

Comparing two training methods, traditional CPR skill and distance training at the Red-crescent organization in Hormozgan province

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Abstract: Introduction: On-going relief skills training in Red-crescent organization are inevitable and crucial, but Geographical dispersion of relief bases and wide range of the staff deemed to be the reasons of the lack of the rescuers simultaneous access to educational classes. Hence, the present study was done with the aim of finding the suitable method for training rescuing skills at the Red-crescent organization in Hormozgan province. **Methods:** The present experimental study included 84 high school students who were new volunteers to work at the Red-crescent organization. The samples were taken with the method of cluster and random samplings, which classified into the two groups of 42 individuals. The two groups were trained with two different methods at the same time and separately, answering the questions of knowledge assessment before and after training. Finally the rates of their skills were assessed using models and checklists of performance assessment. The data were given to SPSS16 statistical software and analyzed through descriptive and analytical methods of statistics. **Results:** The results showed that there is no statistically significant difference between the mean scores of the total questions regarding knowledge assessment for both group before and after training. Also the results indicated that, after the training, the number of correct answers to knowledge assessment questions were significantly more rather than those prior to training period (P-value < 0.05). Also out of 10 indices of performance assessment checklist, 7 indices indicate the percentage of correct performance of experimental group (distance training) is significantly more than that of subject group (traditional training) (P-value < 0.05). **Conclusion:** The rate of the performance of the experimental group was considerably better than that of the traditional group, and comparing the range of the knowledge of both groups no significant difference is revealed. Therefore, the officials of Red-crescent organization need to make more attempts in planning more distance training classes at this organization. [Parvin Rezaei, Ali Safari moradabadi, Hossein Montazerghaem, Hamid Reza Miri, Abbas Paknahad, Ali Alavi. **Comparing two training methods, traditional CPR skill and distance training at the Red-crescent organization in Hormozgan province.** *Life Sci J* 2013;10(9s):140-145] (ISSN: 1097-8135). <http://www.lifesciencesite.com>. 15

Key words: Traditional training, Distance training, CPR, Skill, Rescuer, Red-crescent organization

Introduction

Education is a good investment and a key factor in the development of competence and if properly planned and implemented, it can have significant economic outcomes. Offering an effective training method in a modern organization requires new thinking, new models and new tools and mechanisms[1]. One of the fundamental actions which lead to the effectiveness of organizations is training skillful personnel through education and its development[1]. Influential role of human resources in

the organizations operations is not blind to anyone. In other words, the operation of the investment objectives and reaching anticipated plans and goals all depends on the skillful and efficient human forces that are committed to the goals and policies of the organization, and have enough knowledge about these goals. By using an accurate and comprehensive educational system, by receiving continuous training requirements, while increasing scientific knowledge, they will also increase their practical skills[2]. Today due to raising organizations' awareness about the

importance of long life learning and its role in reducing the unpleasant events and increasing investment, Staff development was increasingly taken into account[3]. Studies show that people who are eager to participate in continuing education programs and their demands to participate in these courses are also increasing, however, many factors affect their access to these programs and they have been faced with serious challenges such as being in a busy family, shift work fatigue, lack of motivation, and lack of alternative human resources[3]. On the other hand the traditional training methods or face to face training encourage passive learning, and disregards individual differences and don't focus on the needs of learners problem solving, creative thinking, and other higher order cognitive skills and it is not usually effective[3]. Research suggests that e-learning is an effective and successful method, if the content is formulated and evaluated properly, and implementation of this educational system is recommended in Iran. Methods are obvious and hidden tools that are used by teachers to more readily achieve learning outcomes. Direct teaching methods are things such as giving lecture, live demonstration, role-playing, discussions and practical work and indirect methods are things such as videos, articles, books and manuals. Among Other teaching methods teaching via computer, either using a CD or distance education should be mentioned. Bat and Mack hamun suggest that in most cases, training will be provided through lecture and between 10 to 20 percent of the oral input will be recalled by the 10-20% of students but in order to learn more, it is better that some training aids such as pictures, models, movies, and slides be used[4]. In our country, Red Crescent Organization is an NGO which is responsible for accountability and rescue in disasters and accidents. Volunteer services of this organization's workers make their education and trainings of particular importance, however, due to the wide geographic dispersion of the population and the aid stations, the only cross-sectional and short-term trainings could be practiced and the opportunity for training, re-training or providing more up to date methods on latest procedures and operational issues such as disaster, relief and CPRcouldn't be implemented at all aiding bases. Furthermore, providing practical training in many medical procedures demands inviting experienced teachers and using teaching aids which are expensive and advanced Model which achieving these goals and providing this training to the entire population is very costly and not feasible. Since the subject of further studies focused on theoretical and conceptual issues in distance education, The answer to this question that whether distance education can also increase people's access to practical skills or not, is

