

A Study of Knowledge of Nursing Students on Prevention of Caesarian Section Surgical Site Infection at the University of Tripoli

Awatef S. Grada^{2*}, Roua E. Ramadan¹, Tharaa Ben Hameid¹, Najat A. Abdulla¹ and Fateima S. Qraish¹

Operating Theater Nursing Science, Faculty of Nursing, University of Tripoli¹

²Department of Obstetrics & Gynecology, Faculty of Medicine, University of Tripoli, Libya

Received 15 September 2023 / Accepted 25 November 2023

ABSTRACT

The worldwide rise in cesarean section (CS) rates is becoming a major public health concern and cause of considerable debate due to potential maternal and perinatal risks, cost issues, and inequity in access.

Surgical site infection (SSI) after cesarean Section (CS) increases maternal morbidity, hospital stay, and medical cost. However, limited evidence exists regarding post-CS wound infection's magnitude and risk factors.

This study was a descriptive cross-sectional study performed at the nursing college of Tripoli University from 4th May to 25th May 2023.

The study sample includes 200 students of different specialties (basic, general nursing, operation theater, intensive care unit, and midwife) in the department which was selected by convenient sampling techniques and the relevant data filled by a pre-designed structural questionnaire.

The extracted data had undergone analysis via SPSS software program version 22. The P value less than 0.05 was considered statistically significant.

We studied 200 students from nursing college at University of Tripoli during 2023. The most frequent age range was between 21 and 25 years which accounts 82.9%.

The majority of participants were predominately females scoring 77.1% and 91.2% of them were single. On assessing the nursing specialty, the most frequent specialty was basic accounts 35.1% followed by general nursing which scored 25.7%. And most of them had studied maternal and child health 1 and 2.

The majority of them (91%) had trained in hospital accounts and the duration of training was months. 41.2% had attended an infection control course or conference.

On determining the educational level of the nursing collage, of them were on third-year level which accounts for 61.8%.

Determining the relationship between specialty and (gender, age, and educational level) shows statistically significant results with P - values were 0.014, 0.002, and 0.036 respectively.

In summary, the level of knowledge among nursing students considered is moderate level ranging from approximately 40% to 65%.

Therefore, raising the awareness and health perception regarding infection control on cesarean section sites as well as increasing knowledge about surgical site infection signs are critical to avoid possible complications and achieve optimal health safety.

Key words- Perioperative Nursing; Curriculum Design; ADDIE Analysis; Surgical Nursing.

INTRODUCTION

Labor is the process by which the fetus is delivered after the 24th week of gestation. The onset of labor is defined as the point when uterine contractions become regular and cervical effacement and dilatation become progressive. Hence, it is difficult to define the precise time of the onset. For clinical management, the duration of observed labor is considered and not the duration the mother had painful contractions at home. Show and rupture of membranes may or may not be associated with labor, and these characteristics in themselves do not suggest the onset of labor. The mode of delivery was a normal vaginal delivery and Caesarian Section.¹

WHO that the rate of cesarean section (CS) should not exceed 10% to 15% in any country.² In recent years, the rate of cesarean has exceeded the WHO-recommended rate.³

The worldwide rise in cesarean section (CS) rates is becoming a major public health concern and cause of considerable debate due to potential maternal and perinatal risks, cost issues, and inequity in access. The increase in CS rates observed in many developed and middle-income countries contrasts sharply with the very low rates in numerous low-resource settings, along with a lack of access to emergency obstetric rates.⁴⁻⁷

Definition of Caesarian Section:

Cesarean section, also known as C-section or cesarean



delivery, is the surgical procedure by which one or more babies are delivered through an incision in the mother's abdomen, often performed because vaginal delivery would put the baby or mother at risk.

Complications of Caesarean Section:

The most common complication is massive bleeding, reported in 7% of cases. Smaller studies report damage to the inner organs such as the urinary tract, bowel, and large vessels, in a small number of cases.⁹ Abdominal pain after cesarean section appears to be a significant but varying problem; two systematic reviews reported rates from 4% to 42%.⁸⁻¹¹

Complications that may occur during cesarean section:

- Bleeding.
- Infection.
- Thrombophlebitis.
- Ileus.
- Complications due to anesthesia and surgical action.

Infection:

The infection most of the time is the result of reciprocal action between the defenses of the host and the virulence of the germs, nevertheless in obstetrics unlike the other specialties, the immune state acts only in rare occasions as a factor of important selection.

Surgical site infection (SSI) after cesarean Section (CS) increases maternal morbidity, hospital stay, and medical cost. However, limited evidence exists regarding post-CS wound infection's magnitude and risk factors.

