Electronic Physician (ISSN: 2008-5842) http://www.ephysician.ir
Year: 2015, Volume: 7, Issue: 4, Pages: 1205-1213, DOI: 10.14661/2015.1205-1213

Quality of bedside teaching in internal wards of Qaem and Imam Reza hospitals in Mashhad

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Type of article: Original

Abstract

Background: Bedside teaching is a patient-based teaching method in medical education. The present study has been conducted with the aim of investigating the quality of bedside teaching in the internal wards of Qaem and Imam Reza Educational Hospitals.

Methods: This study follows a mixed qualitative-quantitative approach using checklists on educational clinical rounds in Imam Reza and Qaem Hospitals in Mashhad. In the first stage consisting of qualitative study, the parts related to the quality of bedside teaching were recognized and a checklist was designed in three domains of patient comfort (8 questions), targeted teaching (14 questions) and group dynamics (8 questions), and its reliability and validity were verified. In the next step, data were collected and then analyzed using SPSS 16 software through statistical techniques of independent t-test, one-way ANOVA and variance analysis.

Results: In total, 113 educational rounds were investigated in this study. Among them, 59 (52.2%) and 54 (47.8%) educational rounds have been investigated in Imam Reza and Qaem Hospitals, respectively. The average total score of bedside teaching was 180.8 out of 300 in the internal wards of both Imam Reza and Qaem Hospitals.

Conclusion: The results of this study showed that generally the quality of bedside teaching in Imam Reza and Qaem Hospitals of Mashhad is low according to the qualitative standards considered in this study. Holding educational workshops along with more familiarity of the professors with effective bedside teaching strategies could be effective in improving the quality of educational rounds.

Keywords: Clinical Teaching; Quality of Education; Medical Education

1. Introduction

1.1. Background

Clinical teaching is a critical and indispensable section in medical education (1) that results in the evolution of knowledge, attitude and skills (2); i.e., the clinical competency of the students (3). Clinical teaching consists of various fields, one of which is clinical rounds (4). Bedside teaching is a patient-based teaching method in medical education that facilitates acquiring real knowledge, practical skills and professional attitudes (5). This field of learning includes every situation where learning takes place in the presence of the patient, regardless of the environment in which such education is presented (6). Bedside teaching engages the training physicians with interaction with the patient beside their bed to extract a patient's records, represent the key features of clinical

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Received: May 05, 2015, Accepted: June 28, 2015, Published: August 10, 2015
iThenticate screening: July 28, 2015, English editing: August 05, 2015, Quality control: August 07, 2015

examination and discuss the best approach to diagnosing the disease and treating the patient (7). Bedside teaching provides active learning in real situations, observing students' skills, increasing their motivation, professional thinking, clinical integration, communicative skills, problem-solving skills, decision-making and moral skills along with improving the understanding of patients (1, 8). In addition, it transfers the human aspects of patient care to the medical students (5, 9) and helps the physician to view the patient as a real person and not merely a summary of the disease (4). This is why these qualities cannot be developed effectively in classrooms (1, 10).

1.2. Statement of the problem

In clinical medicine, 56% of the patients' problems could be well recognized after a complete history taking, and this increases to 72% after physical examination. In some cases, this percentage could reach 90%. In other words, performing a comprehensive physical examination could assist the individual physician to reach a diagnosis faster (1, 8, 11, and 12). Previous studies indicate that real clinical teaching emphasizing the history and physical diagnosis over the last 17 years has decreased from 75 to 16%, and it is even less today (4, 10, and 13). In addition, clinical teaching has withdrawn from the bedside to hospital corridors, nursing stations and finally to the conference hall (5, 11, and 14). Nair et al. claim that only 48% of the trainees have stated that they have had bedside teaching during their study. These individuals are 100% sure that bedside learning is the most effective method for learning clinical skills (15). Since the aim of clinical teaching is to provide opportunities for students to link theoretical information with practical realities, promoting its quality could result in training qualified students in different clinical domains (16, 17). Unfortunately, no experimental evidence indicates that bedside teaching is the most effective strategy (6). Since no official evaluation has been conducted on this important educational field in medical universities, no reliable information shows that bedside teaching objectives, including the increase of concept understanding and personal skills, have been achieved through this strategy. This study was planned and conducted with the aim of determining the quality of bedside teaching in the internal wards of Qaem and Imam Reza Educational Hospitals in Mashhad.

