

Study to Assess Effectiveness of Educational Program on Knowledge, Attitude and Practice Regarding Basic Life Support among Nursing Student in Selected College Of Nursing, Jazan University

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Abstract: Basic life support (BLS) with cardiopulmonary resuscitation (CPR) provided at the right time greatly improves survival following cardiac arrest. Effective and timely CPR reduces the likelihood of death following sudden cardiac arrest. Adequate knowledge and skills related to BLS are essential requisites for nursing students. Aim of this study was to assess effectiveness of educational program on the knowledge, attitudes and practices related to BLS among undergraduate nursing students of college of nursing in Jazan, Kingdom of Saudi Arabia. A Quasi- Experimental study was conducted in one group of nursing students who had already studied about basic life support in level 4. There were 200 students in level Fifth, Sixth & seventh. By randomization, 100 students were selected for this study. This study was conducted in the month of November '2018, using a pretested, semi-structured questionnaire devised based on American Heart Association Guidelines for BLS & CPR 2015. The mean posttest knowledge scores (6.9) was higher than their mean pre-test knowledge scores (6.6) with a mean difference of 0.3. The obtained mean difference was found to be statistically significant, as evident from "t" value of 2.75 for df 11 at 0.05 level of significance. The mean posttest practice scores (7.8) was higher than their mean pretest practice scores (2.9) with a mean difference of 4.9. The "t" value of 14.62 for df 11 was found to be statistically significant at 0.05 level of significance. Over all positive attitudes were seen in 55.6% of pre-BLS respondent and 74.8% of posttest BLS respondents. Positive attitude was significantly predicted by the recent completion of BLS training ($\beta=5.15, p<0.001$).

Conclusions: Among nursing students in college of nursing Jazan, the data showed poor essential knowledge towards BLS. Skill score also showed poor skill pretest score. However, data showed slight improvement after teaching programme. Over all positive attitude were seen in pre BLS respondent & it improved among post BLS respondent.

Recommendations:

*Further studies can be conducted on large scale to provide better picture of knowledge and practice regarding BLS.

*There should be in-service workshop and seminar to enhance the student nurses knowledge and practice regarding BLS.

*A comparative study can be conducted on subjects from different health colleges.

Keywords: Basic life support, students, knowledge, attitude, practice.

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I. Introduction

Cardiovascular diseases are the major public health concern worldwide. Sudden cardiac death (SCD) which is often the first manifestation of cardiovascular disease is also the most common cause of death worldwide. Survival after cardiopulmonary arrest is usually low and depends on early intervention, quality of cardio-pulmonary resuscitation (CPR) and time of initiation of defibrillation post cardiac arrest. Basic life support (BLS) is a key component of chain of survival. It decreases the chance of mortality. Invented in 1960, CPR is a simple but effective procedure that allows almost anyone to sustain life in the early critical minutes after cardiac and respiratory arrest. BLS includes both prompt recognition, immediate support of ventilation and circulation in case of respiratory or cardiac arrest.

A 70% of out-of-hospital cardiac arrests (OHCAs) occur in the home and approximately 50% are unwitnessed. Outcome from OHCA remains poor. Only 10.8% of adult patients received resuscitative services (EMS) survive to hospital discharge. In-hospital cardiac arrest (IHCA) has a better outcome, with 22.3-25.5% of adults surviving to discharge.

International Journal of Community Medicine and Public Health | September 2018 | Vol 5 | Issue 9
Page 3970 patients with non-traumatic cardiac arrest who havusitative resuscitative efforts from emergency medical BLS is the foundation for saving lives after cardiac arrest.

Fundamental aspects of adult BLS include immediate recognition of sudden cardiac arrest and activation of the emergency response system, early CPR, and rapid defibrillation with an automated external defibrillator (AED). Initial recognition and response to heart attack and stroke are also considered part of BLS.

