Review Paper

Bedside Teaching and Its Alternatives in the COVID-19 Pandemic

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ABSTRACT

Background: Bedside teaching is a concentrated form of small-group teaching that takes place in the presence of the patient. Improvement in communication skills in a sympathetic manner with the patient and the ability to provide a purposeful history description and earning skills in clinical examinations is a goal that can only be achieved at the patient's bedside. Bedside teaching has declined in recent years despite all its benefits; however, there are strong recommendations to continue this teaching modality for its valued benefits. In this context, we aimed to deal with the importance of bedside teaching and the challenges ahead in the covid epidemic as well as its alternatives for teaching medical students.

Evidence acquisition: This study was conducted through a literature search on articles in English with the relevant keywords (((((((“students, medical”[Mesh]) AND (“COVID-19”[Mesh])) AND (“education”[Mesh])) AND (“patient-centered care”[Mesh])) AND (“patient care team”[Mesh])) OR (“teaching rounds”[Mesh])) OR (“education, distance”[Mesh])) AND (“Physical examination”[Mesh]) using PubMed, Scopus, Web of Sciences, Cochrane, and Embase databases from 2001 to 2022.

Results: In our search, 22 related articles were found, 3 of which were clinical trials) and 4 were review articles. This study summarized the following important issues related to bedside teaching: 1- We discussed the definition, importance, benefits, and difficulties of bedside teaching on the way to education; 2- We deliberated the causes of reluctance to carry out education at the bedside and the ways to deal with the reduction of its implementation; 3-we also noticed alternative methods for medical education in periods of special contact restrictions with patients such as the COVID-19 epidemic in this review.

Conclusions: Bedside teaching has a fundamental role in medical education. In particular circumstances, such as covid 19 epidemy, in which the bedside teaching courses were suspended, it is necessary to allocate other educational arrangements and design a distance learning curriculum, including virtual teaching, uploading videos to view clinical procedures on social media platforms, interview with a virtual patient, and simulation.

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Introduction

Learning medical knowledge is like reaching an island in the sea. To achieve this goal, the medical student must first be taken to the seashore and then be provided with a device to reach the island easily. The patient takes the medical student with him/herself to the seashore and brings him/her to the goal, which is the island, by using books. Sir William Osler stated in 1903 that studying the phenomena of disease without books is to sail to an uncharted sea, while to study books without patients is not to go to the sea at all [1]. Bedside teaching is a concentrated form of small-group teaching that takes place in the presence of the patient. It is strongly believed that bedside teaching has a fundamental role in medical education. According to the experiences of professors and medical learners, what they learn at the patient's bedside is long-lasting and is not forgotten [2].

During this method of training, the learner tries to use all his/her senses, including vision, smell, touch, and hearing. Many skills, particularly the humanistic aspects of medicine, cannot be taught in a classroom [3-5]. The most crucial part is that the student or learner is engaged in both history taking, which comprises 56%, and physical examination, which can provide 70 % of the diagnosis [6]. Moreover, they learn communication skills, how to make a speech, and understand how to talk to the patient in simple language. This point cannot be fulfilled in the classroom without the patient [7, 8]. Unfortunately, bedside education has been declining over time. The reasons for this diminution are time limitations, preceptors' concern about patients' comfort and short hospital stays, learners' distraction by technology, lack of experience, and unrealistic expectations of professors. Whatever the cause, bedside education should be revived, and a practical methodology must be established so that the professors, students, and patients can have the maximum benefit [9]. Although, some authorities believed that modern technologies could offer new solutions to current challenges in particular situations. However, they are in the preliminary stages and have specific limitations, and the most successful approach is likely a dynamic combination of conventional methods and technology-assisted learning [10-13].

Traditional lectures that used to be very valuable some days in medical science play a minor role in medical education now [11]. Schorstein first presented this type of lecture to promote education and was then supported by Sir William Osler. Nonetheless, they could still be influential in present-day medical education [13]. On the other hand, bedside teaching usage has declined during covid epidemic and education has become more challenging. To curb the spread of the virus and contact restriction, the classes were held online and the opportunity for bedside teaching was severely disrupted and modern education replaced bedside teaching [14]. Faculty members were asked to change their teaching methods from bedside teaching to the online manner [15].

During the COVID-19 pandemic, the authors of this article faced the challenge of teaching. To improve the education process, like other countries, they took advantage of virtual teaching and investigated problems solving methods. They wrote numerous review articles with bedside view and published them in prestigious journals (ISI) and encouraged students to read these articles and encourage them to express their opinion. In this way, they took a step toward educational improvement during this period along with online teaching [16-19]. In this context, we aimed to deal with the importance of bedside teaching and the challenges ahead in the covid epidemic as well as its alternatives for teaching medical students.

