

Effectiveness of Information Booklet on Knowledge regarding Crash Cart among Staff Nurses Serving in Tertiary Care Hospital of Karnataka State

*Principal Investigator -Author
Assistant Professor,
Rashmi.A
rashiva1986.79@gmail.com
Medical surgical nursing department
Sri Devaraj urs college of Nursing,
Tamak, Kolar*

*Co-Author
T.Umadevi
Assistant Professor
venkatabhavadeesh@gmail.com
Medical and surgical Nursing Department
Sri Devaraj urs college of Nursing, Tamaka, Kolar*

Abstract:

Introduction-The successful management of cardiopulmonary emergencies revolves around the optimum utilization of the golden hour, so that the patient gets the best possible advantage at survival. Aim of the study was to perform gap analysis of crash carts in the emergency of a tertiary care teaching hospital by comparing the salient parameters with standards listed by Resuscitation Council UK (for equipment) and National Accreditation Board of Hospitals and health care providers (for management of medication). Further, to assess the improvement in compliance with the simple intervention of educating staff regarding protocols. **Objectives: Primary objective:** To assess the effectiveness of information booklet on knowledge on crash cart among staff nurses. **Secondary objectives:** 1. To assess the knowledge on crash cart among staff nurses in tertiary care hospital. 2. To find out the effectiveness of information booklet on knowledge regarding crash cart among staff nurses in tertiary care hospital. 3. To find out the association between the post-test knowledge score and selected demographic variables of staff nurses in tertiary care hospital. **Materials and methods:** Pre-experimental design was used Sample size: 80 staff nurses serving in selected tertiary care RL Jalapa hospital and research center and convenient sampling technique was adopted data was collected by self administered questionnaire and post test was conducted after a week. **Results:** The study finding reveals that the majority of staff nurses were found average knowledge before intervention, had mean knowledge score of 15.78 ± 3.25 is average and after intervention, had mean knowledge score is excellent and very good 26.35 ± 1.53 ve. Effectiveness of information Booklet on crash cart among staff nurses The Student's paired 't' test shows significant difference (31.56) at 0.05% level significance Hence it is concluded that The post-test knowledge scores on crash cart has shown highly significant difference in "t" value ($t=31.56$, $p<0.05$) among staff nurses serving in tertiary care hospital. Therefore, the information booklet on crash cart was effective among staff nurses.

Keywords: effectiveness, information booklet, knowledge, crash cart and staff nurses.

INTRODUCTION

The crash cart is characterized by being easily movable and readily accessible into all sides of the cart for quickly viewing and removing equipment and drugs during an emergency situation. It is often the nurse's role to undertake the routine checking of the resuscitation trolley and cardiopulmonary equipment. In many institutions the nurses do not play only a supportive role, but they also manage initial treatment while the patient's physician is en route to the location of the emergency.

Nurses and doctors, the first in line to provide life support and resuscitation should always be clearly aware of the placement of the emergency cart and their contents and their use. Staff must be familiar with the location of all resuscitation equipment within their working area. A "Crash Cart" is a mobile, compact cart, equipped with various medical aid tools (used mainly for cardiac emergencies). The cart consists of items such as a defibrillator, medications, a suction pump, and other life-saving equipment. The function of crash carts is to provide a mobile station within the hospital that contains everything needed to treat a life-threatening situation. The advantage of mobility is that it allows the treatment to come to the patient when needed. It is often the nurse's role to undertake the routine checking of the resuscitation trolley and cardiopulmonary equipment. As nurses play a major role in the provision of health care, it is the nurses who frequently discover patient with cardiac arrest and it is necessary for them to restock the crash cart after every shift, verifying the presence and expiry date of every item. Nurses play an integral role in the management of cardiopulmonary arrests. In inpatient facilities, nurses are at the patient's bedside 24 hours/day and are likely to be the first to respond and manage initial treatment during an emergency.

2. Methodology.

Research Approach: Quantitative approach

Research Design: Pre-experimental, one group pretest and Posttest design

Variables under study

Dependent variable: Knowledge of the 4th year B.sc nursing students regarding utilization of crash cart in hospitals

Independent variable: Information booklet on utilization of crash cart.

