

## Assess the Level of Nurses' Knowledge and Practices in Caring Implanted Port-A-Catheter for Chemotherapy Patients at South Cancer Institute

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### Abstract:

Port-A catheters are commonly used for chemotherapy administration, and proper care is crucial to prevent complications such as infections, thrombosis, or catheter malfunctions. Evaluating nurses' understanding of the correct procedures for maintenance, cleaning, and monitoring of the catheter. **Aim:** To assess the level of nurses' knowledge and practices in caring for implanted Port-A-catheter care for chemotherapy patients **Design:** A descriptive research design was utilized. **Setting:** Medical Oncology and Malignant Hematology Department at South Egypt Cancer Institute. **Sample:** The researchers selected 30 nurses as part of a convenience sampling method. **Tools:** A structured interview questionnaire for nurses : observational checklists for nurses caring for patients with port-A-catheter **Results:** The majority of the nurses in the study displayed unsatisfactory knowledge and practices regarding Port-A-Cath care for chemotherapy patients. Overall, the mean  $\pm$  SD percent score for nurses' knowledge was  $51.20 \pm 1.95$ . The majority of nurses demonstrated an inadequate level of practice, with an overall mean  $\pm$  SD percent score of  $68.23 \pm 7.699$ . The only significant correlation observed was between total practice and educational level, which had a strong positive correlation ( $r = 0.562$ ,  $p = 0.001$ ). **Conclusion:** The research findings showed that more than half of the nurses in the study had an unsatisfactory level of knowledge regarding Port-A-catheter care. Additionally, the majority of the nurses exhibited an inadequate level of practice. **Recommendations:** Regular educational sessions on port-a-catheter care should be held for nurses involved in the care of chemotherapy patients.

**Keywords:** Chemotherapy, Nurses' Knowledge, Practice &Port-A-Catheter.

### Introduction

According to WHO data cancer was identified as the main or secondary cause of death in 112 out of 183 countries during 2019. The Global Cancer Observatory (GLOBOCAN) 2020 survey found that the worldwide total of cancer cases reached 19.3 million while cancer deaths numbered 10.0 million in 2020. (Ahmed et al., 2024).

Egypt published its prevalence rates through volumes IX and X of cancer incidence in five continents after their registry activities stopped due to sustainability challenges. Data from the registry shows that incidence rates for males are estimated at 96.5/100,000 and 132.6/100,000 based on crude and age-standardized methods respectively while females have rates of 97.3/100,000 and 122.1/100,000 using the same metrics. (Saed et al., 2022).

Conventional cancer chemotherapy cannot be used as a first-line cancer treatment due to its poor effectiveness and serious side effects. To increase the synthesis of certain drugs in tumors without harming healthy tissues, nano-catalytic therapeutic approaches have been developed. Endogenous and external

triggers can be used to categorize this cancer therapy strategy. (Zhang et al., 2023).

A newly developed infusion method called Implanted Venous Access Port (IVAP) provides a solution to address these previous issues. Medical personnel utilize this access method primarily in cancer patients' treatment . The port represents a closed venous infusion system where a port body connects to a central venous catheter that remains beneath the skin. Infusion ports situated surgically between the internal jugular and subclavian veins serve as principal access points that help eliminate discomfort produced by repetitive infusion line changes. (Zhou et al., 2022).

Nurses play a pivotal role in the care of patients with implanted Port-A-Catheters, especially those undergoing chemotherapy. Their responsibilities include the proper management of the catheter, ensuring its functionality, and preventing complications such as infections or clots (Gustafson et al., 2020)

Nurses are also involved in educating patients on how to care for the catheter, performing necessary tasks like dressing changes and flushing to maintain the

port's patency, and administering chemotherapy treatments through the catheter. Vigilance in monitoring for potential complications, including signs of infection or malfunction, is crucial to ensure patient safety and effective treatment. The ability to provide comprehensive, compassionate care while adhering to best practices improve patient outcomes and contributes to the overall quality of care (Jones et al., 2019).

