the curriculum, textbooks and written question, the principle of conceptual mapping was applied by a panel of experts (3 senior pharmacologists) on the issues identified above and the following keyphrases were formulated: Advertisement, advertising, critical appraisal skill, drug advertisement, drug information, drug promotion, free drug samples, gift, interactions with healthcare professionals, manufacturer literature, medical representatives, pharmaceutical promotion, promotion of drug, promotional efforts, promotional materials, promotional practices, relationship with healthcare professionals, sales representatives, sources of medicine information and unbiased sources.

### *Review of academic documents*

Undergraduate medical curriculum (MBBS): Undergraduate medical curriculum was searched for the mentioned keyphrases in the soft copies of the curriculum of MBBS (pharmacology and therapeutics portion), and then the area was identified, where the keyphrases were mentioned.

Pharmacology books: Soft (electronic version) copies of the preferred books were searched for the selected keyphrases as mentioned before. Editorial, title, contents, preface, references and index pages were excluded from the search.

Written question papers of the second professional MBBS examinations: Pharmacology written question papers (short answer question) of the second professional MBBS examination of last five years (January 2011 to July 2015) of all 6 universities offering MBBS degree (University of Dhaka, University of Chittagong, University of Rajshahi, Shahjalal University of Science and Technology, University of Science and Technology, Chittagong and Gono Bishwabidyalay) were collected and included in the study for analysis. For analysis, the

same selected keyphrases were searched and the number of occasions the issue appeared in question paper and how much weightage was given for these questions was assessed.

## Results

Table I shows that pharmacology and therapeutics portion of the undergraduate medical curriculum mentioned sources of medicine information, pharmaceutical promotion or critical appraisal skill in five occasions. The pharmacological basis of therapeutics, Rang and Dale's pharmacology, The basic and clinical pharmacology and clinical pharmacology mentioned advertisement (4, 0, 1, 1), advertising (14, 4, 2, 0), drug advertisement (0, 0, 0, 0), drug information (2, 0, 1, 0), free drug samples (1, 0, 1, 0), gift (2, 0, 0, 1), interactions with healthcare professionals (1, 0, 0, 0), manufacturer literature (0, 0, 0, 0), medical representatives (0, 0, 0, 0), pharmaceutical promotion (0, 0, 0, 0), promotion of drug (1, 0, 0, 0), promotional efforts (0, 0, 1, 0), promotional materials (2, 0, 0, 0), promotional practices (1, 0, 0, 1), relationship with healthcare professionals (0, 0, 0, 0), sales representatives (2, 0, 0, 0), sources of medicine information (0, 0, 0, 0) and unbiased sources (1, 0, 0, 0) respectively as in the parenthesis.

Table II shows that out of total 200 teaching hours in pharmacology and therapeutics portion of the curriculum, 1 hour in lecture and 4 hours in practical were allocated to discuss about sources of medicine information.

Table III shows that no question was found to contain the selected keyphrases in these 6 studied universities during the last five years. While considering the number of appearance of the issues as indirect questions, the number of appearance in question papers studied was 4, 3, 4, 8 and 6 times in the University of Dhaka, University of Chittagong, University of Rajshahi, Shahjalal University of Science and Technology and Gono Bishwabidyalay respectively. Total allocation of marks (percentage) in the study period were 0.9, 0.8, 1.5, 1.7 and 1.5% respectively.

## Discussion

Pharmaceutical promotional activities are considered as a detrimental influencing force for prescribing. However, very few initiatives are taken till now to overcome this unwarranted influence. Couples of regulatory and educational efforts were taken in different developed countries, of which few were found effective. Nevertheless, these efforts are small in comparison to enormous resource and force of the pharmaceutical industry. The present research was conducted in such context.

Table I

## Presence of keyphrases in the textbooks and undergraduate medical curriculum of pharmacology

Keyphrases	Number of occasions appeared				
	MBBS Curriculum	The pharmacological basis of therapeutics	Rang and Dale's pharmacology	The basic and clinical pharmacology	Clinical pharmacology
Advertisement	0	4	0	1	1
Advertising	0	14	4	2	0
Critical appraisal skill	0	0	0	0	0
Drug advertisement	0	2	0	1	0
Drug information	5	2	0	1	0
Drug promotion	0	0	0	0	0
Free drug samples	0	1	0	0	0
Gift	0	2	0	0	1
Interactions with healthcare professionals	0	1	0	0	0
Manufacturer literature	0	0	0	0	0
Medical representatives	0	0	0	0	0
Pharmaceutical promotion	0	0	0	0	0
Promotion of drug	0	1	0	0	0
Promotional efforts	0	0	0	1	0
Promotional materials	0	2	0	0	0
Promotional practices	0	1	0	0	1
Relationship with healthcare professionals	0	0	0	0	0
Sales representatives	0	3	0	0	0
Sources of medicine information	0	0	0	0	0
Unbiased sources	0	1	0	0	0
Total	5	34	4	6	3

Table II

## Allocated teaching hours for the topics those mentioned selected keyphrases in undergraduate medical curriculum of pharmacology

Keyphrase	Teaching learning strategies (allocation in hours)			
	Lecture	Tutorial	Practical	Clinical case reports
Drug information sources	100	30	50	20
	1.00	0	4.00	0

Different countries have developed their curriculum<sup>22, 23</sup> to take measures on issues related to prescribing or ethical issues. In existing undergraduate or postgraduate medical courses, future physicians or physicians are trained to deal with the new information provided to them, which is primarily based on classical textbook. The curriculum includes the instructional content, materials, resources and processes for evaluating the attainment of objectives and therefore determines the learning priority of any student.<sup>24</sup> This study revealed that the curriculum of pharmacology at undergraduate

programs of Bangladesh allocated very little time (lecture 1 hour and 20 min and practical 4 hours) to directly teach the topics relevant to promotional activities. Allocation of time and type of class (like lecture or practical) was not defined and mentioned in the postgraduate curriculum, which is worsened by the absence of these issues in the preferred text and reference books. In addition to provision of general information of medicine, the development of skill to compare the new information with the existing one in order to appraise the new medicine, are not clearly mentioned in the undergraduate or postgraduate curriculum. Regarding ethical issue, the ethical issues related to the relationship with industry was not mentioned at all in any of the medical curriculum of Bangladesh.

The evaluation system measures whether the objectives are achieved or not through examination, which ultimately drives students learning priorities and efforts.<sup>25</sup> Review of the written question papers of different universities revealed that there was no effort to evaluate the skill of a physician to compare medicines on scientific evidences. The written question papers never included any question directly to

Table III

## Written questions of the second professional MBBS examination (January 2011 to December 2015)

University	Marks allocated on questions related to selected phrases	
	Total marks (%)	
	Directly	Indirectly
University of Dhaka	0 (0)	0.7 (0.9)
University of Chittagong	0 (0)	0.7 (0.8)
University of Rajshahi	0 (0)	1.3 (1.5)
Shahjalal University of Science and Technology	0 (0)	1.5 (1.7)
University of Science and Technology, Chittagong	0 (0)	0 (0)
Gono Bishwabidyalay	0 (0)	1.3 (1.5)

evaluate the understanding about relevant ethical responsibilities or moral values of the physicians. In addition to curriculum, these issues have not received adequate emphasis in the textbooks and therefore, never evaluated during examination.

### Conclusion

The undergraduate medical curriculum, evaluation system and common books of pharmacology are not yet incorporated the pharmaceutical promotion and related aspects in order to equip the future prescribers with proper understanding that is required for developing critical appraisal skill.

### Conflict of Interest

Authors declare no conflict of interest.

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