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Research Article

The role of continuous assessment and feedback in learning of cardiopulmonary resuscitation program in nurses

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Abstract: The aim of this study is to evaluate the effect of a program on learning CPR in nurses for cardiopulmonary resuscitation. Moreover, we want to evaluate the effect of continuous assessment and feedback on this teaching program. This study is a quasi experimental study. 33 nurses in training centers (Modarres hospital nurses were included in this study). The nurses were divided into two groups. group A cases received continuous assessment with feedback, and group B which was the control group received no continuous assesment and feedback. Both groups took part in 4 session of CPR program which included pre-test, post-test, 6-month and one-year semester examinations. Seventeen (51.5%) nurses were in the case group and 16 (48.4%) were in the control group. At the beginning of the study, the skill of both groups were at the same level. Therefore, the mean pretest, post-test, 6-month and one-year test scores in the two groups were similar. Moreover, both pretest and post-test scores increased in both intervention and control groups but the increase was more significant in the interverntion group. On the other hand, the 6-month and one-year examinations in test scores were higher in the intervention than the control group. Also, after one year in the intervention group, the post-test mean score was increased in this group, but this difference was not significant in the control group. The overall test results in two groups for the 4 session was significant. Applying continuous evaluation with feedback for the nursing programs will result in better understanding of trainees. This teaching program resulted in improvement of Cardiopulmonary resuscitation knowledge and Memorization in the nurse who attended this program.
Keywords: Continuous assessment, Feedback, Lecture, Cardiopulmonary resuscitation, Nurses.

INTRODUCTION

Cardiopulmonary resuscitation is the first and main step for cardiac arrest prior to use of defibrillator and advanced resuscitation. Cardiopulmonary resuscitation saves lives during life threatening emergencies such as respiratory arrests, traumas, drowning and airway obstructions [1]. Cardiopulmonary arrest is an abrupt in respiratory arrest and circulation in a patient that still has a chance to survive [2]. The most important knowledge that people should have these days is basic knowledge of the latest CPR methods. This knowledge is even more important for treatment personnel. Research shows that evaluation of nurses is necessary prior to BLS learning programs. Evaluation is the main bases of any learning program which can change it from static to a dynamic nature [3].

Numerous studies carried out on teaching of CPR reveal that development of skills is a highest importance. University teaching programs in CPR should be designed in away to be interesting to students [4]. A new model has been designed in coordination with International Liaison Committee on Resuscitation (ILCOR) during recent years. International Liaison Committee on Resuscitation (ILCOR) has announced if the CPR carried out incorrectly or late, the prognosis would be negative. Therefore, to achieve better or positive prognosis, teaching programs are necessary for experts and public alike [5]. Teaching programs not only should have proficient teachers, but also provide adequate and formative feedback [6].

Sufficient feedback creates the necessary awareness and outlook in learners. In order to transform their medical treatment better positive feedback is even more important than a teaching program .Therefore, to

improve the quality of CPR it is necessary to utilize new and innovative teaching programs [7]. There are numerous problems in the traditional CPR teaching methods such as teaching programs, which do not fit participant needs [8], ineffectiveness of teachers , insufficient time to practice their method thought inadequate oversight of teaching and a lack of attention to learner 's views. Lack of inadequate skills nurses, high teaching cost and updating nurse skills during crisis situations indicates a serious need to improve teaching methods and evaluate nurses practical skills.

Frequently tests and feedbacks from nurses is a superior method to evaluate skill levels and also are very cost effective. The aim of this study is to design a sustainable teaching program that would improve nursing skills levels and their memories also estimate the program effectiveness.

MATERIAL AND METHODS

This study was carried out as a semi experimental clinical trial at shaheed Moddares university hospital in Tehran from 2011-2012. Nurses who had a passed CPR learning program and with similar work experience and education were grouped together and they were divided randomly into two groups. One group was put to traditional lecture program and other went through a teaching program, tests and feedbacks. With the cooperation of nursing office a scientific and coordination committee were formed to implement the program. The research group included researcher anesthetic and university approved CPR teachers. Coordination committee was compromised of the chief nurse and educational supervisors. Each group was simultaneously presented with the same 40 multiple-choice questions. The questions were selected from a source with approved difficulty levels. Each group was presented through 4 teaching sessions during 4 weeks. BLS was taught during the first sessions, Arrythmia was taught during the second session, Medicines for CPR was taught during the third session and the last session compromised of work on moulage training(intubation, cardiac massage, application of defibrillator and finally how to use CPR trolley and temporary pacemaker). Nurses were given 3 tests: after the teaching program at 6 weeks, 6 months and one year a part. The tests included theory, multiple choice questions and practical examinations. The practical examinations were evaluated by a check list. The check list included the following stations:

- Knowledge of equipment.
- a-preliminary examination of patient (manikin) 2-b-unconscious patient.
- Application of mask ventilation.
- Application of intubation.
- Explanations regarding application of defibrillator and CPR medication by nurses.