Research Setting: Tertiary care hospital of Karnataka state; minimum bed strength of each hospital would be 1200 and critical care block includes

Research Design: Pre-experimental one group pre-test post-test research design

Population Targeted population: Staff nurses

Sample: Accessible population the staff nurses serving in tertiary care hospital of Karnataka state.

Sample size: 80

Sampling technique: Non probability convenient sampling technique

Sample Selection criteria (Inclusion and Exclusion) Inclusion Criteria:

- Staff nurses available at the time of data collection
- Staff nurses with 1 year of experience

Exclusion criteria:

- Those staff nurses who undergone similar type of training programs
- Those who are not registered to state nursing council

Development of tool

Description of the tool

1. Self-Administered Questionnaire.2. Information Booklet

The SAQ in the form of Multiple-Choice Questions (MCQ) was used to assess the knowledge of staff nurses with regard to crash cart. The SAQ contain Part-A and Part-B.

The Part A is related demographic variable and Part B is related to MCQ on crash cart. This tool was handed over to the staff nurses to complete the part A and part-B with instruction.

Part A: It is related to seeking information on demographic variable of staff nurses working in Tertiary care hospital of Karnataka state

Part-B: It is related MCQ on knowledge items of crash cart which is used to assess the knowledge of staff nurses. This MCQ has a total of 30 questions related to general information of crash cart, contents and articles in crash cart and maintenance and arrangement of crash cart. Accordingly, the knowledge items were divided of general information of crash cart, content and articles of crash cart and maintenance/arrangement of crash cart.

Score

Level	Score
Poor	0-10
Average	11-20
Good	21-30

The SAQ consist of 30 questions with a total score of 30. Each question/ item had four options and the score for each right answer was 1 mark and for wrong answer 0 mark was awarded.

1. Information Booklet

This information booklet is a self-learning material on crash cart for staff nurses working in tertiary care hospital. It contains systematically organized series of self-learning contents on crash cart including general information of crash cart, content and articles of crash cart, maintenance/arrangement of crash cart and self-assessment. This self-learning material was handed over to the staff nurses soon after the pretest with necessary instructions.

The pilot study was conducted on 8 staff nurses. The findings of pilot study have shown the feasibility of major study in terms of time, money, samples and data collection procedure.

Ethical consideration

- ✓ Researcher had obtained approval from appropriate review boards to conduct the study.
- ✓ Only the samples who had signed the consent form are included in the study.
- ✓ Confidentiality of the data is maintained strictly

Data collection

- ✓ Investigator introduced herself to the staff nurses, and explained the purpose of the study so as to ensure co-operation during data collection.
- ✓ The participant was collected in the teaching room available in hospital and structured questionnaire was administered.
- ✓ As the sample of study was 80 staff nurses, it requires 6 days for collection pre-test data and intervention. Data were collected approximately from 30-35 participants every day.
- ✓ Once the questionnaire was completed, researcher collected it back.
- ✓ The staff nurses required 30 minutes to complete the structured administered questionnaire.
- ✓ After the pre-test information booklet was given to staff nurses on knowledge regarding crashcart. on 7th day of the pre-test, the post test was administered in the same manner using same questionnaire.
- ✓ As the staff nurses included in the study was on different shift duty, the investigator approached the staff nurses in all 3 shifts according to the convenience and availability of the staff nurses for conducting the post test.

- ✓ The collection of data was completed within the stipulated time.
- ✓ After the data gathering process the researcher thanked all the study samples as well as the authorities for their co-operation.

DATA ANALYSIS: The data was decided to be analyzed, using descriptive and inferential statistics on the basis of objectives of the study.