Wound infection after a cesarean section (CS): The rate of wound infection after CS reported in the recent literature ranges from 3%-16%, which depends on the surveillance methods, used to identify infections, the patient population, and the use of prophylactic antibiotics.¹³⁻¹⁹

This study aimed to evaluate the level of nursing knowledge regarding the preventive measures for cesarean section and surgical site infection.

METHODS AND MATERIALS

Study design: Descriptive cross-sectional study.

Study setting and period: Performed at the nursing college of University of Tripoli from 4th May to 25th May 2023.

Study population: The study sample includes 200 students of different specialties (basic, general nursing, Operation Theater, intensive care unit, and midwife) in the department selected by convenient sampling techniques and the relevant data filled by a predesigned structural questionnaire.

Inclusion criteria: All students of different educational levels during the period who give consent.

Exclusion criteria: Participants did not give consent to enter

the study and nursing students of first year on collage.

Study tool: several variables were designed to be standardized for study results.

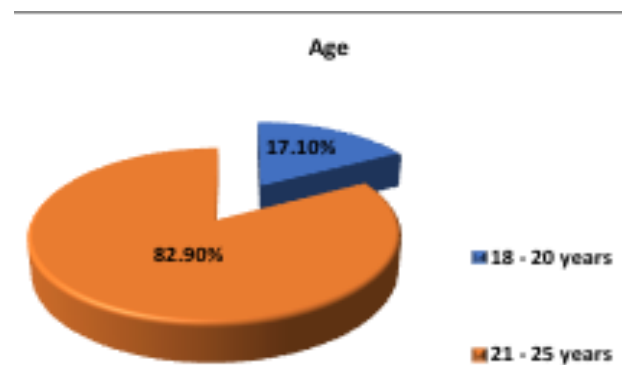
Study procedure: we considered the results of the current study to be a low level of knowledge if less than 40%, a moderate level between 40% to 70%, and more than 70% were high levels.

Statistical analysis: the extracted data had undergone analysis via SPSS software program version 22.

Descriptive statistics and inferential statistics were used which were summarized into tubular and graphical presentation. The P value less than 0.05 was considered statistically significant.

RESULTS

The most frequent age range was between 21 to 25 years which accounts 82.9% and about 17,10% about 18-20 years.

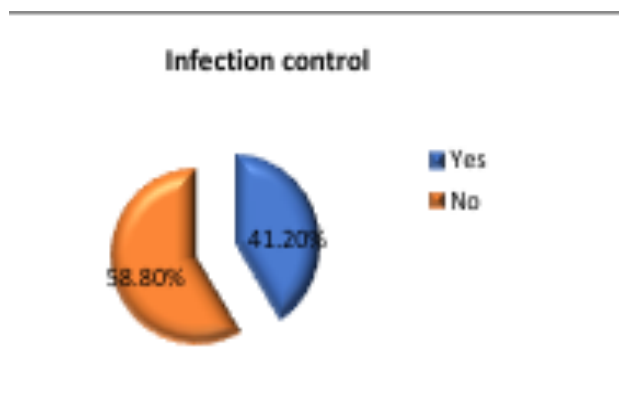


The majority of participants were predominately females scored 77.1% and 91.2% of them were single. On assessing the nursing specialty, the most frequent specialty was basic accounts 35.1% followed by general nursing which scored 25.7% (Table 1).

Table 1: Nursing specialty distribution, University of Tripoli, 2023.

Variables (n = 200)	%
<i>Basic</i>	35.1%
<i>General Nursing</i>	25.7%
<i>OT</i>	22.9%
<i>ICU</i>	11.4%
<i>Midwife</i>	4.9%





distribution, University of Tripoli, 2023.

1. Preparatory stage:

Table 2: Preparatory stage distribution, University of Tripoli, 2023.

Variables (n = 200)	Yes	No	Do not know
Does smoking affect surgical infection after Cs	58.8%	8.8%	32.4%
Is not necessary to have nutritional therapy for CS	20.6%	67.6%	11.8%
For bacterial swabs most perform MRSA	61.8%	14.7%	23.5%

2. Preoperative stage:

Table 3: Preoperative stage distribution, University of Tripoli, 2023.

(Variables (n = 200)	Yes	No	Do not know
Does stopping immunosuppressive affect immunity	61.5%	23.5%	15%
Does not bathing increase surgical infection in CS	61.8%	32.4%	5.8%
Do antibiotics received preoperative affect CS and increase the infection rate?	61.8%	32.4%	5.8%
Does shaving increase the infection rate?	55.9%	26.5%	17.6%
Do prophylaxis antibiotics affect the infection rate	41.2%	50%	8.8%

3. Intraoperative stage:

Table 4: Intraoperative stage distribution, University of Tripoli, 2023.

