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Original Article

Barriers to Bedside Teaching: A Cross-Sectional Comparative Survey of Students and Faculty

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ABSTRACT

Objective: To identify the barriers to bedside teaching among students and clinical faculty.
Study Design: Cross sectional comparative study.
Place and Duration of Study: Pak Emirates Military Hospital, Rawalpindi Pakistan, from Dec 2019 to Jun 2020.
Methodology: The study participants included undergraduate students, postgraduate students and clinical faculty members. A self-designed questionnaire listing 25 common barriers to bedside teaching was distributed after pilot testing.
Results: The total number of participants was 160, out of which 78(48.75%) were males, and 82(51.25%) were females. There were 40 respondents in each of the categories of consultants, postgraduate trainees and 80 in the undergraduate student category. Twenty consultants (50%) were from Medicine and Allied specialties, 10(25%) from Surgical and Allied specialties while 10(25%) did not mention their specialty. Majority of postgraduate trainees 33(82.5%) were from Medicine and Allied specialties. Significant difference (p-value=0.004) was revealed among students and faculty regarding barriers to bedside teaching. Bedside teaching was accorded more value by faculty (p-value=0.026). Faculty deemed ambiguity in curriculum as a more important barrier as compared to the students (p-value=0.037). Common barriers identified by students were inadequate time allocation (p-value<0.001), large student groups (p-value<0.001), performance pressure on faculty (p-value=0.004), lack of problem solving skill teaching (p-value=0.028) and insufficient feedback (p-value=0.044).
Conclusion: Students as well as faculty value the role of bedside teaching in medical education but are cognizant of significant barriers in its execution. There are a number of common impediments that are narrated by both groups but students accord more importance to larger groups, lesser time, and lack of problem solving teaching. Faculty, on the other hand, have identified ambiguity in curriculum as an important hindrance.

Keywords: Bedside teaching, Clinical faculty, Students.

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INTRODUCTION

Bedside teaching is a powerful strategy for developing core clinical skills which aims to transform medical students into clinicians.[1,2] It is defined as any kind of training occurring in the presence of a patient, regardless of the milieu in which the training is conducted.[3] The complex interactions of the triad comprising of student, teacher, and patient in a clinical setting set the stage for a unique learning opportunity.[4]

Epitomizing patient-centered care, bedside teaching not only hones history taking and physical examination skills but also improves communication, contextual learning, team work, professionalism and clinical reasoning.[2] Despite these benefits, this type of teaching seems to be declining in present day medical education.[5] Researchers have explored the various reasons for this decline in students as well as teachers. Time constraints, competing responsibilities, reliance on technology, difficulty in planning during the chaotic hospital routines and curricular factors have been quoted as impediments to bedside teaching.[6] Group discussions involving undergraduate and post graduate students revealed that the hindrances to bed side teaching were perceived to be caused by personal barriers such as low initiative for teaching, lack of teaching skills, interpersonal barriers such as lack of patient cooperation and environmental barriers like interruptions during rounds.[7]

High student teacher ratio, absenteeism and emphasis on theoretical learning have been listed as student factors which hinder bedside teaching in another review article outlining importance of this instructional tool.[8] Teachers are handicapped by lack of motivation, thin ice syndrome, interruptions, short patient stays, as well as perceived patient discomfort.[9] Unavailability of bedside teaching curriculum, poor discipline in students and faculty, lack of accountability, low job satisfaction are some of other factors that have negatively impacted bedside teaching.[10]

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In order to stem the decline in bedside teaching, it is imperative to identify the factors that impede it so that they can be addressed. Researchers have looked separately at the perspective of students and teachers regarding hindrances to this important teaching modality. However, there is a paucity of studies which look at this issue from the point of view of both groups in the same setup, especially in Pakistan.

This study aims to identify the barriers to bedside teaching which are perceived by the students and clinical faculty and compare them in the two groups. The comparison of the views of teachers and student will also inform future practice, by identifying the issues that are seen to be common for both groups and also those for which the groups think differently. Once these barriers are identified, steps can be taken to address them.

METHODOLOGY

The cross sectional comparative study was conducted at Pak Emirates Military Hospital (PEMH), Rawalpindi Pakistan, during a period of six months (Dec 2019 to Jun 2020).

Inclusion Criteria: The study subjects included undergraduate students of Fourth and Final year, MBBS, post graduate trainees and teaching faculty.