RESULTS:

It is observed from table 1 that, the percentage wise distribution of staff nurses according to their age reveals that, majority (80 %) were in the age group of 21-30 years whereas the staff nurses with more than 50 years and below were around 4%. However, 13.8% of staff nurses belonged to the age group of (31-40) years of age. The percentage wise distribution of staff nurses according to their gender depicts that majority (88.8%) of staff nurses were females. The percentage wise distribution of staff nurses according to their qualification reveals that, the majority (72.5%) of the staff nurses were qualified with GNM whereas 11.3% of staff nurses were qualified with P.B.B.Sc Nursing. However, the staff nurses with B.B.Sc were 16.3%. The percentage wise distribution of staff nurses according to their work experience depicts that majority (76.3%) of staff nurses had 0-5 yrs of experience whereas 3.8% of staff nurses had work experience more than 16 years. However, the staff nurses with 6-10 years and 11-15 years had work experience (5% and 15% respectively). Percentage wise distribution of staff nurses according to their source of information reveals that majority (66.3%) had information regarding crash cart from their working area whereas only 5% of staff nurses had information from journals. However, 7.5% and 21.3% had information from mass media and books respectively.

Table1.1: Percentage wise distribution of staff nurses according to their demographic characteristics.

n=80

Demographic Variables	No. of staff nurses	Percentage (%)
Age(yrs)		
21-30 yrs	64	80.0
31-40 yrs	11	13.8
41-50 yrs	3	3.8
≥51yrs	2	2.5
Gender		
Male	9	11.3
Female	71	88.8
Education		
GNM	58	72.5
B.B.Sc Nursing	13	16.3
P.B.B.ScNursing	9	11.3
GNM/BBS/BBSc with certified course	0	0
MSc and above qualifications	0	0
Working Experience(yrs)		
0-5 yrs	61	76.3
6-10 yrs	12	15.0
11-15 yrs	4	5.0
≥16yrs	3	3.8
Source of information		
Mass Media	6	7.5
Journals	4	5.0
Working Area	53	66.3
Books	17	21.3

Table–1.2: percentage distribution of knowledge on crash cart among staff nurses before intervention

n=80

S.L No	Level of Knowledge	Frequency	Percentage
1	Poor	1	20.0 %
2	Average	9	36.2%
3	Good	53	51.2%
4	Very Good	16	66.4%
	Excellent	1	83.3%
Overall		80	52.6%

Percentage distribution of knowledge on crash cart among staff nurses before intervention revealed that overall mean percentage of knowledge among staff nurses was 52.6%.

Table1.3: Mean, Standard deviation of knowledge on crash cart among staff nurses before intervention-

S.L. No	Level of Knowledge	Frequency	Mean	SD
1	Poor	1	6.00	-
2	Average	9	10.88	1.45
3	Good	53	15.37	1.55
4	Very Good	16	19.93	0.92
5	Excellent	1	25.00	-
Overall		80	15.78	3.25

Before intervention, the mean of knowledge score on crash cart among staff nurses is found to be 15.78 ± 3.25 .

Table-1.4: percentage distribution of knowledge on crash cart among staff nurses after intervention
n=80

S.L No	Level of knowledge	Pretest		Posttest		Difference in %
		Frequency	%	Frequency	%	
1	Poor	1	1.2%	-	-	+1.2%
2	Average	9	11.2%	-	-	+11.2%
3	Good	53	66.2%	-	-	+66.2%
4	Very Good	16	20%	2	2.5%	+17.5%
5	Excellent	1	1.2%	78	97.5%	+96.3%
Overall		80	52.6 %	80	87.8 %	+35.2%

Percentage wise distribution of knowledge on crash cart among staff nurses after intervention revealed that, the percentage of knowledge among staff nurses has increased up to 87.8% from 52.6% after administration of information booklet.

Table 1.5: Mean, Standard deviation of knowledge on crash cart among staff nurses after intervention
n=80

	Area of knowledge	Pretest		Posttest		Difference in mean & mean percentage	
		Mean \pm SD	Mean%	Mean \pm SD	Mean%	Mean \pm SD	Mean%
	Poor	6.00 \pm 0.00	20.0%	-	-	6 \pm 0	+20.0%
	Average	10.88 \pm 1.45	36.0%	-	-	10.88 \pm 1.45	+36.2%
	Good	15.37 \pm 1.55	51.2%	-	-	15.37 \pm 1.55	+51.2%
	Very Good	19.93 \pm 0.92	66.4%	21.00 \pm 0.00	70.0%	1.07 \pm 0.92	+3.5%
	Excellent	25.00 \pm 0.00	83.3%	26.48 \pm 1.28	88.2%	1.48 \pm 1.28	+4.9%
Overall		15.78 \pm 3.25	52.6%	26.35 \pm 1.53	87.8%	10.57 \pm 1.72	+35.2%

After intervention, mean knowledge score of staff nurses increased to 26.35 ± 1.53 from 15.78 ± 3.25 . Further, it is observed that the mean percentage of knowledge among staff nurses increased from 52.6% to 87.8%. There was about 35.2% improvement in knowledge among staff nurses after administration of information booklet.