1.3. Objectives

The present study has been conducted with the general objective of determining bedside teaching quality in internal wards of Qaem and Imam Reza Educational Hospitals in Mashhad in 2014. The specific objectives of this study include:

1) Determining the quality of patient comfort during bedside teaching in the internal wards of Qaem and Imam Reza Educational Hospitals in Mashhad in 2014
2) Determining the quality of targeted teaching in bedside teaching in the internal wards of Qaem and Imam Reza Educational Hospitals in Mashhad in 2014
3) Determining the quality of group dynamics of bedside teaching in the internal wards of Qaem and Imam Reza Educational Hospitals in Mashhad in 2014

2. Material and Methods

2.1. Research Design and Setting

The method employed in this research was a qualitative study to design tools and apply them to educational clinical rounds held in the internal wards of Qaem and Imam Reza Educational Hospitals in Mashhad in October 2014. These two hospitals were selected since they are currently regarded as general hospitals and among the largest centers of medical education and health in northeastern Iran. Training of general practitioners as well as specialty and subspecialty levels is mostly done in these two hospitals.

2.2. Sampling

Sample size was calculated as at least 96 rounds using the Cochran formula; in total we investigated 131 educational rounds in both hospitals. 59 and 54 educational rounds were held in Imam Reza and Qaem Hospitals respectively. To supply the calculated sample size, a multi-stage sampling method was employed. In the first step, the educational rounds held between October and November 2014 were selected as clusters. Then they were selected randomly and evaluated proportionally to the rank of the holding members of the faculty.

2.3. Measurement Tool

To collect data, first a checklist was designed. To do so, Persian and English keywords of medical education, quality of education, clinical teaching, challenges and strategies in bedside teaching, along with new models in bedside and patient-based teaching. The above-mentioned keywords, in combination and separately, were then used as search

terms in PubMed, Google, Scientific Information Database (SID), Eric, Web of Knowledge, Medline, Science Direct, Scopus, Magiran, Google Scholar, ProQuest, Elsevier, and the Iranian Journal of Medical Education without considering the time limit. In total, the search yielded 138 articles published from 2003 to 2014. The author investigated the obtained texts based on the titles and abstracts. In this step, 55 articles related to our study were selected and studied carefully. Then the sections related to quality based on variables mentioned in these studies were collected. In the next step, the resulting items were investigated and discussed in numerous meetings with experts and professors, and the overlapping cases were cancelled or merged together. Finally, the contents were classified into three domains: patient comfort, targeted-teaching and group dynamics, in accordance with the three-domain model of Janicik and Fletcher. The resulting checklist was presented to a number of medical education and clinical medicine specialists for content validity. The reliability of the checklist was verified using Cronbach's alpha coefficient (0.74). The first part of the author's checklist consisted of demographic information including the name of the hospital, type of internal ward and the rank of the faculty member conducting the educational rounds. The second part of the checklist included 30 questions involving the factors of effective bedside teaching, including the domains of patient comfort (8 questions), targeted teaching (14 questions) and group dynamics (8 questions) (Table 1). The students were asked to score the checklist questions from 0 to 10 (0= not done, 10= done perfectly).

