

## Perioperative Preparedness of Nursing Students of Camarines Sur Polytechnic Colleges, Philippines

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**ABSTRACT** The study aims to explore and prepare future nurses in navigating challenges and understanding the environment of an Operating Room. The study was a descriptive-correlational investigation of Level III nursing students' preparedness in perioperative at Camarines Sur Polytechnic Colleges (AY 2023-2024) and the effect of demographic variables on it. The data were collected through a researcher-administered questionnaire, and a validated questionnaire was used which sampled 204 random students. Findings revealed that the majority of the interviewees were women, who were 20 years old, and had little readiness to pre-, intra-, and post-operative procedures with almost half reporting that they were strongly influenced by the factors. Chi-square tests showed that there is no significant relationship between age or sex and preparedness. The results indicate the significance of standardised perioperative education, evidence-based learning resources, simulation-based activities, and specific interventions to enhance clinical competence and communication abilities in the operating room.

### INTRODUCTION

The operating room, often referred to as the OR, is a critical and highly specialised environment in a medical facility where surgical procedures are performed. In this controlled environment, skilled medical professionals work together to treat a wide range of medical problems, from routine surgeries to complex life-saving procedures. This is where accuracy, collaboration, and adherence to strict protocols are paramount. Surgical preparation of nursing students and professionals is an important aspect that influences the quality of patient care outcomes.

At its heart, of the 17 Sustainable Development Goals (SDGs), Goal 4 endeavours to guarantee that education is inclusive, equitable, and of high quality, while also fostering opportunities for lifelong learning for everyone. This objective is geared towards diminishing disparities and inequalities in education, encompassing both access and quality. Goal 3 strives to ensure good health and well-being for everyone, regardless of age. It covers all key health concerns, including reproductive, maternal, newborn, child, and adolescent health, as well as communicable and non-communicable diseases. It also focuses on achieving universal health coverage and providing access to safe, effective, quality, and affordable medicines and vaccines (UNICEF 2024).

The operating room serves as the stage where surgeons, nurses, anesthesiologists, and other healthcare personnel come together to provide the highest standard of care for patients. Every aspect of the OR, from its layout to the equipment used, is designed with one overarching goal in mind, to ensure the safety and well-being of patients during surgery. The operating room staff roles are coordinated with each other during the patient's surgery (Incision 2022).

Within this high-pressure environment, surgical teams must be meticulously trained and well prepared. The training and education of healthcare professionals, particularly nurses, who play critical roles in the OR, become a focal point in maintaining surgical excellence. This introductory section sets the stage of exploring the significance of operating room training in nursing education, highlighting its role in enhancing surgical preparedness and ultimately improving patient outcomes. With their expertise and attention to detail, operating room nurses greatly contribute to surgical success and high-quality patient care (Manatal 2023).

Surgical preparedness encompasses a range of activities and considerations that contribute to the success and safety of surgical procedures. It involves careful preoperative planning, effective communication among surgical teams, availability of necessary equipment and resources and focus

on infection control. Neglecting any of these aspects can lead to complications, medical errors and adverse patient outcomes. The key elements of enhancing surgical preparedness includes preoperative planning, team coordination, equipment and resource availability, infection control and training and education that keep them updated on the latest techniques, technologies and safety guidelines. Well trained nurses/student nurses are better prepared to handle unexpected situations. Implementing strong communication strategies and fostering a collaborative team culture in the operating room can greatly enhance patient safety and the delivery of care during the perioperative period (Balakrishnan and Vukkadala 2023).

One of the most nerve-wracking experiences for newly introduced individuals is being exposed to the operating room. Student nurses, even with the guidance of their clinical instructors, often appear as if they have not encountered blood, shiny instruments, and other aspects before. Some even experience fainting due to nervousness, while others shy away from receiving directions from their instructors out of fear of making mistakes. Only a small number manage to maintain a steady composure during their initial OR encounters (RNSpeak 2023).

The Bachelor of Science in Nursing (BSN) is a four-year program that incorporates a combination of general education and professional courses. The professional courses are integrated throughout all four years, focusing on nursing concepts and practical experiences known as Related Learning Experiences (RLE). The BSN program includes a rigorous nursing practicum that helps to further enhance nursing competencies and ensure that graduates attain the necessary skills and knowledge to begin their careers as entry-level nurses (CMO No.15 Series of 2017).

