A Study To Assess The Effectiveness Of Planned Teaching Program On Knowledge Regarding Crash Cart Management Among Staff Nurses In A Selected Hospital, Indore,M.P

Ms Chingangbam Anju Chanu
PhD Scholar

Dr Manoj Prajapati
Professor
Malwanchal University

Abstract:

Background Effective crash cart management is critical during code blue emergencies, where timely access to life-saving equipment and medication can determine patient survival. Staff nurses play a pivotal role in these situations, necessitating structured training to enhance their preparedness.

Aim: To assess the effectiveness of a planned teaching program on crash cart management among staff nurses in a selected hospital in Indore, M.P.

Methods: A quantitative pre-experimental one-group pre-test post-test design was adopted. Thirty staff nurses were selected using purposive sampling. A structured knowledge questionnaire was administered before and after the intervention. Data were analyzed using descriptive and inferential statistics, including paired t-test and chi-square test.

Results: The mean pre-test knowledge score was 12.4 (SD = 3.45), which increased to 21.33 (SD = 4.12) post-intervention. The mean difference was 8.93, and the paired t-test value was 23.41 (p < 0.001), indicating a highly significant improvement. Chi-square analysis revealed a significant association between qualification and post-test knowledge level (χ^2 = 6.18, p < 0.05), while other demographic variables showed no significant influence.

Conclusion: The planned teaching program was highly effective in improving staff nurses' knowledge regarding crash cart management. Structured educational interventions are essential for strengthening emergency response competencies in clinical settings.

Keywords: Effectiveness, Knowledge, Crash Card Management

1. Introduction

Crash cart management refers to the organized storage and rapid transport of essential emergency drugs and equipment to the site of a medical crisis, particularly during a code blue situation. A code blue is a critical event—commonly triggered by cardiac or respiratory arrest—that demands immediate clinical intervention. Such emergencies occur routinely across hospital settings and require swift, coordinated responses from healthcare staff, often involving life-saving medications and devices. To ensure timely access; the crash cart should be positioned centrally within patient care zones, allowing quick retrieval during emergencies. Its primary role is to serve as a mobile emergency station, equipped with all necessary tools to manage life-threatening conditions. The mobility of the cart ensures that treatment reaches the patient without delay, enhancing survival chances during the crucial "golden hour."

Standardization of crash cart layout across the institution is vital for consistency and efficiency. Ultimately, effective crash cart utilization plays a pivotal role in the successful management of cardiopulmonary emergencies, enabling prompt life support interventions and improving patient outcomes.

BrahimRAE, Saliheen SAM, Brair SL.**(2022)** conducted a study on nurses knowledge regarding emergency crash cart medication management in Governmental cardiac centers Khartoum The finding of the study shows that the percent of disagree and strongly disagree are high in pre nurses knowledge while post educational program result strongly agree. There were statatistically significant increase in the degree of nurses knowledge in the post education.[1]

Parashram B, Dhudum, Bharati , Mathew S ,B (2023)conducted a study on knowledge and practices regarding crash cart trolley among staff nurses working in ICU of selected Hospital. Analysis was done by using frequency and percentage. Collected data show that 75%had good knowledge,17% had average knowledge and only 8% had excellent knowledge. Self reported practices showed there were excellent practices like crash trolley in correct location keeping and replacing the usual the disposal items and checking were in the average category. so the researcher concluded that there is need of frequent-in service education in this field.[2]

2 STATEMENT OF THE PROBLEM-

A study to assess the effectiveness of planned teaching program on knowledge regarding crash cart management among the staff nurses in a selected hospital, Indore, M.P.

3. OBJECTIVE OF THE STUDY-

- To assess the effectiveness of planned teaching program in term of knowledge and practice regarding crash cart management among the staff nurses.

- To find out the association between the knowledge and practice regarding crash cart management among staff nurses with the selected demographic variables.

