

Perception of Medical Students on Current Medical Education in Bangladesh

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Abstract

Introduction A modernized and relevant medical curriculum is the backbone of an effective medical education. A healthy and efficient medical academic environment is crucial for effective implementation of any medical curriculum. This study was performed with the aims and objectives of determining medical students' perception of ongoing medical curriculum, teaching and learning methodologies and academic resources. **Methodology:** A cross sectional descriptive analytical study was conducted with a self-administered questionnaire to determine the perception of medical students about current medical curriculum, teaching-assessment methodology and learning academic environment. A total of $n=268$ medical students from 4 different medical colleges participated in the study. The questionnaire consisted of 5 questions. The first two questions (Q1 and Q2) addressed students' views ongoing medical curriculum and each were Likert type on a 1 to 5 scale (from strongly disagree to strongly agree). There were 6 items under Q1 and 4 items under Q2. Views were recorded on Likert scale ranging from 1 to 5 (No idea to strongly agreed). The third question was on preference for duration of lecture class. The last two questions (Q4 and Q5) were multiple-response-test-based questions for determining the preferred responses on factors affecting medical exam results/scores and medical curriculum contents. **Results:** The majority of the students for the Q1, poorly rated the first item labeled as, "your own college standard is at par with international standard" with a mean \pm SD of 2.9 ± 0.97 and the third item as, "Current teaching practices is sufficient to prepare for international exams (USMLE, PLAB)" with a mean \pm SD of 2.7 ± 0.83 . Most of the students under Q2 predominantly chose the statement "agree" or "disagree" and the item score mean \pm SD is $\geq 4.5 \pm 0.5$ for each of the four items. Regarding major preference of lecture duration, 126 (47.0%) opined for 45 minutes followed by 107 (39.9%) for 60 minutes and 35 (13.1%) for 30 minutes lecture. For Q4, the multiple response test, the majority of the responses (31.4%) was for betterment of lectures and for more practical classes (30.3%). To the Q5 multiple response test, the majority of responses (18.3%) was for increased motivation, 16.3% for provision of well-equipped library and laboratories as well as 16.1% for increased hands-on-skill training. There was also statistically significant difference between the public and private medical colleges on opinion regarding the factors, "decreased student teacher ratio" (31.7% vs 18.7%) with a $\chi^2 = 10.08$, $df=1$ and $p=0.001$ and for factor, "research training in curriculum" (29.5% vs 19.8%) with $\chi^2 = 4.40$, $df=1$ and $p=0.03$.

Conclusion: This study has elicited the perception of medical students on various issues related to curriculum, and academic environment and resources and methods reflecting the areas that needs to be addressed for improvement. It is imperative that every country focus on building and implementing curriculum and exam system that amplifies professional competence and social values, expands setting for efficacious and sustainable medical education programs, trains the medical teachers as educators and encourages life-long self-learning practices.

Key words: medical curriculum, learning environment, teaching practices, academic resources

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Introduction

In the past decades, critical focus in medical education have been directed toward the need for medical curriculum reform, planning and development for newer approaches in medical teaching-assessment strategies and enhancement of medical academic environment. Modernized and relevant medical curriculum is the backbone of effective medical education^{1,2,3}. Healthy and efficient medical academic environment is crucial for effective implementation of any medical curriculum. A positive educational environment is essential for a positive learning outcome^{4,5}. The undergraduate MBBS curriculum in Bangladesh is still predominantly in the traditional mode with certain innovative aspects. It is teacher centered, discipline-oriented, information gathering and hospital-based. The curriculum consists of lecture, tutorial, practical and ward classes with a limited number of problem-based session⁶.

At present, there are total of 106 medical colleges (36 Govt. and 70 Private). There is a total of 2258 Govt. health care facilities and 5321 private hospitals and clinics and a total of 39 postgraduate medical teaching institutes⁷. Effective medical education is the foundation for equitable, effective, accessible, affordable, quality health-care services; therefore, demanding greater awareness and modernized educational intervention.

