

## Educational Guidelines on Surgical Nurses' Knowledge and Practice regarding Phenolisation Dressing Technique for Patients with Sacrococcygeal Pilonidal Sinus Disease

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### Abstract

**Background:** The ideal treatment for patients who suffer from sacrococcygeal pilonidal sinus disease (SPSD) should lead to a cure with a rapid recovery period allowing a return to normal daily activities, with a low level of associated morbidity. **Aim:** To evaluate the effect of educational guidelines on surgical nurses' knowledge and practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease. **Design:** Quasi-experimental research design was used in this study. **Setting:** The current study was conducted at the General Surgery Departments at Mansoura University Hospital. **Subjects:** A convenient sample technique of a total of 50 nursing staff working in the General Surgery Departments was recruited in the study. Three tools were used for data collection; Tool (1): Nurses' demographic characteristics; Tool (2): Nurses' knowledge about phenolisation dressing technique (pre/post), Tool (3): Nurses' practice about phenolisation dressing technique (pre/post). **Results:** The study result revealed that more than half of the studied nurses were between 20 to less than 30 years old and more than three fifths of the studied nurses were female. More than two-fifths of the studied nurses have a diploma from secondary nursing school. There was a highly statistically significant difference between the pre-educational guidelines and post-educational guidelines regarding nurses' knowledge and practices about phenolisation dressing technique. There was a statistically significant positive correlation between the total knowledge and total practice scores of the studied nurses regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease. **Conclusion:** Educational guidelines had a positive effect on improving surgical nurses' knowledge and practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease. **Recommendations:** Educational programs about the importance of phenolisation dressing technique should be provided to nurses working in surgical units.

**Keywords:** Knowledge and Practice, Phenolisation dressing technique, Sacrococcygeal pilonidal sinus disease, Surgical nurses.

### Introduction:

Sacrococcygeal pilonidal sinus disease (SPSD) is a common condition that affects the sacrococcygeal region, particularly in young and middle-aged men due to its hirsute nature (Beal et al, 2018). Adiposity, sedentary work habits, local irritation or damage, poor body hygiene, excessive hairiness, and perspiration are risk factors (Browne & Carroll, 2019). At the age of 20–30, the male/female ratio is 3:1, and the incidence of this disease is 4.6 percent. In clinical practice, iteration of SPSPD is seen; type I may not have any obvious symptoms at first, other than a small, dimple-like slide on the skin's surface (Duman et al, 2019).

Type II, on the other hand, if the slip becomes infected, it will swiftly turn into a cyst or abscess, causing pain while sitting or standing. Type III: cyst swelling, reddish, painful skin around the region, pus or blood leaking from the abscess, bad odor. Type IV includes hair projecting from the lesion, the creation of several sinus tracts, and skin perforations. Type V; after surgical treatment, engenders once more. It can lead to major chronic problems such as micro abscesses, chronic abscesses, cellulitis, and cancer (Eryilmaz et al, 2020).

The best way to treat SPSPD is a contentious issue. It is an annoyance to the patient and a challenge for the surgeon and

nurses. Surgical excision and the primary closure technique involve local excision of the midline sinuses, spanning the central cavity, and laying open lateral tracts if it is diagnosed early. If there is infection and discomfort, the treatment is usually conservative with a broad-spectrum antibiotic, but if there is infection and discomfort, the procedure of surgical excision and the primary closure technique involves local excision of the midline sinuses, spanning the central cavity, and laying open lateral tracts if infection (Ekici et al., 2019).

All sinus hairs are removed, and the cavity's granulations are scraped away. Due to the high probability of infection, the wound may take six weeks to six months to heal. The ideal treatment technique would be straight forward, cause minimal pain, offer the best probability of cure and the lowest local recurrence rate, avoid hospital or general anesthesia, and require minimal wound care at a cheap cost. Because the major goal for patients with the pilonidal disease is to maintain their quality of life, treatment should not vary from regular activity, and return to work should be as quick as possible due to the financial consequences. Phenolisation can provide all of these advantages (Isik et al., 2020).