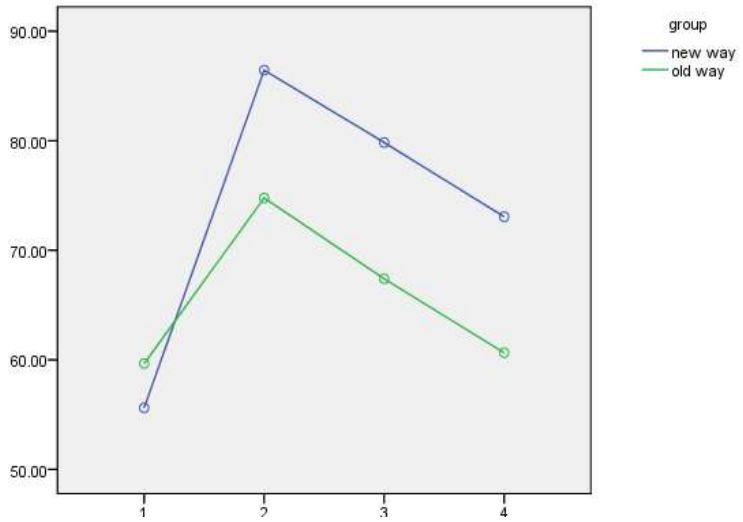
The data was analyzed by SPSS 16 software and Greenhouse-Geezer was used to compare the two groups. In addition, the t-test was used to compare each group's median marks.

RESULTS

33 nurses were divided to lecture group (control, N=16, 48.4 %) and repeated tests with feedback group(intervention, N=17, 51.1%).Pretest results in feedback group was 55.6 ± 12.5 and in lecture group59.7±10.2. They did not show significant differences in both groups (P= 0.31).Because in variance analysis the sphericity condition on continues measurements(Sphericity) was not achieved (p <0.001), therefore the Greenhouse- Geisser test was used to compare. Test results showed that scores significantly different from the measured four times and the average scores of the two groups differed significantly .Compare two scores in four groups with t-test showed that the mean differences not significant in the first test .Average scores on the second, third and four tests were significant (P <0.001).The paired t-test was found in repeated tests with feedback: Average scores between the first and second test, the second and the third test, third and Fourth Test were significant.(In all cases p <0.001)Mean scores in repeated test group with feedback on the first test , significant differences were observed in the fourth test. Mean scores in lecture group on the first test there was no significant difference in the fourth test (Table 1).

Table-1: Presentations and provide feedback based on the distribution groups to determine the pretest and follow-up in the Shahid Modaress hospital in 2011-2012

Group	Nurses umber	percentage	pretest	Post Test 6 weeks	Post Test 6months	Post Test one year	P-value
1-traditional	16	48.4%	59.7±10.2	74.8±11.2	67.4±10.6	60.6±11.62	P<0.001
2-feedback	17	51.5%	55.6±12.5	86.4± 6.9	79.8± 6.1	73.1 ± 5.5	P<0.001



D**iagram-1: Comparison between pretest, post tests (6 weeks, 6 months, one year) in two groups with traditional and feedback method**

DISCUSSION

This study showed in both teaching methods (repeated tests with feedback and lecture) had positive improvements in learning for nurses. However, the use of repeated tests (formative assessment) with feedback to learners ,thereby achieving greater learning opportunities and ultimately increase learning, improve their knowledge and skills .Therefore, due to the nature of the training, can be assumed that feedback is a teaching strategy and supplements along with repeated tests can be used. The lecture presentations can be conducted with repeated tests .This means that instead of the teacher's speech, the topics raised in the form of questions and forcing learners to reflect on questions.

Holding exam before the class can the brain engaging with theme of education and discuss about questions and giving feedback (giving the correct answer)get active involved in class will result in a wide spread and systematic and also achieve educational goals and realize their weaknesses comprehensive efforts to reform is necessary. The final test showed (posttest, 6-month and one-year test) and comparison with the pretest .In addition to the learning and retention of nurses in heart-lung resuscitation it also showed effectiveness feedback on the control group. In this field the results of the studies have been carried out at different levels, on the other learners' consistent supports and researchers.

