

ORIGINAL ARTICLE



Converging Healthcare & Technology

INTERNATIONAL JOURNAL OF CONVERGENCE IN HEALTHCARE

Published by
IJCIH & Pratyaksh Medicare LLP

www.ijcih.com

Effectiveness of Nursing Protocol on Knowledge and Practice among Nurses Regarding Surgical Site Infection and its Prevention Associated with Caesarean Section in a Selected Hospital at Kalaburagi

Anandkumar Dhummansur

Asst Professor, OBG Department, Govt College of Nursing GIMS, Kalaburagi

Abstract

Pregnancy and child birth are the most important events of a women's life. Pregnancy, delivery is a normal physiological process. Most of the time the women achieves normal pregnancy outcome without any complication. But few women's have Short stature, multiple pregnancy, cephalo pelvis disproportion, fetal distress, thick meconium, and many more complication which can cause a suffering or risk for baby and mother by which a women cannot deliver the baby normally. The term Caesarean section, also known as C-section, or caesarean delivery, is the use of surgery to deliver babies. A study was conducted on incidence of surgical site infection, A surgical site infection is increasing by 11%,¹⁰. Surgical site infection (SSI) following CS is a common cause of morbidity with reported rates of 3–15%. SSI represents a substantial burden to the health system including increased length of hospitalization and costs of post discharge care.⁹The overall incidence of SSI following CS and will provide the first quantitative estimate of the magnitude of SSI. It will serve as a benchmark for future studies.

Objectives: To assess the knowledge regarding surgical site infection and its prevention associated with caesarean section among nurses using questionnaire. To identify the existing practice among nurses towards prevention of surgical site infection associated with caesarean section using checklist. To evaluate the effectiveness of Nursing Protocol in terms of Change in the level of knowledge among nurses regarding surgical site infection and its prevention associated with caesarean section. Change in the level of practice among nurses towards surgical site infection and its Prevention associated with caesarean section. To determine the association between knowledge scores and practices of nurses regarding surgical site infection and its prevention associated with caesarean section with selected demographical variables.

Hypothesis: H1. There will be a significant difference in the pre-test and post-test Knowledge score and Practices score of Nurses regarding Prevention of Surgical Site Infections among Caesarean Section. H2. There will be a significant association between Knowledge and Practice of the Nurses with regards to selected demographical variables.

Corresponding Author

Anandkumar DhummansurAsst Professor, OBG Department, Govt College of
Nursing GIMS, Kalaburagi.

Email: nsgauthorimp@gmail.com

Research approach: Evaluative and survey approach will be followed. Research Design: Pre experimental one group pre-test post test design will be adopted for the study. Setting of the study only teaching and general hospitals of Kalaburagi district. Sample Size was 60 Nurses.

Conclusion: The Present study reveals that, There was no statistical significant difference of mean knowledge score in the demographical profile of age, gender, working area and work experience ($P>0.05$). There was statistical significant difference of mean knowledge score of respondents in the demographical profile of educational status, infected control program and SOP's implementation ($P<0.05$). B Sc, PPB Sc and M Sc qualified respondents had significantly better mean knowledge score regarding surgical site infection and prevention of SSI's as compare to diploma qualified respondents. The respondents who had done Infection control program and SOP's Implementation had significantly better mean knowledge score regarding surgical site infection and prevention of SSI's as compare to the respondents who had not done.

Keywords: *Nursing protocol, Knowledge, Practice, Surgical site, Infection, Prevention, Caesarean section.*

Introduction

Pregnancy and child birth are the most important events of a women's life. Pregnancy, delivery is a normal physiological process. Most of the time the women achieves normal pregnancy outcome without any complication. But few women's have Short stature, multiple pregnancy, cephalo pelvis disproportion, fetal distress, thick meconium, and many more complication which can cause a suffering or risk for baby and mother by which a women cannot deliver the baby normally. During these situations mother need assistance to deliver the baby, in hospital practice some of the assisted measures are been used they are forceps, vaccum, and episiotomy. After all assisted measures fails she can preferred for caesarean section.

