Comparison of conventional and distance training on nurses' clinical skills

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Abstract

Aims: Education entails the familiarity with professional duties that should perform practically. The major part of staff's learning includes acquiring information, skills and new ideas in the relevant job. This study was conducted to compare the nurses' clinical skills, after conventional and distance training.

Methods: In a semi experimental survey, 60 nurses were selected from one of the hospitals in Tehran in 1386 using the goal-oriented method. After two methods of training, i.e., conventional (lecture) and distance (multimedia CD) methods for evaluation and comparison of nurses' clinical skills the Objective Structured Clinical Exam has been used. After the preparation and validation of evaluating check lists, Objective Structured Clinical Exam stations were designed and then the practical skills of two groups were compared. Data were analyzed using SPSS 15 software, descriptive statistics and independent T-test.

Results: No significant difference was observed among the nurses' clinical skills mean scores in training with lecture and multimedia CD (p>0.05).

Conclusion: Two methods of training, i.e., lecture and multimedia CD have the same effect in improvement of nurses' clinical skills and Objective Structured Clinical Exam is an effective method in nurses' clinical skills evaluation.

Keywords: Clinical Skills, Objective Structured Clinical Exam (OSCE), Lecture, Electronic Training, Biological Incidents

Introduction

Infectious emergencies whether occur naturally (SARS) or intentionally (bioterrorism) cause the same challenges for the health care system and nurses have a key role in response to such incidents. In addition, readiness for such emergencies makes nurses acquire skills which are needed to support patients, their families and themselves from getting infected. This behavior is known as health preservation or prevention from infection [1].

Education is an important part of preparation process [2, 3]. The existence of an active system of public education and health care is a key to face the mentioned threats, so that one can easily identify the attacks and effectively equip against them [4, 5]. The basis of training is staffs' familiarity with duties that are assigned for him in the given job; so that at the end of the training course they could cope well with the implementation of their professional duties. Therefore, much of the staff's learning includes acquiring new information, skills and comments in the relevant job [6]. In a classification, teaching method is classified into "conventional training" and "distance training" categories. Conventional training is defined as trainings in which the presence of professor and student is both needed, and teacher and learner communicate directly with each other during the session with no mediator (such as lecture, class and workshop) [7, 8]. Distance education is a kind of training in which teacher and student are away from each other; in the other words, teaching is indirect, in which a mediator exists between the professor and student. This kind of training is also known as "distance learning" and "media training" [9, 10, 11]. The most important part of nursing education is clinical education [12, 13]. In all educational programs, evaluation is the fundamental aspect of that education that can guide training from static mode to dynamic [13]. Evaluation is a systematic process to collect, analyze and change the information in order to determine that the intended goals have been or are going to achieved [14]. Various methods are used for clinical evaluation; among them are written performance tests, self assessment tests or evaluation by a colleague, daily notes method, tasks' set presentation method, clinical skills' manual and the test of facing simulated clinical conditions. Objective

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structured clinical exam (OSCE) is a valid method in the assessment of clinical skills. This method can easily assess learners' basic skills in the specialized categories and cognitive, emotional and psychomotor domains. OSCE is a test in which learners pass a series of stations and perform the predetermined duties. Objective structured clinical exam was first introduced by Harden in 1970. Objective structured clinical exam was first posed in the training programs for medical students. This test is used in most U.S. medical schools and also many residency programs in the United States and other countries. Also, it has been employed in Canadian board exams for more than eight years. Within a few years, the OSCE exam has gone beyond medical training and has been used by other health care majors including radiology, nursing and physiotherapy [15, 16]. The most known method for testing clinical skills is Objective Structured Clinical Exam that has been studied more than any other test. Although this method has been less used in nursing schools, it is employed increasingly nowadays. In Zarei and Arshadi's research results, it is revealed that implementing this approach among nursing students, has adequate objectivity and it's better to be used instead of common methods to minimize the effects of mental judgments. Also, the results of Chehrzad et al.'s study, compared to the effects of two methods of OSCE clinical assessment and traditional methods indicate their higher satisfaction with evaluation by OSCE method [17, 18]. In addition, OSCE has been used in the evaluation of acquired clinical competences [19, 20]. The existing evidence is not adequate for determining the effect of educational interventions for health care workers on improving the knowledge and skills in response to crisis [21]. This study was conducted to compare the nurses' clinical skills in field of preparedness while encountering biological incidents.

**Methods**

During a quasi-experimental study, with a post-test design, 60 nurses of a hospital in Tehran in 2007 were selected using purposive sampling method and then were divided into two groups.

First, lesson plan of nurses' preparation training program in case of biological incidents was determined using Delphi method in three steps [22] and then the educational objectives and curriculum content of a part of designed curriculum was prepared using literature and experts for lectures and practical face to face training sessions and the same content was developed by electronic media professionals as a multimedia CD. Following the conventional education (lecture and practical display) during four hours and distance training (a multimedia CD-ROM), the practical skills of samples were assessed two weeks after education or delivering the CD using the objective structured clinical exam.