Table-No.1.6:overall effect of information booklet on crash cart among staff nurses according to level of knowledge
 $n=80$

Overall	Mean	Standard deviation	Mean difference	t - value	P-value
Pretest	15.78	3.25			
Posttest	26.35	1.53			

$Df-1.98$

$pvalue<0.0001$

***highlysignificant

This table shows the comparison of pretest and post-test knowledge scores of staff nurses working in tertiary care hospital of Karnataka State. Mean, standard deviation and mean difference values are compared and with student' spaired't' test applied at5% level of significance, overall't' value was found to be 31.56 whereas the corresponding p value was 0.0001which is statistically highly significant.Hence, it is interpreted that the informationbooklet was effective in improving the knowledge of staff nurses regarding crash cart and the Research Hypothesis H1 is accepted.

Table No.1.7: Association between post-test knowledge score on crash cart and Age in year

$n=80$

Age(yrs)	No. of staff nurses	Mean posttest knowledge score	F-value	p-value
21-30 yrs	64%	26.34±1.47	0.07	0.97
31-40 yrs	11%	26.36±2.06		
41-50 yrs	3%	26.66±1.52		
≥51yrs	2%	26±1.41		

$Df-3,76$

$pvalue>0.05$

NS-Not significant

Table No.1.8: Association between post-test knowledge score on crash cart and gender

$n=80$

Gender	No. of Staff-nurses	Mean post-test Knowledge-score	F-value	p-value
Male	9%	25.44±2.92		
Female	71%	26.46±1.25		

Table No.1.9: Association between post-test knowledge score on crash cart and Qualification

$n=80$

Education	No. of staff nurses	Mean post-test-knowledge score	F-value	p-value
GNM	58%	26.31±1.62		
BBS Nursing	13%	26.23±1.48		
PBBSc Nursing	9%	26.77±0.97		
GNM/BB.Sc/PBB.Sc With certified course	0%	0±0		

Df-2,77

pvalue>0.05

NS-Notsignificant

TableNo.1.10: Association between post-test knowledge score on crash cart and work experience

n=80

Work experience	No.ofstaff-nurses	Mean post test knowledge score	F-value	p-value
0-5 yrs	61%	26.27±1.63		
6-10 yrs	12%	26.58±1.24		
11-15 yrs	4%	27±0		
≥16yrs	3%	26±1.73		

Df-3,76

pvalue>0.05

NS-Notsignificant

DISSCUSSION:

The findings of study shows that Percentage distribution of knowledge on crash cart among staff nurses before intervention revealed that,overall percentage of knowledge among Staff nurses was around 52.62%.However,majority of them had average knowledge(51.2%)with a requency of 53Staff nurses whereas one of them had excellent knowledge (83.3%). Further, theStaffnurses (withafrequency of16)had very goodknowledge(66.4%).

Before intervention, the Staff nurses had mean knowledge score of 3.81±1.68in terms of General information. Mean while, the mean knowledge score was found to be3.52±1.69in terms of contents and articles. Further, it is seen that mean knowledge score among Staff nurses in term s of maintenance/arrangement was 7.23±3.26. Before intervention, the knowledge score was 52.6%with an overall mean of 15.78±3.25 which is supported with the findings of a similar study conducted by Madhav Madhusudan Singh(2019) where overall knowledge of Staff nurses was 23%withmean&SDof19.5±3.2 In the present study it is observed that the knowledge among Staff nurses increased by 35.21%after administration of information booklet with an improvement in mean from 15.78±3.25 to26.35±1.53. However, it is contradictory to the findings of a study conducted by Rawiaa Ibrahim(2017) who observed an overall improvement of 33% in knowledge after such teaching program. According to a new study four times people die from preventable medical errors, as many as4,40,000 a year.