Table 1. Checklists and questions related to each domain

Domains	Questionnaire items
Considering patient comfort	1) Was it coordinated with the patient before starting the interview? 2) Is the purpose of gathering around their bedside explained to the patient? 3) Are all of the members of the team introduced to the patient? 4) Was the patient encouraged to participate in the discussions? 5) Is the language used understandable to the patients used, and are technical words avoided? 6) Was the patient thanked at the end of the meeting for their participation? 7) Was a team member selected for later follow-ups to clarify possible misunderstandings and answer the patient's questions? 8) Was the privacy of the patient considered?
Targeted teaching	1) Does the team member responsible for the patient provide a summary of the patient's condition? 2) After presenting the explained history, was the student asked about the process of diagnosis and treatment? 3) Did the professor ask questions to assist clarifying the issue? 4) Were the questions patient-focused? 5) Were the students asked about the reasons for mentioned diagnosis? 6) Were any questions asked about differential diagnosis or diagnostic measures and alternative treatments? 7) Were the general principles of the disease discussed within a round? 8) Were these principles expressed in brief? 9) Were these general principles focused on special effects of the disease in the patient? 10) Did the professor praise the trainee for those actions he performed well? 11) Was the trainee encouraged for what they have done well? 12) Was presenting feedback to the student performed properly considering their status? 13) Did the professor inform the students about their mistakes? 14) Did the professor present any strategies or useful behaviors to correct the student's mistakes?
Group dynamics	1) Was a good relationship established with the student at the beginning of the training session? 2) Were team collaboration and creating a safe learning atmosphere emphasized? 3) Were the students invited to engage in teamwork? 4) Were quiet students forced to be active in discussion? 5) Did the professor listen carefully to the students? 6) Was a summary of the teachings presented at the end of the session? 7) Was a time set for questions, clarification, and more study for the next round? 8) Were proper resources and content presented to the team members for more reading?

2.4. Data Collection

Data collection was conducted through field study. First, the researcher obtained permission from the Department of Higher Education and the Vice-Chancellor for Medical School. The subject of the study was presented to the heads of the internal wards of the mentioned hospitals, and permission was then obtained from the hospitals. In the next step, a list of the medical students in the clinical teaching course was provided; those who were passing the internal ward course and the professors' rounds were selected randomly. Then the content of the checklist was given to the students to familiarize them with its content and data collection method. Finally, the students filled out the checklists after attending the selected educational rounds in internal wards, maintaining the confidentiality of their answers.

2.5. Ethical Consideration

This study was conducted under the license of the research ethics committee of Mashhad University of Medical Sciences. Participation in this study was voluntary, and the names of the members of the faculty who held educational rounds were not entered on the data collection forms to maintain privacy and confidentiality of information.

2.6. Statistical Analysis

Data were analyzed using SPSS 16 (SPSS Inc. Chicago Illinois, USA) software. Data description was conducted using descriptive statistical indices as frequency and mean along with standard deviation. To ensure the normal distribution of data, the Kolmogorov-Smirnov test (K–S test or KS test) was first conducted. Then, independent t-test, one-way ANOVA and variance analysis were used, in which ($p<0.05$) was regarded as statistically significant.

3. Results

In this study, 113 educational rounds in total were investigated (Table 2). Among them, 59 (52.2%) and 54 (47.8%) of educational rounds were held in Imam Reza and Qaem Hospitals, respectively. Among all educational rounds investigated, educational rounds held by the members of the faculty with the rank of professor was 19 (16.8%), assistant professor 63 (55.8%) and associate professor 31; this conformed to the real ratio of the members of the faculty. In general, the average total quality score of bedside teaching in the internal wards of Imam Reza and Qaem Hospitals was 180.8 out of the total score of 300. The lowest score related to the quality of bedside teaching was 0 and the highest score was 300. In the domains of considering patient comfort and group dynamics, the lowest and highest scores were 0 and 80, and in the case of targeted teaching the lowest and highest scores were 0 and 140, respectively. The average quality score of bedside teaching in the internal wards of Imam Reza and Qaem Hospitals was 163.7 (±46.4) and 197.9 (±66.4), respectively. The average score of bedside teaching was compared for both groups using independent t-test (Table 3), the difference of which was not significant ($p>0.05$).

