

Medical Students View about the Integrated MBBS Course: A Questionnaire Based Cross-sectional Survey from a Medical College of Kathmandu Valley

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Original Article

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Abstract

Background

Accreditation of curriculum by students may be useful in further modification of teaching and learning methods in medical colleges of any country specially Nepal. Course curriculum of medical sciences is made by learned professors of Universities, politicians and the government officers without consulting the students for whom it is made.

In Nepal, Medical education is an experimental integrated teaching of four and half years for MBBS degree. Until now it has not been assessed as to what type of Doctors we are producing. This paper aims on the objective to find out whether integrated teaching or classical medical studies produce better doctors.

Methods

The present study was done to assess the teaching, learning and evaluation procedures adopted in Nepal Medical College, Kathmandu by getting feedback from students of 4th (Basic Sciences), 5th-7th semesters and feedback was also taken from a few final year students (Clinical Sciences). A total of nearly two hundred students from this institution participated in this study. A multi-graded questionnaire was prepared and a pilot study of 20 students was done and the results were discussed among the authors to modify the questionnaire. This modified questionnaire was used in the main study. The same questionnaire was used for eliciting feedback from clinical students. The present study was undertaken from August 2008-January 2009.

Results

Out of 200 medical students, the mean age was found to be 19.4 ± 3 years SD. In gender distribution, male students (61%) were higher than female students (39%). Most of the medical students (70%) wanted to become doctor, to become rich and famous, 90% wanted to go to US (Massive brain drain). 90% of the students perceived that Anatomy is the most interesting and most relevant basic science subject for clinical studies and in Anatomy theory hours of teaching is to be increased (60%). Community Medicine was the most uninteresting subject of Basic sciences and if they are assured of attendance which subject they would not like to attend community medicine classes. 85% wanted that Pharmacology should be reduced in first four semesters and

should be extended to seventh semester like Community Medicine. The best teaching method is Chalk and Board Method (60%) and followed by LCD slides (20%).

Conclusion: Overall the results were alarming and may be taken up seriously by the policy makers. They can bring about amendments in course curriculum of universities in future.

Keywords: Medical Education, Under-graduate, Post-Graduate, Nepal Medical College.

Background

Integrated teaching methodology was first started in the year 1950 in the Case Western Reserve school of Medicine in USA¹. In the nineteenth century the American Medical school relied on apprenticeship model of education² but in the first two preclinical years, Anatomy comprising of Histology and Embryology, Physiology including Biochemistry, Pharmacology, Pathology and Bacteriology were taught³ in the 20th Century Immunology, Virology and Genetics were included in the same course⁴.

In Nepal, medical education was first started at Kathmandu in Nepal Rajakiya Ayurvedic Vidyalaya for the training of Ayurvedic health workers in the year 1933⁵. Civil Medical school to train the compounders and dressers started in the year 1934⁶. The first hospital in Nepal, Prithibi Bir Hospital was first established in 1890 with 30 beds. Doctors were brought from India. This was followed by Cholera hospital presently named as Sukra Raj tropical and infectious disease hospital, Teku was established in 1933⁸. The first idea of training the doctors occurred in 1963⁷. Institute of Medicine (IOM) Maharajgunj, Kathmandu was the first Medical college of Nepal to start the MBBS course established in the year 1978. Thus, integrated course in Nepal was first implemented in Tribhuvan University followed by other universities like Kathmandu University. Postgraduate course on General Medicine was also started in Institute of Medicine, Kathmandu in 1982 followed by Ophthalmology in 1987 in the same institution⁵.

Medical education (M.E.) is a specialized education which is imparted to Biology students (10+2 level) and above to train them for becoming medical doctors. The aim of medical education is to train the medical student to a minimum standard at which they can safely handle human life in diseases and health from cradle to death including preventive aspects of diseases. Medical education is imparted at two levels of training Undergraduate (UG) and Postgraduate (PG). Medical education involves lots of theory and practical training to be personally supervised by medical teachers, who are mostly medical persons but may involve some non- medical teachers as well in some basic science subjects.

