"A Pre experimental study to evaluate the effectiveness of planned teaching programmed on knowledge regarding Surgical Site Infection related with Cesarean Section among Nursing students at selected Nursing college, Lucknow, Uttar Pradesh."

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ABSTRACT

Introduction: Surgical Site Infections related to Cesarean Section (Lower Segment Cesarean Section), is a life saving surgical procedure for both mother and baby in certain obstetric situations. The lower segment cesarean section (LSCS) is the most commonly used method, involving a transverse incision in the lower uterine segment. While is generally safe, it carries risks among which Surgical Site Infections are significant. Surgical Site Infection is defined as infection that occurs at or near the surgical incision within 30 days of the operation. ***Objectives:*** 1. To assess the existing level of knowledge of nursing student regarding Surgical Site Infection associated with Cesarean Sections. 2. To find out the effectiveness of Planned Teaching Programme regarding the knowledge on Surgical Site Infection related with Cesarean Section among nursing students. 3. To determine the association between pretest knowledge score with selected variables. ***Materials and Methods:*** The research design used for this study was pre-experimental (one group pre test and post-test) design was used in this study .Convenient sampling technique was used to collect the sample. The sample size was 100 students of GNM III year and B.Sc. Nursing 7th semester. The tool used for this study was structured knowledge questionnaire for assessment of knowledge regarding Surgical Site Infections related with Cesarean Section (Lower Segment Cesarean Section). ***Results:*** A study of 100 nursing students was evenly distributed across all four age brackets, each comprising 25 % of participants, indicating a balanced age representation. Females constituted a modest majority (56%) and a similar proportion (56%) were enrolled in the GNM program, with the remaining 44 % in the B.Sc. Nursing 7th semester. A majority came from nuclear families (64%), and 62 % reported prior knowledge of Surgical Site Infection (SSI). This demographic profile establishes the context for assessing baseline knowledge and the impact of the teaching intervention. In pre-experimental study, the mean pre-test score was 10.35 with a standard deviation of 2.64, indicating a generally low baseline level of knowledge. After the educational

intervention, the mean post-test score increased dramatically to 28.44, with a lower standard deviation of 1.60, reflecting not only improved but also more consistent knowledge levels among participants. The mean difference in scores was 18.9 points, and the paired t-test yielded a t-statistic of 60.74 with a p-value less than 0.001, which is highly significant. This confirms that the increase in knowledge was not due to chance, but a direct result of the planned teaching intervention. ***Conclusion:*** The study concluded that Teaching Programme was highly effective in enhancing students 'understanding of SSI prevention in the context of Cesarean Sections.

Keywords: Effectiveness, Planned Teaching Programme Surgical Site Infections related to Cesarean Section (Lower Segment Cesarean Section).

INTRODUCTION:

"Rise in cesarean sections necessitates understanding and mitigating the risk of surgical site infections to improve maternal and infant health outcomes."

Background of the Study: Surgical Site Infections related to Cesarean Section (Especially Lower Segment Cesarean Section), Cesarean section is a life saving surgical procedure for both mother and baby in certain obstetric situations. The lower segment cesarean section (LSCS) is the most commonly used method, involving a transverse incision in the lower uterine segment. While is generally safe, it carries risks, among which Surgical Site Infections are significant. Surgical Site Infection is defined as infection that occurs at or near the surgical incision within 30 days of the operation.

Surgical Site Infection is a major cause of maternal morbidity, prolong hospital stays, and increase healthcare costs, and negatively impact postpartum recovery and mother–infant bonding. These are classified Superficial Surgical Site Infection: skin and subcutaneous tissue, deep Surgical Site Infection: fascia and muscle, organ/space Surgical Site Infection: endometrial, pelvic abscess, peritonitis.

Epidemiology of global incidence Of Surgical Site Infection after Cesarean Section:~3%–15%, developed countries: 2%–5%, low-resource settings: 10%–30% (due to poor infrastructure and asepsis).

Risk factor are patient-related factor: obesity (basal metabolic rate >30), diabetes mellitus or gestational diabetes, anemia, poor nutritional status, smoking, immunosuppressant, previous cesarean delivery, intra-partum factors: prolonged labor, premature rupture of membranes (prom >18 hrs.),multiple vaginal examinations, chorioamnionitis and emergency cesarean section surgical factors: inadequate skin antisepsis, long duration of surgery (>1 hour), excessive blood loss, non-closure of subcutaneous tissue (when thickness >2 cm) use of non-absorbable sutures.

Complications of untreated Surgical Site Infection wound dehiscence, necrotizing fasciitis, sepsis and multi-organ failure, pelvic abscess, infertility (in rare cases), psychological distress.