The term Caesarean section, also known as C-section, or caesarean delivery, is the use of surgery to deliver babies.¹ A caesarean section is often necessary when a vaginal delivery would put the baby or mother at risk¹. This may include obstructed labor, twin pregnancy, high blood pressure in the mother, breech birth, or problems with the placenta or umbilical cord. A caesarean delivery may be performed based upon the shape of the mother's pelvis or history of a previous C-section^{1,2}. A trial of vaginal birth after C-section may be possible. The World Health Organization recommends that caesarean section be performed only when medically necessary. Some C-sections are performed without a medical reason, upon request by someone, usually the mother.¹

The term originates from Latin, caedere ("to cut"), by way of the interesting myth that Julius Caesar was delivered by this method.³ It is named after Julius Caesar. It is alleged that he was so born. Probably unlikely to be true as although caesarian births have been carried out since ancient times, in Rome it was usually only performed once the mother was dead. Caesar's mother lived for many years after his birth, hence the unliklihood.³

Need for the Study

Caesarean section (CS) rates have increased globally during the past three decades.⁹ Which causes mother and baby to be separated which can cause psychological disturbance where as she been effected by physiologically also. During this state a mother's nutritional requirement ,personal hygiene and early ambulation is not followed which leads to various physiological complications such as delayed wound healing , wound gaping, surgical site infection and pus formation which can lead to resuturing. Delayed wound healing increases the hospital stay etc. During this period mother will be emotionally and psychologically disturbed which effects on production of milk, there by decreases the interest towards feeding her baby. The baby will not get enough nutrition as required and they both are been disturbed due to improper care of the surgical site infection.

A study was conducted on incidence of surgical site infection, A surgical site infection is increasing by 11%,¹⁰. Surgical site infection (SSI) following CS is a common cause of morbidity with reported rates of 3–15%. SSI represents a substantial burden to the health system including increased length of hospitalization and costs of post discharge care.⁹The overall incidence of SSI following CS and will provide the first quantitative estimate of the magnitude of SSI. It will serve as a benchmark for future studies, identify research gaps and remaining challenges, and emphasize the need for appropriate prevention and control measures for SSI post-CS.⁹

Objectives of the Study:

1. To assess the knowledge regarding surgical site infection and its prevention associated with caesarean section among nurses using questionnaire.
2. To identify the existing practice among nurses towards prevention of surgical site infection associated with caesarean section using checklist.
3. To evaluate the effectiveness of Nursing Protocol in terms of

- a) Change in the level of knowledge among nurses regarding surgical site infection and its prevention associated with caesarean section.
 - b) Change in the level of practice among nurses towards surgical site infection and its Prevention associated with caesarean section.
4. To determine the association between knowledge scores and practices of nurses regarding surgical site infection and its prevention associated with caesarean section with selected demographical variables.

HYPOTHESIS:

H1. There will be a significant difference in the pre-test and post-test Knowledge score and Practices score of Nurses regarding Prevention of Surgical Site Infections among Caesarean Section.

H2. There will be a significant association between Knowledge and Practice of the Nurses with regards to selected demographical variables

ASSUMPTIONS:

The study assumes that,

- Nurses may possess some Knowledge about surgical site infection and it’s prevention among Caesarean Section .
- Nurses may have basic skills in the Prevention of surgical site infections among Caesarean Section.
- Nursing protocol may influence and change the knowledge and practice among nurses associated with Caesarean Section.

Materials and Methods

The purpose of this study is to determine the effectiveness of Nursing Protocol on Knowledge and Practice among nurses regarding surgical site infection

and its prevention associated with caesarean section in a selected teaching and general hospital at Kalaburagi.