Table 2. Frequency distribution of studied educational rounds

Type of internal ward	n	%
Hematology	15	13.3
Nephrology	25	22.1
Rheumatology	12	10.6
Gastroenterology	26	23.0
Respiratory	26	23.0
Endocrinology	9	8.0
Total	113	100

Table 3. Description of the quality of bedside teaching in terms of the internal wards of Imam Reza and Qaem Hospitals

Hospital (n) [1]	Quality of bedside teaching			Quality focused on patient comfort			Quality focused on targeted teaching			Quality focused on group dynamics		
	Mean	SD	*P*	Mean	SC	P	Mean	SD	P	Mean	SD	P
Imam Reza (59)	163.7	46.4	0.084	26.5	15.4	0.06	101.3	25.7	0.201	35.8	15.1	0.022
Qaem (54)	197.9	66.4	0.084	31.1	20.4	0.06	110.7	33.3	0.201	56.0	21.6	0.022

1: Number of samples

The average quality score of patient comfort in the internal wards of Imam Reza and Qaem Hospitals was 26.5 (±15.4) and 31.1 (±20.4) out of 80, respectively (Table 3). The average score related to patient comfort in both groups was compared using independent t-test, and the difference was not significant ($p>0.05$). The average quality score of targeted teaching in bedside teaching in the internal wards of Imam Reza and Qaem Hospitals was 101.3 (±25.7) and 110.7 (±33.3) out of 140, respectively (Table 3). The average score of targeted teaching in bedside teaching in both groups was compared using independent t-test, and the difference was not significant ($p>0.05$).

The average quality score of group dynamics in bedside teaching in internal ward of Imam Reza and Qaem Hospitals was 35.7 (±15.1) and 56.0 (±21.6) out of 80 (Table 3). The average score of group dynamics was compared in both groups using independent t-test, and the difference was significant ($p<0.05$). The average total score of bedside teaching quality in terms of patient comfort, targeted teaching and group dynamics was compared in the two groups using independent t-test. By supposing equal variances, the difference was not significant in terms of patient comfort and targeted teaching ($p>0.05$). However, it was significant in terms of group dynamics ($p<0.05$). Nevertheless, the quality of bedside teaching was not significantly different in the two hospitals ($p>0.05$).

One-way ANOVA was employed to compare the quality of bedside teaching in terms of the rank of faculty members. No significant difference was observed in terms of patient comfort and targeted teaching ($p=0.235$ and $p=0.121$, respectively). However, the quality was significantly different in terms of group dynamics considering the rank of faculty members ($p=0.027$). In sum, bedside teaching quality was not significantly different in the two hospitals in terms of the rank of faculty members ($p=0.129$). The quality of bedside teaching was significantly different only in terms of group dynamics among assistant to associate ranks of faculty members ($p=0.049$) in such a way that the average score obtained by assistant professors was higher for 10.7.

