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VIEWPOINTS OF UNDERGRADUATE ANESTHESIA BACHELOR STUDENTS (UABS) ON PRE-CLINICAL SKILLS TRAINING: A CROSS SECTIONAL STUDY

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ABSTRACT

Introduction: Because of the sensitivity and risks of interventions with anesthesia and surgery, the need for ensuring patient safety is very necessary. Increasing student numbers, and diversifying and reducing the repetition of procedures, pre-clinical skills training in the form of simulated practical activities should be seriously considered.

Methods: This cross-sectional study aimed to acquire students' viewpoints regarding clinical skills training with a focus on the dimensions of time and place, instructors, simulation equipment, and educational planning in 2016. The sample comprised all UABS at Semnan University of Medical Sciences. In Iran, who have spent at least one course of their education in the pre-clinical skills training unit. The study instrument was a questionnaire consisting of 34 questions asking about students' demographics and viewpoints on pre-clinical skills training.

Results: The sample consisted of 88 students, of whom 62 (70.5%) were female and the rest were male. The average age of participants was 20.7 (range = 18-23) years. On a scale of 1 to 5, the UABS scored the pre-clinical skills education unit factors as follows: time and place of education, 3.57 (0.67=STD); instructors, 4.1 (0.74=STD); equipment and facilities, 2.97 (0.87=STD); and educational planning, 3.33 (0.81=STD).

Conclusion: Equipment and facilities had the least utility for pre-clinical skills education in the viewpoint of students. Therefore, increasing the quality of simulation equipment and devices and making the pre-clinical skills room more similar to an operating room should be a priority for educational managers.

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Introduction

New medical and nursing school graduates, despite having a strong theoretical foundation, do not have enough skills to apply in clinical settings (1). Training in medical sciences includes theory (2), pre-clinical training, and clinical education (3). Studies conducted on clinical education show that these training programs do not have sufficient effectiveness (4). There is a fairly wide gap between clinical education and practice (5,1,6) and a significant inconsistency between theoretical learning and clinical services (7,8) that inhibit students' ability to gain clinical skills that influence the quality of health services (3)

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Newer conditions have been created in the field of medical education, both in universities and in clinics and hospitals. The knowledge patients and their families have about medical errors has increased, their safety and health issues are more seriously addressed (9), and the student/patient ratio is not desirable (10). Therefore, appropriate patterns should be adopted to reduce negative consequences. Meanwhile, the variety of treatment and care methods has reduced the number of cases encountered with each procedure. For example, as early as two decades ago, a reduction in the number of cases receiving general anesthesia was observed; many anesthetized patients use the laryngeal mask (LMA) instead of the tracheal tube (TT) (11,12). Many new diagnostic treatments are done out of the operating room and even outside hospitals (13).

In order to increase the skills and readiness of students, new and evidence-based patterns (14) should be adopted to enable them to take on and carry out their responsibilities with certainty (15). Pre-clinical training can be regarded as an introduction to clinical education, but it can never replace it (16). Learning practical skills through simulation in the pre-clinical skills training unit creates an active learning opportunity (5,17,19) that is effective in reducing the gap between theory and practice and reducing pressure in the clinical environment (17,18). Another study has shown that teaching combined with simulation helps improve self-esteem, individual performance, and increases memorization of content (20).

Despite the importance of using simulation methods, unfortunately, the application of these methods is not seen with the proper perspective in colleges and educational institutions of the health sector (21,22). It is necessary to take a targeted position in health science education (23), and the feasibility of offering simulation training should be evaluated (24). Feedback about processes and outcomes of teaching pre-clinical skills and simulations is effective in helping colleges and educational institutions improve this educational plan (25).

During the four-year period of theoretical and practical training, UABS are assigned the tasks of helping anesthesiologists and directing patient care during anesthesia and surgery. Using simulation to increase the readiness and skill of UABS to perform tasks such as venipuncture, laryngoscopy, and endotracheal intubation can reduce injury to patients in the clinic and decrease the costs associated with it. In improving the quality of pre-clinical simulated training skills, students' viewpoints and opinions must be considered. Therefore, the present study was conducted to examine the views of UABS on pre-clinical skills training.

Materials and Methods

This 2016 cross-sectional study was conducted to determine students' viewpoints regarding clinical skills training. Samples comprised all UABS at Semnan University of Medical Sciences, in Iran, who had spent at least one course of their education in the pre-clinic skills training unit. The study instrument was a questionnaire consisting of 34 questions; 4 questions asked demographic information, and 30 questions asked students' viewpoints on pre-clinical skills training in the 4 domains of time and place, instructors, simulation equipment, and educational planning. The validity of the questionnaire was evaluated using the views of the professors, and the reliability of the instrument was confirmed by Cronbach's alpha with a score of 0.91.

