Evaluating the Effect of Non Traditional Teaching Method on Nurses' Performance regarding Basic Cardiopulmonary Resuscitation

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ABSTRACT

Introduction: Cardio pulmonary resuscitation is a series of actions that may significantly increase the chance of survival following cardiac arrest. In most cardiac arrests, the critical elements of CPR are chest compressions and early defibrillation. Each situation is different depending on the rescuer, the victim and circumstances, but the key to success is early intervention. **Aim:** Developing, implementing and evaluating the effect of non-traditional teaching method on nurse's performance regarding basic cardiopulmonary resuscitation. **Subjects & Methods:** A quasi experimental study was conducted under the Authority Police Hospital at El-Agouza. **Results:** Less than half of nurses under study obtained very good in traditional teaching method and half of nurses under study improved knowledge and practice post used non-traditional method implementation with high effect skills after used film with booklet. **Conclusion:** The Level of nurse's knowledge & practice was increased after using non traditional method regarding to basic cardiopulmonary resuscitation (CPR)..**Recommendations:** Suggested additional non-traditional for nurses regarding CPR to keep them in touch with advances in health education about using video film to easy understand to nurses and to give nurses based of knowledge and skills about CPR as non-traditional methods of teaching.

Keywords: Non Traditional Teaching, Basic Cardiopulmonary Resuscitation, Nurses performance

Introduction

Ischemic heart disease is the leading cause of death in the world. Sudden cardiac arrest in responsible for more than 60% of adult death from coronary heart disease **(AHA CPR guidelines, 2014)**. One third of all people developing a myocardial infarction die before reaching hospital. Most of them die within an hour of the onset of acute symptoms. In most of these deaths the presenting rhythm is VF or pulse less ventricular tachycardia (VF/VT). The only effective treatment for these arrhythmias is attempted defibrillation and with each minute's delay the chances of a successful **(American Heart Association, 2011).**

Cardio pulmonary resuscitation (CPR) is a series of actions that may significantly increases the chance of survival following cardiac arrest. In most cardiac arrests, the critical elements of CPR are chest compressions and early defibrillation. Each situation is different depending on the rescuer, the victim and circumstances, but the key to success is early intervention **(American Heart Association, 2012).**

The CPR is easy as C–A-B the American Heart Association just announced the 2010 CPR guidelines. Compressions push hand and fast in the center of the Victims chest airway tilt the victim's head back and lift the chin to open the airway breathing give mouth-to-mouth rescue breathing **(Bebrow BJ, et al., 2010).** The CPR in a simplified format lays focus on providing chest compressions help in maintaining blood flow and also oxygen in the same. As a result, blood flow is boosted and directed properly to the brain and of the concerning patient **(Aly A. 2010)**.

It has been more than 3 years since the last official CPR guidelines were updated in 2010. The most significant change in the latest guidelines was moving from ABC (airway – breathing – chest) to CAB (chest, airway and breathing sequence) **(Bebrow BJ, et al., 2010).**

Fast forward to 2014, we have listed here the most updated and latest guidelines. The American Heart association is one of the organizations to mandate CPR and first aid rules **(Broomfiled R, 2007)**. It has recently announced that giving rapid chest compression

for CPR is recommended and not mouth-to-mouth resuscitation **(American Heart Association, 2012).**

The AHA updates CPR guidelines, according to advancements and findings made in the world of healthcare, science, technology and also the ever changing human anatomy. The recent update in the CPR guidelines as per AHA was made in 2010 for new AED (automated external defibrillator) CPR rules **(Elizabeth sinz, et al., 2010).**

Current AHA official guidelines for CPR

The new CPR guidelines of AHA emphasize on compressions – according to the guidelines, a rescuer needs to press not only hard but fast. This is irrespective, whether the rescuer is an expert or a regular by stander **(Damjan L, et al., 2011)**. The CPR in a simplified format lays focus on providing chest compressions help in maintaining blood flow and also oxygen in the same. As a result, blood flow is boosted and directed properly to the brain and heart of the concerning patient **(Dlloyd-Jones RJ, et al., 2010).**

The ABC sequence has changed to CAB sequence according to old guidelines, the ABC sequence of emergency cardiac care was accepted – Airway – breathing – compressions. In the updated guidelines, it has transformed to CAB sequencing – compressions – Airway – Breathing. Rescuers should conduct a brief assessment and determine whether the victim is responding or not. Along with this, he/she should check for normal breathing for less than 10 seconds, then 30 CS or compressions should be provided immediately, followed by opening the airway by tilting head and lifting the victim's chin and finally providing two rescue ventilations or breathing of C-A-B. The entire process must be continued in the ratio 30:2 unlike the arrival of EMS or AED **(Elazazay, et al., 2012).**

Role of the leader:

The role of the team leader is multifaceted the team leader: organizes the group, monitors individual performance of team members, backs up team members, models excellent team behavior, trains and coaches, facilitates understanding and focuses on comprehensive patient care **(Elizabeth Sins, et al., 2011)**.