There are various patterns of medical education all over the world. The methods of administration, teaching, learning and evaluation are given relative emphasis on different subjects which varies from country to country or from one

University to another University in the same country. Medical education is planned and implemented by senior educationists, professionals, bureaucrats and even politicians, but those for whom it is meant (i.e. medical students) do not play any role in deciding the curriculum. The present study was undertaken with a view to obtain a brief opinion of students regarding their aptitude, interests, methods of teaching and learning, methods of evaluation and relative importance of different basic medical subjects.

The need for this study is more acute in Nepal as per the recommendations of Nepal Medical Council, the teaching and examinations in all the basic medical subjects--Anatomy, Physiology, Biochemistry, Pathology, Pharmacology, Microbiology and Community Medicine are over (except Community Medicine) by the end of 4th semester (end of first two years of students entry in Medical College), which is different from recommendations of Medical Council of India in which upto 2nd semester (end of 1st year of M.B.B.S.) only Anatomy, Physiology and Biochemistry are covered and the rest of basic medical subjects are taught in next 3 semesters.

The result of the study that was done by Banerjee et al in Manipal College of Medical Sciences, Nepal reveals that teaching syllabus of subjects like Pathology, Microbiology and Pharmacology should be reduced and continued till 7th semester like Community Medicine when the students attend clinical subjects for better understanding of medicine and producing better doctors⁹. The present study was undertaken to evaluate the impact of integrated problem based teaching by medical students and their frank opinion about integrated teaching in Nepal Medical College of Kathmandu Valley.

Material and Methods

Study design and the participants:

It is a cross sectional study based on anonymous Questionnaire. All the senior students, higher than third semester from Nepal Medical College, Kathmandu were included in this study.

Questionnaire design:

After extensive review of literature a structured questionnaire was formed in English. A multigraded questionnaire was prepared and a pilot study of 20 students was done and the results were discussed among the authors to modify the questionnaire. This modified questionnaire was used in the main study. Questionnaire was prepared and it covered both personal aspects and academic aspects of the medical students. The same questionnaire was used for eliciting feedback from clinical students.

Data collection:

The present study was undertaken from August 2008-January 2009. After taking permission from the ethical committee for human experimentation, a structured questionnaire was prepared for 4th semester students (Basic Sciences). Some questionnaire was filled for eliciting

feedback from students of 5-7th and few final year MBBS students (Clinical sciences) as they had already passed basic medical subjects. Data was collected on a structural questionnaire by one of the investigators personally by distributing the questionnaires to the students and they were asked to answer each question frankly, honestly leisurely and after cool thinking. The identity of the student was confidential to avoid bias and to enable them to reply boldly and honestly.

Inclusion criteria: A total of nearly two hundred students from 4th semester–100, (57 males and 43 females) were selected in Group A from Basic sciences. 5th to 7th semester and few final year students were randomly selected –100, (65 males and 35 females) and were placed as Group B from Clinical sciences.

Exclusion criteria: The students not properly exposed to Basic medical Sciences like 1st year (1 and 2nd Semester) were excluded from this study.

Data management and statistical analysis:

Descriptive statistics and testing of hypothesis were used for the analysis. The data collected was analyzed using Excel 2003, R 2.8.0 Statistical Package for the Social Sciences (SPSS) for Windows Version 16.0 (SPSS Inc; Chicago, IL, USA) and EPI Info 3.5.1 Windows Version. The Chi-square test was used to examine the association between different variables.

Results

Demographic Characteristics:

Out of 200 medical students, the mean age was found to be 19.4 with a SD of 3 years. In gender distribution male students (61%) were higher than female students (39%).

Personal Aspects:

The results to the multigraded questionnaire were alarming. 64% of the medical students wanted to become doctors to earn name and fame. 70% of the students dream is to become rich and famous in life. 90% of the Nepali doctors wanted to desert the country and go to US. 70% of the medical students wanted to marry doctors and only 10% students wanted to marry a housewife.

