

TRENDS IN MEDICAL EDUCATION FROM TRADITIONAL TO INTEGRATED SYSTEM: VALUED BY FIRST YEAR MBBS STUDENTS AT A PRIVATE MEDICAL COLLEGE OF PESHAWAR

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ABSTRACT

Introduction: Rehman Medical College Peshawar implemented a new modular integrated hybrid curriculum and modern mode of teaching strategies since its inception in 2010. The present study aimed to explore the viewpoints of students about the usefulness of the principles of integrated medical curriculum and teaching strategies and evaluation methods adopted.

Material & Methods: A survey of first year MBBS students was conducted in 2011 using self-administered questionnaire which included quantitative and qualitative parts. Enough space was provided for the qualitative response. The qualitative part of the study entailed in self-response open ended. Universal sampling approach was employed. Quantitative data analysis were done using SPSS version 15.0 while qualitative data were manually analyzed.

Results: Fifty-eight students (58%) completed the questionnaires. Regarding the usefulness of integrated medical curriculum of basic medical subjects, 36 (62.1%) found it very useful, 15 (25.8%) found it useful. For preference of teaching methods, 50(87.7%) found SGF very useful; also 34(58.6%) found large group format (LGF) very useful and 15(25.9%) found it useful; 30(51.7%) reported that mini-seminars are useful whereas 21(36.2%) students found self-directed learning useful. Students' responses to the end of lesson examination were evaluated; 32(55.2%) students were in favor of these exams; 38(65.5%) were in favor of end of week evaluation while 49(84.5%) were in favor of end of module examinations. Similarly 41(70.7%) supported mid-term; 38(65.5%) favored inclusion of medical research in the undergraduate curriculum. Most of the students were in favor of current system with small reservations. According to them the current system should be continued with improvement in areas like; decrease in end of lesson exam, teacher student relationship, availability of reading materials, strict follow up of lesson plan.

Conclusion: Majority of students prefer the new modular integrated system of teaching. A few areas of the previous system are still popular and may be continued by integrating them in suitable places in the new system. Based on evidence, diversity of teaching and evaluation method is a good thing and to be encouraged. The strategy (SGF) that promotes interaction is likely to be the most effective.

Key Words: Medical Education; Curriculum; Teaching aids; Modular curriculum; integrated curriculum.

INTRODUCTION

The advent of globalization has visibly increased flow in all fields of science and technologies taking health services to new heights of probability for prompt meeting of healthcare needs (1). Advancements in the medical field constantly necessitate new concepts of medical education. In addition, change in demography, epidemiology, social needs, and growing

expectation of patients about humanistic care have been impacting medical education and quality of health care professionals. These rapid changes in medical education and service delivery have particularly affected the field of medical education which is an indicative aspect for the change in medical curriculum, teaching methodology, and necessitates absorption of newly tested integrated curriculum or hybrid of traditional and integrated curricular design.

Medical education in health care is one of the most important aspects to be improved (2,3). Non-absorption of such advancements in education approaches will deteriorate the doctor's skills, knowledge and ability radically, and in turn impact upon his/her competency level which results in weaker performance and ultimate poor health outcome (4). Such trends in medical field influence the curriculum and demand for change. Thus curriculum of medical science is a dynamic which is allied with the advancement in knowledge and has to respond to the rapid changes that are taking place in the biomedical sciences, and consequently the practice of medicine (5).

Various improvement and trends which have been taken globally include self-directed learning; problem based learning, integration, early patient contact education for capability and community orientation in medical education. *"An integrated medical curriculum refers to a non-compartmentalized approach to basic sciences whereby lectures on subjects like embryology, histology, anatomy, physiology and pathology, are alternated over the course of first two years"*.

Medical colleges around the world are moving from the traditional discipline-oriented curriculum to an integrated curriculum. Most of the Medical Colleges / Schools in developed and developing countries have either modified the curriculum or are in the process of transformation from traditional with lecture based instructional design, to integrated curriculum having Problem based learning, small group format, and mini-seminars as important modes of information transfer (6). In Pakistan the curriculum for undergraduate medical education remains mostly the same as it was at the start and has not been revised yet. However Pakistan Medical and Dental Council (PM&DC) encourages all medical colleges in the country to pull alongside with the rest of the

world by transformation of undergraduate medical curriculum (7,8). Renovations of such medical curricula have often been accompanied by the introduction of large group format, small group format learning and tutorial/self-directed learning. The effects of this educational format have been examined in many studies, mostly within contexts of modular curriculum.