Every resuscitation team needs a leader to organize the efforts of the group. The team leader is responsible for making sure everything is done at the right time in the right way by monitoring and integrating individual performance of team members. The role of the tea leader is similar to that of an orchestra conductor directing individual musicians. Like a conductor, the team leader does not play the instruments but instead knows how each member of the orchestra fits into the overall music **(Elizabeth Sinz KN, 2010)**.

The role of the team leader also includes modeling excellent team behavior and leadership skills for the team and other people involved or interested in the resuscitation. The team leader should serve as a teacher or guide to help train future team leaders and improve team effectiveness. After resuscitation the team leader can facilitate analysis, critique, and practice in preparation for the next resuscitation attempt **(Kahane KA, et al., 2011)**.

The team leader also helps team members understand why they perform certain tasks in a specific way. The team leader should be able to explain why it is essential to push hand and fast. Ensure complete chest recoil, minimize interruptions in chest compressions, avoid excessive ventilations. Whereas team members should focus on their individual tasks, the team leader must focus on comprehensive patient care **(Elizabeth Sinz, et al., 2011).**

Successful resuscitation following cardiac arrest requires an integrated set of coordinated actions represented by the links in the adult chain of survival. The links include the following: immediate recognition of cardiac arrest and activation of emergency response system, early CPR with an emphasis on chest compressions, rapid defibrillation, effective advanced life support and integrated post-cardiac arrest care **(Komasawa N, et al., 2011)**.

Effective resuscitation requires integrated response known as a system of care. Fundamental to a successful resuscitation system of care is the collective appreciation of the challenges and opportunities presented by the chain of survival. Thus, individual and groups must work together, showing ideas and information, to evaluate and improve their resuscitation system; leadership and

accountability are important components of thin team approach **(Highthall Gk and Poon T., 2010).**

To improve care, leaders must assess the performance of each system component. Only when performance is evaluated can participants in a system effectively, intervene to improve care. This process of quality improvement consists of an iterative and continuous cycle of: systematic evaluation of resuscitation care and outcome, bench marking with stakeholder feed back and strategic efforts to address identified deficiencies ***(Lewis et al., 2005).***

Foundational facts:

Medical emergency teams (METs) and rapid response teams (RRTs).

Many hospitals have implemented the use of METs or RRTS. The purpose of there teams is to improve patient outcomes by identifying and treating early clinical deterioration. In hospital cardiac arrest is commonly preceded by physiologic changes. In one study nearly 80% of hospitalized patients with cardio respiratory arrest had abnormal vital signs documented for up to 8 hours before the actual arrest. Many of these change can be recognizes by monitoring routine vital signs. Intervention before clinical deterioration or cardiac arrest may be possible **(Hostler D, et al., 2011)**.

Consider this question: would you have done anything different if you knew is minutes before the arrest that…? Management of life-threatening emergencies requires can involve rapid response teams. Cardiac arrest teams and intensive care specialties to achieve survival of the patient. Team leader have an essential role in coordination of care with team members and other specialists **(Kitamura T, et al., 2011)**.

Respiratory arrest case:

This case reviews appropriate assessment intervention, and management options for an unconscious, unresponsive adult patient in respiratory arrest **(Meaney PA, et al., 2013).** Respirations are completely absent or clearly inadequate to maintain effective oxygenation and ventilation. A pulse is present (do not confuse a gonal gasp with adequate respirations). The BLS survey and the ACLS survey are used even though the patient is in respiratory arrest and not in cardiac arrest **(Garcia JC, et al., 2010)**.

Successful resuscitation attempts often require healthcare providers to simultaneously perform a variety if intervention. Although a CPR trained by stander working alone can resuscitation a patient within the first moments after collapse. Most attempts require the concerted efforts of multiple healthcare providers. Effective team work divides the tasks, while multiplying the chance of successful outcome **(Kilgannon JH, et al., 2010)**.

Fundamental to a successful resuscitation system of care is the collective appreciation of the challenges and support unities presented. Thus, individuals, and groups must work together, showing idea and information, to evaluate and improve their resuscitation system leader ship and accountability are important components of this team approach. To improve leader must assess the performance of each system component only when performance is evaluated can participants in a system effectively intervene to improve care. Systematic evaluation of resuscitation care and outcome **(Meaney PA, et al., 2013).**

Aim of the Study

The present study is aiming to Develop, implement and evaluate the effect of nontraditional teaching method on nurses' performance regarding basic cardiopulmonary resuscitation (CPR) through:

1- Assessing the effect of using non traditional method on level of knowledge regarding to basic cardiopulmonary resuscitation (CPR).

2- Assessing the effect of using non traditional method on the level of skills regarding to basic cardiopulmonary resuscitation (CPR).

Research Hypothesis:

1. The implementation of non traditional teaching method will improve nurse's level of knowledge and practices for basic cardiopulmonary resuscitation.

Subjects and Methods

Research design:

A quasi experimental study was used in the conduction of this study.

This study was conducted at the Police Authority Hospital El-Agouza,

Sample type: A convenience sample was used in the study.

Sample size: all nurses working in the critical care units namely the (intensive care unit ,coronary care unit and emergency room) were involved in the study .The total subject size was one hundred and fifty nurses .The subjects were divided randomly into two groups using computer system.

