Effectiveness of basic life support training through training of trainers (TOT) on life saving skills among public in selected areas of Kerala state

Mr.Sajith Kumar P

ABSTRACT

Background and objectives of the study

Every human being has a right to get immediate health care when they are in need. Quality resuscitation is the right of every individual. It is unfortunate that many of our fellow beings are dying each day without getting adequate and immediate medical help either due to ignorance or negligence of the first responders. The study was conducted with a primary objective of evaluating the effectiveness of Basic Life Support Training through training of trainers (TOT) on Life saving skills of public in selected areas of Kerala State. The study was carried out in two phases. In phase I, the objectives of the study were to assess the knowledge on life saving skills of public using a knowledge questionnaire, assess the psychomotor skills of public in life saving using an Observation checklist, identify the Prosocial Behaviour of public using a Prosocial Behaviour Rating scale, identify the Preparedness of public to help in health emergency using a Preparedness scale, evaluate the effectiveness of Basic Life Support Training on Knowledge on life saving skills, psychomotor skills in lifesaving, Prosocial Behaviour and Preparedness, identify the relationship among Knowledge on life saving skills, psychomotor skills in Life Saving, Prosocial Behaviour and Preparedness with selected demographic variables of public and to identify the potential trainers to undergo TOT among the public using intra session behaviour checklist. In Phase 2, the objective was to evaluate the effectiveness of training of trainers (TOT) on Basic Life Support training by comparing the pretest and post-tests of group I and Group II with regard to Knowledge on life saving skills, psychomotor skills in Life Saving, Prosocial Behaviour and Preparedness.

Methods

Quantitative Approach with Quasi experimental, two group pretest post test design was used for the study. Independent variable was Basic Life Support Training through Training of Trainers (TOT). In phase I, investigator who received special training in Basic Life Support (BLS), Advanced Cardiovascular Life Support (ACLS), Pediatric Advanced Life Support (PALS) and International Trauma life Support (ITLS) train the public (Group I) where as in Phase II, the selected trainers from public selected during phase I study and who have undergone Training of Trainers (TOT), conducted after Phase I of the study trained the public on Basic Life Support (Group II). The dependent variable in this study was the life saving skills which has four components namely: Knowledge on Life Saving Skills, Psychomotor skills of life
saving, Prosocial Behaviour and Preparedness of public. Setting was the selected wards of Kozhikode City Corporation and Keezhariyoor Grama Panchayath. The population consists of the public in selected wards of Kozhikode city Corporation and Keezhariyoor Grama Panchayath. The sample for this study comprised of a total of 200 participants from public who met the inclusion criteria, among them 100 were selected for phase I and another 100 were selected for phase II through non probability consecutive sampling. During phase I, the potential trainers were identified using purposive sampling. Tools used for the data collection were: Socio Demographic Proforma, Knowledge questionnaire on life saving skills, Observation checklist to assess psychomotor skills in Life Saving, Prosocial Behaviour Rating Scale, Preparedness rating scale and Intra session behaviour checklist for selecting potential trainers from public in phase I of the study. A check list for monitoring micro-teaching sessions of potential trainers was also used during three microteaching sessions following TOT. The content validity index of the tools was calculated using Yaghmale F technique. Tools were sent to 11 subject experts and rated each item with the corresponding options and content validity index were calculated for the items and the tools. Reliability of the data collection instruments were identified using appropriate techniques and found that the tools were reliable. A pilot study was conducted to refine the methodology and to check the feasibility. Pilot study was conducted in a selected ward of Chemanchery Grama Panchayath from 15/08/2013 to 22/05/2014. Pilot study revealed the feasibility of the main study. The data collection period was from 6th July 2014 to 16th December 2015 in two phases. The researcher approached the administrative authorities and elected members of local self-government to obtain volunteers from public for attending the training. 11 sessions with 10 participants each were conducted in phase I and phase II anticipating attrition. Confidentiality of the responses was assured to all subjects to get their cooperation. Informed consent was obtained from all subjects after explaining the objectives, the purpose of the study and followed by a self-introduction of the investigator. The data were collected using knowledge questionnaire on Life Saving Skills, Observation Checklist on psychomotor skills of Life Saving Skills using simulation technique (Leardel Voice response mannequin, standardized patient, automated external defibrillator, Long spine board and articles for Moulage), Prosocial Behaviour Rating Scale and Preparedness Rating Scale. An average of 45 minutes were taken by the participants to complete the pretest in the order of Prosocial behaviour rating scale, preparedness scale, Psychomotor skill checklist and finally knowledge questionnaire. This was followed by Basic Life Support Training for 6 hours. Per day 10 samples were trained. The methods used for the basic life support training in Group I and II were simulation using manikins, standardized patients who mimic as victims of trauma and sudden illness and moulage to increase the appeal of standardized patients in addition to demonstration and return demonstration and brief lectures using power point presentations including pictures of procedures and anatomical structures. 1: 10 instructor: participants and 1:2
Mannequins: participant ratios were maintained throughout the training. Two standardized patients (SP) who were trained by the investigator were present during the entire sessions of group I and II for the purpose of demonstrations of skills using moulage in the psychomotor skills of hemorrhage control, adult choking and safe transport of victims. A series of observations were made on psychomotor skills of Live saving immediately after the training, on seventh day, after a month and on ninetieth day in a simulated setting. Post test on knowledge, Prosocial Behaviour and Preparedness were introduced only on the ninetieth day. Multiple observations were based on Hermann Ebbinghaus’s forgetting curve which hypothesised the exponential nature of forgetting. The potential trainers were identified using the same data collection instruments along with an Intrasession Behaviour Checklist. Training of Trainers (TOT) for six hours was administered to the 14 selected trainers from public. The potential trainers after TOT were subjected to three practice teaching sessions at an interval of one week and were observed using monitoring checklist. Eleven trainers who consistently performed during Training of Trainers and monitored practice teaching were certified as Trainers for Public BLS training by the investigator who is qualified master trainer in Basic Life Support Training. In the second phase Basic Life Support Training for 110 participants was given by selected trainers anticipating attrition. In phase II, each trainer undergone TOT trained 10 participants. Pretest and posttest was conducted by the investigator in the same manner as phase I.