Rehman Medical College (RMC) is the first institute of Khyber Pakhtunkhwa province which has followed modular curriculum approach from its first professional year. The idea was guided by the philosophy that revolves around the principle of adult learning which encompasses self-directedness and contextual learning. Learning strategies have been modified in accordance with these principles. The stress is given on mini-seminars, small group learning, self-directed learning, large group format and working in teams. However based on previous experience some faculty members favor traditional lectures, others want to adopt integrated modular curriculum and still others favor system based teaching. Yet others favor a hybrid curriculum where a variety of different teaching and learning strategies are employed. The teachers of the basic science subjects think that too much emphasis has been put on self-directed learning overriding other learning methods like practicals, which may be counterproductive. Similarly almost all student remain used to traditional system; they also have different viewpoints.

The students have a mixed reaction to this modular curriculum in the sense that majority of them are experienced in traditional system of teaching. The new strategy (opting integrated curriculum) definitely needs consistence largely among the faculty and students to sustain the newer approach. Hence no study has been done to look at the consistence among students and faculty about the integrated modular system. This paper is

mainly focused on view points of faculty and students about the usefulness of different principle of curriculum and teaching methods. It also pays attention to know the like and dislike of students and faculty regarding evaluation opted by the organization for formative and summative assessment.

MATERIAL & METHODS

The study was carried out in 2011 on all 100 students of the new First year MBBS as well as the Basic Sciences faculty of RMC who were willing to participate in the research study. A questionnaire based survey was used to achieve the study objectives. Universal sampling was employed for both teachers and students.

Data Collection

Data collection was done using self-administered questionnaire which included quantitative and qualitative parts. The quantitative part of the questionnaire consisted of queries regarding usefulness of different teaching and evaluation methods ranked on a Likert scale by students and teachers. The qualitative part of the questionnaire entailed self-response open-ended questions to explore the students and teachers perceptions regarding the strength and limitation of current program and importance of formative evaluation. Final part of the questionnaire included their suggestions for improvements in the curriculum and teaching methods in light of new trends in medical education.

Data Analysis

Quantitative data analysis were done using SPSS software 15 version while qualitative data were manually analyzed by the experts. Manual transcriptions were carried out for preparation of themes. This was then finalized by summarization of findings and compilation of the results.

RESULTS

Fifty-eight students (58%) completed the questionnaires; of these, there were 31(53.4%) males and 27(46.6%) females. Preference for the different teaching mode and techniques were assessed (Table 1). Regarding large group format (LGF) mode of teaching, 34(58.6%) found it useful, 15(25.9%) found it very useful and 9(15.5%) found it not useful. Similarly, preference for the small group format (SGF) mode of teaching were that 50(87.7%) found it very useful, 05(8.8%) found it useful and 02(3.5%) found it not useful.

Regarding the usefulness of mini-seminars and brainstorming sessions incorporated into integrated teaching, 30(51.7%) found it useful, 17(29.3%) found it very useful and 11(19.0%) found it not useful. Practical exercises in laboratories were found very useful by 33(56.9%) respondents, useful by 18(31%) respondents and not useful by 07(12.1%) respondents.

When the participants were asked about the role of self-directed learning in medical education, 21(36.2%) students found it useful, 20(34.5%) found it not useful and 17(29.3%) found it very useful. Likewise the usefulness of tutorials, 23(39.7%) found them very useful, 19 (32.7%) found them useful while 16(27.6%) found them of no use. Most students, 36(62.1%) found the PowerPoint presentation very useful, 15(25.8%) found them useful and 07(12.1%) did not find them useful in medical education. Responding to the use of white boards for delivering lectures, 54(93.1%) students were in favor, 01(1.7%) was against it and 03(5.2%) offered no comments. Regarding the usefulness of integrated medical curriculum of basic medical subjects, 36(62.1%) found it very useful, 15(25.8%) found it useful and 07(12.1%) found it not useful.

Table 1: Students’ answers to the usefulness of different teaching formats (n=58)

Modes of teaching	Very useful	Useful	Not useful
	f (%)	f (%)	f (%)
1. Large Group Format	34 (58.6)	15 (25.8)	09 (15.5)
2. Small Group Format	50 (87.7)	05 (08.8)	02 (03.5)
3. Mini-seminar	17 (29.3)	30 (51.7)	11 (19.0)
4. Practical Exercise in laboratories	33 (56.9)	18 (31.1)	07 (12.0)
5. Self-directed learning (SDL)	17 (29.3)	21 (36.2)	20 (34.5)
6. Tutorial	23 (39.7)	19 (32.7)	16 (27.6)
7. Use of power point presentations	36 (62.0)	15 (25.9)	07 (12.1)
8. Use of white boards for delivering lectures.	54 (93.1)	01 (01.7)	03 (05.2)
9. Usefulness of integrated medical curriculum	36 (62.0)	15 (25.9)	07 (12.1)

Most of the students appreciated the integrated curricular system and suggested to maintain the same pattern with a bit of improvement in teaching methods. Majority of the students expressed that “*Module system is a better than traditional one, gives a lot, and gets an opportunity to study about the related*

subjects as well. However there is a need of further improvement”.