The first group "group receiving traditional method" (control group) included 75 nurses working in critical units. All nurses accepted to participate in the study and they receive the traditional method.

The second group "group receiving the non-traditional teaching method" (study group) included the other 75 nurses working in critical units. All nurses accepted to participate in the study and they receive the non-traditional method.

Inclusion criteria: Nurses with all educational level (diploma – diploma specialty and bachelor degree) and both sex (male or female nurse) and working at any shifts (morning – after noon, and night).

Exclusion criteria: include nurse who receives any training course of A.H.A during the last year before the study about basic cardiopulmonary resuscitation (CPR).

Tools used for data collection study

Data of the study were collected using a self administered questionnaire sheet; used on pre/post and follow -up test; developed training teaching method; observational check list and nurse's opinionire sheet.

1- Self administer questionnaire sheet (Appendix I):

This tool aimed to assess the demographic characteristics data and nurses level of knowledge regarding basic CPR. It was adapted from the AHA guideline 2010 (Arabic version) after reviewing the related current national and international literature. It was applied for both groups. It consisted of two parts:

First part: (Appendix I) it is concerned with nurse's demographic characteristics data such as (nurse's age, gender, qualification, and years of experience at critical care units, and attendance of training program.

Second part (Appendix II): uses in Pre/post and follow up tests format to assess nurse's level of knowledge regarding basic CPR. The pre, post and follow up test consist of (20) questions in the form of multiple choose questions about cardio pulmonary resuscitation knowledge. The questions were divided as following five questions regarding compression, location and correct rate, five questions about airway clearness and adjustment, five questions about correct rate of ventilation , and last five questions about Automated External Defibrillator (AED) arrival and selection of proper pads and proper time.

Scoring system of the pre/post and follow up test one mark was given for each correct answer and zero for the incorrect one .it was evaluated as follows;

- ≥80% satisfactory level of knowledge.
- < 80% unsatisfactory level of knowledge.

2 - Standardized observational check list for basic CPR skills (Appendix II) it was adapted from A.H.A. guideline 2010. The check list was designed to asses nurse's skills of basic cardio pulmonary resuscitation, they were used to assess nurse's skills regarding to CPR procedure in both groups.

The check list consist of 10 actions : one for checking response ,for activation of response system, opening air way, checking breathing ,delivery of breathing ,checking pulse , location of hand position ,delivery of compression ,giving 2 breath, Delivery of second cycle of compression

Scoring system of the check list one mark was given for each correct action and zero for the incorrect one .it was evaluated as follows;

≥80% satisfactory level of performance

< 80% unsatisfactory level of performance

3-Nurse's opinionaire sheet (Appendix III); this tool was used to assess students' satisfaction regarding traditional and nontraditional teaching methods. This tool was used after implementing the module for both studied groups. The opinionair sheet was divided into two columns; the first column included 10 items of opinionair, while the second column included student's responses using a 5-point scale, where 5 is the highest score and indicates excellent, 4 very good, 3 good, 2 poor, and 1 very poor, that indicates the student's level of agreement on each statements.

The items of the opinionair sheet included items evaluating the training course, the teaching method, teacher, physical environment, the benefit of the booklet and the video film.

Developed non-traditional teaching method (Appendix IV); the method was developed by the researcher and it include the standard Arabic film of the American Heart Association (2010) which was used to teach theoretical and practical part. Booklet that include the materials of the CPR technique. All the materials was developed by the researcher based on reviewing the current available resources of CPR ***(AHA 2012).***

II- Operational design:

The operational design of the study entails four main phases: preparatory phase content (validity and reliability) ,exploratory phase (pilot study) , Implementation phase and field of the work.

1-Preparatory phase:

A review of past and current, local and international related literature using journal, magazines, scientific periodicals and books was done to develop the study tools and to get acquainted with the various aspects of the research problem. – Validity and reliability;

Tools validity (appendix VII) was checked through distribution of the tools to seven experts in the field of the study of Medical surgical (three professor of medical surgical department, two physicians of ICU, two assistant professors of medical surgical nursing), content validity was assessed to determine whether the tool covers the appropriate and necessary content, as well as its relevance to the aim of the study, clarity, and its simplicity. The suggested modifications were done (rephrasing of some statements, omission and addition of certain items). Then the final form was stated.

Tools reliability; of the developed tools was done by alpha cronbach test. It was reliable at 0.754 for the first tool, 0.612 for the second tool and 0. 841for the third tool.

Ethical and legal issues

Verbal agreement obtained from the nurses before the starting of the first session to be involved in the study sample at the first session. All ethical issues of research were maintained. The purpose, specific objectives, anticipated benefits and methods of the study were carefully explained to each eligible subject. When the nurses agreed to participate in the study, they were assured that they could withdraw at any time and they would not be identified in the report of the study. Also, the researcher informed the studied subject that, the research would be harmless, confidentiality in gathering and treating subject's information was secured.