Results
Twenty nine percent of the participants were in the age group of 41-50 in group I and 28% were below 20 years in group II. Majority of the participants were females in Group I (65%) and in Group II (66%). Most of the participants were married in Group I (69%) and in Group II (53%). Majority of them had either secondary or college education. Most of the participants (58% in Group I and 60 % in Group II) belonged to Hindu religion and belonged to nuclear families (86% and 88% in group I and Group II respectively). Majority of participants in both groups were either manual labourers (34% and 19% in group I and Group II) and had a private job (27% and 35% in group I and Group II). Thirty nine percent of public participated in the study in group I and 68% in group II were the residents of City Corporation. 61% of group I and 32% of group II public who participated in the study had an area of domicile as Panchayath. Most of the participants had no previous experience of helping in a health emergency in Group I (82%) and in Group II (87%). Only 23.5 % participants were members in some voluntary organizations. All the participants irrespective of the age, gender, education and other socio demographic variable developed the life saving skills in all its parameters like knowledge, psychomotor skills, prosocial behaviour and preparedness. The study findings show that the mean pretest score of knowledge on life saving skills was 5.47 and 5.86 in Group I and II respectively where as the post test scores of knowledge on life saving skills was 17.03 in group I and 16.75 in Group II. With regard to knowledge 53% of the public in Group I and 58% in Group II had average knowledge, 47% in Group I and 42% in Group II had poor knowledge in the pretest, where as 76% in Group I and 77% in Group II had good knowledge in posts test. There was a statistically significant
improvement in knowledge of Life saving skills of public in both group I and II after the Basic Life Support Training (t=56.57; p ≤ 0.05 and 44.02p ≤ 0.05). The mean pretest score on psychomotor skills of life saving was 11.27 in Group I and 11.4 in Group II. The mean pretest scores on life saving skills were comparable in group I and II and there was an increase in psychomotor skills of life saving scores immediately after the intervention (67.28 in Group I and 67.39 in group II) and in the subsequent observations (66.69, 66.33 and 65.81 respectively in group I and 66.72, 66.7 and 66.12 respectively in Group II). Public in both groups I and II were in the category of poor skills (Scores < 35) with regard to the psychomotor skills but in the post test they moved to the category proficient (58-72). There was a statistically significant improvement in Life saving skills of public in group I immediately after the Basic Life Support Training (t=304.49; p ≤ 0.05) and there was statistically significant decline in the post tests conducted on 7th day (t=11.936p ≤ 0.05), 30th day (t=4.743p ≤ 0.05) and on 90th day (t=10.35p ≤ 0.056). There was a statistically significant improvement in Life saving skills of public in group II immediately after the Basic Life Support Training (t=387.22; p ≤ 0.05) and there was statistically significant decline in the post tests conducted on 7th day (t=14.177; p ≤ 0.05), 30th day (t=1.421; p ≤ 0.05) and on 90th day (t=9.570; p ≤ 0.05). The mean pretest scores on prosocial behaviour were comparable in group I and II (65.15 and 66.27) and there was an increase in prosocial behaviour scores in the post test (72.28 and 72.09) conducted on 90th day of the Basic Life Support Training. Prosocial behaviour of 15% public in group I and 8% in group II were in the category of good in the pretest which increased to 100% in both groups in the post test. The’t’ value between the pre test score and Post test scores are significantly different in Prosocial Behaviour of public before and after the Basic Life Support training in Group I and Group II(14.02 and 17.713 respectively) The mean pretest scores on preparedness were 16.91 and 12.54 respectively in group I and II and there was an increase in preparedness scores in the post test conducted on 90th day of the Basic Life Support Training. 61% of public in group I and 89% in group II were in the category of poor preparedness with regard to health emergency in pretest and 33% in group I and 11% in group II belonged to the category average. The post test scores indicate that majority of public (88% in group I and 92% in group II) had good preparedness. The’t’ value between the pre test score and Post test scores are significantly different in Preparedness of public before and after the Basic Life Support training in Group I and Group II(28.148 and 38.207 respectively). The’t’ value obtained through independent sample t test which are 1.647 and 1.408 in pretest and post test respectively with regard to the knowledge on life saving skills which are not significant at 0.05 level of significance. Comparison between investigator trained (Group I) and public instructor trained (Group II) participants are not significantly different in Psychomotor skills of Life saving and Prosocial Behaviour before and after the Basic Life Support training at 0.05 levels. Since a time series observation was adopted to assess the effect of intervention with regard to the time especially on psychomotor skills of life saving a repeated measure ANOVA xvii was done to identify the time effect, group effect and Time- group interaction for the variable psychomotor skills. The repeated measure ANOVA supports the findings of the analysis done by the use of paired sample t test and
independent sample t test to evaluate the effect of intervention on psychomotor skills and also for the comparison between group I and Group II. There was a statistically significant difference among the pretest and repeated post tests values of psychomotor skills of life saving both in group I and II. At the same time there was no significant difference with regard to the two groups and with regard to time group interaction. The preparedness scores were high in investigator trained group (Group I) and the mean values in Group I and II were 35.23 and 33.88 respectively. There was a significant difference between the public trained by the investigator and the public trained by the trainers undergone TOT on Preparedness.