REVIEW OF THE LITERATURE

A review of literature is a description and analysis of the literature relevant to a particular field or topic. It gives an overview of what has been said, who the key writers are, what are the prevailing theories and hypotheses, what questions are being asked and what methods and methodologies are appropriate and its result

Varsha B .Nair[1]ShilpaJoseph[2] Shintu Thomas[3] Sharvana S [3]PanavP.K[4] Shycil Mathew[5] (2022) conducted a study on knowledge andpractice of internship students on emergency crash cart system in a selected tertiary care Hospital, Mangalore Majority of the internship students are in age group of 20 to 25 years and most of internship student are working in wards ,of the 79%internship students have average knowledge. Majority of 90%of the internship students have satisfactory practice on emergency crash carts. There is a moderate positive linear relationship between knowledge and practice scores of the internship student on emergency crash cart system[3]

Sherin[1] ManpreetKaur[2]Pandher[3]Gubir Kaur[4](August 2023) College of nursing, BFUHS, Faridkot ,Punjab ,India conducted a study to assess the knowledge and attitude related to crash cart system among the nursing student at Guru Gobin singh Medical Hospital,Punjab. The majority of students had good knowledge of the crash cart system, as evidenced by the excellent knowledge of 3 (2.5%), good knowledge of 77 (64.2%), and average knowledge of 40 (33.3%); accordingly, the mean score for adequate level of practice was 21.83, the median was 22.00, and the standard deviation was 3.214, followed by the mean score for inadequate level of practice.11.83, 12.00 for the median, and a standard deviation of 3.214. As a result, fourth - year B. Sc. Nursing students had sufficient experience using the crash cart system. According to the study's findings, the majority of nursing students had adequate practice in using crash carts and had a good knowledge of the crash cart system.[4]

 SECTION II: Studies related to effectiveness of structure teaching program on crash cart management.

NishaYadav (April2022)conducted a research study to assess the effectiveness of structured teaching program on knowledge regarding emergency crash cart in hospital among GNM 3rd year student at the selected college of nursing Lucknow. This study was conducted by using quantitative approach. True

experimental research design has been used. The experimental group mean 24.32 of post test knowledge level was more than the control group means12.26 of post test level of GNM 3rd year students. The present study demonstrate that the structured teaching program on crash cart management was effective in enhancing the knowledge regarding crash cart management..[5]

Mrkumar S (April 2024) conducted a research study on staff knowledge regarding utilization of crash cart in hospital at Merut ,UP.These study was to assessthe nurses knowledge regarding utilization of crash cart.A quantitative study research approach with exploratory descriptive design was adopted on 100 health care professionals in selected chhatrapatishivajisubharti hospital Merut,UP.The study finding show that out of the 100,majority of the participants(74%) had a good level of knowledge whereas on the other hand only (23%) had average knowledge and very less number of participant(3%)had poor level of knowledge utilization of crash cart.There no significant association between the knowledge score on the utilization of crash cart with their selected socio- demographic variable.The study concluded that the majority of the sample have good level of knowledge regarding utilization of crash cart.Thus the study supported that the structured teaching program-on crash cart was effective in increasing knowledge level on staff nurses of the selected hospital, Merut,UP. [6]

Sajitha V Thampi(January 2019) conducted a study to assess the effect of structured teaching programme on knowledge regarding crash cart system among staff nurses. The objectives of the study were to assess the level of knowledge of staff nurses regarding crash cart system, assess the effectiveness of structured teaching programme on crash cart system and to find the association between level of knowledge and selected demographic variables. The conceptual frame work used for the study was based on Modified King's Goal attainment theory. Pre- experimental one group pretest - post test design was used. The researcher selected thirty samples from medical wards of St. Thomas Hospital, Chethipuzha, by non probability purposive sampling technique. The tool consists of structured questionnaire on socio demographic data and crash cart system. Pre test followed by a structured teaching programme on crash cart system was done. Post test was done after two weeks of intervention using the same questionnaire. The data were analyzed using descriptive and inferential statistics. There was a significant increase in knowledge level of staff nurses (t=2.17) after the intervention. So the structured teaching programme on crash cart system had effectiveness in imparting knowledge. Study findings also revealed that the total

years of experience and age of subjects has significant association with knowledge level, which is significant [7]