2 - Exploratory phase (Pilot Study):

A pilot study conducted on 10% of the sample to test the applicability of the tools obtained results was used as a guide to reconstruct the changes needed in the data collection tools. All subjects who shared in the pilot study were not included in the main study sample.

3-The implementation phase:

The study was carried out in the period from January 2012 to September 2012.

This phase started with an explanation of the aim of this study as well as taking their approval to participate in the study prior to data collection from nurses working at the police Authority hospital El Agouza.

Regarding the nurse's knowledge assessment questionnaire .This tool was filled in by the nurses. It took about 20 minutes to fill it in by each nurse. It was introduced before starting of the two methods.

For the study group

Nontraditional method were used including (Arabic film, hand out, discussion and booklet) to teach nurses basic CPR compression and correct rate, air way clearance and adjustment , performance of ventilation at the correct rate. The use of AED, turning AED, selection of proper pads, analysis and delivery of shock. Each nurse in both groups had three trials on training of the procedure before the final evaluation by the researcher.

Teaching and training was done in presentation room at the police authority El Agouza hospital. The practical part was done using Resusci Anne manikin .Resusci Anne is a training manikin used for teaching CPR. In this study, Basic CPR skill performance was measured by the accuracy of chest compression including; correct hand placement, completely chest, depth and rate of chest compression (100 compressions per minute) following the ***(AHA 2010)*** guideline ***(Berg et al., 2010).*** The video film was the Arabic version so the language was easy for the nurses to understand .For training the practical part procedure and teaching manual skill used training model but in the traditional method used lecture to teaching procedure used lab top and handout, in procedure used training manikin to teaching procedure.

Nontraditional teaching group training was done over six sessions.

Session I: It was used orient all nurses about two teaching method.

Session 2: It was used to assess nurse's basic cardiopulmonary resuscitation (CPR) knowledge level and the performance of nurse's prior implementation

Session 3: Playing of the video film of CPR

Session 4: Practice session of the CPR

Session 5: Practice session of how to use automated external defibrillator (AED).

Session 6: Post test and performance checking.

For the control group (traditional method)

The teaching was also done over six sessions

Session I: It was used orient all nurses about two teaching method.

Session 2: It was used to assess nurse's basic cardiopulmonary resuscitation (CPR) knowledge level and the performance of nurse's prior implementation

Session 3: Power point presentation of CPR

Session 4: Practice session of the CPR

Session 5: Practice session of how to use automated external defibrillator (AED).

Session 6: Post test and performance checking.

For the control group

The researcher conducted one session every 15 days from January to September 2012. The theoretical session were presented on 3 sessions. In the police Authority hospital El Agouza in.floorer four in presentation room.

The researcher distributed the required necessary hand out for both group at the beginning of each teaching session.

Sessions of the teaching method were conducted for the study group in one session every 15 days for three months

The teaching method sessions were carried out at the lecture place in hospital at the fourth floorer in presentation room content each group 15 nurses in all group content 75 nurses, the teaching method was conducted through five group to can understand explanation of lecture, active discussion, an presentation, also read the outline or booklet.

The nurses were allowed to ask question in lecture to correct knowledge while listening and answer question feed- back and give the plan for another session.

Data collection in 15 days /month and in all shifts morning, afternoon, night shift, for a period about 6 months and follow up data after 3 months about 9 months to finished from this teaching method.

4- Field work

Data collection was carried out in the period from the beginning of January 2012 to the end of September 2012. Video –based educational film finished through three months. The groups divided randomly using computer

system into two groups, one exposed to a video film (study group) and the other exposed to traditional method (control group) The researcher was available at the study setting every ten days/ month.

The researcher started by explaining the nature, aim and expected outcomes of the study to the study subject individually using the previously mentioned tools.

Evaluation

Upon the completion of the intervention nursing teaching method. The post test was done for nurses to evaluate the outcomes of the nursing intervention teaching method used the same pre test three month later the researcher collect the same groups and use the same pre test to evaluate retention of knowledge and skills(follow up test).

III-Administrative design

Approval was obtained from the dean of Faculty of Nursing (Ain Shams University) and the directors of the previously mentioned settings (In the police Authority hospital El Agouza).

IV-Statistical design

The data collected were revised, coded, tabulated and statistically analyzed using statistical package for the social science (SPSS) version 20. Numbers and percentages distribution were done. The person correlation coefficient test, one way analysis of variance (ANOVA) test, mean and stander deviation were used to estimate the statistical significant difference between variables of the study. Probability of error (p-value) <0.05 was considered significant, non significant at P>0.05, highly significant at P<0.001.

Significance of results can be described follows:

- Highly significant (HS) difference obtained at P<0.001.
- Significant (S) difference obtained at P<0.05.
- Non significant (NS) difference obtained at P>0.05.

Limitations of the study:

Some of the nurses did not attend on time.

- Some time the presentation room was not available and it was used other place of hospital.

Results

Table (1); Show that there is no statistically significant difference regarding education level & years of experience and Number of training courses

Table (2) show on benefits of the method no statistically significant difference on Benefits of the teaching Method, Benefits of the Training Booklet.

Table (3) showed there was a highly statistically significant difference to sufficient time used during teaching method and show statistically significant difference clearance of Method.