In Bangladesh, the CME (Centre for Medical Education) was established in 1983 with initial involvement in community oriented medical curriculum implementation and training of medical doctors⁸. A national medical curriculum was introduced in 1988 and subsequently a revised curriculum was published in 2002 and updated in 2012^{9,10}. Six strategic approaches have been documented in medical curriculum development: student centered/teacher centered; problem based/information gathering;

integrated/discipline based; community based/hospital based; elective/uniform; systematic/apprenticeship based¹. For modernized learning, innovative methods (with vertical and horizontal teaching integration processes) are needed¹. Medical curricula are not the same across the globe. For instances, studies have shown great disparities in the USA and China medical curriculum in terms of processes of teaching/learning, types and numbers of preclinical courses, course hours, laboratory and practical training hours, and key disciplines of clinical practice¹¹. Medical education reform requires political determination, good governance, authentic leadership, and total commitment of all stakeholders involved. In the World Health Conference of the World Federation of Medical Education held in 1988, a pledge was made to transform the medical education to meet with the proper needs of the society¹². Studies have shown that teacher centered approach is passive, resulting in low receptivity and superficial learning. Problem-based learning (PBL) gained immense interest in many countries due to its innovative concept and style¹³⁻¹⁵. PBL has enriched medical education by assimilation of teaching discipline specific concepts with clinical relevance. An innovative strategy known as team-based learning (TBL) integrated into the medical curriculum have shown beneficial results for learning outcome. Students reported positive teaching learning experience with the integrated approach^{16,17}.

In Bangladesh, various educational workshops involving concerned stakeholders, have led to development and implementation of different curriculum. The importance of shifting from traditional teacher-centered to more student-centered, integrated approach with innovative teaching methods that encourages active learning has been underpinned in numerous national and local educational workshops and academic conferences¹⁸⁻²¹.

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It is imperative to assess from time to time, medical students' perception and attitude about the curriculum, teaching-assessment methodologies, academic resources and learning environment needs. Such survey facilitates the development of newer and more effective curriculum and teaching strategies and approaches in medical education. The strength and weakness in any ongoing medical education system should be identified and addressed to bring about effective and timely changes²². Effective learning is based on quality educational climate and assessment of students' perception spearheads development of better medical curriculum and better teaching methodologies.

A new MBBS curriculum that has been proposed and updated in 2021 will be implemented²³. This study was performed with the aims and objectives of determining medical students' perception of ongoing medical curriculum, teaching and learning methodologies and academic resources which may in future facilitate the effective and efficient implementation of the any upcoming new medical curriculum for betterment of teaching-learning methodologies and learning resources and environment.

Methodology

A cross sectional descriptive analytical study was conducted with a self-administered questionnaire to determine the perception of medical students about current medical curriculum, teaching-assessment methodology and learning academic environment. A total of 268 medical students from 4 different medical colleges (2 Government and 2 Private medical colleges) participated in the study, with 101 from DMC (Dhaka Medical College, Dhaka), 42 from SBMC (Sher-e-Bangla Medical College, Barishal), 60 from BMC (Bangladesh

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Medical College, Dhaka) and 65 from MoMC (Monno Medical College, Manikganj). The data was collected in the year mid-2018 to mid-2019. The inclusion criteria for the study included: 4th year medical students; those who have already appeared in term exams and have comprehension of medical curriculum and course contents. After explaining the study objectives, informed consent was taken and questionnaire was distributed in presence of data collector to be filled and submitted in the given time. The questionnaire content was designed according to similar questionnaire used in other surveys. It consisted of 5 questions. The first two questions (Q1 and Q2), each were Likert type on a 1 to 5 scale (1= no idea, 2= strongly disagree, 3= disagree, 4= agree and 5 = strongly agree). There were 6 items under Q1 and 4 items under Q2. For each item under Q1, the lowest score was 6 and the highest score was 30. For each item under Q2, the lowest score was 4 and the highest score was 20. The reliability test for internal consistency with the Likert questions gave a Cronbach's alpha of >0.6. The third question (Q3) was to determine students' preference for lecture duration with three options given (30 min, 45 min and 60 min). The last two questions (Q4 and Q5) were multiple response questions for determining the preferred responses on factors affecting medical exam results and medical curriculum contents and delivery. Data was entered and analyzed in SPSS software. The analyzed data has been presented based on results of statistical tests: frequencies, percentages, cross-tabulations, comparison of means test, Kruskal Wallis test (non-parametric test), ANOVA tests and multiple response test. A p value of <0.05 was considered statistically significant.