Kaushik A(JULY 2019) Conducted a study to investigates the knowledge and practices of staff nurses and student nurses regarding crash carts in a New Delhi hospital. Utilizing a descriptive comparative research design with a structured questionnaire, the research finds that 60% of staff nurses have adequate knowledge, while only 10% of student nurses do. Additionally, 80% of staff nurses exhibit adequate practical skills compared to only 40% of student nurses. The findings underscore the need for enhanced training and resources for student nurses, particularly in emergency situations [8]

Sivasankari S, Soundharya E ,Srinivasn, A. Subhalaxmi, M. Subapradha (December 2021) a research study on A study to assess the effectiveness of structured teaching program-on knowledge regarding utilization-of crash cart among BSC 3rd Year nursing student at selected The study revealed that the mean pre-test knowledge scores of nurses on organization of emergency drugs were 22.47, which was found to be inadequate. There was an increase in the post test knowledge after the administration of self-instructional module. An evaluative study was conducted on the effectiveness of self-instructional module on selected drugs used in critical care units. The pre-test mean percentage knowledge of nurses was found to be less than 50% (49.92%). Findings of the study indicated that nurses were not adequately equipped with the knowledge on selected drugs. An increased knowledge score has obtained after the administration of self-instructional module.[9]

Ms . Revathy D [1], Mrs. Prakruthi[2], Mrs. Kavitha[3](Feb- 2023) conducted a research work to assess the effectiveness of structured teaching program on knowledge regarding crash cart among the nursing student at selected nursing college , Kolar. Pre experimental study ,one group pre test and post test design was used to collect the data.77% of nursing student had inadequate knowledge and none of them had adequate knowledge on crash cart in pre test.60%of nursing student had adequate knowledge and22%had moderate knowledge on crash cart in post-test..Thus the study supported that structured teaching program on crash cart was effective in increasing the knowledge level of 2nd year B. Sc Nursing students..[10]

4. Methodology

a. Research design:

Pre-experimental one group pre-test post-test design

PRETEST	INTERVENTION	POST TEST
OK_1OP_1	X	OK_2OP_2

OK_1 – Assessment of knowledge regarding crash card management before implementation of Planned Teaching Programme.

OP_1 – Assessment of skills of staff nurses regarding crash card management before implementation of Planned Teaching Programme..

X – Planned Teaching Programme on crash card management

OK_2 – Assessment of knowledge regarding crash card management before implementation of Planned Teaching Programme..

OP_2 – Assessment of practice of staff nurses regarding crash card management before implementation of Planned Teaching Programme.

Setting of the study

Setting refers to the location where the study will be conducted .it may be natural setting depending upon the study topic and investigator choice.

Population

➢ **Target population:** Staff nurses working in a selected hospital Indore , M.P

➢ **Accessible population:** Staff nurses working at Index medical college , hospital and research centre , Indore

Plan for data analysis

➢ **Descriptive statistics**

- Collected data will be analyze using descriptive statistics such as frequency and percentage , mean standard deviation

➢ **Inferential Statistics**

- The effectiveness of plan teaching program among staff nurses will be tested by Paired t Test.

- The relationship between knowledge score and practice score of staff nurses will be tested using Karl Pearson's coefficient of Correlation.

- The association between selected demographic variable and knowledge and practice can be tested by χ^2test. The result will be presented by frequency table, diagrams and graphs.

