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Pattern of Bedside Teaching at the University of Benghazi-Libya

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Abstract

Background: Bedside teaching (BST) is considered an integral partof the learning process for medical students. It is a fundamentalcomponent of clinical training and an essential tool in the creation ofa competent physician.

Objectives: This study aimed to evaluate the pattern of current andpast methods of (BST) within the Faculty of Medicine at theUniversity of Benghazi.

Method: This questionnaire-based cross-sectional study wascarried out by conducting three questionnaires submitted manually tomedical students, teaching staff and patients to assess theeffectiveness of bedside teaching. The total number of volunteerswho participated in the study was 639 of which 538 were currentstudents, 58 patients, and 43 teaching staff.

Result: The majority of involved students weresatisfied with BST with an agreement on its effectiveness, betterunderstanding of knowledge and better communication with notes given itsshort allocated time and students-teaching staff ratio. Teaching staffwere satisfied too but disagreed with students' opinions on the time as well as thestudent-teaching staff ratio. Regarding patients, they were verycooperative and some of them were enjoying the discussion with themajority agreeing to allow medical students to take history and performexamination after taking permission prior the session's start. Ourstudy was supported by many other articles that agreed on theeffectiveness of involving students in BST instead of classroomteaching while pointing outsimilar difficulties regarding teaching methodologies, and a need for organizationand topic selection to be critically assessed and improved.

Conclusion: Time constraints, few wards, and unavailability ofpatients have been identified as the most frequently encounteredimpediments to bedside instruction. The survey found strongsupport for (BST) but a few numbers of obstacles to itsimplementation. Further research is needed to review methods toenhance teaching at the bedside.

Keywords: Bedside Teaching; Pattern of teaching. Libya; The University of Benghazi

Abbreviation

BST : Bedside teaching

Introduction

Bedside clinical teaching (BST) is described as teaching in the presence of patients. It is apart of the study program that is directly concerned with the patient's health problem. Compared to the undergraduate study, clinical teaching is the most suitable for the objective of medical college[1,2]. The University of Libya is considered one of the oldest universitiesestablished in the Arab World. It was established in 1955 as aPublic University with two premises in Tripoli and Benghazi andlater disestablished in 1973. These colleges were split into two newuniversities; the University of Tripoli located in the northwest ofLibya, and the University of

Benghazi located in eastern Libya.

Thenames were changed during the last regime in 1976 to Al FatehUniversity and Garyounis University respectively and regained theoriginal names after the fall of the regime in 2011. The Faculty ofMedicine in Benghazi was founded in 1970 and it was the first medical school in Libya. Other faculties related to medicine such asthe Faculty of Pharmacy, Faculty of Medical Technology andFaculty of Nursery were also established in Benghazi in the early1970s. All medical sciences in 1985 were collected in one region inBenghazi and called Al-Arab Medical University which has beenseparated from the University of Benghazi. All medical sciencefaculties including the Faculty of Medicine were reinstatedas part of theUniversity of Benghazi in 2011.

Benghazi is now known as thecenter for medical education in Libya and has taken the lead ofeducating the first generation of Libyan physicians. Many of thesemedical graduates are now working in leading positions reputed assome of the best medical centers around the world. In 1976 theFaculty of Medicine was founded by the University of Tripoli.Basically, the medical education within Benghazi medical facultiesis composed of two mean parts: the basic medical sciences, and thebedside clinical teaching [3]. Bedside teaching (BST) is considered anintegral part of the learning process for medical students. It is afundamental component of clinical training and an essential tool inthe creation of a competent physician. Sir William Osler (1849-1919), one of Canada's most renowned physicians, was the first tointroduce BST to medical education in 1892. Describing modernmedical education as something that needed to be taught at the bedside, he claimed: "Medicine is learned by the bedside and not in theclassroom"[4].