Figure (1) reveals that there was highly statistically significant difference between educational levels of nurses and level of knowledge post teaching method in study group and statistically significant difference on follow up test in both group.

Figure (2) shows that there were highly statistically significant differences between educational level and Practice Level of nurses having BSc degree in study group and statistically significant differences between educational level and Practice Level in control group.

Table (4) reveals that there was no statistically significant correlation between score of nurse's years of experience and practice level of CPR in the control group.

Table (5) reveals that there was statistically significant correlation between number of attended training courses and total scores of nurses' knowledge level in control group. There was highly statistically significant correlation between number of training courses and knowledge level about CPR in study group**.**

Table (6) shows that there was no statistically significant correlation between nurse's years of experience and practice level in both groups (control and study) P>0.05 NS.

Table (7) shows that there was no statistically significant correlation between practice level of nurse's and number of training courses in both groups (control & study).

Table (1): Frequency distribution and percentage of nurses characteristics in both groups (n= 75) in each group

	Control group		Study group		Total		Chi-square
	N	%	N	%	N	%	X^2 P-value
Age (years)							
<20-	3	4.0	1	1.3	4	2.7	6.258 0.099 (NS)
<30-	27	36.0	33	44.0	60	40.0	
<40-	31	41.3	19	25.3	50	33.3	
≤50	14	18.7	22	29.3	36	24.0	
Sex							
Male	11	14.7	9	12.0	20	13.3	0.057 0.812 (NS)
Female	64	85.3	66	88.0	130	86.7	
Education Level							
BSc	4	5.3	8	10.7	12	8.0	5.470 0.065 NS
Diploma	49	65.3	56	74.7	105	70.0	
Technical	22	29.3	11	14.7	33	22.0	
Years of Experience							
Less than 5 Years	16	21.3	18	24.0	34	22.7	1.760 0.415 NS
5 to 9 Years	37	49.3	42	56.0	79	52.7	
10 Years or more	22	29.3	15	20.0	37	24.7	
Number of training courses attended.							
0	18	24.0	45	60.0	63	42.0	20.060 <0.001* HS
1	21	28.0	12	16.0	33	22.0	
2	15	20.0	8	10.7	23	15.3	
3 or more	21	13.3	10	9.3	31	11.3	

Table (2): Nurses' opinionair regarding benefits of teaching method & benefits of training booklet together with satisfaction level in both groups (n = 75) in each group.

	Control group		Study group		Total		Chi-square	
	N	%	N	%	N	%	X^2	P-value
Benefits of the teaching Method								
Very Good	28	37.3	35	46.7	63	42.0	1.340	0.247 NS
Excellent	47	62.7	40	53.3	87	58.0		
Benefits of the Training Booklet								
Very Good	38	50.7	45	60.0	83	55.3	1.320	0.250 NS
	37	49.3	30	40.0	67	44.7		
Teacher as a whole								
Good	2	2.7	5	6.7	7	4.7	1.460	0.483 NS
Very Good	45	60.0	45	60.0	90	60.0		
Excellent	28	37.3	25	33.3	53	35.3		

Table (3): Nurses' opinionair regarding their sufficient time and clearness of the teaching method in both groups (n = 75) in each group.

	Control Group		Study Group		Total		Chi-square	
	N	%	N	%	N	%	X^2	P-value
Sufficient Time								
To some extent	13	17.3%	1	1.3%	14	9.3%	11.350	<0.001* HS
Yes	62	82.7%	74	98.7%	136	90.7%		
Clearness of Method								
To some extent	6	8.0%	0	0.0%	6	4.0%	6.250	0.012* S
Yes	69	92.0%	75	100.0%	144	96.0%		

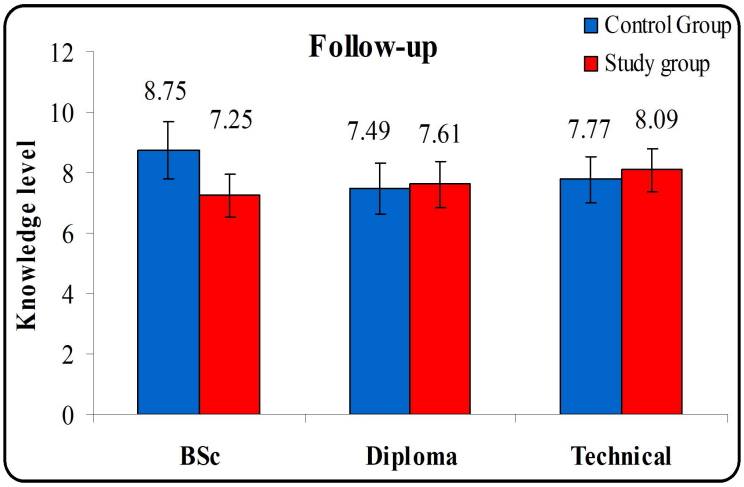

Fig. (1): comparison between educational level & knowledge level follow up teaching method in both groups

