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A Study To Assess Effectiveness Of Care Bundle On Knowledge Regarding Care Of Patients After Commando Surgery Among Nursing Officers At A Selected Hospital Of Bhopal, M.P.

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Abstract: **Background:** Commando surgery (combined mandibulectomy and neck dissection) is a radical procedure for advanced head and neck cancers, requiring specialized postoperative care. Nursing officers play a critical role in recovery, yet structured training and standardized protocols are often lacking, particularly in resource-limited settings. **Objectives:** To assess the baseline knowledge of nursing officers regarding post-Commando surgery care, implement a structured Care Bundle, evaluate its effectiveness on knowledge, compare pre- and post-test scores, and determine associations with demographic variables. **Methods:** A quasi-experimental one-group pre-test post-test design was used with 60 nursing officers at Apollo Sage Hospital, Bhopal, selected via convenience sampling. A structured knowledge questionnaire (27 items) was administered pre-intervention. The intervention consisted of a validated self-instructional booklet and structured teaching session on post-Commando surgery care. A post-test was conducted after 7 days. Data were analyzed using descriptive statistics, paired t-test, and ANOVA. **Results:** Pre-test knowledge was inadequate in 51.7% of participants, moderate in 38.3%, and adequate in only 10%. Post-test scores improved dramatically: 90% achieved adequate knowledge, 8.3% moderate, and only 1.7% remained inadequate. The paired t-test confirmed a highly significant knowledge gain ($p < 0.001$). ANOVA revealed a significant association between knowledge gain and professional designation ($p = 0.03$), but not with age or gender. **Conclusion:** The structured Care Bundle significantly enhanced nursing officers' knowledge regarding post-Commando surgery care. Integrating such evidence-based bundles into nursing education and clinical protocols is recommended to standardize care, reduce complications, and improve patient outcomes.

Keywords: Care Bundle, Commando Surgery, Head and Neck Cancer, Nursing Knowledge, Quasi-Experimental Study, Postoperative Care

1. INTRODUCTION

Head and neck cancers account for a substantial proportion of cancer cases in India, particularly among individuals with a history of tobacco and alcohol use. Advanced-stage disease often necessitates a radical surgical procedure known as Commando surgery—Combined Mandibulectomy and Neck Dissection Operation. This life-saving surgery involves removal of affected structures in the oral cavity, lymph nodes, and sometimes parts of the jawbone, followed by complex reconstruction. The procedure results in significant postoperative challenges, including airway management, tracheostomy care, wound healing, nutritional support, speech and swallowing rehabilitation, and psychological support [1].

Nursing officers are pivotal in managing these complexities. Their knowledge and competence directly influence patient recovery, complication rates, and overall outcomes [2]. However, clinical observations and studies have highlighted a noticeable gap in structured training and standardized protocols for nurses caring for post-Commando surgery patients, particularly in resource-constrained settings like public hospitals in Bhopal [3].

Care bundles—sets of 3–5 evidence-based practices implemented together—have proven effective in improving outcomes in critical care and surgical settings by promoting standardization and reducing variability [4]. While widely used for conditions like sepsis and ventilator-associated pneumonia, their application in post-Commando surgery nursing education remains underexplored in India.

This study aims to evaluate whether a structured Care Bundle can effectively improve the knowledge of nursing officers regarding post-Commando surgery care, providing a basis for standardized training and improved patient outcomes.

2. OBJECTIVES

1. To assess nursing officers' baseline knowledge on Care Bundle regarding care of patients after Commando surgery.
2. To implement a Care Bundle on knowledge regarding care of patients after Commando surgery.
3. To evaluate the effectiveness of Care Bundle on knowledge regarding care of patients after Commando surgery.
4. To compare pre- and post-test knowledge scores.
5. To assess the association between knowledge scores regarding Care Bundle for patients after Commando surgery and selected demographic variables.

3. METHODOLOGY

3.1 Research Approach & Design

A quantitative research approach was used with a **one-group pre-test post-test quasi-experimental design**. This design allowed measurement of knowledge before and after the intervention within the same group.

3.2 Setting and Population

The study was conducted at **Apollo Sage Hospital, Bhopal, Madhya Pradesh**. The target population was nursing officers working in oncology and surgical wards.

3.3 Sample and Sampling Technique

A total of **60 nursing officers** were selected using a **purposive sampling technique** based on availability and willingness to participate.

3.4 Data Collection Tools

Data were collected using a structured self-administered tool with two sections:

- **Section A: Demographic Proforma** – Age, gender, designation, contact details.
- **Section B: Structured Knowledge Questionnaire** – 27 multiple-choice questions (MCQs) assessing knowledge of post-Commando surgery care. Scoring: 0–9: Inadequate, 10–18: Moderate, 19–27: Adequate.