One in 10 patients is harmed while receiving hospitals care. At least 50% of the medical equipment's in developing countries are unusable or only partly usable. Often the equipment is not used due to lack of skills or commodities. As a result, diagnostic procedures or treatments cannot be performed. It is important for every material management employee to be trained to know the purpose, benefits and operations of the exchange cart. This information can be shared in as imple,short in-service or during department orientation. It is vital to the success of the system

. A study was conducted (2017) among 100 final yearB.Sc. Nursing students to find out the effect and knowledge regarding utilization of crash cart in hospitals. Evaluative approach with quantitative research design was adopted. The study result showed that final year B. Sc. Nursing students had average knowledge score11-20 and 97%of them had good knowledge score21-30 Regarding utilization of crash cart.

A study was conducted (2016) by resuscitation council UK and national accreditation board of hospitals and health care providers among staff nurses to assess the management of crash carts in a tertiary care teaching hospital. The study showed that there is high amount of workload and in sufficient information regarding crash cart which led to neglect of labeling and improper documentation resulting in decreased accountability and inefficient monitoring. The researcher concluded that study was increasing sensitivity and awareness to standard protocols can help achieve maximum compliance in terms of the effective functioning of cart in the emergency.

A study conducted (2018) in Kerala,India to assess the effect of Structured Teaching Program on Knowledge Regarding Crash Cart System among 30 Staff Nurses of medical wards revealed that structured teaching program impart knowledge among staff nurses. And the study also revealed that age of the subjects and total years of experience had significant association with the knowledge levels of staff nurses regarding crash cart system. An experimental study (2017) to assess the effectiveness of structured teaching programme on knowledge regarding utilization of crash cart in hospitals among100 final yearB.Sc.nursing students of selected nursing colleges in Pune city revealed that structured teaching programme is found effective to increase the knowledge score of final year B.sc nursing students regarding utilization of crash cart in hospitals¹¹.

LIMITATION:

- Limited to knowledge domain of selected 80 staff nurses.
- The study was limited to selected private multi specialty hospital at urban region of karnataka The study was limited to the at MNC staff nurses who have registration of RNRN.
- The study was limited to convenient sampling technique.
- Limited to pre experimental design.
- The data collection was limited to 2weeks of it was cross sectional approach.

Implication:**NURSING SERVICES**

- The huge of a health personnel can use the information booklet or a self-learning material.
- The Information Booklet can be used by the staff nurses no want then in regular health care services.
- The Information Booklet can significantly used in patient care as especially in all intensive care unit.
- As a specialist intensive care nurse counselor, nurse can conduct individual counseling, group counseling and organize self-help groups which will improve the quality of nursing practice.
- Nurse may play a key role in changing the attitude towards treatment of disease for improved treatment success.
- Finding of the study can be incorporated in nursing services' specially ICU.

NURSING EDUCATION

- The findings of the study can be incorporated with the existing nursing education curriculum and must include imparting knowledge about the importance of crash cart among students and staff.
- The nursing teachers can use the result of the study as an informative illustration for the students.
- The information Booklet emphasizes significance of instant/in-service education programmes for nurses related to crash cart.
- The senior staff nurse can use the information Booklet to teach floor nurse.
- Information Booklet can be used among peer group teaching, individual teaching and teaching in small group allotted.

NURSING ADMINISTRATION

- The nurse administrator can take part in developing protocols and standing orders related to crash cart for staff nurses admitted in their hospitals
- The nursing administrator can mobilize the available resource personnel towards the education of staff nurses regarding crash cart.
- The nurse administrator should plan and organize continuing education programme for all staff nurses in the hospital to motivate them in conducting teaching programmes on crash cart for emergency management.
- The nurse administrators should explore their potentials and encourage innovative ideas in the preparation of appropriate teaching material like Information Booklet.
- She should organize sufficient manpower; money and material for disseminating health information like using self-instructional manual ,self-instructional booklet ,self-learning protocol.