The enhanced perioperative preparedness may include improved patient safety for having successful outcomes, efficiency and cost reduction to minimise time and resource wastage, enhanced reputation known for the commitment, and legal and ethical compliance that ensures compliance with legal and regulatory requirements. It is an investment in patient safety, healthcare efficiency, nursing education and the overall quality of healthcare delivery.

The study suggests an exploration into how nursing education can be improved to better prepare future nurses for the challenges of the operating room. This will delve into the strategies and methods at enhancing the skills and readiness of nursing students in surgical environments. The researchers aim to identify and address perioperative preparedness, specific challenges or gaps in training nursing students for operating room procedures.

### Objectives of the Study

The study aims to assess the perioperative preparedness of student nurses of Camarines Sur Polytechnic Colleges for operating room procedures.

This study seeks to answer the following specific objectives:

1. Determine the profile of the respondents:
  - a. Age
  - b. Sex
2. Assess the status of perioperative preparedness in the operating room of the respondents, along:
  - a. Pre-operative
  - b. Intra-operative
  - c. Post-operative
3. Identify the factors affecting perioperative preparedness in the operating room.
4. Analyse the relationship of the profile of the respondents and the status of perioperative preparedness in the operating room.
5. Develop a student manual to enhance the perioperative preparedness in the operating room of nursing students.

### MATERIAL AND METHODS

#### Research Design

This study employed a descriptive-correlational research design to determine the relationship between selected variables without manipulating them (Fagerdahl et al. 2021). The design was chosen because it allows the researchers to describe the characteristics of a population and examine the degree of relationship between variables as they naturally occur. The descriptive aspect provided a factual account of the respondents' profile and experiences, while the correlational approach enabled the identification of possible associations

between their demographic factors and their level of perioperative preparedness.

### Respondents of the Study

The respondents of the study were Level III Nursing students enrolled in the College of Health Sciences at Camarines Sur Polytechnic Colleges during the Academic Year 2023-2024. They were chosen because they represent students with initial exposure to the operating room environment. The total population consisted of 418 students across eight sections. Using Slovin's formula, a sample of 204 students was determined to ensure statistical reliability and manageable data collection. A simple random sampling technique was used to select the respondents, ensuring that every student had an equal chance of being included in the study. This method minimised bias and allowed the researchers to generalise the findings to the entire population.

### Research Locale

The study was conducted at Camarines Sur Polytechnic Colleges (CSPC), a higher education institution located in Barangay San Miguel, Nabua, Camarines Sur, within the Rinconada area of the Bicol Region. The College of Health Sciences, one of the major academic units of the institution, offers programs in nursing and midwifery aimed at producing skilled, compassionate, and competent health professionals. In response to the increasing student population, the college has expanded its facilities, faculty, and related learning experience areas to accommodate the growing number of nursing students. This context provided an appropriate setting for investigating the level of preparedness of nursing students for perioperative experiences and the challenges they encounter in clinical practice.

### Instrumentation

A researcher-made questionnaire served as the primary data-gathering instrument. The questionnaire consisted of three sections, wherein the first obtained the respondents' demographic information, the second assessed their level of perioperative preparedness, and the third identified the challenges that affected their ability to function effec-

tively in the operating room. Before actual data collection, the instrument underwent validation by a panel of experts to ensure clarity, appropriateness, and relevance to the research objectives. A dry run was conducted among 10 third-year nursing students from the same institution, who were excluded from the final study. Their feedback helped refine the questionnaire for accuracy, clarity, and usability. After the validation process, the finalised questionnaire was reviewed and approved by the research committee.

### Data Collection Process

To ensure ethical and systematic data collection, the researchers secured permission to conduct the study from the Dean of the College of Health Sciences. The validated questionnaires were personally distributed to the selected respondents. Clear instructions were provided to ensure that all participants understood the items and responded truthfully. Upon completion, the questionnaires were immediately retrieved to maintain a high response rate and data integrity.

