A study to assess the effectiveness of structured teaching programme on knowledge regarding the utilization of crash cart trolley among B.Sc. Nursing 3rd semester students at Haneefa Nursing College Sopore

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Abstract-This study was conducted to assess the effectiveness of structured teaching programme on knowledge regarding utilization of crash cart trolley among B.Sc. Nursing 3rd semester students at Haneefa Nursing College Sopore. A pre- experimental design with pre-test and post-test without control group was undertaken from Haneefa Nursing College Sopore. The population of the study consists of B.Sc. Nursing 3rd semester students. The data collection was done by purposive sampling on a group of 60 students by administering self-structured questionnaire. The data collected was analyzed by using descriptive and inferential statistics. The statistics shows the following results, Level of knowledge in pre-test, 40% of students having inadequate knowledge, 50% of students having moderate knowledge.10% students having adequate knowledge. Level of knowledge in post-test, 0% students having inadequate, 31.7% students having moderate knowledge, 68.3%, of students having adequate knowledge. The calculated "t" value 17.42 was greater than the table value at 0.05 level of significance. The present study assessed the knowledge among students and there is gain of Knowledge about crash cart trolley. The study concluded that the STP was effective in improving the Knowledge regarding the crash cart trolley among B.Sc. nursing 3rd semester students in Haneefa Nursing College Sopore.

Index Terms—Nursing students, Crash cart trolley, knowledge, utilization

I. INTRODUCTION

The success or failure of life savings procedure like cardiopulmonary resuscitation (CPR) endotracheal intubation, tracheostomy, gastric lavage, etc. depends on the efficiency of the nurse or doctor and on the sufficiency of the crash cart's component. In order to perform successful CPR, the life-saving supplies of the crash cart trolley must be standardized. If the contents of preceding crash cart trolley have been checked for deficiencies, then addressing these deficiencies can save patients' lives. (Rajeswaran L & Ehlers V, 2012)¹

A crash cart trolley is a set of trays/drawers/shelves on wheels used in hospital emergency rooms for transportation and dispensing of emergency medication/equipment at site of medical/surgical emergency for life support protocols like Advanced Cardiac Life Support/Advance Life Support (ACLS/ALS), Paediatric

Advanced life Support [PALS] to potentially save someone's life. (Black JM 2004)²

The crash cart is a portable trolley containing all equipment and drugs for cardiopulmonary resuscitation and emergency need. Crash cart maintenance is a method of keeping unit-based crash cart trolley properly supplied, organized and maintained. (Ministry of health, 2013)³

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 a crisis. The first cardiac crash cart was created and designed by Joel J. Nobel, at Philadelphia's Pennsylvania Hospital in 1965.the prototype of crash cart was 34 inches tall and 79 inches long when fully extended. It was outfitted with the medical equipment and pharmaceuticals used in the late 1960s and 1970s, including a pneumatic cardiac

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compressor, electrocardiograph, respirator, pacemaker and intubation gear. (Gladstone J. 1995)⁴

The purpose of Crash Cart trolley is to provide supplies and equipment used by a team of provider to provide emergent care when the patient is experiencing a life- threatening situation. Crash carts are thus designed to contain specific supplies and medications, needed for emergency conditions. They must be maintained in areas where they are implemented for patient care activities and must be ready for use all times. (Welker R & Mueller T 2016)⁵ The function of crash cart trolley is to provide a moveable 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. (Wheeler J, 2012)⁶

The contents of crash cart trolley differ from hospital to hospital, however it commonly includes the tools and drugs required to treat someone in or near to cardiac arrest. These contain cardiac monitor, defibrillator, suction devices, advanced cardiac life support (ACLS) drugs such as Atropine, epinephrine, norepinephrine, amiodarone, adenosine, lidocaine, sodium bi carbonate, dopamine, dobutamine, calcium gluconate, KCL, glucose, vasopressin and deriphyllin etc I.V fluid, I.V tubings & cannula and emergency intubation equipment. Drugs and other equipment selected by the facility. (Gladstone J. 2010)⁷

II. MATERIAL AND METHOD

Quantitative research approach and pre-experimental study design using one group pre-test and post-test were used to assess the impact of structured teaching programme on knowledge regarding the utilization of crash cart trolley among B.Sc. Nursing 3rd semester students in Haneefa Nursing College Sopore. The total sample size was 60 students of selected college who were willing to participate in the study were included. The study used the following tools:

1. Tool-Socio demographic profile: it consisted of 6 items, namely age, gender, residence, gender and

previous knowledge and skills related to crash cart trolley.

