



RETENTION OF KNOWLEDGE AND SKILL REGARDING COMPRESSION ONLY LIFE SUPPORT AMONG LAYPERSON IN HANDS-ON VERSUS VIDEO-ASSISTED GROUP

Nursing

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ABSTRACT

Aims and Objectives: Out of hospital cardiac arrest claims a large number of lives every year across the world and about 90% of them die. Bystander cardiopulmonary resuscitation CPR if done on time improves the chances of survival. Teaching laypersons to perform CPR is a challenge. Hence, the researcher undertook this study to assess the efficacy of hands-on training and video-assisted training in teaching Compression only support (COLS) among laypeople. **Material and Methods:** The quasi-experimental study included 180 subjects who were purposively enrolled in video-assisted groups and hands-on training groups. Non-medical study subjects between the age group of 19 to 65 years and were included in the study and the baseline knowledge and skill was assessed self-developed COLS knowledge questionnaire and COLS skill checklist. Following this, the interventions were given to the hands-on group and video-assisted group and immediate post-test knowledge, skill and attitude related to COLS training were assessed. One month after the intervention retention of knowledge, and skill was assessed in both the groups. **Results:** Demographic characteristics in both groups were similar. The post-test mean knowledge score and skill score in the hands-on group (20.68 ± 3.08 , 44.04 ± 1.59) were significantly higher when compared with the video-assisted group (16.52 ± 5.07 , 41.84 ± 1.72) at p-value < 0.05 . Though there was a significant decline in the knowledge and skill regarding COLS in both the hands-on group and video group, however, the retention of knowledge and skills was better in the hands-on group (18.64 ± 3.93 , 34.48 ± 3.37) compared to the video group (16.36 ± 3.77 , 25.36 ± 4.78). There was no significant correlation between knowledge regarding COLS and COLS skills. **Conclusion:** Though video-assisted COLS training can be used as one of the teachings approaches for a larger population of people but hands-on training remains a better way to teach COLS. A combination of both methods can be explored for increasing the retention of knowledge and skill related to COLS.

KEYWORDS

Compression only life support, Cardiopulmonary resuscitation, educative approach.

Introduction:

Around 40-50% of all cardiovascular death are caused due to Sudden Cardiac Arrest (SCA). The mortality due SCA in India is approx. 4280/100,000. Sudden cardiac arrest is a life-threatening situation wherein there is an electrical error in the heart which causes disturbance in the flow of blood to the vital organs of our body. The blood flow to the brain stops leading to an unconscious state and the person has no pulse and no breathing. The survival rate of cardiac arrest victim depends on immediately receiving cardiopulmonary resuscitation (CPR). CPR is an emergency technique that combines chest compression with artificial respiration. The Indian Resuscitation Council recommends the use of the Compression only Life support (COLS) technique for the layperson to rescue the life of a victim suffering from cardiac arrest which only includes chest compressions. For every minute that a cardiac arrest victim does not receive COLS, his chances of survival drop by 7-10 per cent. Out of hospital cardiac arrest claims a large number of lives every year across the world. Eighty per cent of out-of-hospital cardiac arrests (OHCAs) occurs at home, in market place and place of work. About 90% of people who suffer out of hospital cardiac arrest die. The outcome of OHCA remains upsetting as only 10.8% of adult patients with cardiac arrest who have received COLS from emergency medical services (EMS) survive hospital discharge. So, if a layperson knows how to initiate COLS till the time ambulance arrives, the chances of survival improve. Hence the researcher has taken up the study to compare the two educative approaches to training adults residing in Delhi NCR on Compression only life support (COLS).

Statement of the problem

Retention of knowledge and skill regarding Compression only life support (COLS) among layperson in hands-on versus video-assisted groups.

Objectives of the study

1. To compare the effect of hands-on CPR training and video-assisted training on Knowledge and skill related to COLS among adults of selected communities of Delhi NCR.
2. To compare the effect of video-assisted CPR training and hands-on CPR training on retention of knowledge and skill related to COLS at 30 days.
3. To find an association between knowledge and skill related to COLS with selected demographic variables.

Hypothesis

H1: There is a significant difference in the knowledge and skills related to COLS in the hands-on CPR training group than in the video-assisted

CPR training group immediately post-intervention at 0.05 level of significance.

H2: There is a significant difference in the retention of knowledge and skills related to COLS in the hands-on CPR training group than in the video-assisted CPR training group at 30 days at 0.05 level of significance.