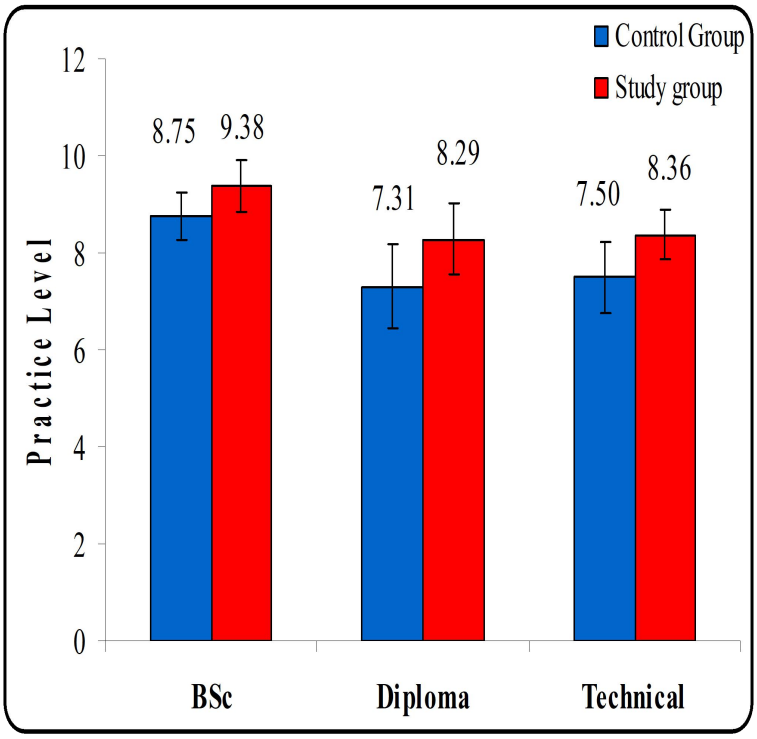

Fig. (2): comparison between educational level & practice level in both groups

Table (4): Correlation between years of experience and Practice level of CPR in both groups (control & study) (n=75) in each group

Years of Experience	Practice	
	r	P-value
Control Group	-0.118	0.315
Study Group	-0.007	0.951

Table (5): Correlation between number of training courses and knowledge level about CPR in both groups (control & study) (n=75) in each group.

Number of training courses	Knowledge level	
	r	P-value
Control Group	0.290*	0.012* P < 0.05 S
Study Group	0.340**	0.003* P < 0.01 HS

Table (6): Correlation between nurse's years of experience and practice level in both groups (control and study) (n=75) in each group.

Years of Experience	Practice	
	r	P-value
Control Group	**-0.118**	0.315 P>0.05 NS
Study Group	**-0.007**	0.951 P>0.05 NS

Table (7): Correlation between nurse's practice level and number of training courses in both groups (control & study) (n=75) in each group.

Number of training courses	Practice	
	r	P-value
Control Group	**0.044**	0.708
Study Group	**0.042**	0.722

Discussion

Adequate skills in cardiopulmonary resuscitation can be achieved and maintained almost entirely by teaching. Such skills tend to deteriorate with time and are presently maintained at considerable cost and effort. It would therefore be useful to determine the minimum frequency of teaching sessions necessary to maintain adequate skills ***(American Heart Association, 2011)***

The current study aimed to developing, implementing and evaluating the effect of non-traditional teaching method on nurses' performance regarding basic cardiopulmonary resuscitation (CPR) through; assessing the effect of using the non-traditional method on level of knowledge regarding to basic cardiopulmonary resuscitation (CPR) and assessing the effect of using the non-traditional method on the level of skills regarding to basic cardiopulmonary resuscitation (CPR) ***(AHA,2014)***

The finding of this study revealed that, there was no statistically significant difference between the control group and study group regarding educational level.This finding is highly supported by a similar study of ***ELazazay et al. (2012)*** who reported that there was no statistically significant difference regarding educational level between both groups of his study .

The current study is aquasi – experimental design carried out in order to compare between non-traditional method and traditional method in reading basic cardio pulmonary resuscitation and to assess the effect of non-traditional method on nurses' performance (knowledge – skills). The research questions focuses on that nurses exposed to non-traditional method will have highly effect on performance pre – post- follow up. The research questions; (1) Does the implementation of non traditional teaching method improve nurses level of knowledge for basic cardiopulmonary resuscitation? And (2) Does the implementation of non traditional teaching method improve nurses skills for basic cardio pulmonary resuscitation?

The current study reveled that more than half of nurses under study got excellent score who exposed to the non-traditional method less than half of nurses in the control group who exposed to traditional method obtained very good score in knowledge test compared between knowledge in both group This study finding were in an agreement with the study of ***Hamilton (2009),*** who study, Nurses knowledge and skill retention following cardiopulmonary resuscitation training: a review of the literature, mentioned that CPR knowledge in study group less than knowledge level of nurses in control group

As demonstrated in the current finding regarding pre - knowledge of nurses, it was found that there was decreased knowledge of information about CPR but there was improved knowledge of post & follow up information. This study was similar to the study of the ***American Heart Association, 2012***, which mentioned that most of the studied subjects have average knowledge regarding CPR before teaching courses.