### Significance of the study:

The increasing patient use of port-A catheters at hospitals requires nurses to improve their consistent clinical practices and stay updated with current technical-scientific knowledge. Despite this, port-A-catheter interventions in the oncology department offer many advantages to patients and medical staff. Patients can develop complications including bleeding and thrombosis when catheter monitoring is inadequate which also leads to tube cutting and infections. Nurses need to maintain both adequate knowledge and strict adherence to evidence-based recommendations and guidelines when using port-A catheters in their clinical work to protect the device from complications and extend its operational time (Khalil et al., 2017). The limited research on implanted port-A Catheter necessitates this study to assess nursing practices and knowledge in implanted port-A Catheter care among chemotherapy patients.

### Aim of the Study

To assess the level of nurses' knowledge and practices in caring implanted Port-A-catheter for chemotherapy patients

### Research questions:

1. What nurses level of knowledge about implanted port-A-Catheter care for chemotherapy patients?
2. What nurses level of practice in caring implanted port-A-Catheter in chemotherapy patients?

### Nurses and Methods

#### Research design:

A descriptive research design was utilized to accomplish the aim of the present study.

#### Setting:

This study was conducted in the Medical Oncology and Malignant Hematology Department at South Egypt Cancer Institute.

#### Sample:

A convenient sample of 30 nurses (male and female) in the oncology department at South Cancer Institute was included in this study.

#### Tools:

Two tools for data collection were used to achieve the purpose of the current study:

**Tool I: Structured interview nurses'**

### questionnaire:

It was developed by the researcher in Arabic language, based on the related literature (sobh et al., 2023). it's composed of two parts:

#### Part (I): Nurse's Demographic Data

The database contains essential demographic data points about nurses including their age, gender, qualification levels, experience duration, and participation in training sessions.

#### Part (II): Assessment of nurses knowledge

it used to assess nurses knowledge about care of Porto A catheter. It has two main parts:

**The first part:** The foundations of the Porto-A-catheter are covered by the following 14 items: definition, indications, risk factors, cancer symptoms, cancer treatment, and types of treatment, types, sites, and complications, information about chemotherapy, information about how to administer chemotherapy, nurses' instructions on how to take care of the intravenous catheter placed under the skin before and during its implantation, nurses' instructions on how to take care of the intravenous catheter placed under the skin after it is implanted, and how to prevent infection of intravenous catheters implanted under the skin.

**The second part:** The second segment focuses on the nursing knowledge about role in Port-A-Catheter care. This involves flushing, covering, and dressing the implanted port catheter, as well as giving chemotherapy to patients who have implanted ports and are undergoing chemotherapy.

#### Scoring systems

The knowledge score was 50 degrees overall. Every right answer a score of one, while every wrong answer a score of zero. The following is the distribution of the percent score that was created from these scores:

**Part I:** Definition and 15 questions about implanted port catheter indications and contraindications.

**Part II:** 10 questions about Implanted port catheter insertion .

**Part III:** 10 questions about Implanted port catheter removal .

**Part IV:** 15 questions include : Nursing care of implanted port catheter.

The total level of question is 50 and mention score of correct and score of incorrect level was graded into:

≥75% (≥ 37 grades) satisfactory level of knowledge.

<75% (<37grades) unsatisfactory level of knowledge.

#### Tool II observational checklist for nurses

The assessment tool monitored nursing practices regarding the care of patients with port-A-catheter It contained the following components:

Site care procedures include 5 specific actions which involve flushing, Recapping, Dressing, Preparation of chemotherapy and Administration of chemotherapy (Galal et al., 2024).

**Scoring system:**

Each item was checked as: "Done adequate" took "One" score and "Not done" or "Inadequate done" had "Zero", with a total score of "76" grades.

The total nurses' practices score was calculated and transferred to percentage reflecting the levels of practices as follows:

The grading for the observational checklists was structured as follows: The flashing checklist included 21 steps, the recapping checklist contained 15 steps, the dressing checklist contained 15 steps, the preparation of chemotherapy checklist consisted of 10 steps and administration of chemotherapy included 15 steps. Nurses received one point for each step that was correctly performed, while steps that were either performed incorrectly or omitted received a score of zero. The total scores for each checklist, as well as the combined scores from all checklists, were summed up. The total correct practice of steps were: "76" grades converted into a percentage.

**The level of practice was categorized into adequate or inadequate as follows:**

≥ 70 % considered adequate level of practice.

< 70 % considered inadequate level of practice.

