ORIGINAL ARTICLE

Need of the hour - Student-centered Learning in Undergraduate Medical Curriculum

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ABSTRACT

Background: Student-centered learning is becoming more prevalent in medical education, especially during large-group lectures. The variety and abundance of active learning techniques used in first-year MBBS large group format were investigated.
Aim: To investigate the relationships between student-centered learning and the characteristics and distribution of student-centered teaching approaches in large group settings.
Methods: This was a descriptive exploratory study in which by means of purposive sampling 25 faculty members who were involved in teaching in large and small groups were identified, out of these 25 faculty members, 15 members were chosen for interviews by convenient sampling. Retrospective curriculum evaluations and semi-structured interviews were used to collect the data. The authors tested a taxonomy of student-centered learning strategies and linked those strategies to the characteristics of education.
Results: Over the course of six modules in the first year, teachers used 13 different strategies for active learning. 996 out of 1190 hours of large group teaching included a minimum of one active learning element. 83% of the curriculum's hours in the first year of MBBS had an active learning component.
Practical implications: Many small group-learning approaches are included in active learning, and they may help undergraduate students achieve a higher level of cognitive skills through group engagement. Different kinds of small-group learning have been shown to be successful in fostering higher academic accomplishment, more positive attitudes toward learning, and enhanced persistence.
Conclusions: The frequency and diversity of active learning elements incorporated into the first-year MBBS curriculum show how acquainted faculty are with these techniques and how supportive they are of interactive teaching culture. This research has stimulated discussion about instructional strategies and aided the transition from teacher-centered to learner-centered teaching.
Keywords: Student-centered learning, active learning, interactive studies, critical thinking, game-based.

INTRODUCTION

Student-centeredness and technology have been increasingly important in reforming medical and healthcare education curricula over the past ten years in order to increase student involvement and develop their critical thinking abilities[1].

Workshops and seminars for advancing student-centered approaches have been featured on many platforms as well as at medical education conferences. There is a gap in the literature about medical schools monitoring the saturation of these activities in the undergraduate medical curriculum, despite the fact that there has been much published about student-centered and active learning. Student-centered learning is a general term that encompasses a range of instructional strategies[2]. Case-based instruction, experiential education, peer problem-solving, likewise problem-based education. Online games, podcasts, virtual patient simulations, and audience responses are examples of popular Technology-Enhanced active learning (TEAL) media.

For the existing neo-millennial generation, new media encompasses platforms for regulated engagement, like virtual reality and smart technology. Moving away from narration teaching, which can make students bored or inactive, is what active learning promotes. By taking part in class activities and discussions, scholars assert responsibility for their learning. This approach places a focus on higher-order thinking and frequently uses group projects. Effective methods for promoting learning have been found to be student-centered lessons that are well designed, peer engagement, evidence-based medicine, and participation. Though student-centered is often suggested for medical education, it is well known that not all instructors are familiar with or proficient in this kind of training. According to a 2011 survey of faculty members at colleges of pharmacy, professors who spend more

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time teaching are more likely to employ active learning methods[3]. Younger faculty members and newer universities are increasingly using AL. Despite the benefits, instructors are occasionally unwilling to change their methods of instruction because they feel they must cover all relevant and available material[4].

The student-centered model's objective is to prepare students to actively participate as partners in the learning process, to lean in and engage. According to research on student-centered learning, medical students can learn well and in-depth given the following circumstances: competency-based education, real-world relevance, peer collaboration, deliberate practice, and technology[5].

The objective of the study was to investigate the relationships between student-centered learning and the characteristics and distribution of student-centered teaching approaches in large group settings.

METHODOLOGY

This was a descriptive exploratory study in which by means of purposive sampling 25 faculty members who were involved in teaching in large and small groups were identified, out of these 25 faculty members, 15 members were chosen for interviews by convenient sampling.
Place of the study: This study was conducted at the University College of Medicine and Dentistry located in Lahore, Pakistan.
Duration of the study: The duration of the study was 12 months. (i.e., the academic year 2020- 2021)
Sample Size: Participants included in this study were 15 medical college faculty members responsible for teaching a series of modules to a cohort of 155 first-year medical students.
Inclusion Criteria: Faculty members (Assistant Professor & above) taking lectures of 1st-year MBBS were included in the study.
Exclusion Criteria: Faculty members at the demonstrator level, newly hired faculty members, and faculty members not involved in

the teaching of 1st-year medical students were excluded from the study.