something that have not been fully dealt with in previous studies. The aim of this study was to determine and compare the performance and knowledge of Red Crescent volunteer workers of Hormozgan, Iran, both before and after participation in distance training courses and traditional education on CPR.

Methods:

This study is an empirical study of the Red Crescent in 1391, which has been performed in Hormozgan, Iran. In this study population consisted of all second and third year high school students who voluntarily joined Red Crescent student club during educational year of 1390-91 in the city of Bandar Abbas and they were of no practical relief skills already. The sample size of the study was calculated using the formula which was used for calculating the sample size of the limited societies, and it was calculated as 84 people. In this study, for the sampling, cluster random sampling method was used. At first out of 30 high schools which had Red Crescent bases, 6 high schools were randomly selected as the main clusters and of each cluster, 14 students, were randomly selected from among all the people who newly joined to the Red Crescent bases of that high school. Next, the subjects who were selected from each cluster were randomly divided into one experimental group (distance learning) of 7 individuals, and a control group (traditional teaching) of the same size and the samples who were selected as experimental or control group of each high school serve as experimental and control groups. So, in the end, there were 84 students in 6 main clusters, who were assigned as two groups each of 42 individuals, namely experimental and control group. In this study, data collection procedure includes: (1) answering the questions of knowledge assessment questionnaire before and after training, (2) answering to performance assessment checklists of both experimental and control groups after training. The knowledge assessment questionnaire is related to ongoing cardiac and pulmonary resuscitation training courses of medical emergency and incident management training center across the country which its validity and reliability, has been previously approved. Performance assessment checklist was designed by the researcher, based on the latest standards of correct cardiac and pulmonary resuscitation operations, and by which individuals' performance was compared in both groups before and after training. Content validity of this checklist was confirmed by a list of ten faculty members who were expert in the field of cardiac and pulmonary resuscitation and its reliability was approved by testing 20 personnel of incident management and emergency

medical center and by using Inter Rater method. Characteristics of subjects to be included in this study were that: (1) the subject should be a high school student (2) the students should be new volunteer members of Red Crescent organization, (3) they should not participate in the studies similar to this study, (4) the subjects should not participate in cardiac and pulmonary resuscitation training courses, (5) the subjects' family members should not be health and medical personnel, and (6) they should not have seen a patient's CPR before. Two different training methods used in this study were: a) traditional training: in this study traditional training means that, the subjects as the control group attend at the classroom and a teacher by presenting some lectures and using teaching aids and supplementary materials such as marker, white board as well as CPR training manikin teach the materials directly to students. Prior to training, learners of the control group, answered a knowledge assessment questionnaire and they immediately again answered that questionnaire to assess the level of their knowledge after receiving the trainings. They completed before and immediately after the training, re-training questionnaire to measure knowledge of responded. Then their functions were assessed by using a performance assessment checklist and using a CPR training model. B) Distance education: here distance learning means that, providing the experimental group with the same educational

materials that were presented to the experimental group, in this way, content by the teacher in the classroom and other space images using models and training were recorded and later in the film class environment for learners of experimental group were shown. Prior to broadcasting the recorded film education, learners in experimental groups, completed the knowledge assessment questionnaires to assess knowledge before training and immediately answered the same questionnaire after watching training videos, to measure the level of their knowledge after training courses. Then their practical understanding was assessed by using a performance assessment questionnaire and also a CPR training model. In this study, the collected data in questionnaires were entered in the statistical software spss16, and by using descriptive statistics such as frequency distribution, percentage, mean and standard deviation, demographic variables were described. Statistical tests which were used in this study are: McNamar test, paired t-test and Chi-square. For all statistical tests performed in this study, the $05/0 > P$ -value was considered as the level of significant.