**Methods:****The procedure of the study:**

The assessment tool monitored nursing practices regarding the care of patients with port-A-catheter. It contained the following components:

Site care procedures include 4 specific actions which involve flushing, scrubbing, checking blood flow, and applying a dressing to the port area (Galal et al., 2024).

**Assessment phase:****Tools development:**

A survey of current, previous, local, and worldwide relevant literature in many areas utilizing books, articles, journals, magazines, and references was done (Sobh et al., 2023).

**Content validity and reliability:**

Five experts from the fields of medical-surgical nursing along with medical personnel reviewed the tools to ensure their clarity, relevance, and comprehensive content as part of the content validity process. The tools underwent a few minor adjustments before reaching their final form and dependability testing phase. A statistical reliability test through Alpha Cronbach confirmed the validity of study tools with a result of 0.876.

**Pilot study:**

A sample of 10% (3) nurses and patients took part in the March 2023 pilot study to evaluate tool clarity and usefulness. The investigators implemented the necessary changes after analyzing the results from the

pilot study. The nurses who took part in the pilot research became part of this study.

**Ethical approval:**

Approval to conduct the study was granted by the Faculty of Nursing's ethical committee under decision number 1120230582. An official letter was sent to the oncology department by the dean of the Faculty of Nursing. The study ensured that nurses were fully informed of their right to withdraw at any time, with participation being entirely voluntary. Before participating, nurses gave their verbal consent. All collected data was securely coded to maintain confidentiality and anonymity throughout the research process.

**Planning phase:**

This phase assessed both the personality traits and the clinical knowledge, as well as the practical skills of the nurses involved, concerning the care of patients with port-A catheters.

**Implementation phase:**

The researchers implemented face-to-face interviews for individual assessment of nursing knowledge about managing implanted Port-A-catheters for chemotherapy patients. The researchers implemented Tool I at the designated facility during morning shifts for interviews that lasted 30 to 45 minutes after explaining the study's purpose.

Additionally, the researchers monitored and recorded findings using observation checklists within the study environment. These observations were conducted two days per week, during alternating shifts, and took place during nurse-patient care hours. The nurses completed the questionnaire survey in the clinical area, with direct supervision from the researcher.

**Statistical design:**

The researchers utilized SPSS version 2023 (Statistical Program for Social Sciences) to categorize and analyze the data following the organization of data entry procedures. The results were presented using descriptive statistics, which included frequencies and percentages for categorical variables, while continuous variables were expressed as mean, standard deviation (SD), and range. Statistical significance was determined with a p-value of <0.05, indicating significant results, while a p-value >0.05 indicated non-significant results. P-values <0.01 were considered highly significant.

**Results**

**Table (1): Demographic characteristics of the participating nurses (n = 30).**

Variables	N.	%
<b>Age groups:</b>		
20 – 29 yrs.	15	50.0
30-39 yrs.	10	33.3
40-49 yrs.	5	16.7
<b>Level of education:</b>		
Diploma	8	26.7
Health institute	6	20.0
Bachelors	13	43.3
Master	3	10.0
<b>Year of experiences:</b>		
less than three years	11	36.7
3 less5 yrs	4	13.3
5 less 10 yrs	4	13.3
More than 10 yrs	11	36.7
<b>Training attained:</b>		
No	8	26.7
Yes	22	73.3

**Table (2): Nurses' Knowledge of the Theoretical Background Related to Port-A-Catheter Care (n = 30).**

Knowledge Items	Mean	SD
Nurses' knowledge about cancer.	6.7667	1.07265
Nurses' knowledge about chemotherapy.	6.6667	.60648
Nurses' knowledge about how to give chemotherapy.	7.1000	.84486
Nurses' knowledge about intravenous catheters implanted under the skin.	3.8667	.43417
Nurses' knowledge on how to care for the intravenous catheter implanted under the skin before and during its implantation.	8.4333	.89763
Nurses' knowledge on how to care for the intravenous catheter implanted under the skin after it is implanted.	5.5000	.57235
Nurses' information about complications of intravenous catheters implanted under the skin.	6.7333	.58329
Nurses' information on how to control infection of intravenous catheters implanted under the skin.	6.1333	.62881
<b>Total level of nurse'knowledge:</b>	<b>51.2000</b>	<b>1.95466</b>