It is important that at least the health care professionals should know about the basic life support as they encounter such situation often. Such emergency situation can occur almost on daily basis in a hospital setting. Various studies have been carried out to assess the level of knowledge and attitude towards BLS among health care providers, which reflects its importance in the emergency care of the patients. The knowledge of BLS (CPR) is a major determinant in the success of resuscitation and plays a vital role in the final outcome of acute emergency situation. Hence the current study was conducted with the aim to assess the knowledge of medical students, doctors, nursing students, nursing staff in basic life support and objectives to assess the knowledge of medical students, doctors, nursing staff and students in BLS and to understand the ways in which the current knowledge can be expanded

Early initiation of basic life support (BLS) with cardiopulmonary resuscitation (CPR) is an important contributory factor in the survival of cardiac arrest. The fundamental aspects of BLS include immediate recognition of sudden cardiac arrest (SCA) and activation of the emergency response system, early CPR, and rapid defibrillation with an automated external defibrillator (AED). Effective and timely CPR reduces the likelihood of death following sudden cardiac arrest.

Adequate knowledge and skills regarding BLS and appropriate application of the same is an essential requisite for nursing students. Knowledge about BLS has been shown to influence primary assessment, treatment choices, decrease of delay in diagnosis and improve outcome in cardiac arrest.

This study is an attempt to explore the knowledge, attitude and practice related to Basic life support among undergraduate nursing students in a nursing college of Jazan. In addition, this study will explore effectiveness of teaching program.

Significance of the study-

The early initiation of basic life support (BLS) with cardiopulmonary resuscitation (CPR) is an important contributory factor in the survival of cardiac arrest. The nurses are generally the first responders to cardiac arrest and initiate basic life support while waiting for the advanced cardiac life support team to arrive. Therefore, the adequate knowledge and skills regarding basic life support and appropriate application of the same is an essential requisite for nursing students.

Purpose:

This study aimed was to assess effectiveness of educational program on knowledge, attitude and practice related to BLS among undergraduate nursing students of college of nursing in Jazan University.

Research Hypotheses:

- 1-Post educational program, there will be statistical significant differences among pretest group subjects and posttest to the same group in relation to state of knowledge score
- 2- Post educational program, there will be statistical significant differences among pre test group subjects and post test to the same group in relation to attitude of nursing student regarding (BLS)
- 3.Post educational program, there will be statistical significant differences among pre test group subjects and post test to the same group in relation to practice of (BLS) for nursing student .

II. Material and Methods

Research Design:

A quasi- experimental research design was used in this study.
The present study was carried out through:

A- Technical Design:

The technical design includes; the setting, sample, and tools used in the study.

Setting: The study was conducted in college of nursing Jazan University, KSA.

Sample: A randomized sample consisted of 100 student nurses of Level 5, 6 & 7 of college of nursing, Jazan, KSA.

Inclusive criteria:

- 1. Student nurses studying in selected college of nursing of Jazan.**
- 2. Student nurses willing to participate.**
- 3. Student nurses available or present at the time of the study.**

Tools of Data Collection: four tools used to collect data for the study:

I- Socio-demographic Data Sheet: the researchers designed this tool, which includes data about the general characteristics of the study sample such as: age, and level of education, etc. A structured knowledge questionnaire, structured practice checklist and structured questionnaire on attitude were used for data collection in the study.

II- Student Assessment Knowledge sheet: Consist of 19 knowledge items.

III: The structured practice checklist consists of 15 practice items based on the content on basic life support, 2015 AHA guidelines.

IV: The structured questionnaire consists of 10 attitude items based on the content on basic life support.

Procedure for data collection-

Data was collected after obtaining formal permission from Dean of Nursing College, Jazan to conduct study on 21st November '2018 at college of nursing Jazan, KSA. The sample of 100 student nurses studying in Level 5, 6 & 7 was selected by randomization sampling technique. Data was collected in the following manner:

*Self – introduction and establishment of rapport with students.

*Provision of conducive environment for data collection.

*The sample screened based on inclusion criteria and then enrolled for the study.