Results

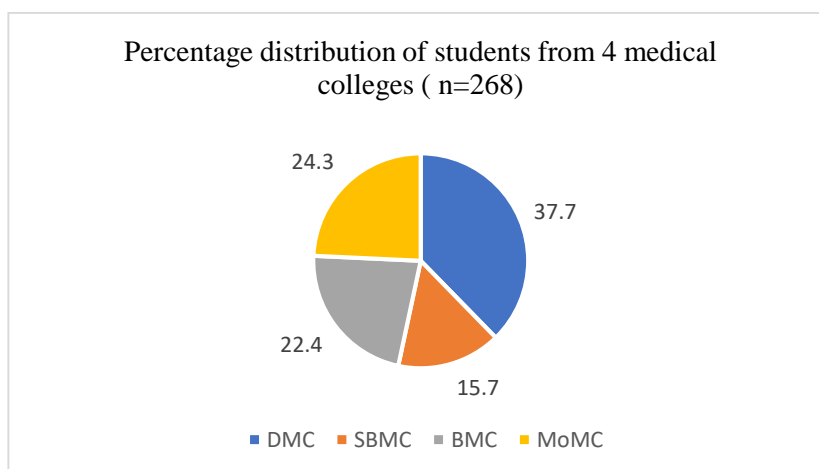


Figure 1 : Shows the percentage distribution of the respondents from the 4 medical colleges surveyed (n=268) with the highest proportion from DMC (37.7%)and lowest from SBMC(15.7%).

Table 1: Distribution of Students perception on Ongoing Medical Curriculum (n=268)

Items of the Domain	Item score Mean \pm SD	No idea (%)	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly Agree (%)
Your own college standard is at par with international standard	2.9 \pm 0.97	12(4.5%)	90(33.6%)	89(33.2%)	63(23.5%)	14(5.2%)
Quality of lectures delivered is satisfactory	3.6 \pm 0.75	2(0.7%)	15(5.6%)	79(29.5)	145(54.5%)	26(9.7%)
Current teaching practices is sufficient to prepare for international exams (USMLE, PLAB)	2.7 \pm 0.83	10(3.7%)	96(35.8%)	105(39.2%)	55(20.5%)	2(0.7%)
Term system is satisfactory	3.7 \pm 0.81	4(1.5%)	19(7.1%)	42(15.7%)	167(62.3%)	36(13.4%)
Multiple modes of assessment are satisfactory for knowledge and skills acquisition	3.86 \pm 0.95	6(2.2%)	25(9.3%)	32(11.9%)	142(53%)	62(23.1%)
OSCE/OSPE system is satisfactory	3.54 \pm 0.90	5(1.9%)	34(12.7%)	66(24.6%)	137(51.1%)	26(9.7%)

Table 1 shows that majority of the respondents poorly rated the first item, "your own college standard is at par with international standard" with a mean score \pm SD of 2.9 \pm .97 and the third item, "Current teaching practices is sufficient to prepare for international exams

(USMLE, PLAB)" with a mean score \pm SD of 2.7 \pm 0.83. Table 2 shows that most of the students in each of the items predominantly chose the statement "agree" or "disagree" and the item score mean \pm SD is \geq 4.5 \pm 0.5 for each of the four items.