**Table (3): Total level of nurses practice about care of patients with port-A catheters (n=30)Top of Form Bottom of Form**

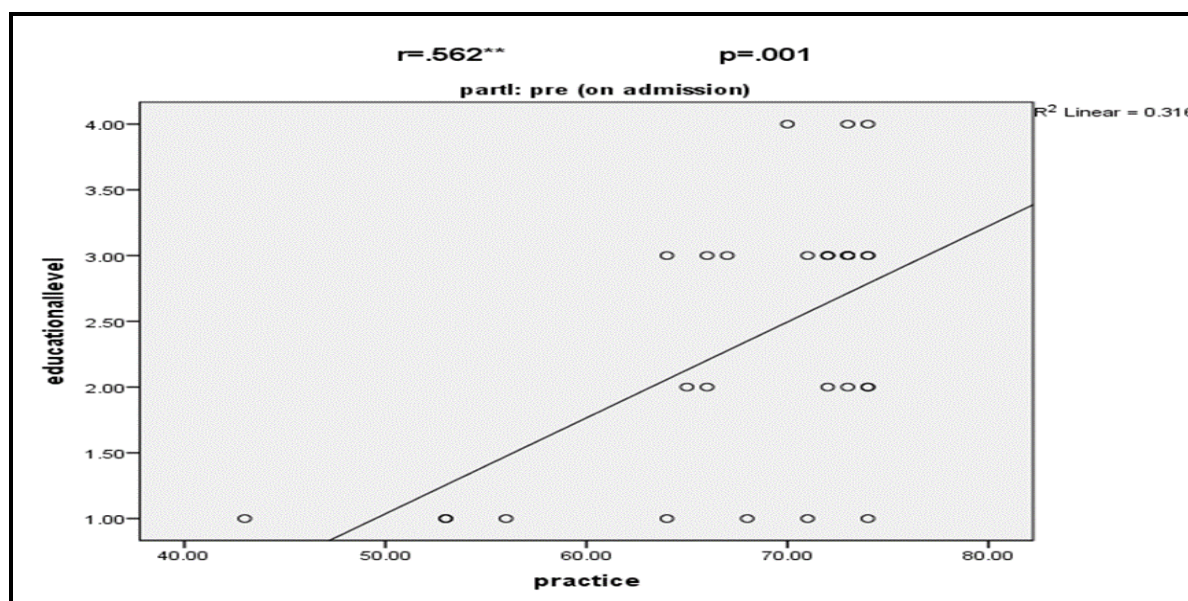
Steps	Mean	Std. Deviation
▪ Flushing:	15.4667	.97320
▪ Recapping:	12.3333	.95893
▪ Dressing:	17.5000	3.02575
▪ Preparation of chemotherapy:	10.2000	1.84578
▪ Administration of chemotherapy:	12.7333	1.87420
<b>Total level of nurses' practice</b>	<b>68.2333</b>	<b>7.69990</b>



**Table (4): Correlation between Knowledge, Practice, and Demographic Data Among Nurses (n = 30).**

Correlations		Knowledge	Total practice	Age	Educational level	Year of experience	training attained
Knowledge	Pearson Correlation		.036	-.279-	-.056-	-.199-	.259
	Sig. (2-tailed)		.851	.135	.767	.293	.167
Total practice	Pearson Correlation	.036		-.276-	.562**	-.200-	.258
	Sig. (2-tailed)	.851		.140	.001	.289	.169
Age	Pearson Correlation	-.279-	-.276-		-.106-	.546**	-.169-
	Sig. (2-tailed)	.135	.140		.576	.002	.373
Educational level	Pearson Correlation	-.056-	.562**	-.106-		-.091-	.148
	Sig. (2-tailed)	.767	.001	.576		.634	.434
Year of experience	Pearson Correlation	-.199-	-.200-	.546**	-.091-		-.115-
	Sig. (2-tailed)	.293	.289	.002	.634		.545
Training attained	Pearson Correlation	.259	.258	-.169-	.148	-.115-	
	Sig. (2-tailed)	.167	.169	.373	.434	.545	

\*\*. Correlation is significant at the 0.01 level (2-tailed).