2. Self-Structured questionnaire to assess knowledge regarding utilization of crash cart trolley

The Self-Structured questionnaire was used to assess the knowledge regarding the utilization of crash cart trolley among B.Sc. nursing 3rd semester students. (Items 20)

Ethical consideration

Ethical clearance was obtained from the institute ethical committee (IEC). A written Permission was obtained from the research committee of GMC Baramulla. Permission was obtained from the authorities of the selected college (Haneefa nursing college Sopore) of Kashmir Informed consent was obtained from the subjects enrolled for the study. Confidentiality and anonymity was maintained. Scientific objectivity of the study was maintained with honesty and impartiality.

Statistical methods

The analysis and interpretation of data were done as per the objectives laid down for study. SPSS version 17, descriptive statistics (frequency, percentage) and inferential statistics (chi-square and t-test) were used for analysis of data. A p value < 0.05 was considered statistically significant.

III. RESULTS

Table 1 depicts the frequency and percentage distribution of socio-demographic variables.

Majority (63.40 %) of B.Sc. nursing students were in the age group of 20 -22 followed by (21.60 %) in age group of 17 -19 and (15%) in 23-25, Majority (80%) 48 out of 60 study subjects belong to gender females whereas (20%) 12 belong to gender males. Majority (66.66%) 40 out of 60 students have no previous knowledge whereas (33.33%) 20 have previous knowledge.

N-60

Table 1. Distribution of study subjects by their selected socio demographic variables

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s.no	Socio demographical characteristic's	Frequency	Percentage
1	Age in years		
	17-19	13	21.60%

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	20-22	38	63.40%
	23-25	9	15.00%
2	Gender		
	Female	48	80.00%
	Male	12	20.00%
3	Previous knowledge		
	Yes	20	33.33%
	No	40	66.66%

Table 2. Pre interventional knowledge score regarding utilization of crash cart among BSc 3rd semester students

		(n=60)
Level of knowledge in pre-		
test	Frequency	Percentage
Inadequate knowledge	22	36.70%
Moderate knowledge	32	53.30%
Adequate knowledge	6	10.00%

Table (2) shows that in pre-test (36.70%) had inadequate knowledge, (53.30%) had moderate knowledge, (10%) adequate knowledge.

Table 2.1: Distribution of Mean, SD, Median, Mode and Range of study subjects according to their pre-test knowledge scores.

							(n=60)
	Mean +/SD	Median	Mode	Range	Min	Max	Mean
Pre-test							%
knowledge							
scores							
	8 +/- 3.42	8	10	13	2	15	40%

Table 2.1. Shows that the pre-test (Mean +/- SD) knowledge score of study subjects was (8 +/- 3.42), Median was 8, Mode was 10, Range was 13 Minimum score was 2 and Maximum score was 15.

Table 3: Distribution of study subjects according to their post-test knowledge scores.

		(n=60)
Level of knowledge in post- test		
	Frequency	Percentage
Inadequate knowledge	0	0
Moderate knowledge	19	31.70%
Adequate knowledge	41	68.30%

Table (3) shows that in post-test (0%) had inadequate knowledge, (31.70%) had moderate knowledge, (68.30%) adequate knowledge.

Table (3.1) Distribution of Mean, SD, Median, Mode and Range of study subjects according to their post-test knowledge scores.

Dest	Mean +/-SD	Median	Mode	Range	Min.	Max.	Mean%
interventional knowledge	14.60 +/- 2.5	15	15	9	10	19	73%

Table (3.1) shows that the post-test (Mean +/- SD) knowledge score of study subjects was (14.60+/- 2.5), Median was 15, Mode was 15, Range was 19 Minimum score was 10 and Maximum score was 19.

Table 4: Distribution of study subjects according to pre-test and post-test knowledge scores regarding Utilization of crash cart trolley among B.Sc. Nursing 3rd semester students.

				(n=60)	
Pre-test and post-test knowledge	PRE – TEST		POST -TEST		
	Frequency	Percentage	Frequency	Percentage	
Inadequate	22	36.70%	0	0	
Moderate	32	53.30%	19	31.70%	
Adequate	6	10.00%	41	68.30	

The data presented in the table (4) shows that in the pre-test 22(36.70%) had inadequate knowledge whereas in the post test none of the subjects had inadequate knowledge, similarly 32(53.30%) had moderate knowledge whereas in the post test only 19(31.70%) had moderate knowledge, only 6(10.00%) in the pretest had adequate knowledge whereas in the post-test 41(68.30%) had adequate knowledge.

Table (4.1): Mean, SD and paired't' test between per-test and post-test knowledge score of study subjects.

(n=60)

(n=60)

Pre-test and posttest knowledge	Mean +/- SD	Mean difference	t value	p value
Pre test	8 +/- 3.42	6.6	17.42	0.001
Post test	14.60 +/- 2.5			

The mean difference between pre-test and post-test knowledge score was 6.6 with t test value 17.45 which was found statistically significant at (p= 0.001) level of significant. Increase in knowledge regarding utilization of crash cart trolley among B.Sc. Nursing 3rd semester students of Haneefa Nursing College Sopore after implementation of structured teaching programme at 0.001 level of significance.