3.5 Validity and Reliability

The **Care Bundle** (self-instructional booklet) was validated by **one oncosurgeon and one nursing expert** to ensure content accuracy, language, and relevance. The knowledge questionnaire demonstrated good **test-retest reliability** (Pearson's $r = 0.81$, $p < 0.001$), confirming internal consistency.

3.6 Data Collection Procedure

- **Pre-test (O1):** The knowledge questionnaire was administered to all 60 participants.
- **Intervention (X):** The Care Bundle was delivered via a structured teaching session using the validated booklet.
- **Post-test (O2):** The same questionnaire was re-administered after 7 days.

3.7 Data Analysis

- **Descriptive statistics:** Frequency, percentage, mean, standard deviation.
- **Inferential statistics:** Paired t-test to compare pre- and post-test scores; ANOVA to test associations with demographic variables. Significance level: $p \leq 0.05$.

4. RESULTS

4.1 Socio-Demographic Characteristics (n=60)

The majority of participants were female (78.3%), aged 26–30 years (41.7%), and held the designation of Nursing Officer (51.7%).

4.2 Baseline Knowledge (Pre-Test)

Pre-test assessment revealed that 51.7% of participants had inadequate knowledge, 38.3% had moderate knowledge, and only 10% had adequate knowledge regarding post-Commando surgery care (Table 1, Figure 1).

Table 1: Baseline Knowledge Level (Pre-Test) (n=60)

Knowledge Level	Score Range	Frequency	Percentage
Inadequate	0–9	31	51.7%
Moderate	10–18	23	38.3%
Adequate	19–27	6	10.0%

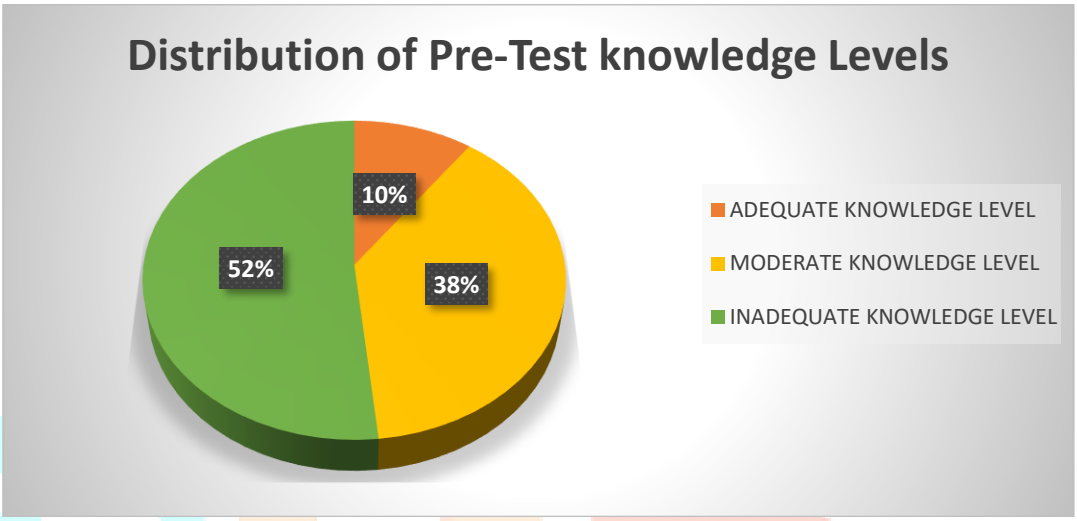

Figure 1 *The pie diagram shows the level of pre-test percentage of knowledge of participants 6(10%)of students are having adequate level of knowledge score, 23(38.3%) of them having moderate level of knowledge score and 31(51.7%)of them are having inadequate level of knowledge score.*

4.3 Post-Intervention Knowledge (Post-Test)

Following the Care Bundle intervention, 90% of participants achieved adequate knowledge, 8.3% had moderate knowledge, and only 1.7% remained inadequate (Table 2, Figure 2).