On assessing the level of knowledge of the studied nurses pre, post and on follow up of teaching course, the current findings indicated that pre no statistically significant difference with level of knowledge but post and follow up statistically significant difference with level of knowledge of nurses also highly improvement observed in post teaching and during the follow up, **(answer question one)** these findings were supported by the study ***Young and King, 2010*** whose study was entitled : An evaluation of knowledge and skill retention following an advanced life support course. He mentioned that the level of knowledge was improved post application of teaching courses compared with the pre-test of the study sample.

The current study showed the effect of education level on knowledge level, mean while the nurses with BSc had highly effective pre-knowledge level and post follow up knowledge compared with diploma nurses who had average knowledge pre/post and follow up and nurses with technical education had poor knowledge. This study was supported by the study of ***American Heart Association (2010)*** who, study investigation effect of educational level, the investigator believes that the prerequisite level of the studied sample is very important because the course curriculum in every level of education is different so that the level of education will affect their knowledge.

According to the multiple comparisons between all groups , knowledge level were highly significant in BSc educational level but average knowledge in diploma nurses while it was poor in technical nurses. The current comparison of the findings is supported by the study of ***Parajulee and Selvaraj (2011)*** whose study was about (Knowledge of nurses towards cardiopulmonary resuscitation) the researcher mentioned that by comparing the effect of educational level on knowledge level it showed high score knowledge for the nurses holding BSc, while poor scores for the nurses holding a degree less than BSc.

The current study revealed that less than half of nurses had nursing diploma, while one quarter of them were holders of a technical nursing diploma, and the remaining of the sample were having B.Sc. nursing degree. This study is highly supported by a similar study of ***Elazazay et al. (2012)*** who study the effect of cardiopulmonary resuscitation teaching method on nurses knowledge and practice he mentioned that the majority of the studied sample two third of them have diploma, while most of them working in inpatient departments, the investigator believes that this may be due to the fact that the majority of diploma nurses school graduate students have worked in health care units related to their institutes while the university student worked according to the distribution.

Concerning the effect of educational level on the increase of knowledge level (difference pre – post), it was obvious that the difference in knowledge level (Pre and Post) for BSc, diploma and technical of the studied nurses of educational level that can be identified highly significant pre/post nurses and their level of knowledge. These findings were supported by the study of ***Nagashima et al. (2012)*** who study investigation of nurses' knowledge and experience in cardiopulmonary resuscitation he mentioned that there was statistically significance relation between the increase of the educational level and the knowledge about CPR.

Findings showed that the knowledge increased after finishing the courses compared to testing of knowledge pre course implementation which were averaged post implementation and after three months from the finished teaching method become knowledge level were good. These findings were in accordance with the study of ***Lee (2009),*** whose study was about the effect of CPR training on the knowledge and attitude .He mentioned that knowledge of the studied sample improved in the follow up than the pre assessment of knowledge, the investigator believes that by training and education there is a chance to the trainees to increase their level of knowledge.

The current finding shows that there is no significant correlation between skills of nurses with knowledge level. This study was in accordance with the study of **Devlin 2009**, who study an evaluative study of the basic life support skills of nurses in an independent hospital, he mentioned that level of knowledge was not associated with team work or work in a group, while ***(AHA, 2012)***, mentioned that work in team specially in BLS was very important in order to give effective results, the investigators believes that when work in actual situation it is very important to be in team because everyone has an effective role during BLS but during the evaluation there was no need to be in a team.

As regards, practice level of nurses after course implementation, it was clear that the practice level increased post teaching method with excellent score and this **(answer question number two).** This finding was supported by the study of ***Hubert et al. (2013)*** who studied how frequently should basic cardiopulmonary resuscitation teaching be repeated to maintain adequate skills? He mentioned that practice of the studied sample was improved post teaching method.

The current finding showed the multiple comparisons between practiced levels in both groups (control – study) of different education level. It was found that BSc level was high with statistically significant difference in practice level of nurses while there was no significant statistical difference for technical and diploma nurses. This finding is in agreement with the study of ***Timsit et al. (2010)*** in which he mentioned that the comparison between the degree of evaluation and the practices were highly effective on the level of performance of nurses in both group (control –

study), meanwhile there was significant notification among the high level of qualification regarding their practice.Also, the two teaching methods affected positively in improving knowledge and practices post teaching with non -traditional method implementation shows high effect observed after using of film with booklet for teaching nurses. This study is supported by the study of ***Aly 2010*** where he mentioned that teaching methods help in increase level of performance of the nurses regarding basic life support.

The current finding shows that nurse's practice level was affected by their level of education. It was found that BSc nurse showed high level of practice while the diploma, technical nurses showed average level of practice, the nurses holding BSc degree showed high practice level in the group of assessment. The current finding was highly supported by the study of ***Handly and Handly (2013)*** the researcher mentioned that the high level of education is associated with increased competence level in resuscitation.