The data collected were subjected to both descriptive and inferential statistical analyses. The percentage technique was used to determine the distribution of respondents according to their demographic characteristics. The weighted mean was computed to identify the overall level of perioperative preparedness and the extent to which challenges influenced their readiness. A four-point Likert scale was used for interpretation, where weighted means between 3.25 and 4.00 indicated full preparedness or significant effect, 2.50 to 3.24 indicated moderate preparedness or moderate effect, 1.75 to 2.49 indicated minimal preparedness or minimal effect, and 1.00 to 1.74 indicated lack of preparedness or no effect. To test the relationship between the respondents' profile and their level of perioperative preparedness, the Chi-Square Test of Independence was employed. This test determined whether any statistically significant associations existed among the variables.

## RESULTS AND DISCUSSION

### Profile of the Respondents

The demographics of students at Level III Nursing as revealed on Table 1 provides that the

majority of the respondents are in the age bracket of the average age of undergraduate nursing education. This means that there is a relatively homogeneous group with regards to age implying that the students are at the same developmental and academic stages. This uniformity can lead to similar learning experiences as well as academic expectations among the respondents.

**Table 1: Age of level III nursing students**

| <i>Age of level III nursing students</i>    | <i>Frequency</i> |
|---------------------------------------------|------------------|
| 18-19 years old                             | 100              |
| 20-21 years old                             | 104              |
| Total                                       | 204              |
| <i>Gender of level III nursing students</i> |                  |
| Male                                        | 45               |
| Female                                      | 159              |
| Total                                       | 204              |

The gender distribution is evident as mostly the female students are dominant, and it indicates the gender inequality that is still present in nursing education. This tendency supports the old-fashioned vision of a female profession of a nurse. The small number of male students underlines an evident current problem in the sphere of gender diversity which could affect peer interactions, learning conditions, and, eventually, the representation of the nursing workforce.

In general, the demographic profile is informative on the study population. The fact that the respondents were concentrated in a limited age bracket and the presence of the predominance of the female students as the respondents should also be taken into account when interpreting the findings because the traits are likely to influence particular perspectives, experiences, and responses concerning the variables under research.

## Perioperative Preparedness

### Pre-Operative

The calculated mean scores in Table 2 show that the overall pre-operative preparedness is moderate with a total mean of 2.50 that falls between the least prepared and moderately prepared. This indicates that though learners may be able to execute several important perioperative functions, their ability to execute the functions is not consistent and also not strong enough to be fully prepared. The same trends are noted in recent research, which has revealed that nursing students and novice perioperative workers tend to enter the operating room with relative preparedness or competence and not mastery (Abu et al. 2024).

Technical skills like adequate gloving and gowning ( $M = 2.75$ ) and sterile field set up ( $M = 2.61$ ) were a little higher. These steps are very systematic and procedural thus being easier to master and repeat. This tendency confirms the results that clear steps of procedures are better absorbed when they are internalised during training (Tasdemir and Yildirim Tank 2025). Conversely, competence weaknesses are indicated by lower mean scores of surgical scrubbing ( $M = 2.37$ ) and assisting with skin preparation ( $M = 2.41$ ). These are activities that involve both procedural knowledge and the ability to maintain attention to detail, situational awareness and coordination. According to the literature, sterile technique is more sensitive to pressures associated with workflow, team communication problems, and mentoring inconsistencies, which can destroy performance (Tasdemir and Yildirim Tank 2025).

The non-technical skills like giving information to patients ( $M = 2.49$ ) and mental emotional

**Table 2: Pre-operative preparedness in the operating room**

| <i>Pre-operative procedure</i>                                     | <i>Mean score</i> | <i>Interpretation</i>      |
|--------------------------------------------------------------------|-------------------|----------------------------|
| Provide patient with information before, during, and after surgery | 2.49              | Moderately prepared        |
| Can perform the principles of sterile technique                    | 2.48              | Moderately prepared        |
| Positioning and draping on the operating table                     | 2.40              | Minimally prepared         |
| Assisting patient's skin preparation                               | 2.41              | Minimally prepared         |
| Demonstrate surgical scrub                                         | 2.37              | Minimally prepared         |
| Properly executed gloving and gowning                              | 2.75              | Moderately prepared        |
| Setting up the sterile field                                       | 2.61              | Moderately prepared        |
| Mentally and emotionally prepared                                  | 2.49              | Moderately prepared        |
| <b>Overall Mean Preparedness</b>                                   | <b>2.50</b>       | <b>Moderately Prepared</b> |