Results

After sampling and distribution of the samples as experimental and control groups the results of their demographic data are shown in Table (1).

Results		Group		total
variable		Experimental	control	
age	16 years	9(40/9)	26(47/3)	22(26/2)
	17 years.	29(52/7)	3(42/9)	55(65/4)
	18 years.	4(57/1)	42(50)	7(8/4)
	total	42(50)	16(55/20)	84(100)
sex	male	13(44/80)	26(47/30)	29(34/5)
	female	29(52/70)	42(50)	55(65/5)
	total	42(50)	13(31)	84(100)
grade	Two high school.	9(22/4)	29(69)	22(26/2)
	Junior high school.	33(78/6)	42(50)	62(73/8)
	total	42(50)	26(47/3)	84(100)

To compare the mean of total scores of questions about both experimental and control groups students' knowledge of cardiac and pulmonary resuscitation, both before and after training, paired t-

test was used. The results showed there isn't a statistically significant difference between the two groups. These results are shown in (Table 2).

	Group	mean±std.deviation	df	Amount T	p-value
before	Experimental	31/57 ± 11/20	82	0/91	0/365
	control	25/84 ± 9/74			
after	Experimental	34/4 ± 3/03	82	0/65	0/525
	control	27/8 ± 3/61			

In this study in order to compare the subjects' answers to questions before and after training, the McNemar test was used. The results showed that the number of correct answers of students to questions significantly increased after training. In Table 3, the results of Chi-square test to compare the percentage of correct performance of students in both groups are given. It can be seen that of 10 performance indices, in 7 criteria the percentage of experimental group's performance was

significantly higher than that of control group, these criteria include: diagnosing of unconsciousness, seeking help, examining airway, checking breathing, giving artificial respiration, chest compressions and placing the patient in the recovery position. And in the other 3 performance indices including: assessing safety of conditions and following BSI, opening the airway and examining circulatory system, no significant difference between percentage of correct performance of the two groups was observed.

Skills expected	Function	Group		Chi-square test results	
		Experimental	control	Amount X^2	p-value
Security assessment and compliance with the BSI	true	33(78/6)	31(73/8)	0/262	0/608
	False	9(21/4)	11(26/2)		
Detection of consciousness	true	37(88/1)	23(54/8)	11/43	0/001
	False	5(11/9)	19(45/2)		
Ask for help	true	27(64/3)	14(33/3)	8/05	0/005
	False	15(35/7)	28(66/7)		
Check the airway	true	37(88/1)	23(54/8)	11/43	0/001
	False	5(11/9)	19(45/2)		
Open the airway	true	24(57/1)	21(50/0)	0/512	0/431
	False	18(42/9)	21(50/0)		
Of breathing	true	42(100/0)	28(66/7)	16/8	0/000
	False	0(0)	14(33/3)		
Give artificial respiration	true	28(66/7)	16(38/1)	6/87	0/009
	False	14(33/3)	26(61/9)		

Discussion:

Results of the findings of this study about the similarity of these two groups, after receiving training courses in different ways, indicated that the two groups do not differ in knowledge levels and in fact, these two different training methods, in terms of increasing awareness, were not different from each other, but when we compare these two groups in terms of their performance it should be noted that experimental subjects in most cases gained better results than the control group. This shows the priority of distance education in increasing learners' practical knowledge or their performances. Further more in a study by Khatun et al (1390) entitled: a comparison of two e-learning and traditional education on nurses' knowledge about bird flu, results showed that before and after the test, both methods, e-learning and traditional, were similarly effective in enhancing nurse's knowledge. Thus, distance learning like traditional learning can be effectively used to provide continuous training programs and by considering the many advantages of e-learning, its application in the future continuing education programs, will be very useful[3].