Students’ responses to the end of lesson examination were evaluated (Table 2); 32(55.2%) students were in favor of these exams, 12(20.7%) were not in favor of these exams while 14(24.1%) had no comments.

Table 2: Students’ responses to the utility of different Evaluation Methods (n=58)

Evaluation Method	Like	Don’t like	No response
	f (%)	f (%)	f (%)
1. End of lesson examinations	32(55.2)	12(20.7)	14(24.1)
2. End of week examinations	38(65.5)	15(25.9)	05(08.6)
3. End of module examinations	49(84.5)	07(12.0)	02(03.5)
4. Midterm examination	41(70.7)	16(27.6)	01(01.7)
5. Inclusion of research as part of curriculum	38(65.5)	14(24.1)	06(10.4)

Regarding the end of week evaluation, 38(65.5%) students were in favor of it, 15(25.9%) were against it and 05(8.6%) had no comments on it. Evaluation of students’ responses to the end of module examinations revealed that 49(84.5%) were in favor of them, 07(12.1%) were against them and 02(3.4%) had no opinion. Response of students to the question of mid-term examinations indicated that

41(70.7%) were in favor of them, 16(27.6%) were against them and only 01(1.7%) had no comments.

Inclusion of research projects in the undergraduate curriculum was assessed (Figure 1); 38(65.5%) students favored it, 14(24.1%) were against it and 06(10.3%) did not respond to it.

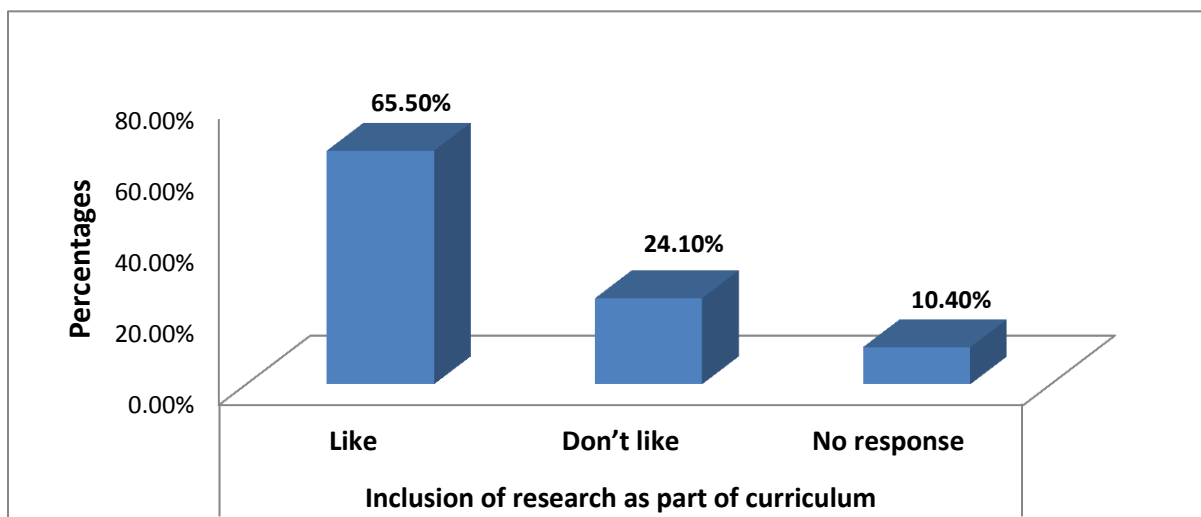


Figure 1: Students' responses to inclusion of research teaching/training in the MBBS curriculum (n=58)

Although majority of students appreciated the integrated modular curriculum however most of them were of the view that *"the current system is very good except end of lesson examination"*; few students also recommended that the frequency of examination should be reduced and the student should be given more time for studies. According to them there should be only some comprehensive formative evaluation. They further added that *"the teacher should follow proper lesson plan and should be well prepared in their subject before delivering the lecture"*. Students further suggested that *"reading material should be facilitated like issuance of books from library, lending time should be increased and handouts should be given so that we can prepare our notes for exam"*. Students also condemned the favoritism from teachers' side and demanded equity and equality among male and female students.

DISCUSSION

Rehman Medical College introduced an innovative system of medical education, based on PM&DC guidelines to its first batch of medical students for the session 2010-11. This

new system incorporates horizontal and vertical integration of subjects in the MBBS curriculum over a five-year period in a progressive manner so that basic and clinical disciplines are blended from year one.