SOURCES OF DATA

- **Research approach:** Evaluative and survey approach will be followed
- **Research Design:** Pre experimental one group pre-test post test design will be adopted for the study.
- **Setting of the study:** Only teaching and general hospitals of Kalaburagi district (BTGH & GIMS).
- **Sample Size:** 60 Nurses.
- **Sampling Technique:** Purposive sampling technique will be used to Select the sample.
- **Population:** Clinical nurses working in Basaveshwara Teaching and General Hospital (BTGH) and Gulbarga Institute of Medical Sciences (GIMS) at Kalaburagi. Karnataka

SAMPLING CRITERIA

Inclusion criteria: Nurses working in BTGH and GIMS Hospitals Kalaburagi. Karnataka, Nurses, who can read, write and comprehend English and Kannada language. Nurses who is willing to participate in the study.

Exclusion Criteria: Not willing to participate in study. Nurses working elsewhere other than hospitals. A person who not know Kannada and English & Nurses who are not available during data collection.

METHODS OF DATA COLLECTION

Tools for data collection: Structured questionnaire

Tool 1 Part A: Demographic Proforma

Part B: Structured Knowledge questionnaire to assess the Knowledge of Nurses

Tool 2: Practice checklist to assess Practice of Nurses

SECTION IV: EFFECTIVENESS OF NURSING PROTOCOL IN TERMS OF GAIN IN KNOWLEDGE AND PRACTICE SCORE.

Table No-1: Comparison of knowledge score regarding surgical site infection and prevention of SSI’s between pre and post intervention

Domain	Particulars of Individual areas of knowledge	Knowledge score		Paired t test P-value & Significance
		Pre-intervention Mean ± SD	Post-intervention Mean ± SD	
Pre-Op care	Skin Care/ Preparation	29.0 ± 1.41	49.0 ± 0.70	t = 18.516, P=0.000, VHS
	Prophylactic Antibiotics	27.5 ± 0.6	45.5 ± 1.6	t = 17.231, P=0.035, S

Domain	Particulars of Individual areas of knowledge	Knowledge score		Paired t test P-value & Significance
		Pre-intervention Mean ± SD	Post-intervention Mean ± SD	
Post-Op care	Wound Care	29.0 ± 2.27	47.8 ± 3.64	t = 15.45, P=0.000, VHS
	Monitoring of SSI's	30.3 ± 1.12	47.8 ± 4.14	t = 5.862, P=0.01, HS
	Nutritional Support	29.5 ± 1.50	43.0 ± 1.10	t = 8.717, P=0.041, S
	Environment	31.0 ± 0.00	52.0 ± 0.00	---
	Health Advices	29.3 ± 1.81	49.0 ± 2.49	t = 6.795, P=0.021, S
Total	Overall /combined	29.2 ± 2.23	47.72 ± 3.46	t = 24.092, P=0.000, VHS

NS= not significant, S=significant, HS=highly significant, VHS=very highly significant

INTERPRETATION

Table 10 and figure 10, A Study reveals that, There was statistically very highly significant difference of mean knowledge score between pre and post-intervention session among the selected respondents in the study (P<0.001)

The mean knowledge score of respondents was significantly high in the post-intervention session as compare to pre-intervention session. Therefore nursing protocol regarding prevention of surgical site infection associated with caesarean section was significantly effective.

There was statistical significant difference of mean knowledge score of respondents between pre-intervention and post-intervention in the domain of pre-operative care of Skin Care/ Preparation and Prophylactic Antibiotics (P<0.001) and (P<0.05)

There was statistical significant difference of mean knowledge score of respondents between pre-intervention and post-intervention in the domain of post-operative care of Wound Care, Monitoring of SSI's, Nutritional Support and Health Advices (P<0.001), (P<0.01), (P<0.05) and (P<0.05) respectively.

In the post operative domain the area of environment knowledge score didn't compared because of having single data.

In the domain of pre-operative and post-operative all areas mean knowledge scores were significantly high in post-intervention session as compare to pre-intervention session.