Many aspects beyond knowledge like communicationskills, physical examination findings, humanistic aspects of clinicalmedicine, and the opportunity to role-model professional behaviorcannot be addressed or assessed effectively in the traditionalclassrooms. All of these aspects in addition to the opportunity to observe the learners are best performed with bedside teaching [5]. Thisstudy aimed to evaluate the pattern of current and past methods of(BST) within the Faculty of Medicine at the University of Benghazi,by exploring the perceptions and opinions of the medical students,teaching staff and patients. Reflectively, it will compare outcomeswith the modern methods present worldwide by highlighting thedefective points and identifying best practice interventions toovercome them. The overall aim is to improve the level of medicaleducation within the university and strive forward to graduate higherprofessional standards and skilled physicians in the futuregenerations of medical studies.

Materials and Methods

This is a questionnaire-based cross-sectional study conducted bymanually submitting three questionnaires for teaching staff in theclinical departments, medical students in the final two years of theirdegree, and patients admitted to hospitals affiliated to the University of Benghazi. Our questions were customized to evaluate theeffectiveness of the clinical teaching methodologies with emphasison BST. The nature and components of our questions can berepresented by **(Figures 1-3)**. The nature and aim of thisresearch were explained to each participating subject whoconsented while being interviewed. After collecting the results, they wereanalyzed and the qualitative questions were addressed within thefindings. This study first compares the clinical learning tools and themethodology within the university in 2007 and 2017, then the current clinical teaching at the University ofBenghazi with other universities worldwide.

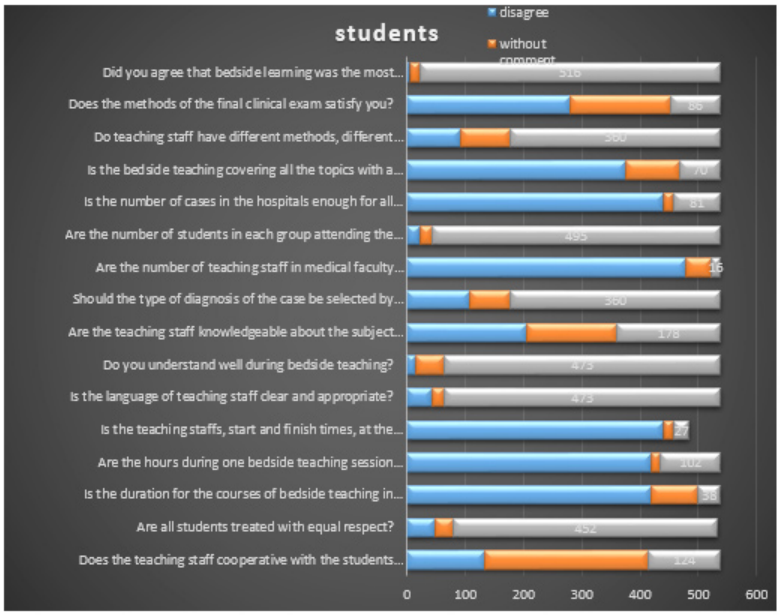

Figure 1: Students responses to the questionnaires.

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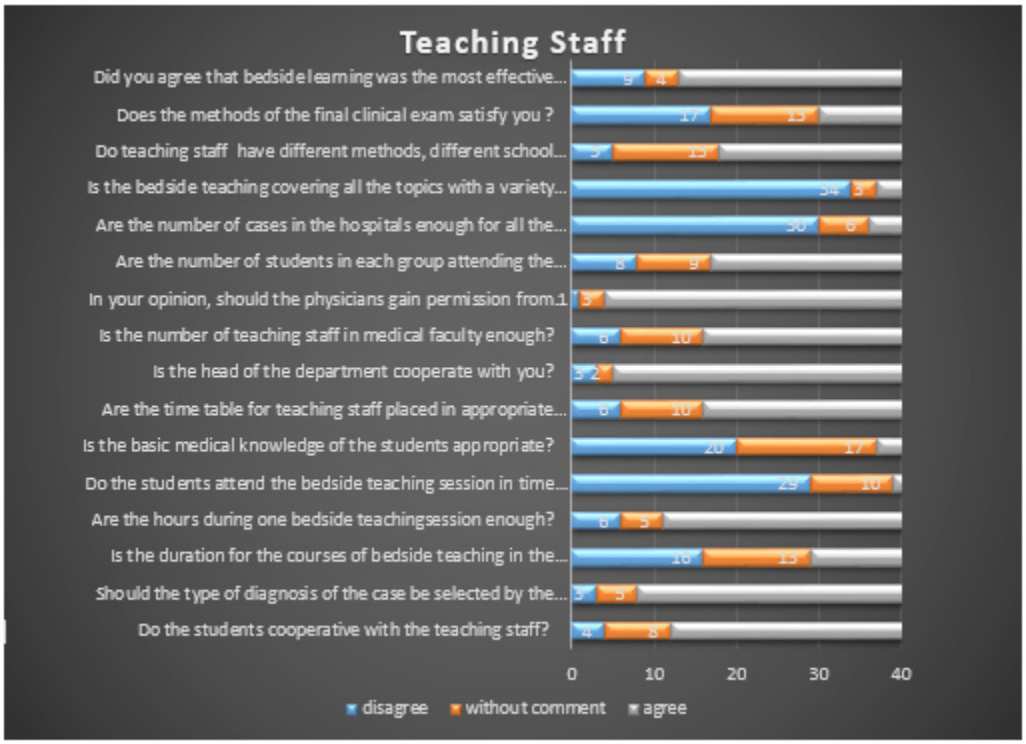

