

The Effectiveness of a New “Student-Centered” and “Problem-Oriented” Method of Textbooks Review in Large Educational Groups: a Case Report

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Abstract

Background and purpose: Two important clinical education methods are problem-based and student-centered. However, education of “clinical decision-making skills” and “application of clinical knowledge” is important. Usually training these cases is done in small groups. In this study, new method of scientific textbooks with four factors mentioned above has been implemented in large education groups and its effectiveness has been evaluated.

Methods: In scientific literature teaching sessions to 50 gynecology specialist residents of a type 1 university in Iran, problem-based and student-centered education is applied from textbooks by asking questions to “increase decision-making skills” and “application of clinical knowledge”. Designing of the questions was done in five-step process including design-thinking, response based on previous information, design multiple choice questions, thinking again, referring to textbooks proper answer and discussion-final conclusion by the coordinator in large educational groups (up to 50) runs in a 2-year period and then evaluated by learners, managers and graduates' investigation.

Results: The evaluation of learners (Gynecology residents) satisfaction was 89%, decision-making skill increase was 82%, clinical application skill increase of scientific matters was 74%, textbooks understanding increase was 83% and answering skill increase to exam questions was 79%. Managers' opinion (3 people) was excellent about the process. In examining graduates in the two-year period, 2 people achieved first and fifth rank in national gynecology board that both of them considered the attending classes important in their success.

Conclusions: New method of scientific textbooks with the use of “problem-based” and “student-centered” education in large educational groups was effective and satisfactory for the learners.

Keywords: CLINICAL EDUCATION / MEDICAL EDUCATION / ACTIVE LEARNING / PROBLEM-BASED LEARNING

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Introduction

Clinical education is one of the medical education challenges in the world and Iran (1, 2).

Today, in many cases, experienced physicians are dissatisfied with current medical graduates (3).

In a study to assess clinical decision-making and clinical skills, 150 multiple choice questions for final exam of gynecology specialist board were analyzed to classify the questions' cognitive level as “recall” or “application of knowledge”. Of these questions, 71% were classified at recall level and can be answered and extracted directly

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from reference textbooks. Thus, final exam not only did not motivate students to work on clinical decision-making skills and application of clinical knowledge, but also encouraged residents just strengthen their capacity to recall factual knowledge. This kind of assessment ensures that clinical decision-making skills are remained neglected (4).

In another study through 8 brainstorming sessions and a focused group discussion (FGD) session, opinions of faculty members and gynecology specialist graduates of three universities in 5 recent years were obtained. The main findings of the survey included weaknesses areas of gynecology graduates and its causes. Opinions of 9 groups of 6-8, including 4 faculty members groups of gynecology group of Hamadan, Iran and Shahid Beheshti University of Medical Sciences and 5 groups of graduates of gynecology residency program of Hamadan, Iran and Shahid Beheshti Universities of Medical Sciences were summarized as follows: main weaknesses of gynecology graduates from the view point of faculty members and graduates were poor clinical decision-making, poor surgical skills especially skills needed in emergencies and little attention to professionalism and ethical practice. The reasons of weaknesses of gynecology graduates from the view point of faculty members and graduates were: 1) random training in the residency program (based on existing patients and not future needs, 2) heterogeneous education based on faculties' personal opinions (professors' disagreement with each other and with scientific reference books, 3) learners lack of interest because of various financial problems, poor career outlook, and low entrance scores, 4) lack of decision-making skills and clinical skills, and finally low participation of the student and little attention to his comments on education (5).

In a study at a type 1 university in morning report sessions, student-centeredness was studied. In this study, three factors of "the student to professor speaking time ratio, "the

number of interruptions when the student presented the patient's record" and "number of instances of asking question by non-faculty audience from patient presenter" were evaluated as student-centered index. The results of the study showed that student-centered level based on these three indicators in the university was 40.8% (6).

In a survey of 47 graduates in recent 5 years in the field of gynecology in Iran using a short questionnaire by telephone it was asked that whether they have acquired needed skill in their residency training program to decide about their current patients. The results showed that 72% believed that they have not acquired needed capabilities (7).

Two important strategies in medical education are "student-centered" and "problem-based learning" (8).

"Student-centered" and "problem-based" learning causes learners satisfaction, deep learning, higher level of learning, motivation increase and creativity (9).

Resolving obstacles to implement these strategies can be considered as an important step in clinical education. In this regard, issues such as different views of the concept of effective "student-centered" and "problem-based" learning, the difficulty due to the ambiguity of the goals of these methods, wrong interpretation of this kind of learning as individual and personality characteristics of learners are noteworthy. In other words, if "student-centered" and "problem-based" learning is introduced by clear concepts and specified goals and as a teachable method, it can be expanded in clinical education (10).