Hence, the researchers accepts the research hypothesis which states as "There will be significant increase in knowledge regarding the utilization of crash cart trolley among B.Sc. Nursing 3rd Semester Students in Haneefa Nursing College Sopore".

Variables	Categories	Inadequate	Moderate	Adequate	Chi	p value	df	Result
		knowledge	knowledge	knowledge	test			
	18-19	4	09	0	7.322			
Age(years)	20-22	15	17	6		0.119	4	NS*
	23-25	3	06	0				
	Male	4	7	1	0.156			
Gender	Female	18	25	5		0.924	2	NS*
Previous	Yes	3	11	6	16.31			
knowledge	No	20	20	0		0.0002	2	S*

Table 5: Association of pre-test knowledge score of study subjects with their demographic variables (age, gender and previous knowledge)

NS*= Not significant [age (years) at p=0.119], [gender at p=0.924] S*= Significant [previous knowledge at p=0.0002]

The data presented in the table 5 indicates that there was statistically significant association between pretest knowledge score with previous knowledge (p= 0.0002).Hence researchers accepts the research hypothesis (H₂) which states that "there is significant association of pre-test knowledge score of B.Sc. Nursing 3rd semester students with demographic variable previous knowledge (p= 0.05)" and the null hypothesis was rejected for this variable which states that "there is no significant association of pre-test knowledge (p= 0.05)" and the null hypothesis was rejected for this variable which states that "there is no significant association of pre-test knowledge score with demographic variable (previous knowledge).

While as no association of pre-test knowledge score was found between two other variables [age (p=0.119) and gender (p=0.9)] and hence null hypothesis was accepted for these two variables which states that "there is no significant relationship of pretest knowledge with demographic variables.

IV. DISCUSSION

The results of present study show that educational STP regarding utilization of crash cart trolley was effective in improving the knowledge of BSc nursing 3^{rd} semester students. The findings of the present study revealed that pre-test mean knowledge score (8 +/-3.42) improved after the interventional programme (post-test mean knowledge 14.60 +/- 2.5) respectively. Paired t-test value was found to be 17.42 for knowledge which was statistically significant at p<0.001.

The findings of present study were supported by the study conducted by Ms.Revathy D, Mrs. Prakruthi, Mrs. Kavitha (2023)⁸. The study was conducted to

study the effectiveness of structured teaching programme on knowledge regarding crash cart among the nursing students at selected nursing college, kolar. Pre experimental study design was used to collect the data. Results revealed that 77% of nursing students had inadequate knowledge and none of them had adequate knowledge on crash cart in pretest, 60% of nursing students had adequate knowledge and 22 % had moderate knowledge on crash cart in post-test.

S_Aruna, Kalaimathy K,Raman, G.Sivasakthi (2021)⁹ conducted a Pre experimental design with pre-test and post-test without control group was undertaken from E. S College of nursing to evaluate the effectiveness of structured teaching programme on knowledge regarding utilization of crash cart trolley among IIIyear, B.Sc [N] students. The population of the study consists of B.Sc. (N) III Year students at E.S. College of nursing. The structured questionnaire was used to computed the data. The statistics shows the following results. Level of knowledge in pre-test 80% of students having inadequate knowledge, 20% of students having moderate knowledge, 0% of students having adequate knowledge. Level of knowledge in post-test 0% of students having inadequate knowledge, 10% of students having moderate knowledge, 90% of students having adequate knowledge.

From the above-cited discussion, overall, it is concluded that the educational training programme has proven to be effective in improving the knowledge regarding utilization among BSc nursing 3rd semester students.

V. CONCLUSION

Majority of BSc nursing 3rd semester students had inadequate knowledge regarding utilization of crash cart trolley before intervention. Educational programme regarding utilization of crash cart trolley was highly effective in increasing the knowledge of bsc nursing 3rd semester students regarding utilization of crash cart trolley. Hence it can be concluded that such educational training programme will be helpful in ensuring quality of nursing care and will thus help to a decrease in mortality rate during emergency conditions.

VI. RECOMMENDATIONS

Further studies can be conducted on a large scale to provide a better picture of knowledge regarding utilization of crash cart trolley. The instrument used to assess knowledge of BSc nursing 3^{rd} semester students regarding utilization of crash cart trolley can be further developed and filed tested for standardizing. There should be workshops and seminars to enhance the bsc nursing 3^{rd} semester knowledge and skills. A similar type of study may be conducted on staff nurses who are working in the clinical area to assess and improve the knowledge and skills in the application of crash cart trolley.

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