Materials and Methods

The present study adopted experimental research, a quasi-experimental design and was conducted in the rural community of Delhi NCR, India. The sample size of the present study is 60 (30 in the hands-on group and 30 in each group) and subjects were selected by non-probability, purposive sampling technique.

Inclusion Criteria

- Permanent resident of the selected villages and available at the time of data collection
- Doesn't belong to the Medical/Health/Nursing and allied field, and never had CPR training.
- Subjects in the age group of 19- 60 years.
- Subjects who can understand and read Hindi or English.
- Subjects who are willing to participate.
- Subjects who have not undergone any formal CPR training before

Exclusion Criteria

- Pregnant and Lactating mothers during the post-partum period.
- Locked house visited thrice and found locked will be excluded.
- Subjects having debilitated illness/bedridden/ major mental disorder/ any medical condition.

Tools for data collection:

Following were the tools used for data collection:

- Tool 1: Screening sheet.
- Tool 2: Socio-demographic sheet.
- Tool 3: COLS knowledge questionnaire.
- Tool 4: COLS skill observational checklist

The tools were found to valid and reliable.

Data collection method:

The researcher used the interview technique to assess the eligibility of the subjects under study with the help of the screening sheet (tool no. 1). After the eligibility was assessed, the study subject was given a participant information sheet to understand their participation in the study. Then the study subjects who agreed to be part of the study were

given a consent form for signature. After the required number of study subjects were covered the subjects were given tools 2(Sociodemographic tool) and 3(COLS knowledge) to be filled. Tool 2 and tool 3 were filled by the researcher using the interview technique. It took approximately 8-10 mins per subject to fill out the questionnaire. Then the COLS skills were assessed using a simulated scenario. The skill assessment was done using tool 4(COLS skill observation checklist) and the time taken by each study subject was around 5-6 mins. The pre-test for all the three groups was completed in one month. After that, the researcher gave intervention to the hands-on group first. The intervention was given in a group of 4-6 study subjects. The intervention took 8-10 mins and the immediate post-test was done. To assess the post-intervention knowledge regarding COLS training tool no. 3 (COLS knowledge questionnaire). The COLS skill was assessed using a simulated scenario provided to the study subject and then they were told to demonstrate the steps of COLS. It took approximately 1 hour to finish the training and post-intervention assessment for 6 study subjects. After the Hands-on group was completed the researcher initiated the training of the video-assisted group. In the video-assisted teaching group, the intervention was given in a group of 4-6 study subjects. The intervention took approximately 8-10 mins and an immediate post-test was taken. It took approximately 1 hour to complete the training and post-intervention assessment of 4-6 study subjects. The researcher after completing the video-assisted group then assessed the post-test knowledge and skill related to COLS in a group of 6-8 study subjects using the interview technique. The post-assessment of knowledge and skill took approximately 1 hour for 6-8 study subjects. After all the two groups post-test was completed the follow-up assessment was done after 30 days of the training to assess the retention of knowledge and skill related to COLS.

Results:

Table 1. Frequency and percentage distribution of samples according to the demographic variable.

Sl. No	Demographic variables	Group 1 (Video-assisted)		Group 2 (Hands-on)	
		No.	%	No.	%
1	Age in years (Mean SD)	33.46.1	32.89.1		
2	Gender				
	Male	20	66.6	9	30.0
	Female	10	33.3	21	70.0
3	Educational qualification				
	Uneducated	3	10.0	5	16.6
	Primary level	7	23.3	7	23.3
	Secondary level	12	40.0	6	20.0
	High secondary level	3	10.0	5	10.0
	Graduation	5	16.6	6	20.0
	Post-graduation and above			1	3.0
6	Occupation				
	Unemployed	14	56.0	16	64.0
	Unskilled worker	1	4.0		
	Semi-skilled worker	7	28.0		
	Clerical, shop-owner/ farm	8	12.0	3	4.0
	Professional			5	12.0
	Asha worker/ Anganwadi worker			5	20.0

Table No. 1 shows the demographic details of the study subjects in the two groups. The mean age of the study subjects in the video-assisted group and hands-on group was 33.46.1 and 32.89.1 respectively. The majority of the study subjects were female in the hands-on group (76%) and males in the video-assisted group (60%). While looking through the educational status of the study subject it was found that the majority of the study subjects were educated and very few were uneducated in both the two groups (The video-assisted group (12%) and the Hands-on group (20%).