On the one hand, professors' attitudes can be noted as an obstacle in the implementation of these strategies especially in cases that there is a need to train a large number of physicians or there are limited qualified professors because of various reasons. This issue has been raised in some eras of Iran history (11).

The present study intends to implement new "student-centered" and "problem-based" method of textbooks review in large groups, and then assess its outcomes.

Methods

Four affiliated hospitals of Shahid Beheshti University of Medical Sciences with gynecology residency program were included in the study. All gynecology residents were participated in training sessions of textbook review since 2009. The residents were invited to attend sessions in one hospital. Attending sessions was part of their compulsory program. The number of residents participating in every session was 40 persons on average. Session coordinator, who was also a professor at one of the aforementioned hospitals, presented questions raised from gynecology textbooks in the form of question and answer slides in five steps as follows:

Step 1: all participants observe a question and each person has to try to respond in a given time

Step 2: students present in the session are asked to discuss their choice. In this step, the coordinator only set time that residents talked and heard each other's opinions and discussed about each other's opinion.

Step 3: the coordinator showed 4 specified answers and asked the audience to choose the correct answer and again people commented and expressed their reasons and argued considering the comment that they already had. By the end of this step, learners only used their prior knowledge and did not refer to the book.

Step 4: learners were given the opportunity to refer to their textbooks and choose the correct answer and the correct option would be announced at the end of this step.

Step 5: the correct answer was discussed, and if there was an objection, it was expressed and in this step the session coordinator summarized the discussion and ended the given question and the next question was presented.

In each session, 20 to 80 questions were discussed from specified chapter of residents' reference textbooks. Sessions were held monthly and in one center. The content of the questions was to increase decision-making skills to increase application of clinical

knowledge and to increase the understanding of scientific basis of clinical problems. Two problem-based and student-centered strategies were of the main factors.

At the end of each session, the learners were asked to answer an open question and wrote weaknesses that prevented learning and any possible solutions anonymously and repeated themes in residents' answers were asked in the next session as a closed question to monitor the improvement.

At the end of the 12-session course (one year) residents filled a questionnaire of five items on usefulness of the course.

Results

The results of 32 questionnaires by residents who participated in at least three sessions last

Table 1. The survey score of gynecology residents participating in the sessions of teaching method

Issue in question	Mean	Maximum	Minimum
Satisfaction	90	100	70
Decision-making power increase	75	100	40
Clinical application strength increase	75	100	40
Book comprehension strength increase	90	100	30
Exam questions response ability increase	80	100	30

Note: The maximum score is 100.

year showed the classes were quite useful (Table 1).

Two graduates of the university's assistance program respectively ranked first and fifth in gynecology board exam and in written letters they considered their presence in sessions the reason of their success. Group managers and residency programs directors evaluated attending sessions useful for residents and applied for its continuity and increasing the number of sessions.

Discussion

The results at the end of course surveys showed the usefulness of this method for the learners.

In the present study also coordinating role of the professor was preserved. One of the criticisms that some studies bring into student-centered education is individual-oriented risk that somehow could undermine the empowerment of learners.

In "student-centered" and "problem-based" strategies, education process usually used to getting feedback from the basic elements and in some studies it has been shown that medical learners found out the importance of feedback and its positive impact on their education progress and showed interest in the subject (12).

In the present study group discussions strengthen teamwork. Notably, teamwork as an effective educational intervention has grown popularity beyond small groups in larger groups. (13).

In a study at the University of Glasgow in 2004 it has been shown that learner-teacher interaction leads to educational process progression and higher satisfaction of learners and teachers (14).

In recent years, the ratio of medical students to medical faculty members is relatively high (15). This raises concerns about the quality of students' learning. The method we used in this study is an attempt to implement student-centered and problem-based strategies in large groups of 10-50 people.

Our outcome measures were assessed through a survey which may be different from the objective assessment of the same outcomes.

Given the fact that gynecology residents had at least 1-4 years of prior work experience as general practitioners, it is expected that they largely be familiar with these concepts in their clinical practice and having a good judgment on the applicability of the method. On the other hand, two participants expressed that their success in board exam is due to some extent to taking this course. It seems that these indicated the success of the method but an objective assessment would have given a more assured evidence of the effectiveness of the method.

Conclusion

"Student-centered" and "problem-based" new method of medical education in this study was satisfactory and students expressed increased comprehension, application of clinical knowledge, and decision-making skills.

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