preparedness ( $M=2.49$ ) are also in moderate range. These findings represent a larger problem in the field of perioperative education, that is, training in technical skills is frequently given higher value than communication, emotional readiness, or interaction with the patient. Nevertheless, the studies indicate that non-technical skills, including communication, patient education, and emotional control, have an important impact on the outcomes of surgery and patient safety (Sirevag et al. 2023; Zhao et al. 2025). The lack of non-technical skills in the underdeveloped countries is thus a serious gap and not a secondary issue.

The general trend of moderate readiness indicates that it is not only individual performance, but at the same time, deficiencies in the training design that are systemic. The need-based and continuous educational programs, such as digital or web-based modules, have been demonstrated to enhance perioperative knowledge and engagement (Khorammakan et al. 2024). These kinds of interventions would facilitate more consistent competency building and address the gap between theoretical training and challenging, real world OR demands.

Combined, the results highlight why a more cohesive educational model is necessary, which would enhance both technical skills and non-technical skills. The patient safety literature indicates that the preparedness of an OR will be enhanced when the institutions are developed around the systematic efforts that include the use of the standardised preoperative checklists, as well as the simulation-based training and competence-based evaluation (Woo et al. 2025). Although Blumenfeld et al. (2020) found the study of theoretical knowledge and practical skills separately, without an understanding of how relationships between these two factors relate to clinical practice in the

real world, moderate preparedness will remain the main constraint on the functioning of performance, collaboration and the general safety of surgical operations.

### *Intra-Operative*

Table 3 shows the findings to reflect that the intra-operative preparedness of operating room personnel is moderate and the overall mean is 2.51. Even though this indicates good enough functional performance, the fact that the mean scores are concentrated close to the mark of the boundary of the minimally prepared and moderately prepared areas depict significant gaps in the core competencies. Such skills like knowing the roles within a team ( $M=2.48$ ), being familiar with surgical terms ( $M=2.49$ ), and being able to keep sterile ( $M=2.45$ ) are not developed. These deficiencies suggest that even as routine activities are conducted they are not always up to the high-reliability standards of surgery.

Higher scores were observed in task-oriented skills, such as instrument passing, surgical counts, and emergency responsiveness, indicating that repetitive, hands-on activities are being learned more effectively. This pattern aligns with evidence showing that structured, repetitive practice enhances procedural confidence and accuracy in the operating room (Sharifi et al. 2024). However, the relatively lower ratings for cognitive and collaborative competencies suggest deeper systemic issues. Research points to workflow pressures, staffing demands, and limited interprofessional training as common contributors to reduced clarity and breakdowns in sterile discipline (Tasdemir and Yildirim Tank 2025).

The task-oriented skills, including instrument passing, surgical counts and emergency respon-

**Table 3: Status of intra-operative preparedness in the operating room**

| <i>Intra-operative procedures</i>                                                       | <i>Weighted mean</i> | <i>Interpretation</i>      |
|-----------------------------------------------------------------------------------------|----------------------|----------------------------|
| Roles and functions of the OR team members                                              | 2.48                 | Minimally prepared         |
| Knowledge on common surgical procedures and terminologies                               | 2.49                 | Minimally prepared         |
| Maintaining a sterile environment and adherence to strict aseptic techniques            | 2.45                 | Minimally prepared         |
| Familiarity with common surgical instruments and equipment                              | 2.52                 | Moderately prepared        |
| Assisting the surgical team by passing instruments and supplies as needed               | 2.51                 | Moderately prepared        |
| Keeping track of counts to ensure no items are left inside the patient                  | 2.51                 | Moderately prepared        |
| Maintaining open communication with other team members                                  | 2.55                 | Moderately prepared        |
| Assisting in managing intra-operative emergencies and responding to critical situations | 2.54                 | Moderately prepared        |
| <b>Overall Mean Intra-operative Preparedness</b>                                        | <b>2.51</b>          | <b>Moderately Prepared</b> |