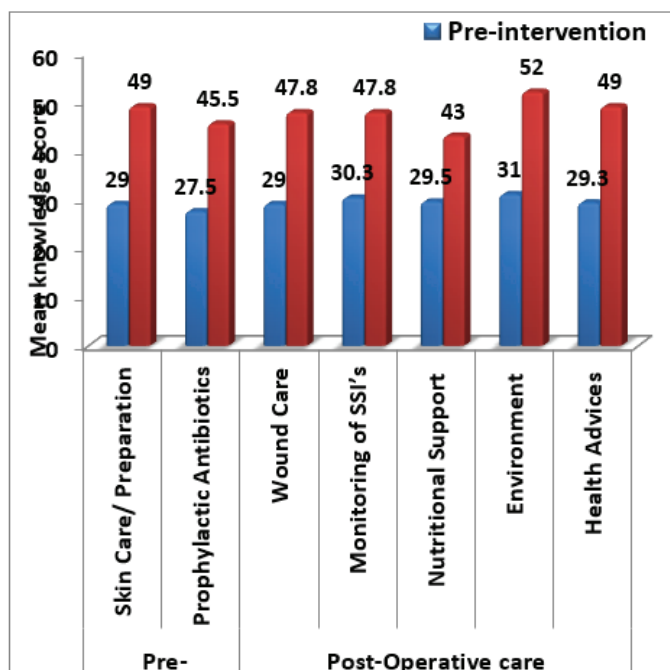


Figure 1: Multiple bar diagram represents comparison of knowledge score between pre and post intervention

Comparison of practice score regarding surgical site infection and prevention of SSI's between pre and post intervention

Table 2

Domain	Practice score		Paired t test and P-value
	Pre-intervention Mean \pm SD	Post-intervention Mean \pm SD	
Pre-Operative care	30.68 \pm 3.94	48.41 \pm 3.38	t = 12.08, P=0.000, VHS
Post-Operative care	31.31 \pm 4.44	49.54 \pm 3.56	t = 11.19, P=0.000, VHS
Overall /combined	30.96 \pm 4.22	49.01 \pm 3.52	t = 16.67, P=0.000, VHS

NS= not significant, S=significant, HS=highly significant, VHS=very highly significant

Table 11 and figure 11, A Study reveals that, There was statistically very highly significant difference of mean practice score between Pre and post-intervention session among the selected respondents in the study ($P < 0.001$)

The mean practice score of respondents was significantly high in the post-intervention session as compare to pre-intervention session. Therefore nursing protocol regarding surgical site infection and prevention of SSI's was significantly effective.

There was statistically very highly significant difference of mean practice score of respondents between pre-intervention and post-intervention in the domain of pre-operative care and post-operative care ($P < 0.001$) and ($P < 0.001$) respectively.

In the domain of pre-operative and post-operative the mean practice scores were significantly high in the post-intervention session as compare to pre-intervention session.

