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Exploration of Teaching Methodology in a Medical College, Rawalpindi: A Qualitative Assessment from Students' Perspective

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ABSTRACT

Objective: To explore how to improve teaching methodology in a medical college from students' perspective.
Study Design: Qualitative grounded theory study design using constructivist approach.
Place and Duration of Study: Public Sector Medical College, Pakistan from Dec 2016 to Mar 2017.
Methodology: A grounded theory approach was used to explore student's perspective of how to improve teaching methodologies. Two focus group discussion of 4th and final year MBBS students were conducted. Data were collected on semi-structured questionnaire and analyzed manually by thematic analysis.
Results: There were five main themes which are as follows: Teaching techniques, students' assessment, and clinical rotation, extra-curricular and future prospects. In teaching techniques further 4 sub-themes emerged i.e. lectures, slides, courses and attendance. In student assessment further four sub-themes emerged as exams, practicals, viva and CBLS. In clinical rotations, three sub-themes emerged as ward rounds, surgical operations and timings. In extracurricular activities, three sub-themes emerged as sports, workshops and research. In future prospects only two sub-themes emerged as alumni and affiliations. All of the sub-themes had the problem narrated with their suggestive solutions.
Conclusion: The teaching methodology lacks a practical approach regarding medical studies along with lack of student-teacher interaction. Students should be asked to give active feedback regarding any changes that they would want; this would not only help break down the barrier between students and teachers but also allow for active improvements.

Keywords: Assessment, Case base learning, Lectures, Teaching methodology, Teaching technique.

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INTRODUCTION

Medical education is an important factor in the assessment of progress of any country. In Pakistan, there has been a sudden rise in the number of medical colleges throughout the country and in all provinces equally, but no check and balance has been kept in regards to the level of teaching in all these colleges. In Pakistan there are currently, 101 medical colleges, out of which 40 are Public sector and 61 are Private sector medical colleges.[1]

Effective teaching is defined as teaching that is orientated towards and focused on the students and their learning ability.[2] Universally, different methods of teaching have been adopted by medical colleges such as tutorials, virtual learning, seminars, hands-on learning, group discussions, case based learning, scenario based learning to name a few.[3] Due to recent advancements in the field of medicine, newer methods of teaching have been adopted so as to increase the skills of the graduates in order for them to meet the future challenges.[4]

In both developing and developed countries there is an increasing call for change towards the method of teaching. Student centered learning has been considered the best way forward. Student centered learning basically means: wide variety of educational programs, learning experiences, instructional approaches, and academic-support strategies that are intended to address the distinct learning needs, interests, aspirations, or cultural backgrounds of individual students and groups of students.[5]

Throughout the five years of medical school the students are taught mostly via prepared lectures and assessed through examinations. The first three years of the medical school is solely focused towards basic medical sciences and the last two years towards clinical training.[6] Research conducted by faculty of Baqai Medical University, Karachi, showed that there's no integration between pre-clinical and clinical subjects and thus has resulted in a curriculum overload.[7]

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Though the government has taken initiative in asking medical colleges to implement the integrated modular system as the only method of teaching, there still a gap in finding put appropriate teaching methodologies those are effective from students point of view. The aim of the study is to explore ways to improve teaching methodology in medical colleges and identify teaching styles that are more effective from students' perspectives.

METHODOLOGY

The qualitative grounded theory study was conducted at a Public Sector Medical College from December 2016 to March 2017. A constructive qualitative study approach was used to explore student's perspective of how to improve teaching methodologies. Based on grounded theory, a model has been constructed as Figure-1.

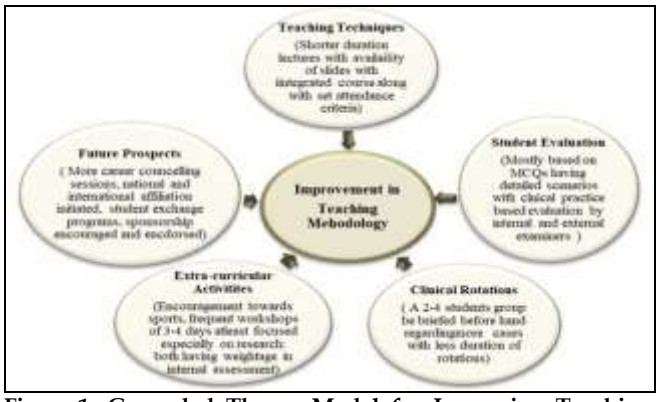

Figure-1: Grounded Theory Model for Improving Teaching Methods in a Medical College

Inclusion Criteria: Fourth year and final year MBBS students were included.