NURSING RESEARCH

- Present study helps nurseries earaches to develop appropriate health education tool for educating the staff nurses serving in ICU of all areas
- Nurses should come forward totakeupunsolvedquestionsinthe field of crash cart to carry out studies and publish them for the benefit of patients, public and nursing fraternity.
- The finding can be used for publication to disseminate knowledge the potential nurse.
- The study will serve as a valuable reference material for the future investigators of a nurse consumer.
- Nurse can use the finding for further research studies as a nurse research producer.

REFERENCES:

1. Emergency nursing [Internet]. En.wikipedia.org. 2019 [cited 25 March 2019]. Available from: https://en.wikipedia.org/wiki/Emergency_nursing
2. Trimble T. The Entire World of Emergency Nursing. Emergency Nursing World. (internet) Updated on 20.01.2019. Available from: <https://enw.org/A-Bags.html>
3. Chintamani. Text Book of Medical Surgical Nursing 2011 Elsevier, Reprint 2013: 1775-1797.
4. Dr. Firdes TEMİZGÜNEY. A General View of the Issue of the Russian Military Refugees in the Ottoman Empire before the First World War. International Journal of History. [serial on the Internet] 2019 [cited 25 March 2019]; 11:(1):361-383. Available from: <http://www.historystudies.net/dergi/birinci-dunya-savasi-oncesinde-osmanli-devletine-siginan-rus-askeri-multeciler-meselesine-genel-bir-bakis2019027550f76.pdf>
5. Topple M, Ryan B, McKay R, Blythe D, Rogan J, Baldwin I et al. Features of an Intensive Care based Medical Emergency Team nurse training program in a University Teaching Hospitals. Australian Critical Care 2016; 29(1):46-49. doi:10.1016/j.aucc.2015.03.00
6. Thakur Sudarshan K., Tak Anjna, Bajaj Nisha (2018) Navayas Lauh; Justification to use as Primary medicine for treating Anaemia; Under "Anaemia control Program through Ayurveda" International Journal of Scientific Research and Education. 06, 02 (Feb-18) 7858-69
7. Dr. Anubha Singh, Dr. Preetaish Kaul (2018) Effectiveness of Man Sure, a herbal reproductive health supplement, on semen quality (sperm count, sperm quality, sperm motility) in infertile men International Journal of Scientific Research and Education. 06, 01 (Jan-18) 7788-91
8. Pasha, T., Hossain, M.M. and Chowdhury, R. "Nutritional status of pregnant women in selected hospitals in Dhaka city. *Journal of Medical Research and Health Sciences*. 3, 12 (Dec. 2020), 1114-1117. DOI: <https://doi.org/10.15520/jmrhs.v3i12.295>.
9. H.B. Elizabeth, Bridges J. Monitoring Emergency Intra Arterial Blood Pressure; What You May Not Know? Critical Care Nurses. 2007; (22):60-79. Doi: 10.1037/E538382011-001
10. Persaud J. Guy, E. Davies, D. Harvey, Drug Errors: What Role Do Nurses and Crash Carts Have In Minimizing The Risk? Journal of Child Health Care 2003; 7(4):277-90.
11. N. Makkar, & Madaan, N. Study of Compliance Of Crash Carts To Standards In The Emergency Of A Tertiary Care Teaching Hospitals. International Journal of Research In Medical Sciences, [serial on the Internet] 2016 [cited 23 March 2019]; 3968-3976. Doi: 10.18203/2320-6012.Ijrms20162917
12. Smith, G.A. 2020. Essential Treatment of Covid19 Patients. *Journal of Medical Research and Health Sciences*. 3, 12 (Dec. 2020), 1118-1119. DOI: <https://doi.org/10.15520/jmrhs.v3i12.294>.
13. Husebo S, Bjorshol C, Rystedt H, Friberg F, Soreide E. A comparative study of defibrillation and cardiopulmonary resuscitation performance during simulated cardiac arrest in nursing student teams. 2019. <https://doi.org/10.1186/1757-7241-20-23>
14. (IJSR) I. Home - International Journal of Science and Research (IJSR) [Internet]. Ijsr.net. 2019