Academic Aspects:

Table 1 depicts, there was a relationship between Subjects and Most Interesting, Most Relevant and Theory Hours to be increased in Basic Medical Sciences. About 45% of the students told that Anatomy is the most interesting and most relevant basic science subject for clinical studies and in Anatomy theory hours of teaching is to be increased (60%) which is followed by Pharmacology. About (32%) of the students told that Pharmacology is the most interesting and most relevant basic science subject (15%) for clinical studies and in Pharmacology theory hours of teaching is to be increased (15%) About (29%) of the students replied that Most Relevant Basic Science Subject to Clinical studies is Pathology, which is second in the list after Anatomy.

Table 1: Cross tabulation of Subjects and Most Interesting, Most Relevant and Theory Hours to be increased in Basic Medical Sciences

Subject	Most Interesting Basic Science Subject (n=200) No.(% of students)		Most Relevant Basic Science Subject to Clinical studies(n=200) No.(% of students)		Theory Hours to be increased (n=200) No.(% of students)	
	Yes	No	Yes	No	Yes	No
Anatomy	90 (45)	110	90 (45)	110	120 (60)	80
Pathology	40 (20)	160	58 (29)	142	28 (14)	172
Pharmacology	64 (32)	136	30 (15)	170	30 (15)	170
Physiology	0 (0)	200	9 (4.5)	191	6 (3)	194
Microbiology	4 (2)	196	7 (3.5)	193	10 (5)	190
Biochemistry	0 (0)	200	6 (3)	194	4 (2)	196
Community Medicine	2 (1)	198	0 (0)	200	2 (1)	198
Total	200	1200	200	1200	200	1200

Table 2: Cross tabulation of Subjects of Basic Medical Sciences and Most Uninteresting, Least Relevant, Theory Hours to be decreased and If assured of attendance student do not want to attend in Basic Sciences

Subject	Most Uninteresting Basic Science Subject(n=200) No.(% of students)		Least Relevant Basic Science Subject to Clinical studies(n=200) No.(% of students)		Teaching Hours to be decreased (n=200) No.(% of students)		If assured of attendance student do not want to attend (n=200) No.(% of students)	
	Yes	No	Yes	No	Yes	No	Yes	No
Anatomy	4 (2)	196	16 (8)	184	0 (0)	200	6 (3)	194
Pathology	3 (1.5)	197	29 (14.5)	171	12 (6)	188	4 (2)	196
Pharmacology	5 (2.5)	195	26 (13)	174	18 (9)	182	9 (4.5)	191
Physiology	18 (9)	182	29 (14.5)	171	7 (3.5)	193	41 (20.5)	159
Microbiology	14 (7)	186	30 (15)	170	31 (15.5)	169	16 (8)	184
Biochemistry	36 (18)	164	42 (21)	158	12 (6)	188	34 (17)	166
Community Medicine	120 (60)	80	28 (14)	172	120 (60)	80	90 (45)	110
Total	200	1200	200	1200	200	1200	200	1200

Table 2 shows (60%) of the students told that most uninteresting Basic Science subject is Community Medicine followed by Biochemistry (18%) and Physiology (9%). According to them Least Relevant Basic Science Subject to Clinical studies is Biochemistry (21%) followed by

Microbiology (15%) and Community Medicine (14%). Teaching hours is to be decreased in Community Medicine (60%) followed by Microbiology (15.5%). Whereas none of the students wanted to decrease theory hours in Anatomy (0%). If assured of attendance student don't won't to attend Community Medicine (45%) and it is followed by Biochemistry (17%)

Table 3: Cross tabulation of Most interesting subject of Basic Sciences is Anatomy Teaching hours should be increased in Anatomy and most relevant subject

Variables		Students feels most interesting subject of Basic Sciences is Anatomy		p-Value
		YES	NO	
Students feels Teaching hours should be increased in Anatomy	Yes	90	30	0.001**
	No	0	80	
student feels Anatomy as the most relevant subject	Yes	90	0	0.0001**
	No	0	110	

**p<0.05, Statistically Significant

Table 3 depicts that there was a statistically significant relationship between most interesting subject of Basic medical sciences and other factors viz, subject in which teaching hours should be increased and most relevant subject of basic medical sciences (p<0.0001).