Variables (n = 200)	Yes	No	Do not know
It did not remove accessories and nails did not affect the infection	20.6%	76.5%	2.9%
Does hand washing affect infection?	44.2%	52.9%	2.9%
Must wear double gloves without powder	64.7%	20.6%	14.7%
Prepare the patient skin with an aseptic solution	70.6%	14.7%	14.7%
Not on routine use adhesive incision drapes	14.7%	41.2%	44.1%
Not must wear surgical equipment	17.7%	67.6%	14.7%
Not just use a wound protector device in CS	11.8%	55.9%	32.3%
Must maintain temperature above 92%	82.9%	15.3%	1.8%
Maintaining temperature does not affect CS wound	58.8%	35.3%	5.9%
Maintaining blood sugar level does not affect infection level	38.2%	50%	11.8%
Avoidance salts affect infection level	67.6%	5.9%	26.5%
Use salt solution before closing the wound to prevent infection	61.8%	8.8%	29.4%
Must use aseptic antimicrobial stitch to reduce infection	55.9%	17.6%	26.5%
I must remove gloves before closing the wound	52.9%	32.4%	14.7%
Is the effect of not using prophylactic negative pressure wound on a closed wound	32.4%	20.5%	47.1%



4. Postoperative stage:

Table 5: Postoperative stage distribution, University of Tripoli, 2023.

(Variables (n = 200	Yes	No	Do not know
Maintain a good temperature to avoid infection	88.6%	8.6%	2.8%
Does hypoxemia not affect infection	44.1%	41.2%	14.7%
Is essential to stop antibiotics postoperatively	38.2%	23.6%	38.2%
Is using advanced wound dressing essential	35.3%	5.9%	58.8%

On determining the educational level of the nursing collage, of them were on third-year level which accounts for 61.8%. (Figure 3).

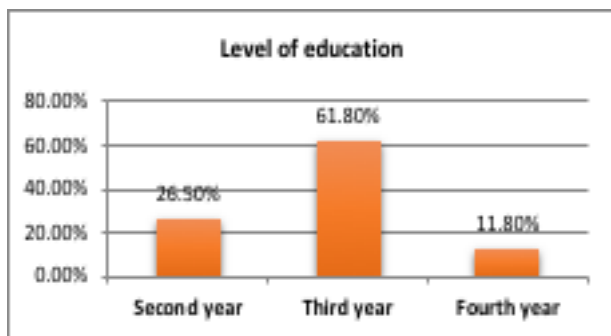


Figure 3: Educational level distribution, University of Tripoli, 2023.

DISCUSSION

Our study reported a moderate level of knowledge among nursing students which ranged approximately were between 40% to 65%, our findings consistent with the Hameed RY et al study which reached 62.5% of the overall knowledge of nurses but higher results reported on Mariza D study (93%).^{20,21}

In Nigeria's study, they assessed the HCF conditions and staff practices in six HCFs and found multiple barriers to compliance with IPC strategies in labor and delivery units even within the context of a large, comprehensive quality-of-care improvement program. The findings document the persistent health system constraints that warrant additional investment to strengthen IPC in LMICs, especially in maternity settings. Areas, where HCFs were performing well in IPC compliance, included the provision of usable HWFs in delivery units and the visible cleanliness of delivery units and postnatal wards. However, as swab tests were not performed, it cannot be assumed that cleanliness correlates with microbiological safety.²²

Critical areas of concern related to IPC included: the lack of provision of single-use towels for hand drying, inadequate availability of cleaning products and equipment, inadequate

segregation of waste, inadequate provision of personal protective equipment, inadequate hand hygiene practices, and outdated procedures to reprocess medical equipment. Staff responses also indicate that IPC compliance is hindered by financial resource constraints which result in understaffing, and senior staff or patients having to cover the costs for essential equipment. Understaffing was highlighted as a determinant of poor IPC compliance. If there are not sufficient staff on shift, compliance with hand hygiene and interim cleaning may be forfeited to attend to births and care for newborns.²³

CONCLUSION

In summary, the level of knowledge among nursing students considered is moderate level ranging from approximately between 40% to 65%.

Therefore, raising the awareness and health perception regarding infection control on cesarean section sites as well as increasing knowledge about surgical site infection signs are critical to avoid possible complications and achieve optimal health safety.

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