B. Operational Design:

1. Pilot study:

A pilot study was done on a group of 10 students from College of Nursing, Jazan University. It was conducted to check the clarity of the statements, and simplicity of questions and to check the most common topics related to the study. These numbers of pilot study were excluded from the total number of study sample. Necessary corrections and modifications were done based on findings of pilot study to develop the final form of the tools.

Intervention-

Program Development and Implementation Phase:

Once the official permission was granted, each student individually completed the questionnaire before they began the teaching program. The BLS course is 4-5 hours in duration and covers scene safety, patient assessment, and activation of the emergency response system, chest compression, airway and breathing and use of the AED to resuscitation on adult, child or infants who is not responding, not breathing and has no detectable pulse. Each topic is taught as a critical skill and is practiced separately. Therefore, all the skills are performed in one demonstration. The delivery format of the teaching program is a video, demonstration followed by "Practice –while-watching".

Administrative and Ethical Consideration:

Official permissions for collecting data were obtained from the dean of the college of nursing Jazan University, before conducting the study, personal communication was done with student to explain the purpose of the study and assure their best possible cooperation.

Oral consent was taken from each student to participate in the study.

Protection of Human Rights: The researchers emphasized to student that the study was voluntary. They had the full right to withdraw from the study.

Data Analysis:

Descriptive and inferential statistics for data analysis are as follows:

Data were coded for entry and analysis by using frequency and percentage to describe the demographic characteristics of the students.

*Mean, median and standard deviation of the pre-test and post-test of knowledge and practice scores.

- Some findings are based on percentage.

-Attitude score is finding out by mean percentage of correct answers. Statistical package for social sciences software (SPSS Version 22.0) was used for data analysis of attitude score. The level of significance taken as $P < 0.05$.

Major Findings

1. Finding related to demographic characteristics of the sample subjects.

A total of 100 pre-test and 100 post –test BLS student nurses were studied. 10% from 5th level, 80% from 6th level and 10% students were from 7th level. All subjects studied BLS in 4th level and all subjects trained in hospital but none of them performed BLS on patients.

1. Age distribution of study sample:

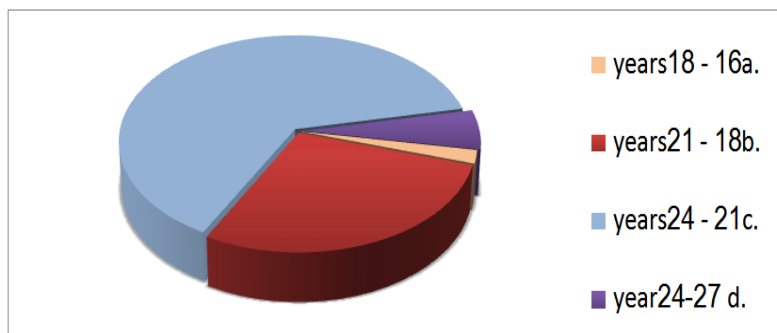


Figure 1:

Depicts age of student nurses the majority of subjects (68%) were between 21 to 24 years of age and minimum numbers of students (5 %) were between the age group of 16-18 years.

2. Educational level of study sample:

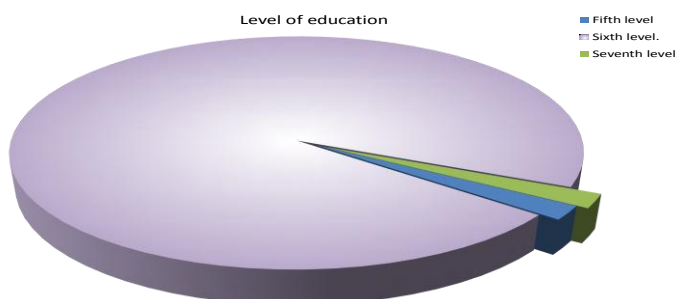


Figure 2: Illustrate that maximum students educational level (80%) students were from sixth level while 10% were from fifth level and 10% were from seventh level.