Exclusion Criteria: Nil

Subjects were provided with a detailed description of the study and were inducted into the study after written informed consent and approval from PEMH Ethical Review Board (certificate number A/28/EC/85). Sample size was calculated using the software 'G Power, version 3.1.9.2 for a two tailed independent samples't' test. By keeping the values of effect size as 0.5, alpha error probability as 0.05 and power of the test as 0.8, a sample size of 128 was calculated. At an estimated response rate of 90%, the questionnaire was distributed to 160 participants using convenience sampling.

A questionnaire was developed by brain storming, reviewing previous studies and literature search. The first part of the questionnaire consisted of the demographic data and the second part was aimed at quantitative analysis of the barriers to bedside teaching. It included 25 statements and the subjects were asked to rate the barriers on a Likert scale which ranged from strongly disagree, disagree, undecided, agree and strongly agree for each barrier. The list of barriers included various logistic, patient, student, faculty, and curriculum related issues.[6-10]

After pretesting on a convenience group of 20 subjects, necessary amendments were made. A panel of two experts in Medical Education was consulted and the questionnaire was finalized after incorporating their input. The final questionnaire was administered by a group of four medical officers who were trained for the purpose and remained available for any queries while the subjects filled the form, however they were instructed not to influence the subjects. The forms were then collected for further analysis.

Statistical analysis was performed using Statistics Package for Social Sciences (SPSS) version 21.0. Mean and standard deviation were calculated for numerical variables whereas frequency and percentages for the categorical variables. Mean scores between the groups were calculated using Independent Samples t-test. Frequency comparison of each item between the groups was carried out using Chi-Square test. Differences between groups were considered significant if *p*-values were less than or equal to 0.05.

RESULTS

The total number of participants was 160, out of which 78(48.75%) were males, and 82(51.25%) females. There were 40 respondents in each of the categories of consultants, postgraduate trainees and 80 in the undergraduate student category with 40 each from fourth year and final years. Twenty consultants (50%) were from Medicine and Allied specialties, 10(25%) from Surgical and Allied specialties while 10(25%) did not mention their specialty. Thirty-three postgraduate trainees (82.5%) were from Medicine and Allied specialties.

Reliability of the questionnaire as determined by Cronbach's Alpha was 0.763. Comparison of perceptions of barriers to bedside teaching amongst males and females (Table-I) shows no significant difference. However, comparison between faculty and students reveals a significant difference with a *p*-value of 0.004.

Responses of participants are shown in Table-II. Both groups acknowledged that bedside teaching is an important component of contemporary medical education with a 95% of faculty thinking so (*p*-value 0.026).

The students as well as the faculty did not agree with the statement that patients' non-cooperation was a barrier with 87% of faculty disagreeing (*p*-value <0.001). Both the groups disagreed with the statements

that it was not interesting, students were not motivated, ward environment was not conducive or the faculty was not trained (*p*-value 0.349, 0.133, 0.348 and 0.063 respectively).

Table-I:Comparison of Mean Scores for Barriers to Bedside Teaching Between Males and Females (n=160)

		Mean±SD	*p*-value
Gender (n=160)			
Male	78	75.41±11.339	0.24
Female	82	77.38±9.795	
Faculty (n=40)			
Male	27	70.89±13.463	0.324
Female	13	75.08±9.819	
Students (n=120)			
Male	51	77.80±9.321	0.997
Female	69	77.81±9.801	

Seventy four percent of students and 78% of faculty were of the opinion that the competing responsibilities of the faculty were a barrier to bedside teaching (*p*-value 0.063). Ambiguity in curriculum was deemed to be a barrier for both groups, more so for the faculty (*p*-value 0.037). and so was lack of feedback during the activity (*p*-value 0.044). Other barriers for both the groups included compromised patient privacy, low student attendance, lack of preparation on the part of students and curricular factors. The latter included inadequately defined learning outcomes, suboptimal use of logbooks to only document attendance, improperly structured activity and non-alignment with assessment methods.

Students were concerned that problem solving techniques were not taught during bedside teaching, the time allocated was too less, number of students was too large and there was performance pressure on teachers while faculty disagreed (*p*-value 0.028, <0.001, 0.022, 0.004 respectively). Students expressed the opinion that the practice of not observing the students during patient interaction and lack of remediation was a barrier but faculty did not echo this (*p*-value 0.569, 0.16 respectively).