Exclusion Criteria: None

Two focus group discussions of 4th and final year MBBS students were conducted. The groups were further divided into sub-groups, and each sub-group contained 8-10 students. Convenience sampling technique was used for sample selection.

The students were given two open ended questions. Participants were asked two questions: What do you find deficient in the current learning process or teaching methodology? Second was what do you think could be the solutions to the deficiencies in the learning process? Their answers were recorded using mobile voice recorder and later transcribed. The transcription was shown to the students participating in the next focus group discussion before it started. Any amendments suggested by the participants were made and data credibility was ensured through member checking. Group discussion was continued till the data saturation was achieved or no new information was collected. Data were analyzed manually by thematic analysis. Initially open coding was used and then axial coding was used and a main theme was constructed and a theoretical framework model was created. The study subjects were completely informed about the purpose of the study and were assured that their names would be kept anonymous and a verbal consent was obtained from every subject.

RESULTS

THEMES

In order to best represent the results of the interviews, a theoretical framework model was devised. The theoretical framework model as shown above divided the research finding into five main categories: Each main category was subdivided into smaller categories ranging from 2-4 subdivisions.

TEACHING TECHNIQUES

i. **Lectures**: The students recommended that the duration of lectures should be decreased; with one student stating "The lectures are timings too long…better to reduce the total span of a lectures to 30 minutes." (JT) They also wished for breaks in between the lectures, for time duration of 5-10 minutes.

ii. **Slides:** An online access should be provided to the students by each department for easy access of the slides and animations related to their course of study. Another student said that "slides of the lectures should contain the essence of the topic, otherwise it becomes a drag."(KA) Therefore the slides should be brief. Animated videos are to be opted for where the facilitator thinks that the concept cannot be explained to the students with only a lecture.

iii. **Course**: A diffuse integrated system to be implemented for the students. Instead of cadavers, modern specimens should be preferred. The content of the lectures should be focused more towards practical knowledge instead of bookish knowledge. The final year students recommended a crash course focused towards revision of the basics.

iv. **Attendance**: Most of the students suggested that a criterion for attendance be set which should be strictly followed. The respective facilitator should also be informed about his/her lecture beforehand in order to avoid a last minute hassle.

STUDENTS' ASSESSMENT

i. **Exams**: Many students complained of lack of answer keys. "You already have question banks such as U-world use them for SEQ's for better and detailed scenarios." (AR) Clinical scenarios for both the MCQs and SEQs can be picked up from variety of available question banks such as U-World, where necessary images deemed can also be added.

ii. **Practicals**: "We are not gaining much from performing practicals on frogs and this should no longer be used." (SA) Instead focus should shift towards provision of ample working instruments' for students. Practicals such as the Electrocardiogram (ECG) interpretation can be repeated for students in Final Year.

iii. **Viva voce**: Each student is to be assessed by both internal and external examiners. The length of Viva voice can vary for students due to no set time with each examiner. Instead a bell system is to be opted for which is rung after a specified time. A set pattern of questions focused on thorough assessment of each student ought to be asked eliminating the bias arising from an easy assessment.

iv. **Case Based Learning**: A class of 200 students is divided into 8 batches containing 25 students in each batch. The division should be such that each batch can contain maximum number of 8-10 students. In preference an actual patient can be brought as a case study. Each batch ought to be emailed the scenario a week before.

CLINICAL ROTATION

Clinical rotation generally starts from third year in majority of the medical colleges in Pakistan. In third year the rotation is more focused towards history taking whereas in final year it's more of hands on experience. The rotation is centered on two tertiary care settings, Pak Emirates Military Hospital (PEMH) and Combined Military Hospital (CMH).

i. **Wards**: The two tertiary care hospitals have increased patient load. The doctors are over-worked and only handfuls are willing to teach the students. "Instead of giving students different cases, a group of 2-4 students should be given a case that they should follow from diagnosis to treatment, so we can learn more from the experience." A better method would be to allocate the job of teaching the students to a specified number of teachers. At the end of every ward rotation, each student should be thoroughly assessed on what they have learned throughout the course of rotation.

ii. **Operation Theatre**: Students attend OTs of their respective rotation, twice a week. It was suggested that the concerned surgeon ought to give a briefing before starting the operation. A compiled list of instruments that is required by the respective departments can be sent to the college administration asking the students to abide by it.

iii. **Timings**: The timings of the wards are from 11:00am – 3:00pm for final year students and for third and fourth year the timings are 12:30pm - 3:00pm. The timings for the evening wards for all the above classes are 6:00pm – 8:00pm. The above mentioned timings result in a hectic routine. In final year, OB/GYN rotation requires a 24 hour rotation, where female students spend two week in the labour room. "Wards and lectures should be placed on alternative days since it is exhausting otherwise."