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Table 2: Distribution of Students on improvement of academic resources and learning environment (n=268)

Items of the domain	Item score Mean \pm SD	No idea (%)	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly Agree (%)
Library requires improvement	4.69 \pm 0.55	1(0.4%)	-	7(2.6%)	65(24.3%)	195(72.8%)
College needs "Bone- library"	4.57 \pm 0.73	4(1.5%)	1(0.4%)	12(4.5%)	73(27.2%)	178(66.4%)
College needs modern and functional computer facilities	4.60 \pm 0.59	-	3(1.1%)	7(2.6%)	78(29.1%)	179(66.8%)
College needs career counseling facilities	4.70 \pm 0.49	-	-	4(1.5%)	73(27.2%)	191(71.3%)

Table 3: Students' Preference for Duration of Lecture Classes (n=268)

Medical college students in the study (n)	Duration of lecture preferred			Mean Rank in Kruskal Wallis test
	30 minutes (%)	45 minutes (%)	60 minutes (%)	
DMC (n=101)	25(24.8%)	54(53.5%)	22(21.8%)	103.95
SBMC (n=42)	4(9.5%)	16(38.1%)	22(52.4%)	151.86
BMC (n=60)	6(10%)	31(51.7%)	23(38.3%)	135.11
MoMC (n=65)	0(0%)	25(38.5%)	40(61.5%)	170.19
Total (n=268)	35 (13.1%)	126 (47%)	107 (39.9%)	

Table 3 shows that the duration of lecture classes mainly preferred among the four medical colleges were statistically significantly different (Kruskal Wallis test χ^2

= 38.04, df=3 and p=0.000) with major preference of 45 minutes by DMC (53.5%) and BMC (51.7%), 60 minutes by MoMC (61.5%) and SBMC (52.4%).

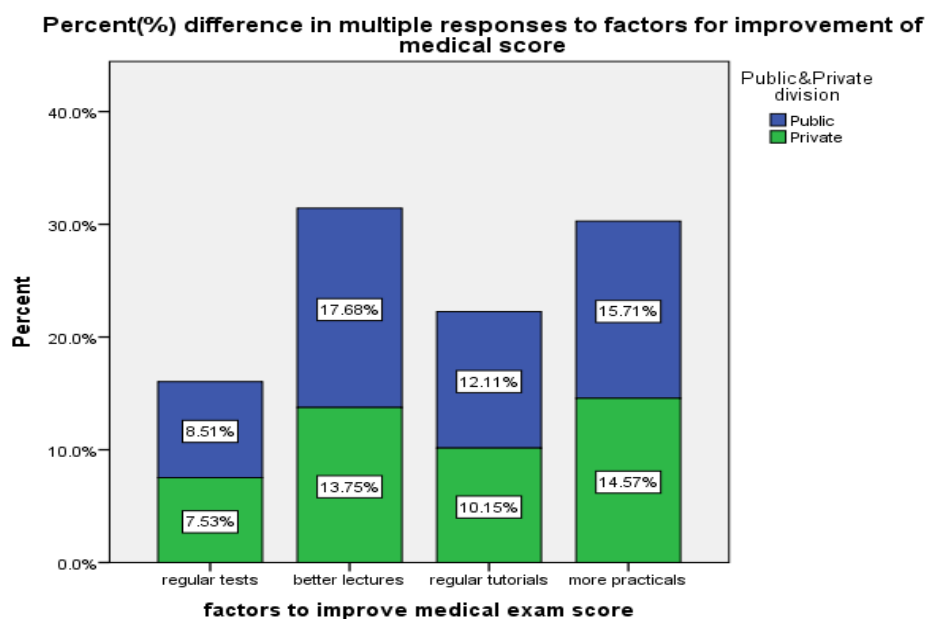


Figure 2:

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Multiple response test shows that among the 611 responses obtained from 261 respondents, the majority (31.4%) responses were for better

lectures followed by 30.3% for more practical classes as factors for improvement of medical exams (Figure 2).