Table-II: Comparison of Responses between Students and Faculty (n=160)

Sr. No.	Item	Students	Faculty	*p*-value
		Mean±SD	Mean±SD	
1	Patients are not cooperative	2.6±0.95618	1.85±0.7696	0.001
2	Patients privacy is compromised	3.3333±1.04787	3.2±1.067	0.668
3	The number of students is too large for effective bedside teaching	3.4167±1.14189	2.725±1.0619	0.022
4	Student attendance is suboptimal	3.1083±1.20081	3.25±1.3349	0.84
5	Students are not motivated for bedside teaching	2.625±1.15999	2.975±1.3299	0.133
6	Students do not come prepared	3.5917±1.08074	3.8±0.8534	0.581
7	Bedside teaching is not important in contemporary medical education	1.8167±1.06102	1.3±0.6485	0.026
8	Bedside teaching is not properly structured	3.475±1.12244	3.375±1.0048	0.341
9	Learning outcomes and objectives are not properly defined for bedside teaching	3.6083±0.99828	3.475±1.132	0.804
10	Ward environment is not conductive for bedside teaching	2.8583±1.13978	2.675±1.0952	0.348
11	Faculty is not properly trained for bedside teaching	2.7833±1.10904	2.825±1.0834	0.063
12	Faculty has too many competing responsibilities	3.8833±0.98034	3.9±0.9554	0.334
13	There is too much performance pressure during bedside teaching on students	3.15±1.00962	2.775±0.8619	0.243
14	There is too much performance pressure the instructor	3±0.95266	2.45±0.9858	0.004
15	There is a lack of feedback during bedside teaching	3.5±1.05321	3.375±1.1022	0.044
16	Time allocated to bedside teaching is too short	3.125±1.21311	2.575±0.7808	0.001
17	Assessment methods are not aligned with bedside teaching	3.3833±1.04667	3.1±1.1503	0.083
18	Too much theory is taught during bedside teaching	3.025±1.18437	2.725±1.198	0.113
19	Problem solving techniques are not taught in bedside teaching	3.4417±1.11367	2.85±1.1669	0.028
20	Bed side teaching is not interesting	1.9833±1.08452	1.8±0.8829	0.349
21	Students are not observed during the patient interaction	3.1083±1.15806	2.775±1.1433	0.569
22	Beside teaching is conducted without the patient being actually presented	2.5833±1.14189	2.325±0.9971	0.496
23	Curriculum does not clearly define what is to be taught	3.3833±1.1463	3.425±1.035	0.037
24	Log books are only used to document attendance	3.55±1.24246	3.75±1.1491	0.38
25	There is no remediation of defective clinical skills	3.475±1.07658	2.975±1.0497	0.16

DISCUSSION

Bedside teaching provides an invaluable opportunity for learning how to practice medicine in a holistic way and has been rated as a primary modality for instruction.[1] Teachers as well as learners regard bedside teaching as a powerful tool for teaching medicine.[7,11] In our study also, both groups regarded bedside teaching as a vital strategy though faculty considered it more important as compared to students.

The reason for this might be that the teachers consider it as more doable and practical in our resource limited setting. A number of barriers to bedside teaching were identified by both categories.

Both groups disagreed that patients' non-cooperation was an impediment to bedside teaching, with majority (87%) of faculty disagreeing. Holla *et al.* found that faculty was neutral regarding this factor.[12] A recent study showed that most of the patients who were approached agreed to participate in bedside teaching and more than 90% valued the time spent with students thus signifying the patients are generally willing to cooperate for the activity.[13] Both the groups in our study thought that compromised patient privacy was a deterrent in concordance with an earlier study.[6]

Ward environment was not a problem according to our study participants. This is in contrast to other studies which highlighted that bedside teaching was adversely affected by ward environment.[6] Shehab found that more than 70% of faculty thought that noisy, crowded wards were a barrier and so was teaching during visiting hours.[14] Faculty in a South Asian study had a similar opinion.[12] The reason why our participants thought differently might be that the hospital where the study was conducted, is a recently built structure with spacious wards and ample teaching spaces.