EXTRA CIRCULAR ACTIVITIES

i. **Sports**: In the current academic system, the main focus is given to academics. "Sports and extra-curriculars should be encouraged because it makes life less boring and helps in character building." A biannual sports week ought to be added in the extra circular calendar of the universities. Students are to be given a choice in regards to which sport they prefer to play and only one sport is to be mandatory for the student

ii. **Workshops**: The workshops regarding medicine that are conducted are for final year students mostly. Duration of those workshops is of 3-4 hours maximum and they are only for a day. "Workshops need to be 3-4 days long and contain activities…in AMC workshops are just lecture-based and therefore students lose interest." Without the proper simulators/mannequins those workshops more or less becomes a lecture session. In the interviews the students suggested that workshops like basic life support, stress management, emergency management should be given in the first year and again in final year to refine the skills. The workshops should practice hands on experience for which it should be of 2 days minimum. These medical workshops should also give due credit hours to the students.

iii. **Research**: The basics of research methodology and data collection techniques are being taught in 4th year in the community medicine class. Many students pointed out that initial research couldn't even get recognized or published. "Knowledge regarding research should be given to students in 1st and 2nd year, and should be given research projects

from 3rd year onwards." (SB) The college should also have their own medical journal in which these researches should be published.

FUTURE PROSPECTS

i. **Alumni**: The college alumni are divided into two halves: in medical field of army and in the civilian sectors. "The college needs to be expanded regionally…electives should be made more accessible for students." (MS) The alumni should support the young students in electives and researches. There should be regular motivational and career counselling sessions by the alumni for the students.

ii. **Affiliation**: The study suggested that the university should give their students due time, guidance and sponsorship in medical electives. There should also be student exchange programs for the students, both national and international. Furthermore, university should provide proper information and guidance to the students that want to pursue their studies abroad. Details are shown in Figure-2.

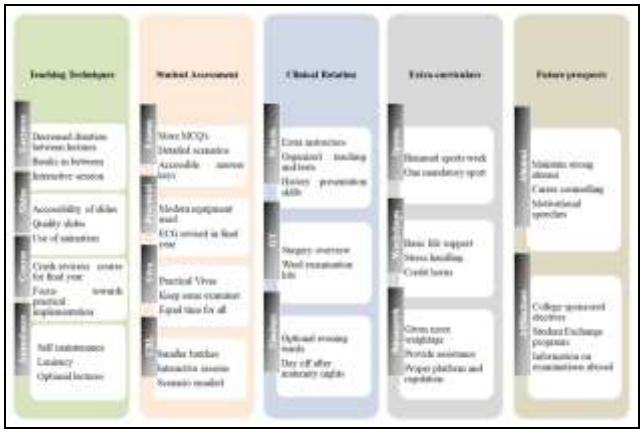

Figure-2: Theoretical Framework Model

DISCUSSION

Our research was framed around two open ended questions which are as follows; what did the students find lacking in the current teaching methodology. The second one being, what they think could be the solutions to the problems they faced?

The problems the students faced in the teaching methodology varied and were grouped under five major groups and each major group had further subheadings:

Teaching Techniques: Over the course of five years of undergraduate medicine, the syllabus is taught to the students via lectures, practical sessions and tutorials such as case-based learning and practice based learning, along with group or self-study as preferred by the student. A study conducted in Shrada University, India assessed such teaching strategies and concluded that the most preferred teaching-learning method among all the students was practicals /dissections (39%), followed by lectures (32%), self-study (18%) and tutorials (11%).[8]

It has been noted from the students' responses in this study that there is still room for improvement. From the responses received, duration and content were most highlighted by the students. The fact that the students in our study demanded the need for interactive session in their lectures is supported by a previous study which, based on self-reports from participants as well as from observational data, shows that interactions allow discussion, reduce the monotony of passive learning and enhance the students' level of understanding and their ability to synthesize and integrate material.[9] The increasing use of multimedia in teaching can provide opportunities for presenting multiple representations of the content.[10] Therefore, it comes to no surprise that students opted that animations be inculcated into presentations for better understanding of core concepts.