Phenol application, due to its ease of administration and modest sclerosing effects, promotes rapid recovery by enhancing granulation and fibrosis. Patients also experience less discomfort in the post-technique period due to the anesthetic action of phenol. The most important characteristic of this treatment is that it eliminates the need for surgery and produces more visually pleasing outcomes with less tissue loss and related complications, as well as the lowest recurrence rate. The phenolisation procedure involves injecting liquid phenol into the sacrococcygeal pilonidal sinus during dressing to act as a chemical sclerosing agent, causing localized damage to the sinus's inner lining (endothelium) (Aygen et al., 2021).

The use of phenol to treat pilonidal illness is a less invasive procedure. This approach outperforms other surgical techniques due to its quick operation and recuperation time. Furthermore, the cosmetic outcomes after

surgery are great. As a result, using crystalline phenol to treat pilonidal illness is a viable alternative to surgical procedures such as primary closure and modified Limberg flap (Girgin & Kanat, 2019).

The number of crystallized phenol administration sessions may be directly linked to the therapy success rate. In recurrent situations, crystalline phenol may be applied numerous times because of the extensive dissecting area under the Limberg flap. As a result, the 47.37 percent treatment failure rate in recurrent pilonidal disease could be due to a single application of crystalline phenol. The removal of the pilonidal cavity with all visible pilonidal pits is required for surgical treatments such as excision plus primary closure and modified Limberg flap. However, during surgical intervention, disruption of the pathways between the skin and the pilonidal cavity may be the cause of the high treatment failure rate after crystalline phenol treatment (Mentes et al., 2021).

The nurse plays an important role in the care of a patient with sacrococcygeal pilonidal sinus which can be complex and challenging. This includes a holistic nursing assessment of the wound, including surgical site infection and wound epithelization that associated with quality of life-related to daily activities, pain, patient history, and vital signs. Teaching and discussing therapy choices that improved body image, self-esteem, and anxiety. Infection and recurrence should be discussed (Salih et al., 2021).

#### **Significance of the study:**

In Mansoura University's General Surgery Department, the number of patients with sacrococcygeal pilonidal sinus illness admitted for surgical intervention according to hospital records from the previous year, there were 130 cases were documented to keep track of how many patients are admitted to the hospital (The Hospital Statistical Record, 2019).

Pilonidal sinus disease, on the other hand, has a lot of morbidities like abscess formation, purulent discharge, pain, and discomfort, even though there is no clear consensus on which surgical methods are best, with higher hospital costs, longer hospital stays, extended time

away from health care providers, and a high recurrence rate (Jamal et al., 2021).

### **Aim of the study:**

To evaluate the effect of educational guidelines on surgical nurses' knowledge and practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease through:

- Assessing nurses' knowledge regarding phenolisation dressing technique pre and post-educational guidelines implementation.
- Assessing nurses' practice regarding phenolisation dressing technique pre and post educational guidelines.
- Determine the effect of educational guidelines on surgical nurses' knowledge and practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease pre and post-implementation.

### **Research Hypothesis:**

Educational guidelines will have appositve effect on improving surgical nurses' knowledge and practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease in the general surgical department.

### **Subjects and Method**

#### **Design:**

A quasi-experimental research design was used in this study. A quasi-experimental design is one type of experimental design that is very similar to the true experimental design except there is lost one criterion which is control, manipulation, or randomization (Creswell, 2012).

#### **Setting:**

The current study was conducted in the General Surgery Departments at Mansoura University Hospital. They are on the second and third floor in the Main Mansoura University Hospital building and included (40) beds ready for operated patients. These settings were selected because of the high prevalence of patients in the selected settings and also, serve the biggest region of the population.