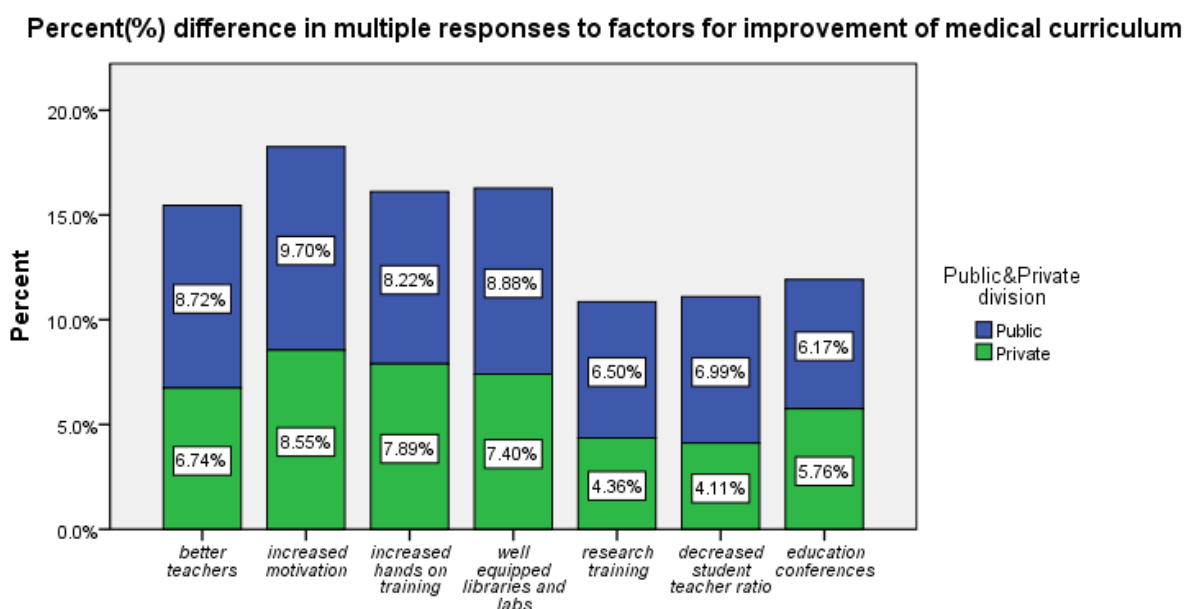


Figure 3: factors to improve medial curriculum

Multiple response test shows that among the 1216 responses, the majority (18.3%) responses were for increased motivation followed by 16.3% for well-equipped libraries/labs and 16.4% for better teachers and 16.1% for hands on skill training as factors for

Discussion

Medical students are the direct beneficiary of the outcomes of successful implementation of an effective medical curriculum which has a direct impact on the development of successful professionals. Students provide invaluable source of information and evidence for improving ongoing medical education, based on their experience and perceptions that can be ascertained periodically from cross-sectional studies. The rate of development of new knowledge on health and diseases is an

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improving curriculum (Figure 3.). More students in public than in private colleges opined for decreased student to teacher ratio (6.9% vs 4.1%), and research training (6.5% vs 4.3%) and educational conference(6.1% vs 5.7%).

ongoing challenge to expansion of medical education and the development of learning objectives. Both students' and teachers' evaluation and satisfaction surveys contribute to effective curriculum development and implementation²⁴⁻²⁶. Effective medical education also revolves around self-evaluation by students for enhanced self-efficacy and self-motivation and also through awareness about need for curriculum change²⁷⁻²⁹. The Figure 1 in this study gives the percent distribution of the students of the 4 medical

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colleges who participated in the survey with the proportion from the two Government medical colleges being 37.7% from DMC, and 15.7% from SBMC; and from the two private medical colleges being 24.3% from MoMC and 22.4% from BMC. So, the public medical college students represent 54.7% and the private medical college students represent 46.6% of the total.