Attention span studies have shown that students' interest and attention in the traditional lecture diminish significantly after 20 minutes. Similarly, students listening to lectures when the instructor paused to allow discussion performed significantly better on free-recall quizzes and comprehensive tests.[11]

Student Assessment: Students are assessed in three different methods: theoretical, vivas and practicals. Theoretical examinations attempted by medical students throughout Pakistan have two components: multiple choice questions and short essay questions. Our results reveal that students preferred that more weightage be given to multiple choice questions in terms of evaluation. The open-ended question has low reliability[12] and an examination based on this format is unable to sample broadly.[13] It makes little sense to use this type of assessment to test factual knowledge, which can be done much more effectively and efficiently with the MCQs.

With regards to viva voce, the students are divided into groups which are handed to different examiners. The approach and the expectations of different examiners may be different. Though they may follow a similar agenda, the items may receive

different emphasis by different examiners. This leads to inconsistencies in marking.[14] Bearing this in mind, Gleeson has attempted to remodel and improve the long case examination. The OSLER is a 10 item analytical record of the traditional long case and can be used under the existing constraints of practicality. All candidates are assessed on the same 10 items by the examiner over 20-30 minutes thus improving the reliability.[15]

Case Based Learning (CBL) exposes students to the real medical problems. This also helps them in interpreting and solving the problems and in the course of doing this, they develop interest.[16] However, the number of students in each group should be decreased to allow more efficient learning and interaction. High achievers believe that small group learning with peers enhances their academic performance as it helps them to ponder and consider alternatives to learning a topic. Furthermore, the literature states that small group discussion facilitated better understanding and retention of materials.[17]

Clinical rotation: Fourth year and final year medical students' have clinical rotations in several departments of medicine, surgery, gynecology and pediatrics. The objectives of such rotation are to provide exposure of students to hospital environments as well as developing their history taking and examination skills. To get the most out of this clinical clerkship instructors should be allocated for learning of these students and at the end of every ward rotation, students are assessed on what they have learned. Quality supervision has been reported as a determinant of clinical students' learning and good quality supervision can compensate for other insufficiencies in the learning situation, such as inadequate patient variety.[14]

Extracurricular Activities: Various medical and surgical workshops are held throughout the course of academic year, most of which are mandatory for the students to attend. Subjects of the workshops vary from basic surgical skills to stress management and even career counselling. Workshops should account for hands on experience where necessary. Guest speakers should also be invited and non-medical subjects can also be included. This study showed that medical students entering their clinical years had low levels of confidence and high anxiety regarding the performance of common procedural skills such as knot-tying, suturing, nasogastric tube placement, IV catheterization and bladder catheterization.[18] This validates workshops as a helpful tool in building students' confidence and enhancing capabilities.

In today's world, the field of medicine is advancing by the day owing to vast amount of research that is being carried out by health professionals throughout the world. Therefore it is necessary for undergraduate programs to educate students on various aspects of carrying out different types of researches. In response to an open-ended question, by far the most common suggestions that students made about how to improve undergraduate research programs concerned increased or more effective faculty guidance.[19]

Future Prospects: After five years of undergraduate medical education, students are now faced with the task of choosing their preferred specialty which is made difficult by the fact that they may have little or no guidance. There has been a call for interest in career education and counselling of medical students in Nigeria,[20] same also in Kenya.[21] In Gambia, all the medical students that participated in a study expressed interest in having career counselling during the period of their training,[22] and from a similar study in Israel came the call for greater interest in the career selection of medical students.[23] The college under study should follow suit by arranging career counselling sessions and linking students with appropriate alumni for their benefit. College administration should also focus on affiliations with international medical institutions which would, in turn, allow for opportunities of electives and student exchange programs.

CONCLUSION

The teaching methodology lacks a practical approach regarding medical studies along with lack of student–teacher interaction. In this study, the authors highlight most if not all of the points that need to be worked upon in order to improve the standards of medical education and evaluation. This in turn would yield more astute and skilled health professionals. Students should be asked to give active feedback regarding any changes that they would want. Further research is recommended to include suggestions of faculty members for a better understanding of the problems that lie within the present education system.

Conflict of Interest: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

NAT: Study design, drafting the manuscript, data interpretation, critical review, approval of the final version to be published.

AYS & AAJ: Data acquisition, data analysis, approval of the final version to be published.

AAB: Concept, Data Interpertaion drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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