Microbiology is the infection is usually polymicrobial, involving: Staphylococcus aureus, Streptococcus species, Escherichia coli, Klebsiella species, Enterococcus species, anaerobes (e.g., Bacteroides).

Clinical presentation of superficial surgical site infection are pain, redness, swelling at the incision site, serous or purulent discharge, low-grade fever and deep Surgical Site Infection clinical presentation are wound dehiscence, severe pain, fever, malaise, purulent drainage and organ/space infection clinical presentation are pelvic abscess, endometritis, fever, abdominal tenderness, foul-smelling lochia, delayed uterine involution.

Management of superficial Surgical Site Infection are open the wound if pus is present ,daily sterile dressing, empirical antibiotics, adjusted per culture: amoxicillin-clavulanate, cefuroxime + metronidazole,

clindamycin for MRSA suspicion, analgesics, antipyretics and deep Surgical Site Infection hospitalization may be needed surgical drainage, broad-spectrum iv antibiotics, debridement in severe cases and organ/space infection CT/US-guided drainage of abscess iv antibiotics for 10–14 days, possible re-laparotomy in severe peritonitis.

Cesarean Section is a common surgical procedure performed to deliver a baby through incisions made in the abdominal wall and uterus. Globally, the rate of cesarean deliveries has been increasing, Cesarean Sections account for over 21% of all births worldwide and even higher in certain countries. **(WHO)**

Cesarean section is one of the most commonly performed surgical procedures worldwide, primarily used to deliver babies when vaginal delivery poses a risk to the mother or infant. Among its types, Lower Segment Cesarean Section (LSCS) is the most widely used technique due to its advantages, such as reduced blood loss, better healing, and lower risk of complications compared to Classical Cesarean Section.

Surgical Site Infections are a significant concern following cesarean sections (C-sections), particularly in low- and middle-income countries, approximately 11% of patients who undergo surgery in these regions experience a surgical site infection. Specifically, in Africa, up to 20% of women who have a Cesarean section develop a wound infection. **(WHO)**

NEED FOR THE STUDY:

The study of Surgical Site Infection related to Cesarean Section (Lower Segment Cesarean Section) is critical for several clinical, public health, and healthcare management reasons. High prevalence of LSCS, Cesarean section rates is increasing globally, particularly lscs, which is now a common surgical procedure. With the rise in LSCS, the absolute number of Surgical Site Infection is also increasing, making it an important issue. Maternal morbidity and mortality of Surgical Site Infection is a significant cause of postpartum morbidity. It can lead to complications such as: fever, wound dehiscence, sepsis, extended hospital stays, need for re-admission or re-surgery, in severe cases, it can contribute to maternal mortality, especially in low-resource settings. Healthcare costs Surgical Site Infection significantly increase healthcare costs due to: extended hospitalization antibiotic treatment, additional surgical interventions, increased use of healthcare resources (nursing, follow-up visits, etc.), quality of care indicator, the rate of Surgical Site Infection after LSCS is often used as a quality indicator for obstetric and surgical care.

The researcher felt the need for conducting the study among nursing student at selected nursing college because the knowledge assessment of SSI related with caesarean section rate may reflect poor surgical technique, inadequate infection control, or lack of adherence to clinical guidelines. Studying Surgical Site Infection can help identify modifiable risk factors such as: obesity, diabetes, duration of surgery, type of skin incision, use of prophylactic antibiotics, this can guide the development of preventive protocols. Therefore, this study is intended to assess and describe the existing knowledge gap.

STATEMENT OF THE PROBLEM

A Pre experimental study to evaluate the effectiveness of planned teaching programmed on knowledge regarding Surgical Site Infection related with Cesarean Section among Nursing students at selected Nursing college, Lucknow, Uttar Pradesh.

OBJECTIVES OF THE STUDY

1. To assess the existing level of knowledge of nursing student regarding Surgical Site Infection associated with Cesarean Sections.

2. To find out the effectiveness of Planned Teaching Programme regarding the knowledge on Surgical Site Infection related with Cesarean Section among nursing students.

3. To determine the association between pretest knowledge score with selected variables.

RESEARCH METHODOLOGY

Research Approach:

A quantitative approach was adopted to determine the research study.

Research Design:

A Pre-experimental one-group pre-test and post-test design was used for the study.

Setting of the Study:

The setting of the study is Bora Institute of Allied Health Sciences, Lucknow.

Target Population:

The target population for this present study includes All GNM III Year and B.Sc. Nursing 7th Semester students.

Accessible Population:

The accessible population for the present study includes GNM III Year and B.Sc. Nursing 7th Semester students of Bora Institute of Allied Health Sciences, Lucknow.

