Original Research Article

A Study to Evaluate the Effectiveness of Virtual Learning Programme on Adult Basic Life Support Regarding Knowledge and Attitude among Nursing Students in Selected Colleges, Bhopal

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ABSTRACT

Introduction: In India, about 80% of the cardiac arrest occurs out of hospital and requires emergency interventions for the survival of victim. Basic Life Support (BLS) is the vital procedure in condition of out of hospital Cardiac arrest before the arrival of Emergency Medical Services. Nurses are the frontline members to provide emergency aid services and should stands first to provide BLS.

Aim and objectives: To evaluate the effectiveness of virtual Learning Programme on Adult BLS regarding knowledge and attitude among nursing students in selected colleges, Bhopal, Madhya Pradesh.

Material & Methods: A one group pretest posttest design was used among 150 nursing students selected through convenience sampling from selected Nursing Colleges of Bhopal Madhya Pradesh. After taking informed consent, pretest was administered online through Google Form. Virtual Learning Programme was administered with the structured PPT through Google Meet app to the group of nursing students after administration of pretest.

Demographic data sheet, knowledge questionnaire, Attitude scale were used for data collection. Post test was conducted after 7 days.

Results: The majority of nursing students belonged to age group of 21-25 years. Majority of them were female and married. The result revealed that the post test knowledge and attitude mean score was significantly higher (p<0.05) than the pre test knowledge and attitude mean score. There was a significant association between pretest score of knowledge and attitude with educational level and marital status.

Conclusion: Virtual Learning Programme proved to be effective in improving the knowledge and attitude regarding Adult BLS among nursing students.

Key Words: Virtual Learning Programme, Basic life support, nursing students

INTRODUCTION

Cardiovascular disease (CVD) is one of the leading causes responsible for the mortality in the world; it is about 30% of global mortality and 17 million deaths in a year worldwide. It is almost twice of deaths due to HIV, malaria and TB combined. Four out of 5 CVD deaths are due to cardiac

arrest and strokes, and one third of these deaths occur prematurely in people under 70 years of age. It is estimated that among all the cardiovascular deaths about 40-50% is due to Sudden Cardiac Deaths (SCDs)/ Cardiac arrest[1-3].

Cardiac arrest is the most challenging public health problem globally, with an average incidence among adults of 55 per 1,00000 persons/year[4]. In India, 80% of the cardiac arrest occurs outside of hospital which requires emergency interventions before the arrival of the Emergency Medical Services (EMS) for the survival of victim[5]. Basic life support with high quality cardiopulmonary resuscitation is the earliest and vital procedure for returning of life of the victim[6]. Inadequate CPR and delay in CPR reduces the chance of survival of a victim by 7–10 %.[7] Many studies have suggested that there is increase in the survival rates of the cardiac arrest victims because of early recognition and high quality CPR[8-10].

Basic life support can be administered by any person who is trained in BLS Skills. It increases the chances of survival of victim by preventing damage to the heart and brain due to lack of oxygen[11]. In emergency condition, fast and structured management of victim is crucial for a better outcome.

Nurses are backbone of heath care services and they have to face various emergency cases such as sudden cardiac arrest within clinical or community settings. As a health care personnel, a nurse should be competent and have knowledge in practicing Basic life support. If performed by the nurses in emergency conditions it may positively reduce morbidity and mortality related to cardiac arrest.

Cardiac arrest can occur anywhere and in most of cases it occurs in out of hospital where emergency medical services are not present. As nurses are the first responders in the emergency conditions for that, they should learn basic theoretical knowledge and skills in Basic life support in the academic period itself. Many studies revealed that there is need of provision of training program and periodic repetition of practices regarding Basic Life Support. There is an immediate significant effect of training on the knowledge, self-efficacy, and skill of chest compression; however, the score of knowledge and self-efficacy significantly decreases after post- training for 3 months[12].