siveness, were found to be higher, which means that repetitive, practical actions are being mastered better. This trend is consistent with the fact that procedural confidence and accuracy in the operating room are promoted by structured and repetitive practice (Sharifi et al. 2024). Nevertheless, the comparatively low scores in the cognitive and collaborative competencies indicate more systematic problems. Studies identify workflow demands, personnel needs, and inadequate interprofessional training as typical factors in the decrease in clarity and failures in sterile discipline (Tasdemir and Yildirim Tank 2025).

Generalising these results, the presence of moderate readiness in both technical and non-technical domains demonstrates the shortcomings of the traditional training model, which is oriented towards the performance of tasks and not situational competence. Non-technical skills, including communication, shared mental models, and situational awareness are vital to avoid errors and team coordination but are usually underestimated in OR training (Sirevåg et al. 2023). Particularly, the low level of the sterile environment maintenance is worrying, as there is substantial evidence that the violation of aseptic technique results in surgical site infection and unnecessary damage to patients (Habtewold et al. 2024). Salazar (2022) suggests that nurses in the intraoperative environment require skills, detail, and the ability of working effectively in a high-stress and fast-paced environment, to guarantee the most effective results to their clients.

Combined, the findings point to the serious necessity of stronger, competency-based training strategies. Research in recent years has shown that intra-operative training through simulation, team briefings, and continuous professional development can be very potent to enhance both the

technical and non-technical skills (Norton 2025; Sharifi et al. 2024). Introducing these measures into institutional programs could be of help in changing the level of preparedness from moderate to that of fully prepared and especially in high-risk areas such as sterile technique, communication, and emergency management. Intra-operative preparedness is not merely a situation of workforce capacity, but a fundamental fuel towards better patient outcome and safety in surgery.

### *Post-Operative*

Table 4 results indicate that the preparedness of the personnel in the operating room regarding post-operative is relatively low with the overall weighted mean of 2.49. Whereas certain technical skills, like drains appraisal or assessment of surgical sites, become moderate, the majority of abilities connected with pain management, patient education, and immediate post-operative observation are below the level. This lopsided tendency indicates that the staff is more accustomed to the tasks of routine and measurability rather than more complex and patient-centred work.

The inclination to score more points on surveillance tasks than on patient education and symptom management is an indication of the findings of the current literature that employees tend to feel more confident about fulfilling protocol-driven, structured tasks than holistic postoperative care (Habtewold et al. 2024). It is especially concerning that the preparedness in the delivery of discharge instructions ( $M = 2.45$ ) is poor, and it is highly proved that effective patient education reduces the number of complications and improves the chances of recovery (Zhao et al. 2025).

**Table 4: Post-operative preparedness in the operating room**

| <i>Intra-operative procedures</i>                                | <i>Weighted</i> | <i>Interpretation</i>     |
|------------------------------------------------------------------|-----------------|---------------------------|
| Knowledge of basic instruments and their use in the PACU         | 2.47            | Minimally prepared        |
| Observation of immediate post-anesthesia patient                 | 2.48            | Minimally prepared        |
| Assessment of vital signs, consciousness, and condition          | 2.53            | Moderately prepared       |
| Monitoring for immediate postoperative complications             | 2.44            | Minimally prepared        |
| Assessing and managing post-operative pain                       | 2.47            | Minimally prepared        |
| Assessing surgical site for bleeding, infection, complications   | 2.54            | Moderately prepared       |
| Evaluating patency and functioning of drains/catheters/tubes     | 2.57            | Moderately prepared       |
| Changing wound dressings using aseptic technique                 | 2.49            | Minimally prepared        |
| Providing post-operative care instructions to patient and family | 2.45            | Minimally prepared        |
| <b>Overall Mean Post-Operative Preparedness</b>                  | <b>2.49</b>     | <b>Minimally Prepared</b> |

Importantly, leading to the evidence of minimal preparedness, there are loopholes in perioperative education, in particular, in the process of meeting the intra-operative and recovery care. The post-operative stages are characterised by high-level patient safety risks, including instability, pain, and anesthesia-related complications, but most of the personnel claim that they lack adequate training and have low confidence in addressing them on their own (Norton 2025; Tasdemir and Yildirim Tank 2025). This is to indicate that deficits are not an individual aspect but can be systemic like having less exposure to PACU processes or a discontinuous handover practice.