Over the years many educational workshops have been held with concerned stakeholders (teachers, students, curriculum developers and implementers) and some common problems identified were: defective curriculum planning; defective student admission policy; out-of-date curriculum contents; ineffective Instructional methods; inadequate exposure to clinical training; lack of qualified teaching staff and resources, inadequate provision for community-based training; under-resourcing of medical colleges, lack of strong political commitment for medical education and lack of in-built evaluation mechanism³⁰. These are consistent with some of the findings in this study (**Table 1**), in responses to Q1 and Q2 under the two domains of medical education, “Students’ View on Ongoing Curriculum” and “Students’ View on Improvement of Academic Resources and Learning Environment”. The students under the Q1 of the first domain rated poorly the items, “Your own college is at par with international standard” with an item mean \pm SD score of $2.9 \pm .97$ and for the item, “Current teaching practices is sufficient to prepare for international exams, USMLE, PLAB” with a

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mean \pm SD score of 2.7 ± 0.83 . In present study (**Table 1**), under Q1, the item, “Quality of lectures delivered is satisfactory”, the item, “Term system is satisfactory”, the item, “Multiple modes of assessment is satisfactory for knowledge and skills acquisition” and the item, “OSCE/OSPE system is satisfactory” shows item mean \pm SD score of 3.6 ± 0.75 , 3.7 ± 0.81 , $3.86 \pm .95$ and 3.54 ± 0.90 respectively. Items with a mean score of ≥ 3 are true positive points; those with a mean score of ≤ 2 are problem areas; those in between 2 and 3 indicate aspects of the education that needs to be addressed³¹. Any score higher than 3 indicates positive impact of the statement/factor with mean score more than 3 indicates greater positive perception/agreement of the respondents on the issue stated. This is similar to score interpretation in other studies³¹. In this study, any item with a mean score between 2 and 3 indicates issues that need to be critically addressed. Modern teaching practices encourages active strategies with brain storming sessions within traditional lecture format. A tutorial seeks to teach by example and supply information to complete certain task. Small group tutorials are growing in popularity in medical education. Interactive learning has been evaluated more positively than formal lecturing by medical students³². Lectures are efficient methods of delivering information to a large audience and provide first glance into a difficult subject from different perspectives and elicits critical thinking³³. Quality of lectures can be

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determined with the learners' perspective and responses³⁴.

Methods of student assessment should match and reinforce the goals and objectives of medical education. An ideal assessment method is reliable, valid, cost effective, feasible and acceptable. Method of assessment has strengths and weaknesses. Medical educationists across the globe are trying to find new and more reliable means of assessment for knowledge level and critical thinking competencies^{35,36}. In reported study (**Table 1**), students rated the items, "Term system is satisfactory" and "Multiple modes of assessment is satisfactory for knowledge and skills acquisition" with relatively higher rating compared to the other items in the given domain with item mean \pm SD score of 3.87 ± 0.79 and 3.83 ± 1.02 respectively. Students are relatively satisfied with multiple modes of assessment. It is consistent with findings in other studies^{36,37}.

In this study (**Table 2**) among the 268 respondents, the majority (>90%) under the domain, "Students' View on Improvement of Academic Resources and Learning Environment" have agreed or strongly agreed with item mean \pm SD score equal to or more than 4.5 ± 0.5 on each of the items," Library requires improvement "College needs "Bone-library", "College needs modern and functional computer facilities" and "College needs career counseling facilities". Medical curriculum and its implementation must be anchored with provision of modern state-of-the-art educational equipment, infrastructure,

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skilled faculty and appropriate services. Studies have reported successes in the practical online teaching of anatomy course during the ongoing COVID-19 pandemic with administration of pre-recorded videos prepared in anatomy laboratory using cadaveric tissues, manifested in highly satisfactory performance of students^{30,38}. Other studies have shown students' opinion and suggestion for bone bank and lending library and career counseling service in their institute³⁹. Studies have reported support of students for career counseling services at medical schools/colleges for career building and future guidance⁴⁰.

In this study (**Table 3**) the major preference of lecture duration among all 268 respondents shows that 126(47.0%) opined for 45 minutes followed by 107(39.9%) for 60 minutes and 35(13.1%) for 30 minutes lecture. There was also a statistically significant difference (Kruskal Wallis test $\chi^2 = 38.04$, $df=3$ and $p=0.000$) in the preference among the 4 medical colleges, with major preference of 45 minutes among DMC (53.5%) and BMC (51.7%) respondents, 60 minutes among MoMC (61.5%) and SBMC (52.4%) students. The findings are similar to that of another study which reported that among the 50 students surveyed, 62% opined for 45 minutes, 4% for 30 minutes and 32% for 60 minutes⁴¹. Other studies showed students opined for lecture not exceeding 45 minutes⁴². Lectures has its advantages and limitations. Lecture attendance may vary between institutions, depending on their importance and frequency

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within the curriculum, quality of lecture contents. The ideal duration of lectures has always been a matter of debate⁴³. A well-organized lecture remains one of the most effective ways to integrate information from multiple sources on complex topics and encourage active learning^{33,44,45}.