**Figure (1): Correlation between educational level & total nurses' practices regarding the care of implanted Port-A-catheters for patients undergoing chemotherapy (n = 30).**

**Table (1):** This table presents the demographic characteristics of the nurses included in the study. It was observed that half of the nurses (50%) were in the age group of 20 to 29 years. The majority held a bachelor's degree. Additionally, one-third of the nurses (36.7%) had less than three years or more than ten years of training experience. Furthermore, nearly three-quarters of the nurses (73.3%) had received training courses or lectures on Port-A-catheters.

**Table (2):** Regarding the overall level of nurses' knowledge about all aspects of implanted port care, the results revealed that their understanding of how to care for the intravenous catheter implanted under the

skin before and during its implantation was notably higher, with scores of  $8.43 \pm 0.897$  and  $7.10 \pm 0.844$ , respectively. Nurses also demonstrated reasonable knowledge about cancer ( $6.76 \pm 1.072$ ), chemotherapy ( $6.66 \pm 0.606$ ), complications of implanted intravenous catheters ( $6.73 \pm 0.583$ ), and infection control for these catheters ( $6.13 \pm 0.628$ ). Additionally, nurses showed varying levels of knowledge on the care of the catheter after implantation, with scores of  $3.86 \pm 0.434$  for the general care and  $5.50 \pm 0.572$  for post-implant care. Overall, the mean  $\pm$  SD percent score for nurses' knowledge was  $51.20 \pm 1.95$ .

**Table (3):** Showed that the mean scores for practices related to dressing and flushing were relatively low, with scores of  $17.50 \pm 3.025$  and  $15.46 \pm 0.973$ , respectively. The mean scores for practices related to the administration of chemotherapy and recapping were also low, with scores of  $12.73 \pm 1.874$  and  $12.33 \pm 0.958$ , respectively. The majority of nurses demonstrated an inadequate level of practice, with an overall mean  $\pm$  SD percent score of  $68.23 \pm 7.699$ .

**Table (4):** Shows that there was no significant correlation between nurses' knowledge and overall practice, as indicated by the Pearson correlation of 0.036 and a p-value of 0.851, which exceeds the threshold for statistical significance ( $p > 0.05$ ). Similarly, training received prior to the intervention did not show a significant correlation with either knowledge or practice scores, with p-values of 0.167 and 0.169, respectively. Age and educational level also showed no significant correlation with knowledge or practice. Additionally, years of experience did not significantly correlate with knowledge ( $p = 0.293$ ) or practice ( $p = 0.289$ ). The only significant correlation observed was between total practice and educational level, which had a strong positive correlation ( $r = 0.562$ ,  $p = 0.001$ ).

**Figure (1):** Illustrates a statistically significant positive correlation between the educational level and total nurses' practices regarding the care of implanted Port-A-catheters for patients undergoing chemotherapy, with a p-value of 0.01.

### Discussion:

The care of implanted Port-A-catheters for chemotherapy patients is a critical component of oncology nursing practice. Port-A-catheters are commonly used to safely and efficiently administer chemotherapy, providing repeated access to the bloodstream while minimizing patient discomfort. However, proper catheter management is essential to prevent complications such as infections, thrombosis, or mechanical failures, which can significantly affect patient outcomes (Radhakrishnan et al., 2021).

Nurses play a central role in the care and maintenance of these catheters, and their knowledge and practical skills are crucial for ensuring optimal patient care. Ongoing training and up-to-date knowledge of best practices for catheter care are key to minimizing risks and enhancing patient safety. Previous research underscores the importance of healthcare professionals receiving comprehensive training in managing central venous access devices, as insufficient knowledge can lead to adverse complications (Williams & Hendry, 2020).

At the South Cancer Institute, assessing nurses' knowledge and practices regarding Port-A-catheter care is essential to identify areas for improvement in

clinical practices and inform future training initiatives. Understanding the current level of knowledge and competency in catheter care will help improve nursing interventions, ultimately leading to better patient outcomes, increased safety, and greater satisfaction for both patients and healthcare providers (Smith et al., 2019). This assessment will pinpoint strengths and weaknesses in current practices, ensuring nurses are equipped with the most relevant knowledge and skills for effective catheter management.