3. Marital status of studied sample

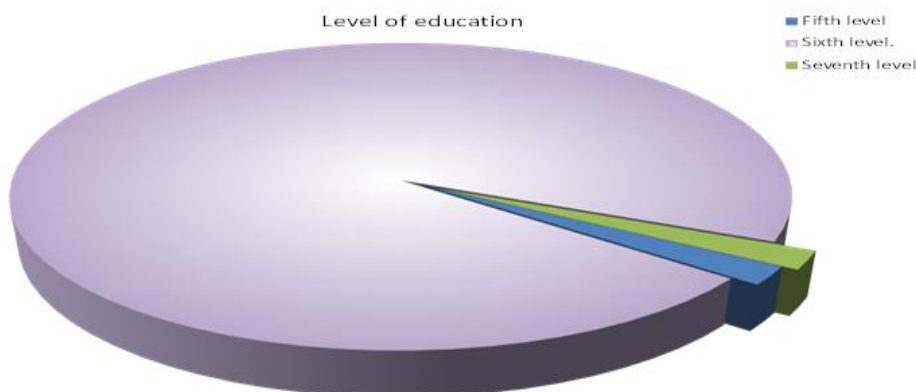


Figure 3: Based on marital status 70 (70%) were single, 25 (25%) were married and only 5 (5%) divorce.

II. Findings related to knowledge score of student nurses regarding basic life support

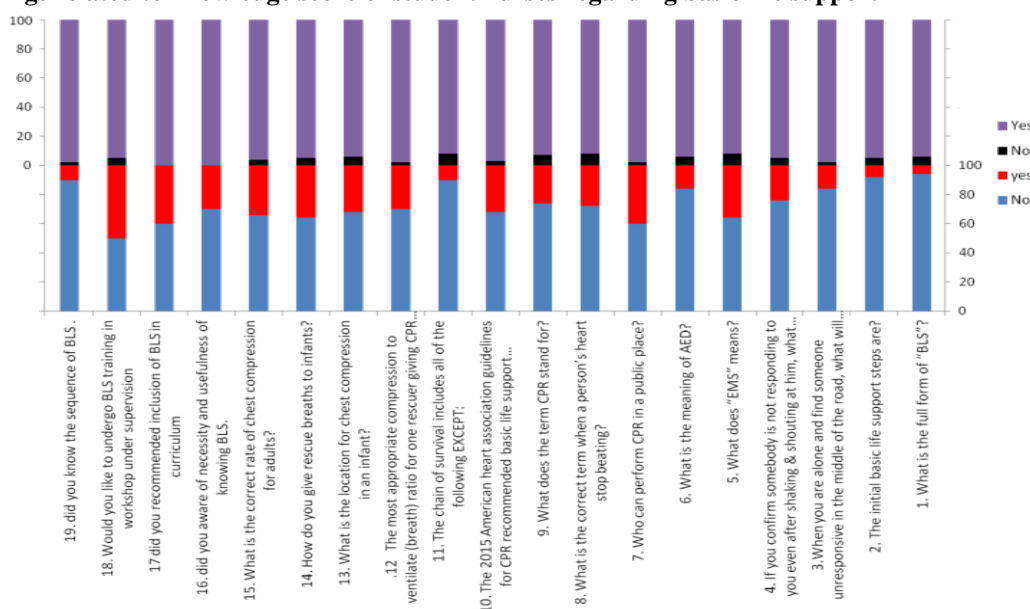


Figure 4: Illustrate the knowledge score of knowledge of nursing regarding basic life support.

The mean posttest knowledge scores (6.9) was higher than their mean pre-test knowledge scores (6.6) with a mean difference of 0.3 .The obtained mean difference was found to be statistically significant, as evident from “t” value of 2.75 for df 11 at 0.05 level of significance.