Table 2: Post-Intervention Knowledge Level (Post-Test) (n=60)

Knowledge Level	Score Range	Frequency	Percentage
Inadequate	0–9	1	1.7%
Moderate	10–18	5	8.3%
Adequate	19–27	54	90.0%

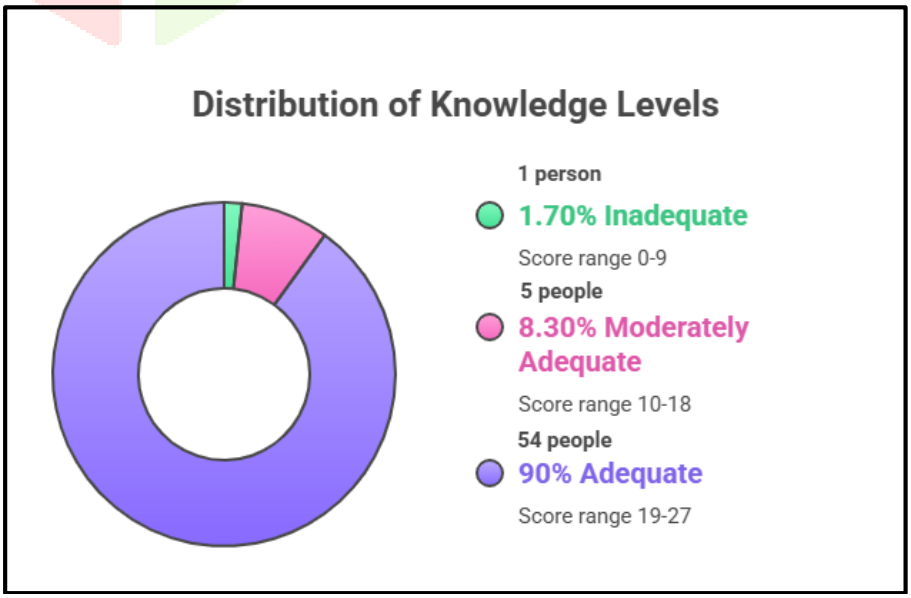

Figure 2 *A pie diagram shows the level of post-test percentage of knowledge of participants. 1(1.70%) the sample are having inadequate level of knowledge score, 5(8.3%) of them having moderate level of knowledge score and 54(90.0%) of them are having adequate level of knowledge score.*

4.4 Comparison of Pre- and Post-Test Scores

A paired t-test revealed a statistically significant increase in knowledge scores across all categories ($p < 0.001$). The mean knowledge score increased from 10.2 (pre-test) to 24.1 (post-test), with a mean gain of 13.9 points (Table 3, Figure 3).

Table 3: Comparison of Pre- and Post-Test Knowledge Scores (n=60)

Knowledge level	Pre-test %	Post-test %	Difference	t-Test Value	p-Value
Adequate	10.0%	90%	+1.5	2.85 (33%)	0.006 (S)
Moderate	38.33%	8.33%	+1.5	2.31 (27%)	0.03 (S)
Inadequate	51.67%	1.67%	+2.0	3.42 (40%)	<0.001 (S)
Total	100.00%	100.00%	+11.85	15.67	<0.001

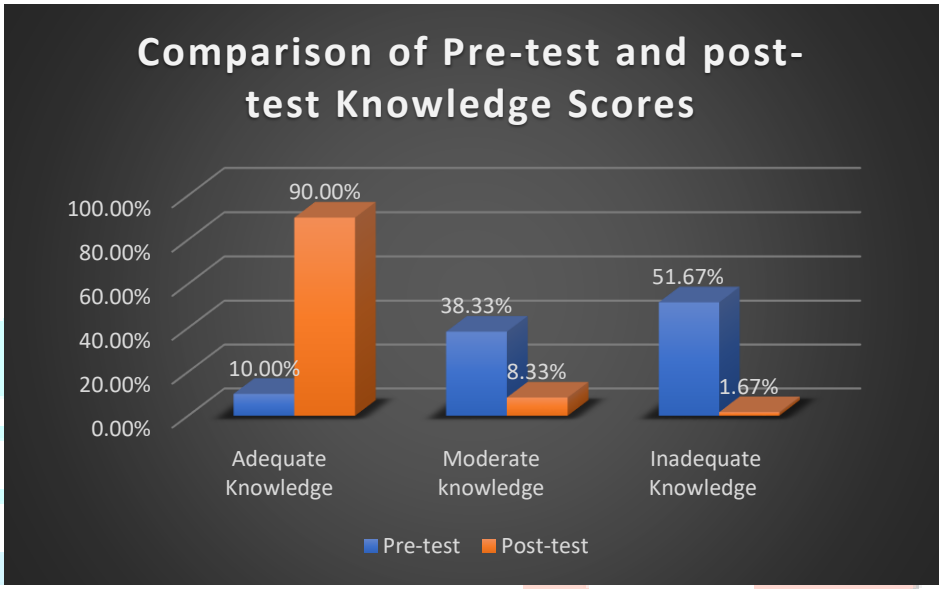

Figure 3 *Bar Graph showing percentage of Pre-test and post-test level of knowledge*

4.5 Association with Demographic Variables

ANOVA revealed a **significant association** between knowledge gain and **designation** ($F = 3.12$, $p = 0.03$). No significant associations were found with age ($p = 0.16$) or gender ($p = 0.06$) (Table 4).