Regarding the demographic characteristics of the nurses included in the study, it was found that half of the nurses were in the 20 to 29 age range. Most of the nurses held a bachelor's degree. Additionally, one-third of the nurses had either less than three years or more than ten years of training experience. Furthermore, nearly three-quarters of the nurses had participated in training courses or lectures focused on Port-A-catheters. In the researcher's opinion, the younger age group suggests a relatively new workforce, which may indicate greater adaptability and openness to adopting new practices and technologies. Additionally, younger nurses tend to be more enthusiastic about embracing evidence-based practices and engaging in continuous professional development. However, this younger age group may also be associated with less clinical experience, which could affect their proficiency in handling complex procedures like Port-A-catheter care, particularly in high-risk chemotherapy patients. These findings are consistent with Jang et al. (2021), who reported that two-thirds of the nurses in their study were within the 20 to 30-year-old age range.

The majority of the nurses in this study held a bachelor's degree, which aligns with current trends in the nursing profession. The increasing emphasis on higher education in nursing has been associated with better patient outcomes and higher-quality care. Research has demonstrated that nurses with a bachelor's degree tend to have better critical thinking skills, a deeper understanding of medical procedures, and a more comprehensive approach to patient care (Blegen et al., 2021). From the researcher's point of view, the finding that the majority of nurses in the study held a bachelor's degree is reassuring, as it suggests that they have a solid foundation in both theoretical and clinical knowledge, which is essential for effectively managing Port-A-catheters.

Regarding years of experience, or demonstrated more than ten years of professional service. The research output of Barrett et al. (2020) showed that fifty percent of participants under twenty years old possessed more than ten years of nursing experience. The researcher views this diverse work experience as an indicator of differing skill levels exhibited by

nurses on staff. The nurses who have worked more than ten years might demonstrate reduced attention to new best practices alongside potential weariness but less junior nurses need more supervisory support until they reach competency. The maintenance of high standards in patient care requires specially designed continuous professional development programs that serve nurses at different experience levels.

Additionally, nearly three-quarters of the nurses had received training courses or lectures on Port-A-catheter care. This is a positive finding, as specialized training can significantly improve the competency of nurses in managing these devices, reducing the risk of complications such as infections, thrombosis, or catheter malfunctions. A study by **Bryant et al. (2020)** revealed that nurses who underwent specialized catheter care training attained better skills as well as reduced issues when treating chemotherapy patients. The training content and duration need further analysis to establish their adequacy in delivering complete knowledge of best practices among healthcare workers. The ability to handle Port-A-catheters safely depends on receiving current training along with hands-on practice that nurses need to stay proficient in their work.

Concerning the total level of nurses' knowledge about all aspects of implanted port as; the study found that more than two-thirds of nurses had an unsatisfactory level of knowledge concerning the care of patients with implanted ports undergoing chemotherapy. This includes knowledge about cancer, chemotherapy administration, the implanted port itself, and its care before, during, and after implantation, as well as the complications and infection control related to the implanted port.

One of the key findings is that while nurses had some understanding of the general concept of implanted ports, their knowledge about more specific aspects of care was lacking. For instance, their awareness of how to manage the catheter before, during, and after implantation was found to be insufficient. This knowledge gap is concerning because improper care at any stage of the catheter's lifespan can lead to serious complications, such as infection, thrombosis, or mechanical failure, which can jeopardize the health of chemotherapy patients (**Bryant et al., 2020**). Similarly, the study revealed that nurses' knowledge of chemotherapy administration and related procedures was limited. Given that chemotherapy is often a complex and high-risk treatment, ensuring that nurses are well-versed in all aspects of chemotherapy administration is critical for patient safety as well (**Radhakrishnan et al., 2021**).

This study presents outcomes that vary from **Hossain et al. (2017)** who discovered three-quarters of nurses demonstrated satisfactory implanted port care

expertise but one-quarter fell into the unsatisfactory category. This study provides results that match **Khalil et al. (2017)** who evaluated port-a-catheter knowledge metrics among nursing staff through assessments of definitions and indications and locations of insertion areas. This research determined nurses did not possess sufficient knowledge about implanted ports after evaluating their education level and training protocols. The research outcomes of **Hassanein et al. (2019)** demonstrated that two-thirds of nurses lacked an adequate understanding of implant port patient care for chemotherapy treatments.