4. Discussion

In general, the results of the study showed that the quality of bedside teaching in internal wards of Qaem and Imam Reza Educational Hospitals is not acceptable according to the indicators of patient comfort, targeted teaching and group dynamics. In the study by Ziaee, the percentage of students' consent from clinical teaching was 38.8%, which conformed to the results of this study. In the previous study, only a few items including the educational objectives being specified, the number of participating students and having a course plan were investigated (18). The results of the present study conform to the results of Khorasani study in 2007, which had reported students' attitudes toward the current situation of clinical teaching as negative. However, in that study, only limited aspects of clinical teaching were addressed, including the educational objectives being specified, the possibility of independent visits by the trainee, the possibility of prescribing medicine independently and criticizing and correcting the trainee's history (19). On the other hand, another study conducted in the Iran University of Medical Sciences in 2004 showed that the quality of clinical teaching was regarded as relatively favorable, according to medical students. In that study, domains of scientific mastery of the professor, educational management and the quality of communication and consulting were considered. That study did not consider patient comfort as an independent item, and it conformed to our study only in the domains of targeted teaching and group dynamics (20). In his study in 2012, Bagheriyan represented that the situation of clinical teaching is regarded as desirable, according to the students of anesthesiology and operating room in Tabriz. In this study, the trainer, clarity of educational objectives, and the educational environment were shown to have the highest effect in the quality of clinical teaching (21). In the study by Mardani in 2010, the situation of clinical teaching was reported from nursing students' perspective. In this study, the evaluation method and proper manners of the trainer were regarded as strong points, and the lack of coordination of clinical teachings with theory was regarded as the weak point (22). The spectrum of factors affecting clinical teaching is extended in different studies. It appears that the current study has included aspects that play more important roles in clinical teaching. Possibly the strong point of the present study in comparison to others is its special attention to patient preferences as one of the factors affecting quality. In a study by Lubetkin at Cornell University, the quality of clinical teaching was regarded as desirable according to the professors and students, although the professors were more satisfied than the student (23). The results of that study did not conform to the results of our study. In the above-mentioned studies, items including educational equipment, mastery of professors of the subjects and the physical environment were considered.

The results of the present study are devastating in terms of the quality related to patient comfort in bedside teaching, and these conform to the results of the study by Dehghani et al. (24). This category has been emphasized in numerous studies, and it is regarded as a high-quality component of clinical teaching (6, 25-27). A study conducted in Isfahan in 2006 showed that talking about mental and social issues satisfies only 40% of the patients, and nearly

60% of the patients were satisfied in terms of having emotional connection with their physicians. The patient's participation in the treatment process was not satisfying for 50% of the patients in terms of having treatment methods clearly explained, being included in understandable discussions, and feeling that their feedback was valued in terms of performing or not performing a treatment. 40% of the patients felt unsafe about scattered talks during clinical teaching and stated that they felt themselves to be regarded as educational tools (4). In Lehmann's study of Educational Hospitals of the USA, patients' satisfaction with clinical teaching was 87% (28). It appears that not allowing the patient to discuss their emotional issues and social conditions, lack of participation and getting feedback from them in discussions, along with medical decisions and low emotional relations of the physician with the patient, have resulted in ignoring human aspects. However, in related studies, indicators such as good relations with the patient, patients' participation in decisions, considering patients' concerns, accelerating the solution of patients' problems and answering their questions are considered to be measures of humanitarian behavior of the physician (13, 29). In 2012, a study by Adibi in Isfahan revealed that repeated examinations and visits, along with crowded and long clinical rounds in which information is presented to the patient in an unclear way, have resulted in patient dissatisfaction. In effect, patients feel that they are employed as educational tools (13). Factors such as a high number of questions and examining individuals in clinical rounds and the main physician not being recognized, scattered and contradictory discussions in the patient's presence, along with the lack of presenting sufficient and understandable explanations of the disease and treatment measures, results in increasing the patient's sense of insecurity. In addition, it results in greater uncertainty about being treated by an individual who is not the main physician. The necessity of introducing the people present in clinical rounds and identifying the person in charge, along with explaining treatments and procedures clearly, are given serious emphasis (4, 30). These results conformed to the results of the present study. In our study, the following cases in the domain of patient comfort have been considered: coordination with the patient, stating educational objectives, introducing people, considering the patients' concerns, minimizing possible patient misunderstandings at the end of teaching and the importance of patients' preferences.