It is therefore necessary to devise a curriculum that is flexible (or modular) and which employs a system of imparting knowledge and developing skills in a rapid and effective manner. To this end, there is a marked shift from the traditional lecture- and teacher-centered teaching modes to small group format (SGF) that involves interactive learning and better accessibility of the teacher (facilitator) to individual students. Moreover a stringent assessment system is essential to evaluate the extent of benefit to students. Ongoing monitoring and research ensure continuous improvement with each new student year.

The current study provides much needed information on the students' perception of the new curricular techniques. This is all the more relevant as these students have been taught in traditional modes in their earlier curricula and are having their first-ever experience of this new system.

A clear preference for the SGF mode is seen compared to the Large Group Format (LGF, lectures). Almost 88% students find SGF very useful compared to 15% finding LGF very useful; the figures for finding SGF and LGF useful are about 9% and 59% respectively. The SGF encourages some form of discussion, active participation and specific task reflection which is often limited in large groups because of the physical layout of lecture halls and the number of students involved (11,12). Students suggested that there should be more SGF and mini-seminars. The same have been emphasized by literature. According to Kelly and Stafford (12) SGF provides prospects for cross discussion between tutor and students and among students. Such interaction can foster active learning and can help students to achieve a sense of independence and responsibility for their own learning.

Self-directed learning (SDL) sessions were deemed very useful by 17(29.3%) students, useful by 21(36.2%) students and not useful by 20(34.5%) students. Apparently quite a few students found it difficult to do self-studies, as compared to being taught in different modes. According to those students they were unable to get the reading material at proper time.

Tutorials are a means used by teachers, facilitators and mentors to interact with students in small groups to discuss their learning issues or other problems that may affect their academic performance. Student responses indicate that 42(72.4%) found tutorials worthy, 23(39.7%) very useful, 19(32.7%) useful. A study from Berlin, Deutschland (13) shows that tutorial covers 66% of all learning objectives, as well as 74% of core objectives. However the degree of attainment of the objectives differs to organ system and stage of education of the students. In current study, majority of students suggested that the teachers should give equal importance to each student, and he/she must be well prepared

in the given subject. A similar indication was also suggested by Kelly and Stafford. According to them, in order to optimize the work of the group, however, teachers need to be conscious of their dual roles as subject matter experts and as group managers, and to plan the group's work both in terms of the content to be covered and the strategies which will be used to achieve the learning aims of the group (12,14).

PowerPoint presentations are used by most teachers, though some still prefer to use or supplement presentations with white board writing. Student responses to the usefulness of PowerPoint presentations indicate that 36(62.1%) found these very useful.

Within the context of education, modern teaching aids appear to have attracted more interest than others; however, the degree to which they have been used, varied. Although the students have appreciated the usefulness of PowerPoint presentation, they were also in favor of usefulness of whiteboard as supplementary teaching aids. Student responses indicated an overwhelming response of 54(93.1%) students in favor of the use of white boards for lectures. This is a bit surprising, as modern methods of teaching are far more powerful and informative than white boards, which are also time consuming and difficult to standardize. This response must be taken into account by teachers; perhaps they should supplement their presentations with use of white boards as well. The usefulness of utilization of whiteboard was well documented by the educational press as it supports and enhances academic practice (15).

Integration of taught subjects is a fundamental requirement of the modular curriculum. Medical students believe in usefulness of integrated modular curriculum and the positive feedback underlies students' perceptions of curricular innovation, which the majority has accepted (16,17).

At RMC, each lesson is followed immediately by an End of Lesson Assessment (EOLA) consisting usually of a few MCQs or Structured SAQs; this is done to assess student attentiveness in class and retention of the lesson content. Responses indicate that 32(55.2%) students like this activity. Similarly each week of lessons ends with an End of Week Assessment (EOWA), which evaluates students' retention of lessons of the entire week in different subjects; 38(65.5%) students liked this activity. For the End of Module Examination (EOME), a majority of 49(84.5%) students liked it, while 41(70.7%) liked mid-term examination. Again the trend is very apparent in that students prefer to be given enough time for studies to prepare for examinations in preference to spot examinations without preparation. Literature indicates that performance of the student improves with frequent examinations. However the retention of knowledge depends to what extent do the students themselves perceive the effectiveness of daily quizzing as a means of preparing for exams (18).

Another new trend in RMC is the inclusion of research teaching and student research projects to be carried out by teams of students under supervision of the Department of Medical Research. Assessment of this activity indicated that 38(65.5%) students liked this activity. Considered that research activities are not part of their regular PM&DC syllabus of studies, this student response is quite encouraging. The importance of research evidence based practice is now accepted all over the world. Students believe that application of research allows the evidence into practice and help a doctor to justify the use of comparative regime (19,20).

Conclusion

Majority of students prefer the new modular integrated system of teaching, which offers many advantages over the traditional system. However, a few areas of the previous system are still popular and may be continued by integrating them in suitable places in the new system.

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