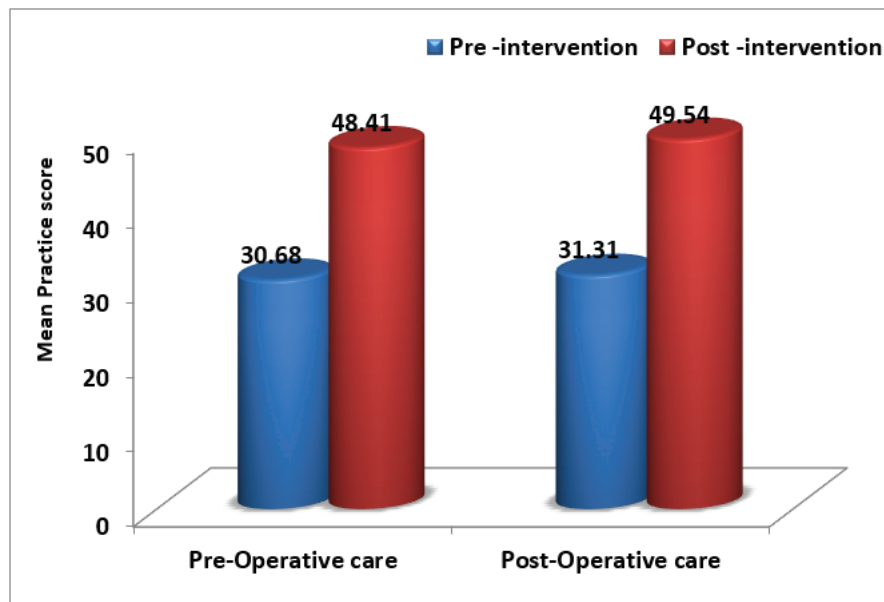


Figure 2: Multiple bar diagram represents comparison of practice score between pre and post intervention

SECTION V: ASSOCIATION BETWEEN DEMOGRAPHIC VARIABLES AND KNOWLEDGE AND PRACTICE LEVEL ON PREVENTION OF SSI ASSOCIATED WITH CESAREAN SECTION.

Table No-3: Demographical profile wise comparison of pre-intervention knowledge score

Demographical profiles		No. of respondents	Knowledge score				χ^2 -test value P- value and Significance
			Inadequate		Adequate		
			No.	%	No	%	
Age	25-30	23	9	39.1	14	60.9	$\chi^2 = 2.56$
	31-35	19	9	47.4	10	52.6	P > 0.05
	36-40	11	7	63.6	4	36.4	NS
	41-45	7	4	57.1	3	42.9	
Gender	Male	20	13	65.0	7	35.0	$\chi^2 = 3.33$
	Female	40	16	40.0	24	60.0	P > 0.05, NS
Educational status	Diploma	38	23	60.5	15	39.5	$\chi^2 = 7.34$
	B Sc	11	3	27.3	8	62.7	P < 0.05
	PPB Sc	6	2	33.3	4	66.7	S
	M Sc	5	1	20.0	4	80.0	
Working Area	Post-operative	23	13	56.5	10	43.5	$\chi^2 = 0.736$
	Postnatal	16	7	43.8	9	56.2	P > 0.05
	Surgical ward	21	9	42.8	12	57.2	NS
Work Experience	1—5 yrs	24	13	54.2	11	45.8	$\chi^2 = 1.831$
	6—10 yrs	23	10	43.5	13	56.5	P > 0.05
	11—15 yrs	7	3	42.8	4	57.2	NS
	≥ 15 yrs	6	3	50.0	3	50.0	
Infection control program	Yes	36	13	36.1	23	63.9	$\chi^2 = 5.38$
	No	24	16	66.7	8	33.3	P < 0.05, S
SOP's Implementation	Done	32	11	37.5	21	62.5	$\chi^2 = 5.34$
	Not done	28	18	60.7	10	39.3	P < 0.05, S

NS= not significant, S=significant, HS=highly significant, VHS=very highly significant

Conclusion

The Present study reveals that, There was no statistical significant difference of mean knowledge score in the demographical profile of age, gender, working area and work experience (P>0.05)

There was statistical significant difference of mean knowledge score of respondents in the demographical profile of educational status, infected control program and SOP's implementation (P<0.05)

B Sc, PPB Sc and M Sc qualified respondents had significantly better mean knowledge score regarding surgical site infection and prevention of SSI's as compare to diploma qualified respondents

The respondents who had done Infection control program and SOP's Implementation had significantly better

mean knowledge score regarding surgical site infection and prevention of SSI's as compare to the respondents who had not done.

Ethical Clearance: obtained from concerned authority


Conflict of Interest: None

Funding: Self

Acknowledgement: First & Foremost I would like to thank my parents, college management, all faculties specially my guide and my friends for enriched and continuous support. I extend my heartfelt thanks to Prof Vijayreddy sir for his encouragement and support.

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