Umran D et al revealed that Nursing students were not able to recall theoretical knowledge and applied CPR skills after couple of months. So there is a great need for regular conduction of training in CPR and practising the skills even after they have graduated to maintain the sustainability in the CPR skills[13]. Similarly, Varul M et al concluded that the nursing students had adequate knowledge about the CPR in the clinical practice. But the knowledge about the compression was not adequate[14]. Training on Basic life support definitely improves the knowledge of nursing students and make them confident to implement Basic life support practices. Roel S et al [15] in a cohort study focused on the differences in competence in CPR of nursing students before and after implementation of pedagogical intervention in the curriculum. It was revealed that changes improves the knowledge of students in cohort 2 and also positively influence the curriculum. Both cohorts varied more in rate of compressions and hand positioning. The curriculum should emphasize more on hands-on practice of CPR.

Acquisition of knowledge and skills is an essential component of professional development in nurse education. Also, nurses have role as an educator and have important responsibilities for providing knowledge regarding Basic life support and informing the society on current basic life support practices. Therefore, the present study was undertaken to evaluate the effectiveness of virtual learning programme on adult basic life support regarding knowledge and attitude among nursing students in selected colleges, Bhopal, Madhya Pradesh.

MATERIAL AND METHODS

In this pre-experimental study, one group pre test post test design was used. The study was conducted in selected Nursing Colleges of Bhopal, Madhya Pradesh. 150 Post Basic and B. Sc. Nursing Students were selected conveniently from the selected Nursing colleges.

Those nursing students who were willing to participate, studying in Post Basic Nursing or B. Sc Nursing, had internet connection and have knowledge about operating devices were included in the study.

Pre assessment of knowledge and attitude regarding Basic Life support and sociodemographic variables was done through online Google Form. Virtual Training Programme on Adult BLS was undertaken through Google Meet. 30 students were selected per day for the Virtual Learning Programme on Adult Basic Life Support. Post assessment of knowledge and attitude was done after 7 day through Google Form.

Sociodemographic sheet consists of items for obtaining information about age, gender, marital status, educational level, work experience and previous exposure to Adult Basic Life Support. Structured knowledge questionnaire consist of 30 items related to knowledge regarding Adult Basic Life Support[16-17].

Attitude Likert scale was five point scale which consist of 14 items from which 7 were positive and 7 were negative statements. The validity of the knowledge questionnaire and attitude scale was established by the author of the respective tools as the tools were already used. The test-retest and split half reliability coefficients of structured knowledge questionnaire were 0.98 and 0.97 respectively. Similarly, test retest and split half reliability coefficients of attitude scale were 0.99 and 0.97.

Virtual Learning Programme was a 60 minutes synchronous online teaching which was administrated through Google Meet designed for a group of nursing students to provide information regarding Adult Basic Life Support. 30 nursing students participated in each online training session. Post test was conducted after 7 days using the same knowledge questionnaire and attitude scale. Validity of the content of Virtual learning Programme on Adult Basic Life Support was obtained from the 5 experts in the field of Medical surgical Nursing.

Ethical committee of Bhopal Memorial Hospital and Research centre approved the study protocols. It was ensured by the researcher that due to the study intervention the routine activities of students should not be affected. Confidentiality was maintained throughout the study. Informed consent was taken from subjects in the Google form after sending a soft copy of informed consent to each participant through Email. Data was analysed using MS Excel and SPSS (version19.0) statistical packages.

RESULTS

More than half (56.7 %) of the students were in age group of 21-25 years followed by 24.7 % in below 21 years age group. Majority of participants (84%) were the female and unmarried (86.7%). The maximum number (25.3 %) of participants, were from BSc Nursing second year followed by 20 % in BSc Nursing third year. Maximum number of participants (73.3%) had no work experience followed by 15.3% participants have 0- 2 years of work experience. Only 6.7% participants had work experience of above 5 years while 4.7 % had work experience of 3-5 years. Distribution of previous exposure regarding Adult BLS among nursing students revealed that 54% have no previous exposure while 46% had previous exposure regarding Adult BLS.