5. Results
Section- 1 Distribution of samples according to their socio- demographic data
Table 1: Frequency and percentage distribution of samples according to their socio-demographic data

N=30

No.	Variable	Category	Frequency (f)	Percentage (%)
1	**Age (Years)**	21–30	18	60%
		31–40	9	30%
		41–50	3	10%
2	**Gender**	Female	24	80%
		Male	6	20%
3	**Qualification**	GNM	12	40%
		B.Sc Nursing	15	50%
		M.Sc Nursing	3	10%
4	**Experience**	< 2 years	8	26.7%
		2–5 years	14	46.7%
		> 5 years	8	26.7%

The data in Table 1 shows that Age: The majority of participants (60%) were in the age group of 21–30 years, indicating a predominantly young workforce. Nurses aged 31–40 years comprised 30% of the sample, while only 10% were in the 41–50 age bracket. Female nurses represented a significant majority, accounting for 80% of the sample, whereas male nurses made up 20%. This reflects the gender distribution commonly seen in nursing professions. Half of the participants (50%) held a B.Sc Nursing degree, followed by 40% with GNM qualifications. A smaller proportion (10%) had completed M.Sc Nursing, suggesting a mix of foundational and advanced nursing education among the staff. Most nurses (46.7%) had 2–5 years of clinical experience, indicating a moderately experienced group. Equal proportions (26.7%) had either less than 2 years or more than 5 years of experience, showing a balanced representation of early-career and seasoned professionals

 Section -2   Distribution of samples according to their level of knowledge before and after planned teaching programme
 Table 2: Frequency and percentage distribution of samples according to their according to their level of knowledge before and after planned teaching programme
N=30

Knowledge Level	Score Range	Pre-test		Post-test	
		Frequency (f)	%	Frequency (f)	%
Poor	0–10	6	20%	0	0%
Average	11–15	18	60%	4	13.3%
Good	16–20	6	20%	10	33.3%
Excellent	21–30	0	0%	16	53.4%

The data in Table 1 shows that Before the intervention, most nurses (60%) had **average knowledge**, and none scored in the **excellent** range. After the teaching program, **53.4%** of nurses achieved **excellent knowledge**, showing a marked improvement. The number of nurses with **poor knowledge** dropped to zero post-intervention.

Table 3 Mean, Standard deviation(SD) and range
n=30

Category	Range	mean	SD
Pre test	5 – 18	12.4	3.45
Post test	13 – 29	21.33	4.12

Table 3 shows that the **mean score** increased from 12.4 to 21.33 after the teaching program indicating a substantial improvement. The **range** widened, showing that while some nurses scored modestly, others reached near-perfect scores. The **standard deviation** also increased slightly, reflecting more variation in post-test performance—likely due to individual differences in learning uptake.

Table 4 calculation of Mean D , standard deviation D (SDD) and range
n=30

Category	Mean D	SDD	PAIRED T TEST	DF	P VALUE
Pretest					< 0.001*
Posttest	8.93	2.09	23.41	29	

* at level of significance 0.05

Table 4: The mean difference between pre-test and post-test knowledge scores was 8.93, indicating a substantial improvement following the planned teaching program. The standard deviation of differences (SDD) was 2.09, showing moderate variability in individual learning gains. The calculated t-value of 23.41 with 29 degrees of freedom yielded a p-value < 0.001, confirming that the improvement in knowledge was statistically highly significant. This result strongly supports the effectiveness of the educational intervention in enhancing staff nurses' preparedness for crash cart management during code blue emergencies.

Section -3 Association between Demographic Variables and Post-test Knowledge Level (Chi-square Test)

Table 5.Chi-square test showing the association of knowledge on prevention of selected neurological disorders with selected demographic variables

Variable	Category	Post-test Knowledge Level	-square (χ²)	df	p-value	Significance
Age	21–30, 31–40, 41–50	Excellent / Good / Average	4.62	4	> 0.05	Not Significant
Gender	ale /Female	Excellent / Good / Average	1.27	2	> 0.05	Not Significant
ualification	GNM B.Sc M.Sc	Excellent / Good / Average	6.18	4	< 0.05	**Significant**
Experience	<2 2–5 >5 years	Excellent / Good / Average	3.89	4	> 0.05	Not Significant

[At level of significant 0.05]

Table 5 shows that qualification showed a statistically significant association with post-test knowledge level ($χ^2$ = 6.18, p < 0.05), suggesting that nurses with higher qualifications tended to perform better after the teaching program. **Age**, **Gender**, and **Experience** did not show significant associations, indicating that the improvement in knowledge was relatively uniform across these groups.