Sample Size:

The sample size of the present study is 100 GNM III Year and B.Sc. Nursing 7th Semester students.

Sampling Technique:

Non probability convenient sampling technique was adopted for this study.

Inclusion criteria:

GNM III Year and B.Sc. Nursing 7th Semester students who were;

- Studying Nursing course.
- Present during data collection.

Exclusion criteria:

- Those nursing students who was not willing to participate.
- Those nursing students who have been already exposed to previous Planned Teaching Programmed about surgical site infection with cesarean section.
- Student who was not present at the time of data collection.
- All B.Sc. nursing student 1st, 2nd, 3rd, 4th, 5th, 6th semester and GNM 1st, 2nd year student.

Variables of the Study:

Demographic variables: Demographic variables like age, education, religion, family monthly income, type of family, source of information regarding Surgical Site Infections related with Caesarian Section.

Independent variables: Planned Teaching Programmed regarding Surgical Site Infection related with Cesarean Section.

Dependent variables: knowledge regarding Surgical Site Infection related with Cesarean Section among nursing students.

Description of the Tool:

The tools used for the study consisted of two sections:

Section I: Demographic variables: Age, education, religion, family income, type of family, Source of information regarding Surgical Site Infection related with cesarean section among nursing students at selected nursing college, Lucknow, Uttar Pradesh.

Section II: Structured questionnaire: Self structured knowledge questionnaire to assess the knowledge regarding Surgical Site Infection with Cesarean Section. It consisted of 30 questions (each question had one correct answer out of the given options).

DATA ANALYSIS

Demographic Distribution: Participants were evenly distributed across four age groups, with a majority being female (56%) and enrolled in the GNM programme (56%). Most belonged to nuclear families (64%) and had a monthly family income between ₹10,001 and ₹30,000. Despite 62% of students reporting previous knowledge about SSI, pre-test scores indicated inadequate understanding across the sample.

Pre-Test Knowledge Levels: Before the teaching intervention, a significant majority (88%) of student‘s demonstrated inadequate knowledge about SSI prevention related to Cesarean Section. Only 12% of participants met the adequacy criterion (score ≥15 out of 30), highlighting a substantial gap in baseline knowledge.

Post-Test Knowledge Levels: After the implementation of the planned teaching programme, 100% of the students achieved an adequate level of knowledge. This marks a complete reversal from the pre-test distribution, indicating the immediate and universal impact of the intervention.

Effectiveness of the Intervention: Statistical analysis using a paired t-test revealed a highly significant difference between pre-test and post-test scores. The mean pre-test score was 10.35 (SD = 2.64), while the post-test mean was 28.44 (SD = 1.60), with a mean gain of 18.9 points. The calculated t-value ($t = 60.74$, $p < 0.001$) confirmed that the improvement was statistically significant. This led to the acceptance of Hypothesis H1, validating the effectiveness of the teaching programme.

Association with Demographic Variables: Chi-square analysis showed no statistically significant association between pre-test knowledge and selected demographic variables including age, gender, education level, family income, family type, religion, prior SSI knowledge, and source of information. Therefore, Hypothesis H2 was rejected, indicating that inadequate knowledge was uniformly distributed across the sample regardless of personal or academic background.

RECOMMENDATIONS FOR FUTURE RESEARCH

On the basis of the findings of the study, it is recommended that the following study can be undertaken to strengthen quality of nursing care;

- Implement similar studies in different geographical and institutional settings for broader generalizability.
- Conduct follow-up studies to assess retention and application of knowledge over time.
- Extend the scope to include practice-based assessments to measure not just knowledge, but behavior and outcomes.
- Explore the effect of multi-modal teaching (e.g., simulation, e-learning, bedside teaching) on SSI prevention knowledge.

CONCLUSION:

The findings of this study clearly demonstrate that nursing students possessed inadequate baseline knowledge regarding Surgical Site Infection (SSI) prevention related to Cesarean Section, as evidenced by the majority scoring below the adequacy threshold in the pre-test. However, the implementation of a structured and focused Planned Teaching Programme significantly enhanced their knowledge, as shown by the dramatic increase in post-test scores and the statistical significance of the results. This confirms the effectiveness of the educational intervention and validates the hypothesis that structured teaching can meaningfully improve knowledge outcomes in critical areas of nursing care. The absence of a significant association between demographic factors and knowledge levels suggests that such deficiencies are widespread and not confined to any particular group of students. Therefore, targeted educational interventions on infection prevention should be integrated universally across nursing curricula. This study contributes valuable insights into the role of education in enhancing infection control competencies and underscores the importance of proactive teaching strategies in nursing education to ensure safer clinical practices and improved maternal health outcomes.

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