In the study conducted, trying to eliminate weaknesses of the traditional approach in heart-lung resuscitation training to repeated tests [9]. With focus groups instead of as holding lectures by the instructor got more time to resolve the issue to be considered in this context .In addition ,sequence to training class was held, the first theory classes with feedback and then practical class [9]. Changes, according to the results of the present study showed that its efficacy in improving knowledge and skills of nurses. Therefore ,increase the quality of the heart-lung resuscitation skills due to the use of innovative teaching practices especially frequent tests and feedback is essential [10]. This shows that defects in the traditional educational system has to be solved. For example ,the results of Al wardy study, showed similar results of the effect of repeated tests(multiple tests)which played an important role in enhancing the learning of medical students [7]. The study was designed by a number of detailed questions based on educational goals for each training class with the goal of providing feedback on the results of the learning activities and assignments that it improved enhance learning, knowledge and skills of nurses in heart-lung resuscitation process. Baron and Renee also expressed formative assessment and feedback was used to improve the performance of learners and significantly enhanced their motivation [10].The results indicate the overall knowledge in nurses were trained with repeated tests and feedback than those who had participated in the training lecture was more increased. Therefore, the educational methodology maybe effective on student. Reflections on the different study of methods of teaching and training are indicative of the importance of using new teaching methods was shown .This indicates if the teaching methods would be consolidated, it can increase the effectiveness of teaching and learning will also increase respectively [11]. One study of first year medical students through basic life support showed the use of an educational theory and the subsequent use of a isolated teaching model cannot promote learning in order to enable the creation of learning and creating learners' thinking you can use a combination of teaching methods and feedback perception teaching models [12]. Frequent tests and focus groups were used in the study and compared the impact of integrating learning strategies lecture clearly [12]. In a study by (Ur)

showed that the feedback was focused on learning activities and its main aim was to enhance the quality of future Tutorial [13].

As the present study showed ,the control group was provided with feedback and this behavior is consistent with(Ur) as a group ,frequent tests with feedback. Three tests were compared to the lecture group and mean difference was apparent and showed that this method can improve the quality of future tutorial .Therefore ,the difference intest scores between the two groups in a year is indicative of the fact [13]. The study of Timist and et al. showed one year after heart-lung resuscitation training and clinical practice skills equal amount of time is before training .This emphasizes the need to provide regular refresher courses [14]. Analysis study clearly indicated to improve knowledge and retention of nurses in repeated tests with feedback during 6 months and one year after heart-lung resuscitation training classes for nurses ,their knowledge, and skills and group rates also reduced heart-lung resuscitation especially in the school nurse's speech before education was not significantly different .However, if the training programs of active learning techniques are used for feedback forgetting rate will be lower. In a study by Sashma in 2014 on heart-lung resuscitation skills retention rates were indicated by cardiopulmonary resuscitation skill level learners ,the learning process has grown and even learning to play new roles in this area and the interaction between learners and teachers greatly increases the motivation to learn that will lead to new ideas as a comprehensive plan to increase the awareness of these skills is to learn the heart-lung resuscitation replication training is effective on learner retention rate [12].

Results from this study suggest a wide range of interactive displays between nurses (counterparts) and teacher training programs that are due to repeated tests, discussion sessions and feedback. Therefore, in order to increase knowledge and competencies of nurses in heart-lung resuscitation department shave adopted new educational that not only led to better and deeper learning but also have greater effects on learning retention. Appropriate learning strategy can be hoped to be faced with real cases, which nurses were able to save a great deal of responsibility. Chamberline and colleagues expressed the heart-lung resuscitation training programs will not provide away in the world and they should be standard [15]. Therefore, the present study reached the conclusion that use of two methods of teaching have shown different results .One of the requirements and concerns of the education system is making accurate and objective standardization(to increase knowledge and skill retention)in the heart-lung resuscitation training .However ,this study had limitations. Small sample size in this study was limited to quasi-experimental studies. Therefore , further studies with larger sample numbers seem necessary. Factors such as motivation, emotional state nursing is not considered in this study.

It is suggested that teachers and officials of various training courses be organized by modern methods of teaching and repeated tests with their feedback. Teachers while conducting developmental tests have always tried to use feedback .Teachers when performing repeated tests have tried to use feedback. Moreover, they should avoid repeated tests without feedback because repeated tests will be more likely to cause disclaimer motivation and unimportant test results .It is also suggested that teachers after training, Awareness of how learners learn ,to bring Short test(quiz) under repeated tests .They through appropriate feedback should to improve and repair Students learn the failure and to reach mastery them .It should be noted to examine other factors that influence the learning and memory . Therefore ,recommended that it is Investigated Other factors affecting including audio visual facilities and training places and Surround conditions Comment on duty, and other factors Ina separate study.

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