Lack of training of faculty was not deemed a barrier for this mode of instruction. This is similar to a Nigerian study which found that two thirds of the faculty considered that their teaching skills were adequate though they acknowledged that they would benefit from further training.[15]

However, this differs from the findings of Crumlish and co-workers who conducted a needs assessment survey of hospitalists (n=18) in an American hospital. Interestingly, 12(67%) of hospitalists thought that they had not received adequate training for physical exam and only half were confident that they could teach it.[5]

Performance pressure on faculty featured as a barrier as has been quoted in a previous study[9] and this coupled with perception of inadequate training can make clinical teaching a difficult undertaking. The faculty in Western studies regards this pressure as a barrier and it has been likened to walking on thin ice due to deskilling.[9] Babayev *et al* found that US trained faculty was more conscious of performing poorly in front of juniors as compared to non US trained faculty.[16] This may be explained by the variation in training strategies and curricular approaches in different countries e.g. British and Canadian trainees not only receive more training in cardiac auscultation skills than their US counterparts but also undergo an assessment of physical examination skills.[17]

Earlier studies have emphasized the multiple, conflicting responsibilities of faculty as barriers.[6,12] Our study also shows similar findings. Seventy five percent of learners in one study thought that this merited having separate faculty for bedside teaching.[18]

Ambiguity in curriculum was thought to be a barrier for both groups but more so for the faculty. In addition, inadequately defined learning outcomes, improperly structured activity, non-alignment with assessment methods, suboptimal use of logbooks to only document attendance are other curricular factors which were stated as hampering the bedside teaching. Similar issues have been highlighted in other studies and their remediation stressed.[6,12] Most of the faculty of a Pakistani medical college, who participated in a study opined that they were not aware of any curriculum for bedside teaching in their college and a copy of the curriculum could not be provided. Though bedside teaching was taking place, there was no uniformity across different clinical units. The faculty, however, were cognizant of the importance of planning.[10] Clinicians feel that not enough emphasis is placed on bedside teaching and curricular reform has been advocated as a remedy.[19] Clearly defined objectives, focused, structured and planned activities of bedside teaching are other necessities.[10] Our subjects thought that logbooks were used suboptimally e.g. only to document attendance. Schuttpelz-Brauns *et al* have elucidated this in their work and quoted the deficiencies in the use of logbooks along with suggested solutions.[20]

Absenteeism or low student attendance has been cited as a barrier in our study. In a study done in Kolkata, India, the faculty agreed that this was the most important factor responsible for poor clinical skill development and found that only 40 percent of the students attended medical ward.[21] However, in our study, both groups disagreed with the statement that bedside teaching was not interesting or student motivation was a barrier.

The students thought that time allotted to bedside teaching was too shortand this coincides with the prevalent view in many studies which found that time constraints acted as a hindrance.[11,22] Half of the

faculty in our study differed with this while a large percentage were undecided. The diverging opinion expressed by our faculty may be due to the fact that they are already overworked so may not consider increasing time for bedside teaching to be practical.

Students seemed to think that the number of students was too large for effective bedside teaching, faculty did not think this. In contrast to this, Holla *et al* stated that faculty thought that the large number of students was a barrier.[12] Faculty and students have voiced concern about larger groups impeding clinical teaching in other studies as well.[21,23]

Observation during rounds and supervision by faculty promotes clinical skill development.[16] Lack of direct observation by teachers during bedside teaching was also a barrier for students in our study but not so for faculty. The reason may be that self-evaluation is a difficult task and faculty may be over rating their own performance.

Critical thinking and clinical problem solving techniques need to be emphasized during bedside teaching.[23] Students in our study thought that problem solving techniques were not taught during bedside teaching but the faculty did not agree with this. The views of the students lend credence to findings in earlier studies.[24]

Paucity of feedback and remediation of observed deficiencies in clinical skills during the activity was another hindrance. A Keele University study focusing on third year medical students found that 69 percent of students valued feedback whether it was from junior doctors or consultants.[25]

The major limitation of our study was the small sample size. However, earlier studies have utilized similar or even lower sample size. As this was a single center study, the findings cannot be generalized. In the postgraduate sample, most of the students belonged to the medicine and allied specialties. Also convenience sampling was done which may have led to selection bias. The postgraduate and undergraduate students were grouped together and were not analyzed separately.

CONCLUSION

Students as well as faculty value the role of bedside teaching in medical education but are cognizant of significant barriers in its execution. There are a number of common impediments that are identified by both groups but students accord more importance to larger groups, lesser time, and lack of problem solving teaching. Faculty, on the other hand, have identified ambiguity in curriculum as an important hindrance.

Conflict of Interest: None.

Authors' Contribution

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

SN & SHW: Concept, study design, , data acuisition, interpretation, data analysis, critical review, 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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