In this study (**Fig 2**) a multiple response test of students' perception on factors that may improve their medical exam result/performances show that out of the 611 responses from 261 respondents on Q4 regarding opinion for factors that can improve medical exam performance/scores of students, the majority of the responses (31.4%) was for betterment of lectures and for more practical classes (30.3%). Lecture preparation and delivery is a difficult skill to acquire and excellence demonstrated by a teacher qualifies them as better teacher³³. There are many ways of providing better teaching and ensuring effective practical sessions such as case method teaching in preclinical curriculum¹⁴. Better lectures should incorporate active learning exercises into traditional lectures⁴⁴. Large group and small group case sessions, team-based learning, digital tools, practical skills training, learning in simulated environments, inter-professional learning sessions, clinical placements as well as feedback on portfolios of patient notes taken while engaged in clinical practice⁴⁶.

In present study (**Fig 3**) a multiple response test on students' perception of factors that can improve curriculum contents show that among

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the 1216 responses obtained from 268 respondents, the majority of responses (18.3%) was for increased motivation, 16.3% for provision of well equipped library and labs as well as 16.1% for increased hands-on-skill training. There was also an interesting observation of statistically significant difference in chi-square test of independence analysis (not shown in table) between the percentage of respondents of public and private medical colleges on opinion regarding the factors, "decreased student teacher ratio" (31.7% vs 18.7%) with $\chi^2=10.08$, $df=1$ and $p=0.001$, and for factor, "research training in curriculum" (29.5% vs 19.8%) with $\chi^2=4.40$, $df=1$ and $p=0.03$.

The World Federation for Medical Education (WFME) has listed two standards in relation to medical student research in its 2015 'Global Standards for Quality Improvement in Medical Education'³. In some higher income countries with more resources, an emphasis has been put on medical student research experience³. In Bangladesh the proportion of medical students engaged in research can increase if research training is made compulsory in undergraduate medical education. New media and mobile technology have profoundly changed the way medical students are learning new material and consolidating this knowledge and incorporating them in professional endeavors⁴⁷. Idea of good student-to-faculty ratios vary around the world, but a good student-to-faculty ratio in U.S. Colleges and universities would meet or exceed the national average of 18 students per faculty member,

DOI: <https://doi.org/10.3329/bjme.v13i2.60941> calculated by the National Center for Educational Statistics⁴⁸. Such ratio of student and teacher is believed to foster improved learning environment through targeted feedback^{49,50}.

A major limitation of the study is that response of the participants were limited to the options offered to them in the Likert questions and the multiple response tests; hence, they can be best interpreted within the framework of the questionnaire given.

Conclusion

This study has highlighted the areas of concern that need to be addressed for improvement of medical curriculum implementation, for academic resources upgrade and betterment of learning environment as well as ways to ensure improved performance scores in the medical exams.

Modernization of the current curriculum or implementation of a new curriculum must be initiated upon inclusion of : highly skilled and competent teaching faculty with up to date

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knowledge and proficiency in research conduction; innovative teaching and learning tools; modern state of the art technology; well-equipped set-ups in library and academic resources (bones, pathological specimens, equipment) and arrangements for learning sessions; more funding and transparency in expenditure in medical education sector and national standards maintained at par with international standards of medical education. In this modern era of science and technology and double burden of communicable and non-communicable diseases, it is imperative that every country focus on building and implementing curriculum and exam system that amplifies professional competence and social values, expands setting for efficacious and sustainable medical education programs, trains the medical teachers as educators and encourages life-long self-learning practices.

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