Data collection procedure: Focused interviews with 15 faculty members were conducted in parallel to the progressive, explanatory mixed methods method used in this study that followed the protocols of a retrospective curriculum evaluation. The curriculum reviewed in 2020 included lesson content for student-centered sessions taught during first-year MBBS in the academic year 2020-2021.

Data Analysis: We conducted individual, consented, semi-structured interviews with 15 faculty members involved in teaching 6 modules to the first-year MBBS. Reviewing the taxonomy and then discussing the student-centered hours of each module taught by that instructor comprised this process. In this way, each instructor used the review of his or her previous lessons as a self-evaluation tool. The frequency of student-centered components per hour-long session was then evaluated. Following the completion of the interviews, the research team debriefed the faculty members on their interest in and level of participation in the interview sessions.

Taxonomies aid educators by "helping with classifications and distinctions, which then draw attention to ideas." Taxonomies also provide definitions that assist in the effective implementation of elements in academic practice. Although Stewart et al., Wolff et al., and AAMC had previously proposed AL matrices; the taxonomy named "AL Techniques" was created by the COM's TEAL Committee and approved by faculty consensus [6] Many of the active learning methods indicated in the taxonomy have been put to the test with students over the previous seven years at this institution. The findings of this research make it clear that these learning opportunities give students the opportunity to be proactive, interact, think critically, cooperate, and monitor their own development through rapid feedback. The authors find five attributes connected to student-centered learning using the following process. The authorship panel came to an agreement on five essential qualities at the classroom level after reviewing the literature. After that, each approach was individually assigned to one of the five qualities by the authorship team.

RESULTS

Research question 1 was that which active learning techniques were used, and to what degree? The following are the active learning elements that were used most frequently:
1. Formative quizzes (121%)
2. Case-based teaching and learning (98%)
3. Demonstration (103%)
4. Discussion/debate (99%)
5. Audience response (69%)

The active learning elements that were used the least frequently were:
1. Oral presentations by students (8%)
2. Online modules (15%)
3. Large class format teaching and learning (6%)
4. Self-directed learning sessions (6%)
5. Notes (2%)

Figure 1 displays the information in the form of a histogram, to clearly illustrate the saturation of student-centered components. According to the scope and variety of strategies implemented, these data indicate that instructors experimented with a wide range of active learning techniques and used them all throughout the academic year. All six of the modules had activities, which suggests that there was never a time during the first year when the courses were purely lecture-based with no active learning/student-centered components.

Research question 2. What percent of the first-year curriculum has an active learning component? Figure 2 presents the percentage of active learning sessions that included student-centered teaching techniques. Here, the total learning hours were 1190 hrs. In the first year of the curriculum, with an average of 996 hours (83%) including an active learning component.

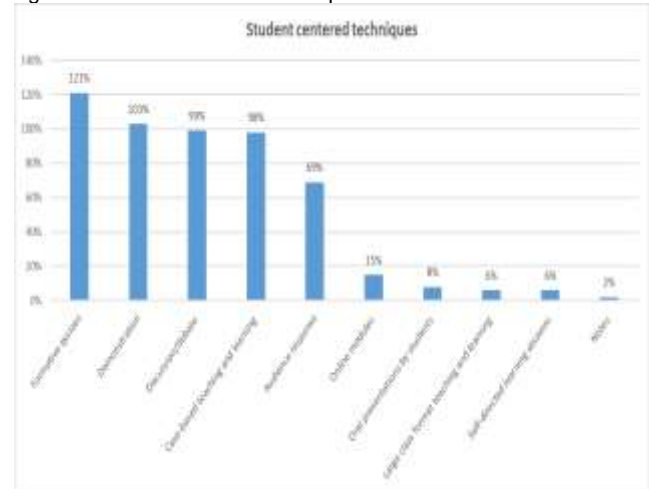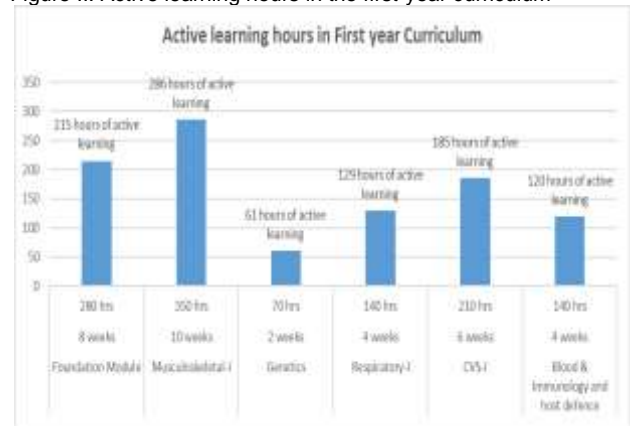Figure I: Student-centered techniques