**Mersal et al. (2019)** discovered that before educational guidelines were introduced only one-third of nurses showed satisfactory knowledge about Port-A-catheter care and how to educate patients on acceptable activities and ID wear and infection signs. When educational guidelines were implemented, nurses achieved satisfactory levels of understanding for these subjects by reaching more than three-quarters of reported competence. The study by **Ciou & Chuang (2017)** showed that 32.3% of nurses possessed a satisfactory understanding of caring for ports.

From the researcher's perspective, the findings highlight a significant gap in nurses' knowledge regarding the care of patients with implanted ports undergoing chemotherapy. This lack of knowledge poses a critical concern, as specialized care is essential for ensuring patient safety and comfort. Nurses play a crucial role in managing implanted ports, from administering chemotherapy to identifying potential complications. Inadequate knowledge can lead to suboptimal care.

To address this, the researcher suggests implementing targeted educational programs focused on the proper management and care of implanted ports. These programs should cover topics such as implantation, infection control, complication recognition, and the specific needs of chemotherapy patients. Improved training can bridge the knowledge gap and enhance both nurse competence and patient outcomes.

The study reveals that more than two-thirds of nurses exhibited an unsatisfactory level of practice regarding the care of patients with implanted ports undergoing chemotherapy, including tasks such as flushing, recapping, dressing, chemotherapy preparation, and chemotherapy administration.

From a researcher's perspective, oncology nursing requires specialized skills, especially when it comes to managing complex procedures like implanted port care. Without regular and comprehensive training, nurses may not have the hands-on experience necessary to perform these tasks safely and efficiently. Many oncology departments face resource

constraints, limiting the frequency and scope of training sessions.

This finding aligns with research by **Mohamed et al. (2023)**, who assessed nurses' knowledge and practices regarding implanted port-A-catheter care for chemotherapy patients. Their study concluded that while nurses' knowledge was fair, their practices were poor, highlighting the need for targeted educational programs to enhance both knowledge and practical skills.

Similarly, a study by **Conley (2016)** emphasized the importance of standardizing nursing practices for implanted ports to prevent complications such as central line-associated bloodstream infections. The research identified strategies to integrate evidence-based standards and guidelines into nursing practice, underscoring the critical role of proper training and adherence to established protocols.

The present study found a statistically significant correlation between nurses' overall knowledge and overall practice mean percent scores. This finding is consistent with previous research. However, it contrasts with the results of **Mamdouh (2021)**, which indicated that there was no statistically significant relationship between nurses' knowledge and practice. In Mamdouh's study, all nurses who had an unsatisfactory level of knowledge demonstrated competent practice levels.

The present study found a statistically significant correlation between nurses' overall knowledge and their practices concerning implanted port care. This aligns with the findings of **Qalawa (2017)**, who also reported a significant positive relationship between nurses' knowledge and their practices in port care. However, this study's findings contrast with those of **Mamdouh (2021)**, which indicated no statistically significant relationship between nurses' knowledge and practice. In Mamdouh's study, all nurses with unsatisfactory knowledge levels demonstrated competent practices.

From the researcher's point of view, these discrepancies indicate that although knowledge is a key factor influencing nursing practices, other factors such as experience, institutional support, and individual competencies also significantly impact the quality of care provided. Thus, while enhancing nurses' knowledge through targeted education and training programs is vital, it must be accompanied by creating supportive work environments and offering hands-on experience to improve overall nursing practices.

### Conclusion:

The research findings showed that more than half of the nurses in the study had an unsatisfactory level of knowledge regarding Port-A-catheter care.

Additionally, the majority of the nurses exhibited an inadequate level of practice.

### Recommendations:

#### For Administration:

provide regular training opportunities to maintain current methods of Port-A-Catheter implanted care for all nurses at different experience levels. The standard of care combined with patient safety will improve through this strategy.

#### For Nurses:

Encourage nurses starting work in oncology and chemotherapy units a total evaluation of their essential clinical competencies before obtaining responsibility for delivering individual patient care. The assessment will guarantee nurses possess the necessary skills for handling complicated procedures to deliver optimal care.

#### For Further Research:

Enhance the research using probability sampling across different geographical locations to increase the generalizability of the findings. Additionally, further research should explore the impact of regular professional development,

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#### Conflict of interest:

All authors declare that they have no competing interests relevant to this article.

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