For the question about sequence of BLS 10% students know but this knowledge increased in 96% posttest. Furthermore, only 14% pretest students had knowledge about chain of survival it increased to 84%.Posttest. Only 8% pre test subjects knew “initial basic life support steps” but it increased to 94% post test. When we asked about the depth of chest compression only 26% answers correctly but 89% knew it post test.

III. Findings related to Practice score of student nurses regarding basic life support

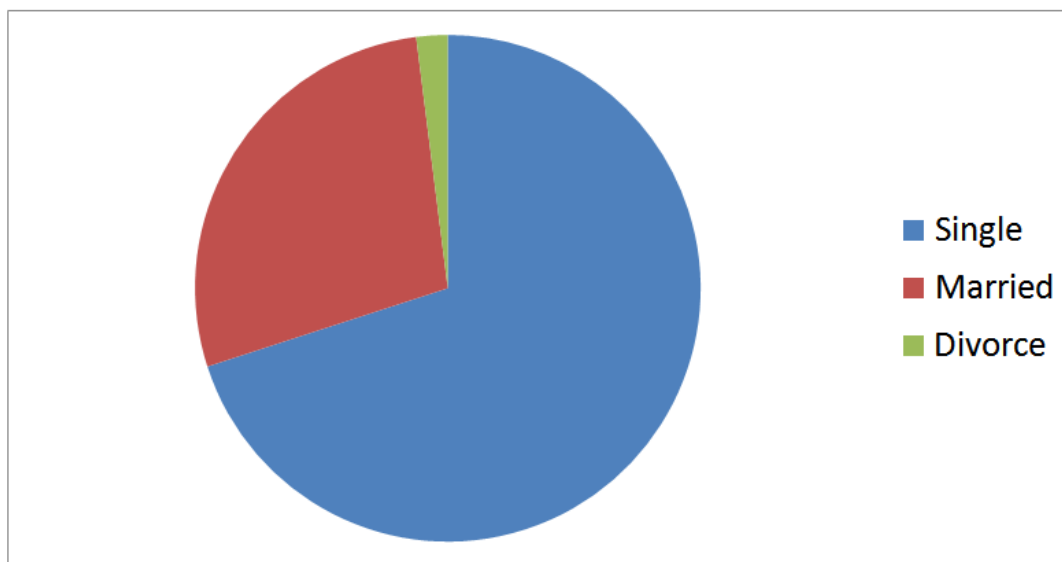


Figure 5: Depicts practice score of student nurses regarding basic life support

The mean posttest practice scores (7.8) was higher than their mean pretest practice scores (2.9) with a mean difference of 4.9. The “t” value of 14.62 for df 11 was found to be statistically significant at 0.05 level of significance.

A large number of student nurses 89% were unable answer regarding how often should the rescuer switch roles when performing two rescuer in pre-test but 67% were able to answer post-test.80% of respondent did not know how long the pulse check last and only 8% were not knowing in post-test.

Teaching program on BLS based on 2015 AHA guidelines was highly effective in increasing the practice score of student nurses post test.

IV Findings related to Attitude score of student nurses regarding basic life support

Figure 6: Illustrate attitude score of student nurses regarding basic life support

Participants in the pre BLS and post BLS groups responded 15 statements assessing attitudes towards various aspects relating to CPR and AEDs.

Teaching was associated with an increase in the prevalence of positive attitudes, from 52.3% in the pre BLS group to 64.8% in the post BLS group ($\chi^2=9.66, p=0.002$), with a rise in mean scores from 64.7% to 78.8% ($t=4.27, p<0.001$).

In pretest group 45% think that they have fear of further harming a heart attack victim if they initiating BLS. This view changed into positive attitude post test as 78% subject's fear has been removed. In pretest group only 28% of subjects indicate that they can perform CPR individually. This view changed in post test group and 78% subjects can perform individually.

84% of subjects believe that their training has to be repeated often.

III. Discussion

This study focused on the assessment of nursing students of College of Nursing, Jazan, KSA. Out of 200 only 100 students are selected for study by randomization. All 100 students participated in pre-test, teaching program and post-test. None of the participants answered all the questions correctly.