In a study done by Monjamed et al (1385) on comparing the effects of two CPR teaching methods (models and films) on the knowledge and practice of nursing students at Tehran University, a significant relationship was found between the two training methods of lecture and film. Their results also showed that the majority of students in both groups had achieved a satisfactory performance and significant correlations were not observed between the two groups[4], which this is in line with the results of the current study. In confirming the findings of the present study the study done by Afzalzada et al (1390) could be mentioned which is about investigating the effects of teaching method using questions and answers model training on awareness of 30 emergency medical personnel of cardiac and pulmonary resuscitation in Dezful's Medical University in 1390. And it was found that average awareness of staff before training before was 13.57 which rose to 18.43 after training, and difference between awareness of staff before and after training was also significant ($P < 0$)[5]. In addition, a study by AghaBabaeian et al (1390) on comparison of the effects of Triage education by

using lecture and training films on knowledge and practice of emergency personnel in Khuzestan, Iran, showed that the method of teaching using educational video presentations had more impact on knowledge and practice of emergency medicine personnel than does presenting lecture and in this study, the influence of more stable learning approach instructional videos on the lecture staff were also fixed. In this study, although the impact of both teaching methods on knowledge and practice of pre-hospital emergency personnel was significant, but video training method was much more effective than traditional teaching method particularly in increasing practical knowledge and these findings were in harmony with results of the current study[6]. As well is the research done by Karim Zadeh (1371) on comparing effects of teaching health to school health educators of Shiraz through face to face and distance education, results of this study showed the priority of the non-face teaching methods (self-study methods) in comparison to (lectures traditional) training course[7]. The results of a study on satisfaction of Tehran Medical University personnel of the electronic in-service training courses which was done by Alavi et al (1389), also showed that the highest employee satisfaction, their satisfaction of electronic training Method[8]. Also in a study done by Dadgostarnya et al (1389), entitled: teaching physical examination skills: Comparison the effects of two teaching methods "e-learning and training in small groups", the results showed that the mean total scores of the experimental group was significantly higher than the control group and the mean score of following detailed technical points was higher in experimental group than in the control group[9]. Currently, many universities of Iran have begun the electronic learning but this is something new in Medical Universities. In a study by Vafaenajar et al (1390), which was about beliefs of Mashhad Medical University faculties about implementing electronic learning programs, results showed that the majority of participants were in favor of implementing e-learning system[10]. Saeidi et al (1390) done a study on the effects of electronic learning programs on the students of Medical Sciences in Mashhad University, results showed that there wasn't a significant difference between the mean score of students in electronic and face to face teaching and this is aligned with the results of the study[11]. Kalbrvt Galdyn et al (2009), done a study entitled comprehensive protection and control equipments in an e-learning environment, the results of which showed that electronic learning significantly effects on knowledge and self-regulation behaviors[12]. Also Hvjnhvltz et al (2008), in a study entitled efficiency of e-learning in continuing medical

education for physicians, medical professionals, the results showed that Both electronic and traditional training methods, is effective in increasing students' knowledge and there is no significant difference between them [13]. Votooh et al (2004), in a study entitled, e-learning: a review of online CME, which has focused on systematic review of 16 studies related to training in traditional and electronic (MEDLINE from 1996 to January 2004 and Synahl: from 1982 to December 2003), results showed that in most of these studies, online CME impact is similar to the traditional method[14].

Conclusions

Performance of the experimental group (distance education), was significantly better than the control group (traditional instruction) and in terms of awareness raising there was no significant difference between the experimental and control group. So it is necessary that The Red Crescent staff give higher priority to planning electronic learning classes and distance learning in this organization. And by providing training programs as films and multimedia, teach those skills that need to be retrained and repeat. And by spending less time and energy teach new aiding skills to aid all caregivers of this organization. At the end, it is necessary to point out that the main limitations observed in this study is due to limitations in sample size and selection of the study population and it is suggested in further studies groups other than students are used as the sample of study. Furthermore it is recommended that further studies spend more time on investigating aiding skills more comprehensively.

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