Figure 2: Teachers responses to the questionnaires.

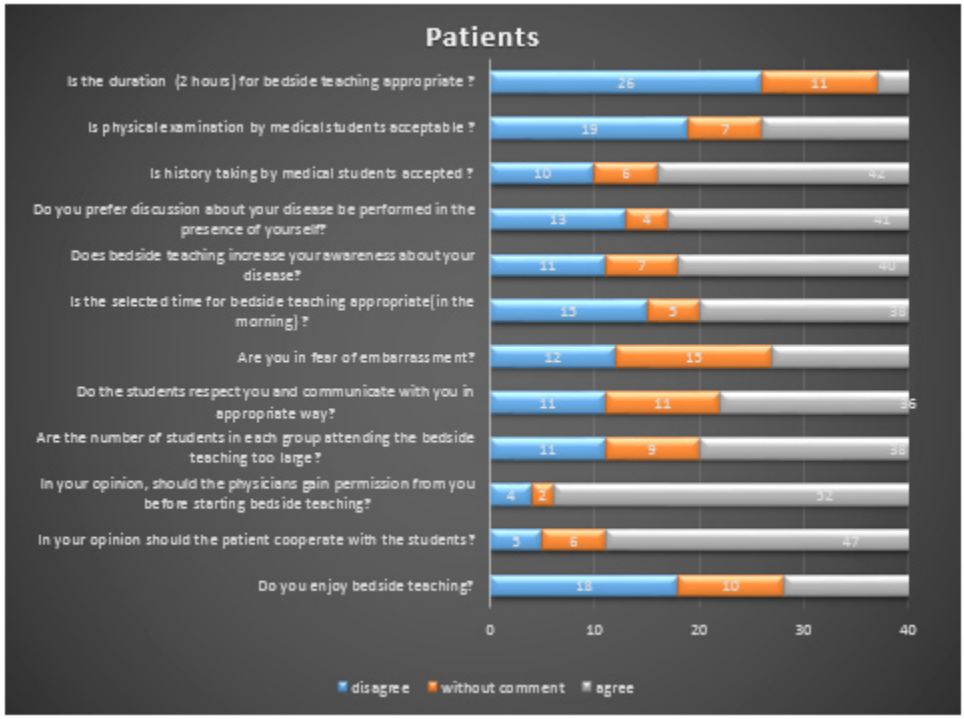

Figure 3: Patients responses to the questionnaires.