Table 2: Comparison of knowledge and skill scores related to

COLS before and after hands-on CPR training and video-assisted training among adults. n1=30, n2=30

Groups	COLS Knowledge (mean±SD)	COLS Skill (mean±SD)
Group 1 (Video-assisted)	16.52±5.07	41.84±1.72
Group 2 (Hands-on)	20.68±3.08	44.04±1.59
t value	38.448	53.856
p value	<0.001**	<0.001**

t test, level of significance p<0.05

Table 2. shows the comparison of COLS knowledge score and COLS skill score in the video group and hands-on group. There was a significant difference in the knowledge score and skill score of hands-on group (20.68±3.08, 44.04±1.59) when compared with the video-assisted group(16.52±5.07, 41.84±1.72) at p <0.001. Hence, it is proved that hands-on training is effective in improving the COLS knowledge and skill score when compared with video-assisted training.

Table 3: Comparison of knowledge and skill scores related to COLS of hands-on CPR training and video-assisted training among adults during immediate and after 30 days. n1=30, n2=30

Group	COLS Knowledge (Mean ± SD)	COLS Skill (Mean ± SD)
Group1 (Video-assisted)	16.36±3.77	25.36±4.78
Group 2 (Hands-on)	18.64±3.93	34.48±3.37
t value	34.109	58.212
p-value	<0.001**	<0.001**

t-test, level of significance p<0.05

Table no.3 compares the COLS knowledge score and COLS skill score in the hands-on vs video-assisted group. The mean score of COLS knowledge and skill declined in both groups after 30 days but the retention of knowledge and skill was found to be better in the hands-on group when compared with the video-assisted group. This means that the retention is better if the skill is demonstrated than by showing the video.

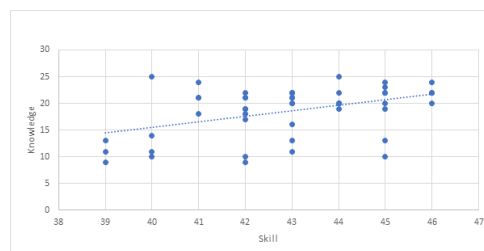


Fig 1: Scatter plot explaining the correlation between knowledge and skill related to COLS

Fig 1. shows the correlation between COLS skill scores and COLS knowledge score among adults. There was a weak positive correlation found between the COLS knowledge and skill score but the correlation was not found to be statistically significant which means a better knowledge score doesn't increase the skill score.

Discussion:

In this study, the author found that Hands-on training was found to be more effective compared with Video-based teaching in improving the knowledge and skill related to compression-only life support among adult laypeople.

In a developing country like India, emergency medical experts are scarce and there are poor ambulance services. Hence, training and preparing the layperson who are the primary responders in case of cardiac arrest outside the hospital can be very helpful in improving the survival. The author trained participants using two teaching methods i.e., Video-assisted teaching and Hands-on teaching and evaluated participants' knowledge using questionnaire and skills related to Compression only life support using the Laerdal BLS torso. There was

a significant increment in the knowledge score of participants in the Hands-on group compared to the video-assisted group. The COLS skills were found to be better in the hands-on group compared to the video-assisted group. This result is in contrast with the results of the study done by Athar M et al. (2019) which revealed that there was no significant difference between the skills of video-assisted and hands-on groups. These inconsistencies could be because in this study the researcher has enrolled undergraduate students of the same educational qualification whereas in the present study the subjects belonged to a village with varying levels of educational qualification.

Learning COLS is important for every individual, especially the laypersons. The right way of training COLS is essential in improving the skills and knowledge regarding these important life-saving skills. This study helps us in throwing light on the best way that can be used to teach COLS to the layperson. Randomization could not be used in the present study for selecting the sample for the study which can affect the generalizability of the study findings. A small sample size was used for the study. There is no standardized tool used for data collection. However, the tools were made referring to the Indian Resuscitation Council CPR guidelines 2017.

Conclusion: Compression only life support is a very important life-saving technique that if used at the earliest for the cardiac arrest victim can improve the survival of the patients. The laypersons are the first responders and its very essential that every layperson should learn how to perform COLS at the time of emergency till the ambulance is awaited. Training for the bystanders should be mandatorily done to reduce death because of out of hospital cardiac arrest.

“Let's make our hands ready to save lives”

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