The studies from 2023 to 2025 also underline the importance of organised competency-based training, simulation exercises, and standardised patient-teaching protocols in reinforcing post-operative skills (Sharifi et al. 2024). Enhancement of post-operative readiness will thus be essential in the improvement of clinical competence as well as to provide safer recovery, continuity of care, and reduced post-surgical morbidity.

#### Factors Affecting the Perioperative Preparedness in the Operating Room

Indicated by the results in Table 5, it was established that all factors have a consistently high level of influence on perioperative preparedness, and weighted means are very homogeneous (between 3.22 and 3.24; the overall mean = 3.23). This small span shows that students appreciate perioperative preparedness as a whole competency, in which technical skills, emotional stability, communi-

cation, and directed clinical exposure each play an equally important role.

The gathered results related to trustworthiness in carrying out perioperative duties and knowledge about procedures ( $M = 3.24$ ) indicate that students are highly concerned with the practical experience and mastery of the procedures. This is in line with current findings that the effectiveness of repeated practice and familiarity is a significant factor contributing to self-efficacy and clinical performance in OR novices (Choi et al. 2023). Such familiarity in a complex surgical environment helps to minimise mistakes and can speed up and better perform tasks.

Strong influence ratings were also obtained on technical aspects, which include sterile technique, equipment handling, and compliance with aseptic standards ( $M = 3.23$ ). This is in line with the results of research conducted on the globe that indicate the importance of infection control and precision in technical safety of patients during perioperative care (Haryanto et al. 2023). The focus on these skills by students shows that they are aware of the high riskiness that characterises surgical settings and the effects of technical failures.

Psychological preparation, emotional stability and fear management were also regarded as hugely influential ( $M = 3.23$ ). As it has always been proven in literature, anxiety and stress may adversely impact performance in high-pressure OR environments (Tam et al. 2024). The high mean score is an indication that the students understand that being competent is not enough without the capability to control stress and stay emotionally calm.

A slightly lower level of communication with the OR team ( $M = 3.22$ ) is still a factor of strong

**Table 5: Factors affecting the perioperative preparedness in the operating room**

| <i>Factors</i>                                            | <i>Weighted mean</i> | <i>Interpretation</i>     |
|-----------------------------------------------------------|----------------------|---------------------------|
| Confidence in performing peri-operative tasks             | 3.24                 | High effect               |
| Familiarity with the OR set-up, instruments and equipment | 3.23                 | High effect               |
| Familiarity with the specific procedure                   | 3.24                 | High effect               |
| Skill in wearing appropriate sterile attire               | 3.23                 | High effect               |
| Fear of the unknown                                       | 3.23                 | High effect               |
| Psychological/emotional readiness                         | 3.23                 | High effect               |
| Physical readiness                                        | 3.23                 | High effect               |
| Adherence to aseptic technique                            | 3.23                 | High effect               |
| Communication with OR team                                | 3.22                 | High effect               |
| Use of technology in the OR theater                       | 3.23                 | High effect               |
| Adequate exposure to the perioperative environment        | 3.23                 | High effect               |
| Guidance and supervision of the clinical instructor       | 3.23                 | High effect               |
| <b>Overall Mean Post-Operative Preparedness</b>           | <b>3.23</b>          | <b>Minimally Prepared</b> |

influence. Research indicates that communication is essential and can be complicated in the case of newcomers because of the hierarchical team composition and the high workload (Hull et al. 2023; Gillespie et al. 2023). The minor decrease is probably due to little exposure of the students to real time team interaction and not an insignificance.

The ratings of clinical exposure and supervision were also high ( $M = 3.23$ ). It has been demonstrated that structured flooding and powerful mentorship play a very big role in preparedness, confidence building, and clinical judgment (Sanders et al. 2024). This highlights the necessity of guided practice in the process of closing the gap between theoretical and actual OR performance.