Interpretation
The study results reveal that there was a significant improvement in life saving skills of public in all its parameters- knowledge, psychomotor skills, prosocial behaviour and preparedness in group I (public trained by the investigator) and group II (Public trained by the trainers identified from phase I study and undergone Training of Trainers). Training of trainers (TOT) was effective in preparing trainers from public for conducting basic life support training to the fellow beings. The public trained by the trainers identified from public who have undergone Training of Trainers was equally proficient in life saving skills compared to public trained by the investigator who had expertise in BLS training. The opinions of public who attended BLS training in both phases were assessed using an open ended feedback form which revealed increased confidence and self-responsibility in dealing with health emergencies. Local self-government in which the study was conducted requested the investigator to train the entire population in the panchayath as an extension of the project.

Conclusion
The public had ignorance about life saving skills before the BLS training. Even though, most of them had the desire to help others in health emergency (Prosocial behaviour), they were not aware of the cognitive, psychomotor component of life saving. BLS training significantly improved the life saving skills in all its dimensions such as Knowledge on life saving skills, psychomotor skills of life saving, prosocial behaviour and preparedness of people in health emergency. The Training of Trainers (TOT) was effective in improving the life saving skills. The participants of the group I (public trained by the investigator) and group II (Public trained by the trainers identified from phase I study and undergone Training of Trainers) were equally competent after the training. All categories of people voluntarily participated in the BLS training. Women volunteered themselves with great enthusiasm.

Keywords
Basic Life support, First Responder Training, Training of Trainers, Life saving skills, Public, knowledge.