Table-4: Cross tabulation of most uninteresting subject of Basic Sciences, If assured of attendance would not like to attend classes and Teaching hours to be decreased in Community Medicine

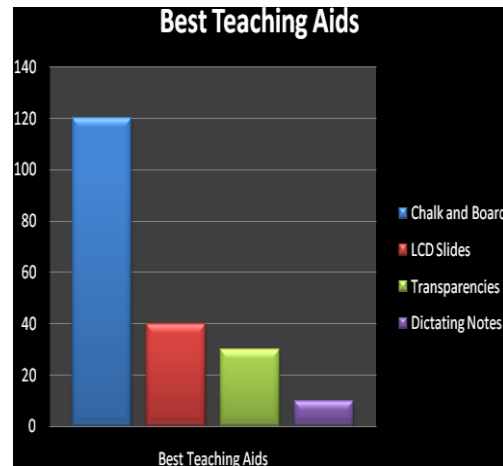
Variables		Students feel Community Medicine uninteresting subject		P Value
		YES	NO	
Students feel Teaching hours to be decreased in Community Medicine	Yes	120	10	0.001*
	No	0	70	
If assured of attendance would not like to attend Community Medicine	Yes	90	0	0.001*
	No	30	80	

**p<0.05, Statistically Significant

Table 4 reveals, there was a statistically significant relationship between most uninteresting subject of Basic sciences and other factors viz, if assured of attendance students don't want to attend community medicine classes and Teaching hours to be decreased in Community medicine (p<0.0001).

Pharmacology is to be reduced in the first four semesters and to be continued till 7th semester like Community Medicine (85%).

Figure 1: Comparison of Teaching AIDS



The best teaching method is Chalk and Board Method (60%) and followed by LCD slides (20%) shown in Figure 1.

Discussion

Out of the total data of 200 students, the answers to the multigraded questionnaire were very interesting. When it was asked why you want to become a doctor and what was their dream, the answers of 64% and 70% students was to earn name and fame, and to become rich and famous. Sadly in this country, 90% of the Nepali doctors wanted to desert the country and go to US. In this way, Nepal may be facing a great brain drain problem in future. Government should take measures to reduce this dangerous impact instead of allowing health workers to write prescriptions they should make the health post more safe and secured and to give enough incentive to attract young doctors there. They should fix a particular period in the internship period to assure that at least doctor writes prescription. 70% of students want to marry a doctor. Marrying housewife is lagging behind only 10%.

According to students most interesting and relevant Basic science subject is Anatomy (45%). There were some correlation among the most interesting basic science subject, subject in which theory hours should be increased and subject which is most relevant to the clinical studies. It was found that out of 200 students, 90 students said Anatomy as the most interesting subject and it is the most relevant subject to that of clinical studies and about 120

students want theory hours in Anatomy is to be increased. The correlation among this is cross tabulated using chi square test as shown in Table 3. It was found to be highly significant ($p < 0.001$). Our finding is similar to a another study done at Manipal College of Medical sciences, Nepal, which also has shown that Anatomy as the most interesting and most relevant and the practical classes should be increased in Anatomy⁹.

Community Medicine is the most uninteresting subject (120 students). The relation among the most uninteresting subject, theory hours to be decreased and if assured of attendance students would not like to attend Community Medicine class is shown in Table-4. This study is also similar to a study which has also shown Community Medicine as the most uninteresting subject in Basic Medical sciences, Theory hours should be decreased and Community Medicine as the least relevant to clinical studies.⁹

Among the teaching methods Chalk and Board methodology was found to be the best (60%) followed by LCD Slides (20% students) and dictating notes (5%) was the least preferred teaching method by the students is shown in the Figure 1. This finding is different from a study done at Kasturba Medical college, India which has shown that Mixed Aids (54.9%) is the best method of audiovisual aids to teach MBBS subjects like Pharmacology followed by Powerpoint presentation (20.9%) and Blackboard and OHP are (19.6% and 4.9%) respectively.¹⁰ In another study it has shown that the best methods of teaching and learning methods are LCD slides (54.83%) followed by chalk and board methods (37%)⁹.