In the section related to the quality of group dynamics in clinical teaching, the results of our study showed that this quality has been lower than average in the internal ward of Imam Reza Hospital, and it was average in that of Qaem Hospital. The results of our study were similar to the results of Bazzazi's study (31). It appears that to achieve desirable conditions, new ways of increasing students' participation must be employed. In this regard, a more accurate evaluation of the current situation appears essential along with discovering weak and strong points. Possibly one of the obstacles to achieving this goal is providing students an opportunity to judge professors' capabilities. In their discussion of learning environments, Kroenke and Omori (2010) stated that during educational rounds, physicians are maybe anxious about their abilities in knowledge transmission. They claim that this fear may be more prevalent in young lecturers who do not have much clinical teaching experience. Therefore, having friendly relations with students at the beginning of teaching would result in a more positive learning environment (10). In this regard, Ramani in his 2013 study states that the professor should challenge the students' minds without humiliating them, and he suggests that the professor should involve all learners in teaching process. This could be achieved by assuring that all students have an opportunity to answer questions (32). Chad Stickrath et al. recommended that before visiting the first patient, it is preferable to set a time for discussion with students. By introducing all the team members from the professors to the residents and the medical students, they will have the opportunity to become familiar with each other. The professor should state his objectives and expectations for the students at the beginning as well (27). In our study, in the domain of quality related to the group dynamics for which an average score was obtained for both hospitals, the following issues were considered: team cooperation, freedom in presenting comments, creating an intimate relationship at the beginning of teaching, giving responsibility to students and creating a safe atmosphere for free discussion.

In the section comparing clinical teaching quality in the internal wards of Imam Reza and Qaem Hospitals, considering the indicators related to patient comfort, targeted teaching and group dynamics, the results of our study showed that generally the quality of clinical teaching in both hospitals does not differ significantly. However, the score related to the quality of group dynamics in Qaem Hospital was better compared to that of Imam Reza Hospital. The quality of clinical teaching according to the rank of the member of the faculty was not different for both hospitals. More dynamics were observed in teachers with the rank of professor compared to associate professors. To answer the present ambiguities in this regard, more research is required. In this study, we investigated the quality according to the three-domain model of Janicik and Fletcher, which includes patient comfort, targeted teaching and group dynamics. Other studies conducted from the perspectives of nursing students and clinical professors have

investigated the factors affecting clinical teaching from different points of view (22, 33, and 34). Another study in Gonabad revealed that the most effective factor in the quality of clinical teaching, according to both students and lecturers, has been the "performance of instructors". Collaborative working environment, educational equipment in clinical environment, amenities in the clinical setting and the ward setting being proportional to the number of students are domains considered in the mentioned study (33). In that study, "collaborative working environment" is regarded as the weakest factor. This finding conforms to the results of our study in terms of low collaborative working environment as one of the components of group dynamics. A 2010 study by Mardani in Ahwaz revealed that the interns' and trainees' views of clinical teaching is average and better than average. In this study, the strongest point of clinical teaching was related to the "students' awareness from clinical evaluation method at the beginning of practical course" and proper behavioral treatment by the clinical instructor. In addition, the weakest points were related to the lack of cooperation of the ward with students and the lack of harmony between theoretical learning and clinical activities (22).

5. Conclusions

In summary, the results of this study showed that the quality of clinical teaching in the internal wards of Qaem and Imam Reza Educational Hospitals is weak in the domains related to patient comfort and group dynamics. Improving and promoting the quality of bedside teaching requires continuous assessment of the current situation, recognizing strong points and correcting weak points, a process in which the comments and ideas of both professors and students could pave the way for later plans. It is suggested that Mashhad University of Medical Sciences take some steps to improve the quality of clinical teaching, especially in domains related to the patient's comfort and trainee's participation through holding educational workshops and presenting new teaching methods, along with investigating possible problems.

Acknowledgments:

The authors appreciate Mashhad University of Medical Sciences for supplying the funds for this research. In addition, Dr. Zera'ati and Dr. Ataran are appreciated for providing required coordination to conduct this study, and Dr. Afkhamizadeh for cooperating in conducting this study. The authors' deepest appreciation goes to the participation of medical students, including Hamid Qaemikhah, Mojtaba Asghariyan Rezai, Davood Hajizadeh, Davood Gholami, Fo'ad Farooghi, Roya Zakeri, Nazanin Amiri and Fa'eze Hosseini in collecting this research data.

Conflict of Interest:

There is no conflict of interest to be declared.

Authors' contributions:

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

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