Figure II: Active learning hours in the first-year curriculum

Research question 3. Was the taxonomy effective for tracking active learning? Faculty members were familiar with the taxonomy at the time of the study. The faculty approved all of the categories and made no suggestions for new categories throughout the semi-structured interview process. Most professors mentioned that they incorporated discussion rather than a formal argument for the "discussion or disagreement" category.

Research question 4. How do the active learning components align with the attributes of student-centered education? Each activity was classified into educational aspects that were focused on the student. A curriculum map that links the qualities to active learning components was shared with the faculty members. Three active learning components are relevant to real-world situations, including two competency-based, seven collaborative, seven intentional practice, and six multimedia/technology-based. According to the findings of this curriculum map, the teaching staff appears to have successfully incorporated important components of a learning-centered approach.

DISCUSSION

It has been beneficial to assess the active learning methods used in the curriculum. This study highlights our efforts to promote a learning-centered culture that is centered on teaching and learning studies. Currently, there seems to be a promising level of student-

centered immersion within the module sessions[7]. The faculty's competence with a variety of methods and their support of an active learning culture may be seen in the frequency and variety of student-centered components integrated across the six courses. Using our inventory, data analysis, and literature review processes, we were able to confirm preferences for how student-centered sessions should be structured[8]. Although active learning changes the role of teachers from information providers to learning facilitators, this does not imply a complete rejection of teaching methodologies[9].

Following the principles of team-based learning as well as the cognitive load theory, facilitated, structured, or mediated active learning instruction is preferred to purely constructivist, discovery learning without facilitation[10]. Our interpretation of student-centered includes a phase before the active component (didactics) when the professor presents or reviews concepts and theories[11]. The taxonomy of these techniques was put to the test; it looked impressive as a categorization tool and demonstrated some internal validity because the categories remained consistent throughout the interviews[12]. The process of tracking one's own teaching strategies provided teachers with an opportunity for observation as well as a chance to evaluate and reevaluate whether their own portfolio of activities was sufficiently diverse[13].

Faculty was able to review their own portfolios and identify any neglected approaches they could use in undergraduate sessions thanks to the inventory of active learning methods. By creating faculty cooperative learning and providing advanced training in facilitation techniques, the faculty development team hopes to strengthen faculty capacity to enhance active learning sessions in the future[14]. Although the fundamental characteristics of active learning are still disputed in research, five characteristics at the lesson level became known through a review of the literature and served as an explanation for our current instructional design[4,15]. They stand for important components, each of which adds to a meaningful learning experience.

The research team used the study's findings to examine educational goals and develop a consensus-based, participatory process for expressing educational values. Without the complete backing of the administration and faculty, full engagement in the teaching regarding creating an active learning culture would not have been possible[16]. To help with the transition to student-centered, the university has established a faculty development program, and they promoted a culture that prioritized a student-centered approach[17].

Limitations: Narrative faculty interviews have been used in the research design, but during those interviews, during which faculty fact-checked and self-reported regarding their lesson formats.

CONCLUSIONS

According to the study's findings, 83% of the curriculum's hours in the first year of MBBS had an active learning component. There was never a time in the first year when the courses solely depended on lecture-based instruction with no active learning components; instead, the faculty utilized all student-centered approaches and integrated active learning components throughout all six courses. The saturation of active learning in the curriculum is efficiently measured by these data, in addition to the frequencies offered for each component of active learning. Other departments are urged to evaluate the prevalence and scope of student-centered in their curricula and align it with active learning characteristics in their home institutions[11].

This kind of curriculum inventory was carried out at our institution to assist faculty in reaching consensus, establishing objectives, identifying practice gaps, and investigating strategies to enhance education. This experience has been helpful in determining the precise training requirements and institutional and instructor-level changes needed to develop a distinctive, well-balanced student-centered strategy, with the ultimate objective of educating future physicians who are competent and knowledgeable.

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