Methods

The authors of this article are lecturers and students who are proficient in research, and some of them had a history of hospitalization in an educational, medical center. As they already have experienced the educational process, they seem more eligible and in the right place to write this narrative review. This study was conducted through a literature search on articles in English with the relevant keywords (((((((“students, medical”[Mesh]) AND (“COVID-19”[Mesh])) AND (“education”[Mesh])) AND (“patient-centered care”[Mesh])) AND (“patient care team”[Mesh])) OR (“teaching rounds”[Mesh])) OR (“education, distance”[Mesh])) AND (“physical examination”[Mesh]) using PubMed, Scopus, Web of Sciences, Cochrane, and Embase databases from 2001 to 2022 (Figure 1).

Results

In this review following issues will be discussed based on a literature search:

-What are the advantages and disadvantages of bedside education?

-Is bedside teaching declining?

-Why is it declining?

-What should be done to promote this form of education?

Table 1. Advantages and disadvantages of bedside teaching for patient-learner and teacher [20]

Group	Advantages	Disadvantages
Patient	-Helps patients understand the cause of illness and how it can be treated	- Fear of patient discomfort -Lack of privacy
Learner	-Improves their ability of history taking and physical examination -Improves role modeling skills and attitude -Engages them in an active learning process	- Not to have access to the patient (paraclinical and diagnostic procedures) -Takes more time -Fear of feeling ashamed in case of wrong answers to the teacher's question
Teacher	-Direct observation of students' communications skills -Assessment of trainees' ability of history taking, physical examination, diagnostic and treatment plan	- Takes more time

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What are the advantages and disadvantages of bedside education?

Bedside training is helpful for trainees if the teacher clearly defines the goal and an educational curriculum for each section [21]. Improvement in communication skills in a sympathetic manner with the patient and the ability to provide a purposeful history description and earning skills in clinical examinations is a goal that can only be achieved at the patient's bedside [3].

It provides an opportunity for the trainee to get a good biography by asking relevant and appropriate questions. Moreover, doing a proper physical examination is a unique scene to get closer to the final diagnosis. It also teaches the student humanistic and, at the same time, professional behavior with the patient [9]. All of these tasks are possible through the trainer's supervision at the bedside in the patient's presence. It provides active learning in a natural context, observes students' skills, increases learners' motivation and professional thinking, integrates clinical, communication, problem-solving, decision-making, and ethical skills, and improves understanding. The clinician-teacher can demonstrate the role modeling of skills and abilities [22, 23].

By asking relevant questions to obtain history and physical examination and communication skills sympathetically, teaching at the bedside presents an excellent opportunity for modeling professional behaviors [24]. It provides active learning in a natural context, observes students' skills, increases learners' motivation and professional thinking, integrates clinical, communication, problem-solving, decision-making, and ethical skills, and improves understanding [25]. It also allows learners to observe and learn a humanistic approach from a patient body. The clinician-teacher can demonstrate the role modeling of skills and abilities [25, 26].

Although numerous advantages of bedside teaching are highlighted in the preceding section, barriers still cause a decline in bedside teaching. The trainee has pointless fears about the patient's discomfort and his/her privacy and confidence; patients are often hard to locate, learners do not want to go to the bedside, it takes more time, and teachers also may feel uncomfortable [27] (Table 1).

Is bedside teaching decreasing?

Despite the importance and historical support for bedside teaching, Landry and colleagues reported that teaching at the bedside was declining [28].

In the United States, less than 25% of clinical teaching occurs at the bedside, and less than 5% of the time is spent observing learners' clinical skills and correcting wrong examination techniques [27, 29].

Why Is it declining?

The most crucial reason for this decline is that trainers are under pressure to visit many patients in a limited time. Besides, they worry about the patient's comfort. In addition, faculties' irrational expectations, trainees' lack of confidence or experience, the uncomfortable role of the bedside teacher, shortened hospital stays of patients, learners' distraction by technology, and failure to assign each person's role have led to the decline in this teaching method [27, 30-32]. Whatever the cause, bedside education should be revived, and a practical methodology must be established so that professors, students, and patients can benefit the most [9].

On the contrary, some authorities believe modern technologies could offer new solutions to current challenges. However, they are in a stage of relative infancy and have particular limitations, and the most successful