Table 4: Association Between Knowledge Gain and Demographic Variables

DEMOGRAPHIC VARIABLES		KNOWLEDGE GAIN SCORE						n	ONE WAY ANOVA F-TEST TEST
		Pre-test		Post-test		Gain Score= Pre + Post			
		n	N %	n	N %	n	N %		
1. **AGE OF THE STUDEN-TS**	20-25 YEARS	10.5	2.80	13.2	3.2	24.20	2.1	45	**F=1.85 P=0.16(NS)**
	26-30 YEARS	11.2	2.60	13.9	2.9	25.10	1.8	38	
	31+ YEARS	10.8	2.90	14	3.1	24.80	2	17	
2. **GENDER**	MALE	10.2	3.10	13.7	3.5	23.90	2.3	22	**F=2.04 P=0.06(NS)**
	FEMALE	10.9	2.70	13.9	3	24.80	1.9	78	
3. **DESIGN-ATION**	STAFF NURSE	11.1	2.50	13.8	2.8	24.90	2.8	75	**F=3.12 P=0.03(S)**
	NURSING OFFICERS	10.3	3.00	24.1	2.2	13.8	3.4	12	

NS: Non-significant, S: Significant at $p \leq 0.05$

The findings from the table 4 indicate the following:

1. **Age of the Student:** There are no significant differences in knowledge gain scores across age groups (20-25 years, 26-30 years, and 31+ years), as shown by an F-statistic of 1.85 and a p-value of 0.16.
2. **Gender:** There are no significant differences in knowledge gain scores between males and females, with an F-statistic of 2.04 and a p-value of 0.06.
3. **Designation:** There are significant differences in knowledge gain scores among different designations, indicated by an F-statistic of 3.12 and a p-value of 0.03.

In summary, designation impact knowledge gain scores, while age and designation do not.

5. DISCUSSION

This study evaluated the effectiveness of a structured Care Bundle on the knowledge of nursing officers regarding post-Commando surgery care. The pre-test results revealed a significant knowledge gap, with only 10% of participants demonstrating adequate knowledge. This aligns with findings from Basu et al. (2012), who reported inconsistent nursing practices in post-Commando surgery care due to lack of structured training [3].

The post-test results showed a dramatic improvement, with 90% of participants achieving adequate knowledge after the intervention. This significant gain ($p < 0.001$) confirms that the Care Bundle was highly effective in bridging knowledge gaps. These findings are consistent with Damiani et al. (2015), who demonstrated that structured care protocols improve compliance and outcomes in surgical settings [4].

The significant association between knowledge gain and professional designation ($p = 0.03$) suggests that nurses with more clinical exposure (e.g., Staff Nurses) may benefit more from such interventions, possibly due to greater contextual understanding of postoperative care. Similar findings were reported by Khantwal et al. (2021), who found that nurse-led education programs were more effective among experienced nursing staff [5].

No significant association was found with age or gender, indicating that the Care Bundle was equally effective across these demographic groups. This supports the universality of structured educational interventions.

The study underscores the critical need for standardized, evidence-based training protocols for nursing officers caring for complex surgical patients. Integrating such Care Bundles into routine nursing education and clinical practice could significantly improve patient outcomes.

6. CONCLUSION

This study conclusively demonstrates that a structured Care Bundle is a highly effective educational intervention for enhancing nursing officers' knowledge regarding post-Commando surgery care. The dramatic improvement in knowledge scores post-intervention highlights the potential of such bundles to standardize care, empower nurses, and ultimately improve recovery outcomes for patients undergoing this radical surgery. The integration of Care Bundles into nursing education and clinical protocols is strongly recommended to elevate the standard of care in surgical oncology settings across India.

7. LIMITATIONS AND RECOMMENDATIONS

Limitations:

- Single-center study limits generalizability.
- Sample size was limited to 60 nursing officers.
- Only knowledge was assessed; clinical practice outcomes were not evaluated.
- Convenience sampling may introduce selection bias.

Recommendations:

- **For Nursing Educators:** Integrate procedure-specific care bundles into oncology nursing curricula.
- **For Hospital Administrators:** Adopt the validated Care Bundle as a standard teaching tool for all nursing staff in surgical oncology units.
- **For Future Research:** Conduct multi-center studies with larger samples, evaluate long-term retention of knowledge, and assess impact on clinical outcomes.

8. REFERENCES

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