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Result

The outcome results were composed of the questionnaires submittedmanually to each volunteer. The total number of volunteers whoparticipated in the study was 639 of which 538 are current students,58 patients and 43 teaching staff members **(Figure 1)**. There were atotal number of 2135 students during the final two years of the 2017academic year(1244 Fourth year and 891 Fifth year) of which 1685female and 450 males. In the year 2007 the total number was only784 students. In this study 538 students participated byresponding to the questionnaire. This represents (25%) of thetotal number of students in the final two academic years in 2017.The students were aged between 20 and 35 years old, with anunequal number of female students compared to male students (466versus 72) and there were 316 fourth-year students and 222 fifthyearstudents. Their responses to the questionnaires are shown in**Figure 1**.Overall there were 36 comments from the studentsregarding BST. The majority of the students agreed that bedsideteaching is the most effective way of learning clinical skills, alsothat teaching staff member have different way of teaching, that a largenumber of students attend teaching sessions and that the type of case should be selected by the teacher, not students. In addition, they claim to better understand in bedside teaching sessions as the language of the teacher isclear to them. Furthermore, they agreed that all students are treated equally inteaching sessions. On the other hand, most of the students disagreed about the methods of the final medical exam andthat teaching wasnot covering all variety and number of cases. In addition, students agreed that there isshortage in number of teaching staff in relation to the large number of students. Besides, the teaching time doesnot follow the timetable and, on top of that,is not enough for teaching sessions. A final drawback is the duration of courses in the different departments is short to cover all cases.Finally, most of the students have no comment about thecooperation of teaching staff with them.

A total number of 43 teaching staff participated in the study, 34males and 9 females. Their ages ranged from 40 to 62 years old. Thefollowing is a breakdown of their academic ranking: 3 x AssistantLecturer, 17 × Lecturer 8 × Assistant Professor, 8 × AssociatedProfessor and 7 × Professor.The Department of Medicine provided 13 participants. TheDepartment of Surgery provided 23 participants, The Department ofPediatrics provided 3 participants and the Department ofGynecology provided 4 participants against a total of 274 teaching stafffrom various Clinical Departments in the Faculty of Medicine in2017. All are of Libyan nationality (107 from the Department ofMedicine, 63 from the Department of Surgery, 58 from theDepartment of Pediatrics, 35 from the Department of Gynecology and 11 from the Department of Ophthalmology). Therefore, thevolunteers comprised only 11.78%. In comparison with 2007, therewere a total of 321 from various nationalities (112 from theDepartment of Medicine, 99 from the Department of Surgery, 54from the Department of Pediatrics, 41 from the Department of Gynecology and 15 from the Department ofOphthalmology). Their responses to the questionnaire are shownbelow in **Figure 2**.

There were 8 comments from the teaching staffregarding BST. The Majority of the teachers agree that bedsideteaching is the most effective way of learning clinical skills, alsothey have different way of teaching, a large number of studentsattending teaching sessions. They furthermore agreed about having the patient'spermission before starting clinical teaching, also indicating that the heads of departmentcooperate with them, that time is enough for giving clinical teaching, thatcases should be selected by them not the students, and finally that thestudents were cooperative with the teachers.

On the other hand, themethods of the final medical exam were not satisfying, and the teaching did not cover all variety and number of cases. Moreover, the basicmedical knowledge of the students was not satisfactory, and a final drawback was thatthe students were late to attend the clinical teaching.

The comments from the teaching staff regarding BST basicallywere abouta total of 58 patients from nine working hospitals inBenghazi who participated in the study in 2017 from various clinicaldepartments. There were 7 males and 51 female patients volunteer inthis study. Their ages ranged from 15 to 90 years old. Theirresponses to the questionnaire are shown below in **Figure 3**.There were no specific comments, notes or feedback from any of thepatients. Most of the patients agreed about the history being taken by the students and discussion of their cases carried out in front of them as this alsomakes them aware of their condition.In addition, early morningtime is suitable for them, and also they prefer to give permission beforeteaching. On the other hand, most of them disagree on the 2 hours'duration time for teaching. More importantly, they were adamant the physical examination by thestudents better to be avoided since, in general, they did not enjoy it.

Discussion

Clinical teaching is concerned with the learning of some clinical skills such as history taking, physical examination, clinical thinking, and communication skills. Most of the patients' diseases can be diagnosed after history taking and up to 75% of diagnoses can be reached after a physical examination [6].Since the start of medical education at the University of Benghaziin 1970, there has been a drastic increase in the number of medicalstudents graduates from the Faculty of Medicine. However, theoverall methodology and teaching styles, including the number ofteaching staff, number and presenting cases and the numberof teaching hospitals have declined. On the other hand, theeconomic situation, the financial corruption, the war and the political conflict in this country also play a majorrole in the quality and reduction of medical educationoutputs. Notably, BST has become more obvious after the fall of theregime in 2011.