On the whole, the high ratings remain consistent, and it can be concluded that the learners view perioperative preparedness as a complex construct, but not a single skill area. Successful preparedness is achieved through the integrated power of technical expertise, emotional management, communicative skill, and guided clinical practice. These results support the necessity of perioperative education interventions to adopt a multidimensional training approach, that is, the use of simulation, stress management, structured rotations, training of interprofessional communication, to achieve modern requirements of OR preparedness and patient safety.

### Relationship of the Profile and the Status of the Perioperative Preparedness in the Operating Room

Table 6 presents the relationship between the profile age and the status of the perioperative preparedness in the operating room. Since the calculated Chi-Square value (0.1703) is much lower than the critical value (7.8147), and the p-value (0.9822) is greater than 0.05, the researchers fail to reject the null hypothesis. This suggests that there is no significant relationship between age and preparedness in pre-operative procedures in the operating

room. In other words, the level of preparedness does not significantly depend on the age of the nursing students.

Since the calculated Chi-square value (0.3913) is much lower than the critical value (7.8147), and the p-value (0.9420) is greater than 0.05, the researchers fail to reject the null hypothesis. This suggests that there is no significant relationship between age and preparedness in intra-operative procedures in the operating room. Age does not appear to be a determining factor in the level of preparedness of the nursing students.

Since the calculated Chi-square value (0.366) is less than the critical value (7.8147) and the p-value (0.9484) is greater than 0.05, the researchers fail to reject the null hypothesis. This means that there is no significant relationship between age and preparedness in post-operative procedures in the operating room. The level of preparedness does not significantly vary across different age groups of nursing students. The results suggest that age, as a standalone demographic factor, may not be a reliable predictor of a nursing student's readiness for the operating room environment. This challenges assumptions that older students, potentially with more experience, are inherently better prepared. Instead, it points towards the influence of other factors, such as the quality of nursing education, clinical experiences, individual learning styles, and access to resources, as more critical determinants of preparedness. This finding aligns with studies emphasising the importance of structured clinical rotations and simulation-based training in enhancing nursing students' competence and confidence in the perioperative setting, regardless of their age (Kerr et al. 2013).

There is a need for nursing programs to focus on providing standardised education and intensive training that caters to diverse learning needs, rather than relying on age as an indicator of preparedness. This may involve implementing personalised learning plans and fostering a supportive environment. According to Benner et al. (2010),

**Table 6: Relationship between the profile age and the status of the perioperative preparedness in the operating room**

| Indicators      | Df | Tab    | Comp   | p-value |
|-----------------|----|--------|--------|---------|
| Pre-operative   | 3  | 7.8147 | 0.1703 | 0.9822  |
| Intra-operative | 3  | 7.8147 | 0.3913 | 0.9420  |
| Post-operative  | 3  | 7.8147 | 0.366  | 0.9484  |

educators should emphasise the demonstration of skills and knowledge, rather than relying solely on traditional measures of academic achievement. This is mainly the reason why the Philippine Education System adapts the Outcome-Based Education instead of the Time-Based Education, which may not be a reliable measurement of nursing competencies.

Table 7 presents the relationship between the profile sex and the status of the perioperative preparedness in the operating room.

Since the calculated Chi-square value (0.062) is much smaller than the critical value (3.841) and the p-value (0.803) is greater than 0.05, the researchers fail to reject the null hypothesis. This means that there is no significant relationship between sex and preparedness in pre-operative procedures in the operating room. The level of preparedness does not significantly vary between male and female nursing students.

Since the calculated Chi-square value (0.387) is much smaller than the critical value (3.841) and the p-value (0.534) is greater than 0.05, the researchers fail to reject the null hypothesis. This means that there is no significant relationship between sex and preparedness in intra-operative procedures in the operating room. The level of preparedness does not significantly differ between male and female nursing students.

Since the calculated Chi-square value (0.527) is much smaller than the critical value (3.841) and the p-value (0.468) is greater than 0.05, the researchers fail to reject the null hypothesis. This means that there is no significant relationship between sex and preparedness in post-operative procedures in the operating room. The level of preparedness does not significantly differ between male and female nursing students.