As shown in table 1 the mean post test knowledge score was significantly higher (26.05±5.39) as compared to mean pre test knowledge score (15.85±5.02). It shows that the virtual learning programme was effective to enhance the knowledge

regarding the adult BLS among nursing Students.

Table 1: Comparison of mean pre and post test knowledge score among students, N=150

Knowledge Level	Mean±SD	Mean Difference	SD Difference	T Statistics
Pretest	15.85±5.02	10.20	0.368	Df=149
Post test	26.05±5.39			t=-17.25 P=0.00001

Table 2: Comparison of mean pre and post test attitude score among students, N=150

Attitude Score	Mean±SD	Mean Difference	SD Difference	T Statistics
Pretest	47.15±6.33	11.02	4.21	Df=149
Post test	58.17±10.54			t=-11.07 P=0.00001

Table 2 depicts comparison of pretest and post test attitude score. The mean post test attitude score (58.17 ± 10.54) was significantly higher (p=0.00001) as compared to mean pretest attitude score (47.15 ± 6.3). Significant changes in post test attitude score can be attributed to the effectiveness of the VLP in developing favourable attitude towards adult BLS among nursing students.

It was revealed that there was significant association between pre-test knowledge score with the educational level of the students (p=0.002) however, there was no significant association between pre-test knowledge score with other demographic variables. Similar pattern of association was there with attitude score also. Correlation coefficient between post test scores of knowledge and attitude was found to be 0.572 (p<0.05) which is a significant positive Correlation between the posttest scores of knowledge and attitude.

DISCUSSION

The present study revealed that there is significant difference between mean pretest and post test knowledge as well as attitude score which reflects the effectiveness of Virtual Learning Programme. The above findings are supported by various previous studies[18-21]. Srivilaithon W et al[19] reported that the training program on BLS has significant impact on knowledge and attitude. Wan Juson et al[19] also showed that after administration of modified Basic life support module there were significant improvements in knowledge and attitude

score among participants. Bylow et al[21] revealed that web Based Education with BLS was significantly effective than BLS without web based education.

Tobase et al[22] assessed the effects of an online basic life support course on undergraduate nursing students. Paired t-test revealed a significant increase in learning. The online course was an effective method for teaching and learning BLS. Hyun & Moon et al[23] carried out randomized controlled trial among 120 nursing students to evaluate the effectiveness of a CPR blended learning program and the results showed that the CPR blended learning program was effective in increasing CPR knowledge and emotional attitude. Results of the present study are consistent with the previous studies findings.

The findings of the present study revealed that Karl Pearson's correlation coefficient between knowledge and attitude score was 0.572 with the p<0.05 that shows a significant moderate positive correlation between the posttest scores of knowledge and attitude. Mohammed et al [24] also reported the similar findings in a cross-sectional study to assess the knowledge regarding BLS and attitude towards necessity of CPR. The results showed statistically significant positive correlation between knowledge and attitude towards CPR training among medical students.

Implications

Adequate knowledge and Practice regarding Adult BLS develops confidence among nursing students to practice BLS in the future emergency conditions. The study

results help in identifying the need of practicing BLS. During training period of nursing students, emphasis should be given on the importance of providing appropriate training for Adult BLS to improve knowledge and attitude which can develop confidence among them in performing BLS in the clinical and community setting. Virtual Learning is effective teaching method in the period of lockdown and social distancing due to COVID-19 pandemic as it is easily accessible by the students and cost effective. For the distance education also Virtual Learning Environment can be created to teach appropriate BLS techniques to the students. The findings of the study can be used by the health care personnel holding the administrative positions to formulate policies, programmes and make necessary changes in the education and health care system. Online BLS training program can be organised on a large level in an organization to enhance the awareness of Adult BLS among the health care personnel.

Limitation

The study included only those students who had internet connections for virtual meeting therefore result of the study may not be generalised to all the nursing students.

CONCLUSION

Virtual Learning Programme as an interventional teaching method proved to be effective in improving the knowledge and attitude regarding Adult BLS among nursing students which is easily accessible and cost effective. There was a significant positive correlation between post test knowledge and attitude score.

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