BST is defined as supervised teaching in the presence of a patient with an expert clinician supervising a group ofstudents at the patient's bedside to elicit a history or observephysical signs. Historically this was the most common form ofmedical student

teaching. However, currently, it is primarily seen asan adjunctive teaching method to classroom-based and informalteaching. Documented reasons for this include time constraints ontutors, increasing reliance on biochemical testing and medicalimaging, and consultation of subspecialists. Despite this, medicalstudents still desire BST, and anecdotal reports have describeddeclining amounts of this particular teaching modality and, in somecenters, a total lack thereof. However, the opinions and perceptionsof current medical students and teaching staff regarding thisteaching modality remain largely unpublished in Libya.

Medicaleducation is considered one of the highest types of education which requiresa high level of knowledge and skills to deliver very accurate andprecise medical information to medical students consisting of twomean stages, namely, the basic medical sciences and bedside orclinical teaching [7,8]. Proper BST allows the physician and patient tointeract at the bedside; through this physician-patient interactionprocess, medical students are simultaneously afforded theopportunity to learn clinical skills, clinical reasoning, physician-patientcommunication, empathy, and professionalism. In actualpractice, comprehensive history taking can help the physiciandiagnose up to 56% of patient problems, which may arise to 73% ifa physical examination is added. Gathered information and a properdiagnosis can be reached by obtaining a good medical history andperforming an efficient clinical examination. Clinical teachingwhich involves the patient is enriched by these visual, auditory, andtactile experiences.

BST was widely used across medical schools inthe first half of the previous century and was estimated to representas much as 75 % of all clinical training in the 1960s[9].Supporting thenotion that despite already declining hours spent on BST, this style ofclinical practice and education has declined since 1978, ashighlighted by Ahmed, who reported the proportion of teachingtime taken up by BST had declined from 75% 30 years ago to only16% today. In our study, students are found to be motivated toengage in clinical reasoning and problem-solving if their preceptor,acting as a role model, provides adequate demonstration andguidance. This is noted clearly in the response and perception of thestudent's questionnaire and also was mentioned in their comments.Several other skills essentials with patient contact can be for a great part best learned at the bedside. Most importantly, communicatingeffectively with real patients, but also medical ethics (for example discretion regarding sensitive subjects) and adequately obtaining astructured history without the use of extensive medicalterminology [10,11].The majority of the students have no comment regarding thecooperation of teaching staff.

Students

The student insight was that teaching staff didnot always listen toquestions they would have liked to ask, even though most of the students were treated with equalrespect. The majority of the students agreed that the duration for thecourse of BST in the different departments was not enough. This isbecause the duration of BST which is scheduled by differentclinical departments was short. Other reasons include an absence ofteaching staff, a lack of patients, and limited teaching hospitals. Onthe other hand, the hours during one BST session were not enough.In another study, the practical hindrances for a limited duration ofBST vary from time constraints, patients not being in bed and noiseon the ward6. The language of teaching staff,on the other hand, was clear and appropriateand the students were able to understand. However, they were not restricted to thehours of teaching during the session of BST and this affects it by reducing theoverall duration of clinical teaching. Students prefer that the selection ofthe cases to be by the teaching staff; however, there were no clearexplanations for this. Obviously, the number of teaching in medicalfaculty was not enough. This is reflected by the huge number ofstudents in one group attending the same BST session; on the otherhand, the number and variety of cases in the hospitals were notenough for all groups. The teaching staff has differentstyles and different schools in teaching medical student's historytaking and medical skills. Most of the students are not satisfied withthe method of the final clinical examination.

In 1983, Coopershowed that physical examination skills and history taking (withregard to gastrointestinal pathology) practiced with real patients inaddition to healthy subjects in teaching sessions resulted insignificantly better scores on an OSCE (objective structured clinicalexamination) for fourth-year medical students[12]. There was a trendfor better scores related to group size (smaller groups received abetter OSCE score). Students consider BST the most effectiveway of learning clinical skills and in their opinion, it is a majorreason not only for passing the final clinical examination but also for creating aprofessional physician.