Objective structured clinical exam: According to the predetermined tasks and skills after Delphi study, 7 OSCE station scenarios were designed and the list of stations' analysis was designed based on them. Among the skills that were measured in the stations were the proper selection and use of personal protective equipment to deal with biological crisis, separating of biological crises, observing of safety principles in the dressing of a biological crisis, observing of safety precautions in dealing with infectious air-borne diseases and safety principles that nurses infected with air-borne infectious diseases must follow to protect patients. The estimated time of each station was 5 minutes and the time of practical test was 40 minutes for each group. The test was held with the same condition for conventional and distance education groups separately and each time, all participants of four groups were tested.

Data collection tool was a checklist of performance evaluation in the OSCE stations. Content validity was performed using expert groups. Reliability of observers turned out with the agreement coefficient of 0.83. Stations' scores were weighted with experts' opinion and 10% was assigned for the four stations, 15% for two stations, and 20% for one station. Each station's score was considered between zero and 100 in order to facilitate the calculation. In each time of holding the test, determination of duties was performed. In each session, the total of 8 persons was used for the executive team that was fixed in the two tests and participated in the justification sessions. First, the assessment group was determined and the justification sessions (tutorial on the clinical objective structured test and the way of its holding, executive team's work division, familiarity with the check lists of each station and supplying information about the test time) were held for them. All evaluator had MA in nursing. The items supposed to be observed while holding the test by evaluators were proposed in the written form as well. Educational materials related to the educational content, based on which each station's question had been developed, explained in the presence of each evaluator (i.e., in a face to face way), also the booklet related to the conventional(face to face) education classes and the multimedia CD were given to them.
Data was analyzed using statistical software SPSS 15 and descriptive statistics (mean, standard deviation); moreover, to compare the mean scores after examining the distribution using single sample Kolmogorov-Smirnov statistical test (p>0.05), the t-test was used.

Results

60.5% of participants were female and the rest were men. Their average work experience was 11.19±5.8 years (ranging from 1 to 28 years) and all were nursing experts and were working in general units (medical, surgical, emergency, etc.). Between the two educational methods, there was no significant difference in the stations' mean scores (Table 1).

Table 1 - Mean scores of clinical skills after the implementation of two educational methods separated by the two stations (p>0.05)

<table>
<thead>
<tr>
<th>Station</th>
<th>Group</th>
<th>Distance</th>
<th>Conventional (face to face)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>82.1±12.3</td>
<td>88.29±15.91</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>75.25±20.19</td>
<td>78.08±17.73</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>76.89±20.24</td>
<td>78.96±16.8</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>87.01±13.16</td>
<td>83.7±13.5</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>66.69±17.84</td>
<td>58.20±20.07</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>73.79±13.20</td>
<td>71.48±15.8</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>84.36±13.16</td>
<td>84.95±28.4</td>
</tr>
</tbody>
</table>

Total mean score of nurses' clinical skills with OSCE, after the showed no significant difference intervention in the conventional (75.7±7.5) and distance (77.4±8.8) training group (p>0.05).

Discussion

Nurses as the largest care-provider group have an important role in response to bioterrorism. This is why the readiness for facing bioterrorism is necessary for nurses. The readiness is associated to their education, skills or their work place [22]. Due to the recent threats in the field of bioterrorism and the lack of health workers' knowledge, education must be continuous, up-to-date and standard in this field [24]. On the one hand, high cost of education, problems related to the geographic distribution of human resources and serious need to rapid development and skillful updating of experts in crisis, necessitate the use of other training methods. Distance education and applying its new methods can satisfy this need. The results of this study showed that the mean scores of nurses' clinical skill test had no significant difference in distance and conventional training groups after intervention. In other words, the effects of two teaching methods have been equal in the improvement of nurses' practical skills. According to the results of this study, training is effective in improvement of the practical skills that in this regard, Wang et al. and Reid et al. studies can be pointed [25, 26]. In support of the results obtained from the study, several studies can be mentioned. Poskas et al. study shows that even in practical lessons of dentistry as well, self-education plans have the required sufficiency. In their study, no significant difference has been found between the scores of two educational groups of traditional lecture and self-education [27]. Also, Keshavarz with training of “tegogs” of Taekwondo, with two methods of distance teaching, through educational films and conventional in class training, did not found any significant difference in the learning rate [9]. In contrast with this study's results, some studies can be mentioned in which either the conventional or distance educations have been prioritized. Garrison, Farahani and Ghorbani believe in the higher quality of distance education methods than the conventional class education in some academic fields. Regarding the area of providing practical lessons through distance teaching, Stinson and Austin Brog's findings explains that some practical lessons can be implemented by distance method and in some cases the result of such lessons in this education system is better. Farahani's results based on the training of corrective movements in the field of sports, part of which is practical and is taught via audio-visual media to distance education system students, indicate that the performance of distance training students is better. In this regard, the findings of Keshavarz show that the sports students trained by distance education system who have been trained for some practical lessons through audio-visual media have a better learning [9]. Due to the shortage of nursing manpower and therefore, the problems related to their sending to while-service training courses and on the other hand, the importance of nurses’ up-to-dating for providing better care services, development of distance educations especially electronic education, with regard to the capability of this kind of media in providing educational content in various forms (text, pictures, movies, etc.), the development of distance education method in while-service training of nurses is recommended. Finally it can be claimed that this type of media is effective even in teaching some clinical nursing skills.

Conclusion

Both conventional (face to face) and distance education are effective in the improvement of practical
skills and even sometimes their effect is the same. In addition, the OSCE can be used as an effective method in the evaluation of clinical nursing skills. However, further study in this field is recommended.

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References