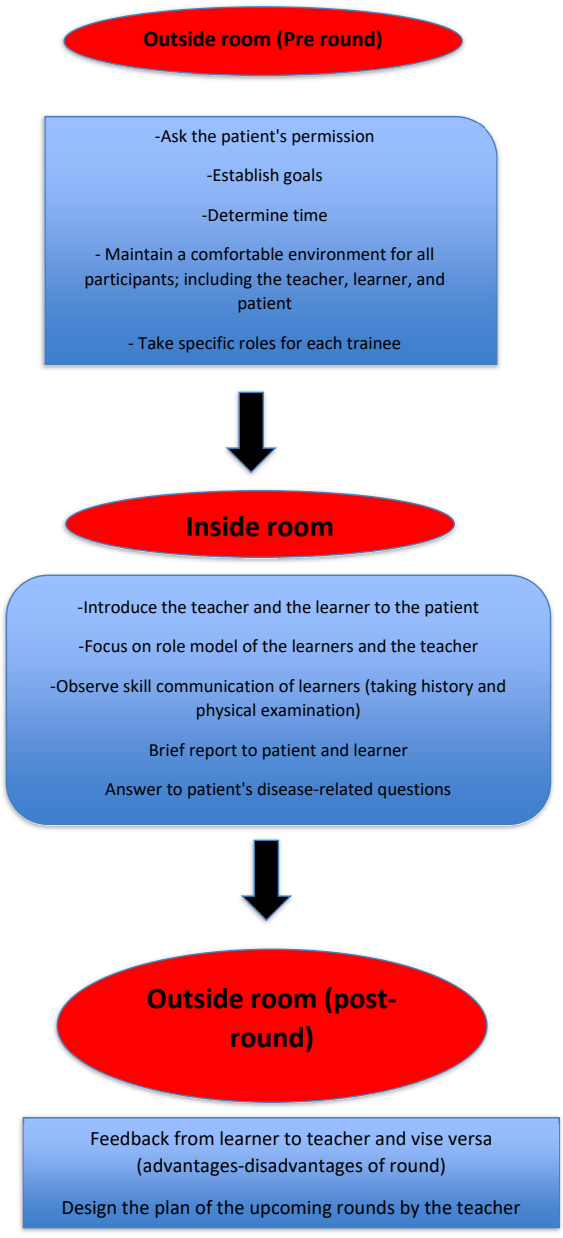

Figure 1. Strategic model of bedside teaching [37]

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approach is likely a dynamic combination of conventional methods and technology-assisted learning [10].

What should be done to increase this manner of education?

Different strategies provide some counterbalance to the increasing decline in bedside teaching. Some authors propose reforming the faculty's attitude regarding bedside teaching [33]. It seems that educational interventions can change the amount of time spent on bedside teaching (from less than 1 % to 41 % in one study) [34]. To cope with the increased workload for clinical staff, shifting some educational tasks to residents and interns might be successful [35, 36]. Different academic studies can be divided between competent groups. Finally, practical recommendations are described in more detail, considering that bedside teaching should be structured well before, during, and after the encounter so that the risk of possible discomfort from the side of the patient, learners, and teachers would be reduced [3, 8].

Discussion

The COVID-19 pandemic had a considerable impact on numerous dimensions of academic teaching. It became a huge challenge not only for medical students but also for other professions, including teachers particularly in experience-and resource-limited regions of the world [35].

Many academic staff members did not have enough modern teaching abilities and teaching skills in virtual space [36]. Educational programs had to be rearranged, canceled or switched to online teaching formats within a short time [37]. During the COVID-19 pandemic, bedside teaching opportunities were significantly reduced due to the risk of viral exposure, contact restrictions, patients' refusal to be hospitalized, and ward closures. Bedside teaching was suspended in medical schools [38, 39]. Teaching setups without patient contact are less popular among medical students. But in future special situations, hybrid teaching approaches, including reversed-classroom concepts, must be considered to promote effective bedside teaching [25]. Medical teachers must consider the benefits and corresponding risks of patient-students exposure and change their teaching methods. The focus was to switch to online education to limit virus exposure, alongside concerns about the limitation of bedside teaching [40].

Some studies have investigated the effect of reducing bedside teaching on the learning and clinical skills of medical students and revealed significantly poorer overall grades by students who were educated without patient contact in COVID-19 epidemy. This decrease in grades in students who did not have contact with the patient highlights the key role of education at the patient's bedside [39].

During the COVID-19 epidemic, teachers made creative efforts to compensate for this problem and educate medical students about history taking and examinations in different virtual formats. They tried to teach the correct physical examination techniques by presenting educational videos, video conferencing, uploading training videos to perform the clinical procedures or doing it on a dummy, and even interviews with a virtual patient [36].

Teachers can present a 'virtual clinical case' and encourage students to discuss it. Also, they can conduct a physical examination on the mollags in a test environment through video training. They also can provide students with links to educational sites on a specific subject that they intend to teach and ask them to give their comments concerning their understanding of the topic [4, 14, 41].

The use of online learning, social media platforms, and simulation were educators' solutions that were required to be innovative in their teaching methods. Simulation-based education allows for learning in a low-risk environment and makes the opportunity for deliberated repeated practice with case standardization available [15, 39, 42-46].

Conclusion

Bedside teaching has a fundamental role in medical education. Despite the limitations, it is better to gain experience at the patient's bedside. But in particular circumstances, such as the COVID-19 epidemy, in which the bedside teaching courses were suspended, it is necessary to allocate other educational arrangements, and design distance learning curriculum, including virtual teaching, uploading videos to view clinical procedures social media platforms, interviews with a virtual patient, and simulation.

Ethical Considerations

Compliance with ethical guidelines

This narrative study was in compliance with ethical considerations.

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Authors contributions

All authors equally contributed to preparing this article.

Conflicts of interest

The authors declared no conflict of interest.

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