1. Teaching Staff

In reviewing the teaching staff questionnaire, most of the studentswere cooperative with them. Teaching staff prefer selection of thecases for teaching by themselves because they are moreknowledgeable in that particular case and they can give and addmore information to the students and to cover most topics with avariety of cases seen by the students. Concerning patient selectionfor BST by teachers, a qualitative study showed that teachers mainlystrive to select patients according to defined learning objectives inorder to ensure an optimal learning context[13].There was acontroversy between teaching staff regarding the duration for thecourse of BST, but most of them were satisfied with the hours of oneBST session. Most of the students were cooperative, attending the BSTsession in time, this is because the time table was reachable foreverybody. The perception regarding the basic medical knowledge ofthe students seems appropriate. The head of the clinical departments wasvery cooperative with their teaching staff, although their number isnot enough and this leads to the time constraint for the teaching staffand large numbers of medical students in each group makes it worse.Besides, the number of teaching hospitals is very limited.

The traditional teaching hospitals have become more specialized, and less suitable and welcoming for general medical

education [14,15].Mostof the teaching staff agreed that they should gain permission from thepatient before starting BST. One of the most important obstaclesfacing medical students is that teaching staff have differentmethods, different schools and different references during BST [16]. This difficulty is present in our university and it is not seen or noted in theliterature. On the other hand, the method of the final exam should bereconsidered. Teaching staff considers the BST as the most effectiveway of learning clinical skills.Due to increasing in other activities of teachers, the number of bedside rounds is decreasing, therefore time usually given to the patient has become much shorter than before [17].

Patients

Most patients enjoyed BST and they were very cooperative withstudents, they thought that BST increase their awareness about theirdisease and they prefer discussing their disease in their presence. Intheir opinion, students should gain permission before starting BSTbecause some of them may feel unwell or will not be available at that moment for example: patient may be having their investigations done or preparing themselves for surgery or maybethere are already discharged from hospital. Some patients are naturally anxious when they come to hospitals; this fear is more exaggerated when they are seen by a large group of students [18,19]. Patients noted that thenumber of medical students in one group is too large and this increasestheir embracement even though students respect them andcommunicate with them in an appropriate way and in an appropriate time,and history taking by medical students was acceptable but most ofthem are not accepting physical examination.

Hospitals

In Benghazi there are 13 main hospitals and health care facilitieswhich are affiliated to the University of Benghazi in 2007 with total active beds (Benghazi medical center with 1200 beds, but only360 beds active was still not opened in 2007, Al-Jalla hospital 480 bed, Paediatrics hospital 400 bed, AlKuwayfiyah hospital 200 bed,Hawari general hospital 500 bed was still not opened in 2007,Hawari Nephrology center 40 bed, Hawari Urology and ENTcenter 120 bed.

Hawari Cardiology center 40 bed, HawariRadiology center no beds only OPD, Al-Jomhouriahospital 650 bed,Ophthalmology hospital 110 bed, 7thOctober hospital 160 bed andPsychiatric hospital 300 bed).However, in 2017 and because of thewar in Benghazi there were only 4 hospitals working with total 1440active beds (Benghazi medical center 360, Al-Jalla hospital 480,Paediatrics hospital 400 and AlKuwayfiyah hospital 200) and the other 9main hospitals were closed because their location are in awar zone and some of them are destroyed because of bombing. Therefore, thereis a significant reduction in the total number of beds in Benghazi in2017,which is resultingin a huge decrease in the number of patients.

Conclusion

Up to our knowledge, this is the first study of its kind conducted andpublished in the literature concerning medical education in Libya.Time constraints and excessive classes highlight the unique benefits of BST which resultin its high demand by students, regardless of the discipline beingtaught because medicine is all about patient. We can't imagine how medicine can be taught away from the patients. BST is the only site where history taking, physical examination compassion, and a caring manner can be taught and learned by example. As Flexner said. The facts are locked up in the patient. To the patient therefore, the medical student must go'.

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Approval by the Ethics Committee

This research was approved by the Vice President of the faculty ofMedicine and the Ethics Committee of the University of Benghazi.

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