Majority of the students did not succeed in the BLS in knowledge and practice score. *Lorraine et al* conducted a study in 2015 to assess the knowledge of BLS and skill of CPR among medical students found that there was a significant low knowledge and skills. In our study, the results are consistent with the previous literature; we noticed a decrease in knowledge and practice. This supports hypothesis 1 & 3.

Unfortunately, lack of proper knowledge and skills towards BLS skills is very evident among nursing students. It is believed that an implementation of a BLS teaching method is a necessity. In 2016 *Wang et al.* conducted a study that compared two different teaching methods where the sequence of information introduction to students can make a difference in both knowledge and practice. This is supported by study done by *N.C.Sangamesh et. al.* who showed less knowledge related to BLS. In a similar study conducted in *Malaysia*, where female participants were outnumbered males showed a significant improvement in the knowledge of nursing students post intervention.

Our study is supported by a study done to evaluating emergency medicine faculty members *Chandrasekaran et al.* noted remarkable improvement in knowledge and practice following BLS training.

In our study, 57.7% of the participants were confident of providing chest compression and 36.5% were confident of providing mouth to mouth ventilation. These figures are similar to that reported by *Chew et al.* *Avabratha et al* evaluated knowledge and practice among dental interns across three dental colleges and found similar results as our study that knowledge and practice improved from 30% and 28% to 87% and 92% respectively.

21 participants (21%) expressed reluctance in performing CPR in hospital and outside the hospital setting. The reasons for reluctance in providing resuscitation include risk of causing injury or harm to the victim, fear of spread of infection to self, lack of confidence. *roshana et al.* (13) also reported similar reasons among the reluctant participation. *Laurent et al* evaluated the competency of final year nursing students in handling of life-threatening emergency situations to nursing practice such as cardiac arrest during hospital duty. Most students responded not being confident enough to manage a cardiac arrest, indicating the necessity to provide education and training to students regarding BLS/CPR techniques. In the same study, it was observed that there was a significant increase in correct and appropriate practice and positive attitude after training.

Conclusion drawn from the study:

The following conclusion were drawn on the basis of the findings of the study-

- Among college of nursing, Jazan nursing students, this study showed poor essential knowledge toward BLS. However the data showed improvement in knowledge after teaching program in post-test.
- Practice skills were poor but improved after teaching program. Therefore, more focus should be placed on the strengthening the BLS skills. In addition, we recommended annual mandatory BLS courses for all nursing students to consolidate their skills and knowledge.
- Overall attitude evaluation was positive after posttest students attitude have improved more.
- Teaching program on BLS based on 2015 AHA guidelines was highly effective in increasing the knowledge score of student nurses after teaching program post test
- Teaching program on BLS based on 2015 AHA guidelines was highly effective in increasing the practice score of student nurses post test.

The findings of the present study indicates that the teaching program on BLS as 2015 AHA Guidelines, is more effective in enhancing the knowledge and practice of 5th, 6th and 7th level of students regarding BLS.

Nursing Implication-

The findings of the present study have several implications in nursing education, nursing practice and nursing administration.

Nursing Education-

Nursing education should emphasize on preparing prospective student nurses to gain knowledge and practice regarding basic life support by using various methods of educational technology.

Nursing Practice-

The result of this study will help student nurses to understand basic life support procedure and its utilization when they will introduce in hospital setting.

Nursing Administration-

- The in-service education program for the staff nurses is of utmost important in today's scenario, where new protocols of managing various emergencies keep changing with new development in nursing management.
- Basic life support can be initiated for the staff development program.

Limitations:

Subjects were taken only from one college of nursing hence it was difficult to make a broad generalization.

IV. Recommendations

*Further studies can be conducted on large scale to provide better picture of knowledge and practice regarding BLS.

*There should be in-service workshop and seminar to enhance the student nurses knowledge and practice regarding BLS.

*A comparative study can be conducted on subjects from different health colleges.

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