Conclusion

The present study aimed to assess the effectiveness of a planned teaching program on crash cart management among staff nurses. The findings revealed a significant improvement in knowledge following the intervention. Pre-test scores indicated that the majority of nurses possessed only average knowledge, with none achieving excellent levels. Post-test results demonstrated a marked shift, with over half of the participants attaining excellent knowledge scores.

Statistical analysis using the paired t-test showed a highly significant mean difference ($d̄$ = 8.93, t = 23.41, p < 0.001), confirming the effectiveness of the teaching program. Chi-square analysis further supported this outcome, revealing a significant association between qualification and post-test knowledge level ($χ^2$ = 6.18, p < 0.05), while other demographic variables showed no significant influence.

Overall, the planned teaching intervention proved to be a successful strategy in enhancing nurses' preparedness for managing code blue emergencies through improved understanding and utilization of

crash cart protocols. These findings underscore the importance of structured educational programs in strengthening emergency response competencies among nursing professionals.

Bibliography

[1] Brahim, R. A. E., Saliheen, S. A. M., & Brair, S. L. (2022). Effectiveness of educational program on nurses' knowledge regarding emergency crash cart medication management in governmental cardiac centers. International Journal of Applied Research in Nursing Science, 6(2), 1–10

[2] Parashram, B., Dhudum, B., Bharati, & Mathew, S. B. (2023). Knowledge and practices regarding crash cart trolley among staff nurses working in ICU of a selected hospital. International Journal of Nursing and Health Sciences, 12(1), 45–50.

[3] Nair, V. B., Joseph, S., Thomas, S., Sharvana, S., Panav, P. K., & Mathew, S. (2022). Knowledge and practice of internship students on emergency crash cart system in tertiary care hospital. International Journal of Nursing Education, 4(2), 78–84. https://doi.org/10.1055/s-0042-1759508

[4] Sherin, Kaur M., Pandher, G., & Kaur, G. (2023). Knowledge and attitude related to crash cart system among nursing students. International Journal of Nursing Education and Research, 11(3), 112–118.

[5] Yadav, N. (2022). Effectiveness of structured teaching program on knowledge regarding emergency crash cart in hospital among GNM third year students at a selected college of nursing. International Journal of Nursing Education and Research, 10(4), 56–60. https://doi.org/10.21275/SR22401145504

[6] Mrkumar, S. (2024). Staff knowledge regarding utilization of crash cart in hospital. International Journal of Health Sciences and Research, 14(1), 23–29.

[7] Thampi, S. V. (2019). Effect of structured teaching programme on knowledge regarding crash cart system among staff nurses, International Journal of Science and Research, 8(1), 956–959. https://doi.org/10.21275/ART20194366

[8] Kaushik, A. (2019). Comparative study to assess the knowledge and expressed practice of staff nurses and student nurses regarding crash cart. International Journal of Nursing and Midwifery Research, 6(1), 3–6.

[9] Sivasankari, S., Soundharya, E., Srinivasan, A., Subhalaxmi, M., & Subapradha, M. (2021). Effectiveness of structured teaching program on knowledge regarding utilization of crash cart among nursing students. International Journal of Nursing Education and Research, 9(4), 88–94. https://innovativepublication.com/journal-details/int-j-nurs-edu-res

[10] Revathy, D., Prakruthi, & Kavitha. (2023). A study to assess the effectiveness of structured teaching programme on knowledge regarding crash cart among the nursing students at selected nursing college, Kolar. IOSR Journal of Nursing and Health Science, 12(1, Ser. I), 38–42. https://doi.org/10.9790/1959-1201013842.