This study illustrated that nearly two quarters of nurses did not attend any CPR training courses, while nearly one quarter of sample one training course, while one fifth of them obtained two, or three training course, and the rest of them obtained 4 or 5 training courses in CPR. This finding is supported by the study of ***Damjan et al. (2011),*** who studied the impact of additional module training on the level of basic life support knowledge he mentioned that one third of the studied sample has previous training courses regarding CPR.

As regards with the effect of the teaching method on the degree of benefit, the current finding showed that the use of lectures with booklet improved nearly two quarters of the nurses to reach the good level compared with more than half of the nurses improved by using film with booklet to get excellent in their level with no significant difference between both methods of teaching (traditional – non-traditional) method. These findings were highly supported by the study of ***Hussain and Lyneham (2009),*** who mentioned that methods of teaching effect on improving degree of performance but the films make the lecture more realistic which increased the improvement in the level of the studied sample.

Elazazay et al. (2012)the current study showed that satisfaction of nurses that received more teaching were satisfied with the training methods and all of them mentioned that it was clear using both methods of teaching (traditional – non- traditional) with statistically significance difference which was reported between the level of clearance and the methods of teaching. This study was in accordance with the study of the American Heart Association's guidelines for cardiopulmonary resuscitation and emergency, ***Cardiovascular care, 2010*** which mentioned that methods of training was helpfull and facilitate the training and its application.

As regards the sufficient time of teaching method , the current finding showed obviously that the majority of the studied sample was having suitable and enough time to understanding the courses of CPR. This study was in agreement with the study of the Sudden Cardiac Arrest ***Foundation, 2012***, who mentioned in similar study that training courses should be established in suitable period of time to ensure the direct effect on the trainers.

Concerning the clearness of method, the study clarified that, nearly all of the nurses in the studied sample reported clearness of the method of CPR courses. This study was in accordance with the study of ***Hegazy et al. (2012)*** who mentioned that clearances of the training material were reported by the studied subject. The investigator believes that any training courses that were provided from the specialties or educators, its content were prepared before the training from the relevant literature so that it may be satisfying to the trainees.

It was clear from the current findings that there was a correlation between pre and post teaching method intervention with highly statistically significant difference between knowledge level pre/post. This study was highly supported with the study of ***Dwyer et al. (2012)*** who mentioned that there was positive correlation between the pre and post program intervention.

In regards to the correlation of years of experience and practice level, it was clear that

there was significant correlation between years of experience and practice level of the studied sample. This study was supported by the study of ***Baskett et al. (2009)*** whose study mentioned that years of experiences affects positively on the level of practice, the investigator believes that day to day experience allows the nurse to acquire and practice more knowledge, more training and more procedure, respectively.

According to the correlation of number of training courses and knowledge level, the current finding shows clear that there were positive correlation between Knowledge Level pre, post and follow up reported, with highly statistically significance difference. These study findings were highly supported by the study ***AlKandary, et al. (2007)*** whose study was entitled (Perceived competence in cardio-pulmonary resuscitation, knowledge and practice among qualified nurses in Kuwait). He mentioned that there was a positive statistically significant correlation between the studied nurses and their level of knowledge post training intervention

On assessing the correlation of number of training courses and practice level, it was found from the current study that there was no significant correlation between numbers of training course and practice level, with probability no statistically significance correlation. This study was agreement with the study of ***Smith and Hatchett (2012)***whose study was entitled (Perceived competence in cardiopulmonary resuscitation, knowledge and skills) in which he stated that training courses improve the skills of the studied sample with highly statistically positive relation between the training courses and the level of practices

The current findings illustrated that, there was positive correlation between knowledge level and years of experience, training courses with highly statistically significance difference. This finding was in an agreement with the study of ***Madden (2006)*** whose study entitled (Undergraduate nursing student's acquisition and retention of CPR knowledge and skills). He mentioned that training course effect positively on the level of nurses' knowledge which was observed in the assessment pre and post training intervention with positive correlation

According to the satisfaction level of the studied sample, it was clear that nearly two thirds of nurses have satisfaction, while one third of nurses have excellent understanding and concept of teaching to sense of satisfaction. This study was supported by the study of ***Madden (2006)*** whose study was about (undergraduate nursing student's acquisition and retention of CPR knowledge and Skills) in which he mentioned that studied sample had satisfaction level of knowledge regarding CPR but they did not master their skills, the investigator believes that this may be due to that the current study subjects were graduated but the other study subjects were students..

Conclusion

The Level of nurse's knowledge was increased after using non traditional method regarding to basic cardiopulmonary resuscitation (CPR). The Level of nurse's practice was increased after using non traditional method regarding to basic cardiopulmonary resuscitation (CPR). Almost all nurses were satisfied with the non-traditional method of teaching CPR.

Recommendations:

- Using non-traditional teaching method should be introduced to increase nurses knowledge and practice of CPR
- Frequent training courses should be provided to nurses to update the knowledge & practice of basic CPR.
- Hospitals are strongly recommended to make training courses for the nurses in its Continues Education Department on the new guidelines related to knowledge & practice of basic CPR.
- There must be a continues evaluation of nurses practice regarding CPR in all departments especially critical care areas.
- CPR training refreshing courses is important to increase the retention of CPR knowledge.

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