60% of the students wanted the day to day examination more frequent. The subject thought to be least helpful in clinical studies is Biochemistry (21%) and Microbiology (15%). The best teaching system was found to in the form of Lectures (60%) followed by self study (20%)

A similar study of feedback given by the students in 2010 about the clinical subject Obstetrics and Gynecology, the curriculum should be modified as student feels that there is a role of Multiple choice questions, Short answer questions, Structured essay questions and Objective structured practical examination should be included in their curriculum. Recently MCQ and SAQ are being used in post graduate examination in Kathmandu University as well¹¹.

A study done in UK in 2009 where students are being used to provide feedback on medical studies and they were found to be confident in providing feedback similar to our study¹².

Concluding the most interesting subject was found to be Anatomy 40%-50% being answered by the two groups of students. Least interesting subject was Community Medicine 50%-70%. Review and literature of published research works on medical education around the world reveals that the students' attitudes towards community medicine is unattractive and sometimes considered as "peripheral or even irrelevant to the acquisition of clinical knowledge and statute"¹³. In Nepal Medical College, Community Medicine is taught from the first year through

the third year and the difficulty posed by this method is in trying to find a suitable period during the training period to teach the subject because students are getting clinical exposure in the third year. For example, in the first two years they are taught introduction to epidemiology, biostatistics, demography, health education, entomology, nutrition, Behavioral sciences and medical sociology. The problem with this method is that the students have not yet have any contact with the patients and most of the teachers are not doctors. It becomes difficult to demonstrate a lot of clinical activities that have epidemiological, demographic and bio statistical background. Prevention involves epidemiological concepts and differential diagnosis. Choosing an appropriate treatment involves good knowledge in research methodology. It starts from Critical appraisal of the relevant published literature and then goes through the tunnel of descriptive studies and end up with clinical trials¹³. Teaching Community Medicine is problematic but we can implement the clinical epidemiology worldwide to make the subject more interesting to the students¹⁴.

Lastly but not the least 85% of the students wanted that Pharmacology should be reduced in first four semesters and should be extended upto 7th semester like Community Medicine and examined at the end of 7th semester. This finding is similar to the finding to a study done in Manipal College of Medical Sciences which has also showed that 34% of the students also replied that Pharmacology should be carried up to seven semester as Community Medicine.⁹

In another study done in 2005 done by Ravi Shankar et al also showed that students' attitude towards Pharmacology was positive. The teaching and learning of pharmacology can be enhanced and a closer incorporation with the clinical disciplines is essential¹⁵

Problem based learning should be also included in Pharmacology as in one study done by Karen Gregson at a Dental College has shown that PBL increases confidence. Educating the students about pharmacology through PBL is a viable and important teaching approach¹⁶.

Conclusion

As the syllabi of integrated teaching came from US, where medical student goes to the hospital right in the 1st year and the teaching is accompanied with clinical exposure, whereas here in Nepal we do not expose our student to the hospital before 5th semester. At the same time there is no integration and no correlation among the subjects. Quite often it happens that Lectures of Pharmacology and Pathology fall before that of Anatomy and Physiology, which not only makes the studies more cumbersome but also difficult to understand. While taking up the subject one has to waste time in telling about Anatomy or Physiology of a particular organ before starting Pharmacology or Pathology. Ideal could be integration between Anatomy, Physiology and Biochemistry for one or one and half years and the rest of the Basic Science subjects should be exposed after



passing 2nd semester. In our opinion this is the right direction to avoid brain drain. According to a nationwide study done in UK in 2007 has shown that before changing the curriculum the guidelines from General Medical Council should be gathered before changing any policies. It also applies in case of Nepal¹⁷

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