The researcher began by explaining to participants how to complete the questionnaire and assured them that their information would remain confidential. Participants provided oral consent to take part in the study and then completed the questionnaire. The data was analyzed using Spss16 software.

Results

A total of 88 UABS completed the questionnaire. Sixty-six (70.5%) of them were female and the rest were male. The average age of the participants was 20.7 (range = 18-23) years, and their mean semester score was 16.34 (range = 13.1-19.04).

The findings of this study showed that respondents scored the factors affecting pre-clinical skills training (on a scale of 1 to 5) as follows: time and place of education, 3.57 (0.67=STD); instructors, 4.1 (0.74=STD); equipment and facilities, 2.97 (0.87=STD); and educational planning, 3.33 (0.81=STD) (Table 1).

Table1: Undergraduate Anesthesia Bachelor Students' (UABS) viewpoints on pre-clinical skills training

Main Domains	Mean (from 5)	SD
Time and place of education	3.57	0.67
Instructors	4.1	0.74
Equipment and facilities (Quantity)	3.02	0.91
Equipment and facilities (Quality)	2.98	0.92
Equipment and facilities (up-to-date)	2.92	0.98
Educational planning	3.33	0.81

The respondents scored the quantity of the pre-clinical skills training equipment and facilities at 3.02 (0.91=STD), their quality at 2.98 (0.92=STD), and their being up-to-date at 2.92 (0.98=STD).

Discussion

The current study investigated the views of Undergraduate Anesthesia Bachelor Students on pre-clinical skills training. The findings of the study show that, according to the viewpoint of the students, instructors had a good level of skill and good cooperation in teaching pre-clinical skills to students. These UABS students also considered the place and time of forming clinical skills classes as above average. The biggest problem in pre-clinical skills teaching was that the equipment, educational facilities, and simulators had insufficient quality and were outdated.

Contrary to the results of studies that have shown the clinical education environment as one of the challenges, the findings of the current study showed that UABS were fairly satisfied with the environment of the pre-clinical skills training unit. It must be considered that the educational situation in the hospital sector is more complex than that in the educational environment of colleges (26).

The results showed that students believed their instructors had adequate skills and were available to answer questions. These results are promising, because the results of several other studies have reported instructors' inadequate skills as one of the main problems of clinical education (27, 28, 29). However, individual characteristics are also effective. In this regard, as the Swannian findings showed, introverted students has problem in using simulators (17).

One important finding of the current study is that students were dissatisfied with the inadequate and outdated equipment related to pre-clinical skills training. In order to acquire the necessary skills to do the work in the real environment, UABS must have access to tools that can create situations most similar to the real environment; otherwise, training will not be effective. In addition to the use of warning alarms, stressors must also be added to the equipment and simulators to better simulate real situations (30,31). In fact, equipment and facilities should be updated as needed (32). Simulation training in the field of anesthesia can be done through observation, participation, and dialogue (33). The current study showed that the main application of pre-clinical skills training was to learn procedures; students did not appreciate the quality of the available equipment and felt it could not have a great impact on their learning. However, other studies have shown that simulation was used to patients assessment (34).

Students are relatively satisfied with the planning for pre-clinical skills training. The comprehensiveness of the educational program and the outcomes and feedback of results must be linked to each other in order to successfully plan pre-clinical skills training. Technology, instructors, environments, and underlying conditions also contribute to this success (35).

The current study was limited to the university environment. It is suggested that this study be repeated at a broader level and with different methods, such as qualitative research methods.

Conclusion

From the viewpoint of Undergraduate Anesthesia Bachelor Students, pre-clinical skills training is moderately effective. The students were most satisfied with the training instructors and least satisfied with the educational equipment and simulators. Considering the importance and sensitivity of anesthesia interventions, increasing the quality of equipment and simulators and increasing the similarity of the pre-clinical skills training unit with the operating room environment should be among the priorities of educational managers.

Ethical Considerations

This research project was approved by the Ethics Committee of Semnan University of Medical Sciences, where the work was undertaken.

Conflicts of Interest

The authors have no conflicts of interest to declare.

Author Contributions

SA is the main author and contributed to the development of the study, its design and supervisory of data collection, data analysis and writing of the paper. RM contributed to the development of the study, its design and data collection, AV contributed to the development of the study and helped in data analysis as well as the revision of the paper. MP contributed to data collection and data analysis. MD contributed to data collection and data analysis.

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