The data implies that both male and female nursing students, on average, enter the operating room with similar levels of readiness, and that educational interventions should not be differentiated based on sex. The lack of a significant relationship

between sex and preparedness also highlights the influence of other factors that contribute to a student's readiness for the operating room. These factors may include individual learning styles, prior experiences, motivation, access to resources, and the quality of instruction. Nursing programs should focus on identifying and addressing these individual needs to ensure that all students have the opportunity to succeed.

While the current study did not find a significant relationship between sex and preparedness, it is important to acknowledge that gender dynamics can still play a role in the perioperative environment. Studies have shown that gender stereotypes and biases can influence communication patterns, teamwork dynamics, and career advancement opportunities in healthcare settings (Fitzgerald et al. 2019). Therefore, it is crucial to promote gender equity and inclusivity in the operating room to create a supportive and respectful environment for all healthcare professionals. This may involve implementing diversity and inclusion training, promoting mentorship programs for women in surgery, and addressing any instances of gender-based discrimination or harassment.

### A Student Manual Developed to Enhance the Perioperative Preparedness in the Operating Room of Nursing Students

A student manual, A Guide in the Operating Room, was developed to enhance perioperative preparedness in the operating room of Level III nursing students. This created a structured approach that will equip them with necessary knowledge, skills, confidence, and appropriate behaviours to function efficiently and safely in the complex environment.

### CONCLUSION

The study provided important information about the level of preparedness of the nursing stu-

**Table 7: Relationship between the profile sex and the status of the perioperative preparedness in the operating room**

| Indicators      | Df | Tab   | Comp  | p-value |
|-----------------|----|-------|-------|---------|
| Pre-operative   | 1  | 3.841 | 0.062 | 0.803   |
| Intra-operative | 1  | 3.841 | 0.387 | 0.534   |
| Post-operative  | 1  | 3.841 | 0.527 | 0.468   |

dents at Level III during the perioperative. Results indicated that the group is mostly female with most of them aged 20. In determining their level of preparedness for the responsibilities of perioperative care, considerable numbers of the students reported that they were minimally prepared to implement pre-operative, intra-operative and post-operative procedures in the operating room; smaller numbers reported that they were not prepared at all. Additionally, almost half of the respondents thought that all the identified factors had a significant impact on their preparedness, indicating that students are aware of the effect of a variety of instructional and clinical components on their ability to be competent in the perioperative environment.

The results also showed that age and sex were found to have no significant relationship to the level of perioperative preparedness of the studied students, thus suggesting that the preparedness may be influenced more by the educational exposure and training conditions than by the demographic characteristics. Overall, the study shows the importance of enhancing training in the perioperative field among nursing students. This comprises strengthening clinical exposure, optimization of the teaching strategy, and creation of specific interventions to boost the level of confidence and competence of students in executing the specific perioperative procedures in the operating room.

### RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations are made. To boost the preparedness of nursing students in the perioperative field, the study suggests standardized education and training programs that cover all aspects of perioperative nursing care. Establishing clear and consistent learning objectives, teaching methods, learning tools, and assessment criteria to ensure students are provided with a solid and uniform foundation of essential knowledge and skills. Alongside this, the production of standardised educational materials, such as a specific student manual like "A Guide in the Operating Room" offers an evidence-based and accessible reference that can aid consistent delivery of information. This approach reduces dependence on variable clinical exposures, depending instructors, or limited learning opportunities, so all nursing graduates achieve an initial level of competence in the environment of the complex operating room.

Furthermore, enhancing key competencies based on targeted interventions is highly recommended. Enhancing communication skills by conducting simulated exercises, engaging in role-playing activities and inter-professional learning opportunities can help strengthen communications skills such as teamwork, active listening and the ability to ask clear questions, all of which are extremely important skills in the fast-paced environment of the operating room. The construction of realistic simulation scenarios provides the students with a safe, but challenging, environment to use their theoretical knowledge and refine their practical skills. By participating in hands-on, controlled learning experiences, students can develop the confidence and ability to perform the tasks required to work in the operating room, ultimately improving the quality of care they deliver in the operating room.

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