#### **Subjects:**

A convenient sample technique included all of 50 nursing staff working in the General Surgery Departments was recruited in the study.

#### **Tools of data collection:**

Three tools were used for data collection in this study as follows:

**Tool (1): Nurses' demographic characteristics;** such as nurses' age, gender, qualification, and years of experience.

**Tool (2): Nurses' knowledge about phenolisation dressing technique (pre/post);** (Girgin & Kanat, 2019; Ertan et al., 2019; Menten et al., 2021); it included questions used to assess nurses' knowledge about phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease. It included 10 questions (multiple choice questions) about the definition and general information regarding the phenolisation dressing technique and its effect on the sacrococcygeal pilonidal sinus disease.

**Scoring system:** Assessment of nurse's knowledge level regarding phenolisation dressing technique was calculated as: (2) for the "correct" answer and (0) for the "incorrect" answer. The total score ranges from 0 – to 20. For knowledge; the total score was categorized into two levels unsatisfactory if score was less than 75%, and satisfactory for score more than 75%. For each part, the score of the items was summed up and the total was divided by several items, giving a mean score for the area. These scores were converted into a percent score and mean and standard deviations were computed. These scores were converted into a percent score.

**Tool (3): Nurses' practice about phenolisation dressing technique (pre/post);** (Schneider et al., 2018; Thaler, 2020; Jamal et al., 2021; Salih et al., 2021); it included items used to assess nurse's practices about phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease. It included 15items (multiple choice questions) about the preparation before the

technique, assessment, steps of phenolisation dressing technique, and documentation.

### Scoring system:

The nurses' practices were assessed as done or not done where a score of one was given for done correctly; a score of zero was given for not done practice these scores were converted into a percentage score. The nurses' practice was considered competent if the percent score is 75% or more and incompetent if less than 75%. For each part, the score of the items was summed up and the total was divided by several items, giving a mean score for the area. These scores were converted into a percent score.

### Tool Validity and Reliability:

The content validity of the tools, their clarity, comprehensiveness, appropriateness, and relevance were reviewed by five expert professors; three experts in medical-surgical nursing, and two experts' physicians from the medical-surgical department. No modifications were made according to the panel judgment.

Test-retest reliability was used to assess the tools' internal consistency by repeatedly giving the same tool to the participants under the same settings. The correlation coefficient for knowledge was 0.92 and for practice was 0.88 by Cronbach's alpha.

### Procedure:

#### The actual study was included three phases: A-Preparatory phase:

The researchers reviewed the current and past available literature available as textbooks, articles, magazines, and internet searches to develop the tools for data collection and prepare the instructional guideline. The brochure was written in Arabic language, printed out regarding the sample size, and given after implementing the educational guidelines.

#### Pilot study:

A pilot study was carried out on (10%) of the nurses (5 nurses) from the selected units using the previously mentioned tools, to evaluate their applicability, clarity, and estimate time for each tool. Nurses involved in

the pilot study were included in the main study subjects.

### Ethical consideration:

Official permission was obtained through an issued letter from the Dean of Faculty of Nursing, Mansoura University to conduct this study. Written consent was obtained from the directors of the previously mentioned setting after explaining the aim of the study. An informed consent form was obtained from the nurses before starting the study and a brief introduction to the study's objectives was explained, the researchers informed the participants that, the study was voluntary, they were allowed to refuse to participate and they had the right to withdraw from the study at any time, without giving any reason, declarations of anonymity, confidentiality.

### Implementation phase:

An official permission letter was issued by the Dean of the Faculty of Nursing to the director of Mansoura University Hospital. The data were collected in 6 months, from 1st March 2021 till 30th August 2021; it was completed out of the next phases. The researchers interviewed nurses, at the beginning the nurses were informed about the aim, nature, and expected outcomes of the study.

All the data were gathered to evaluate the effect of educational guidelines on surgical nurses' knowledge and practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease. The tool was used twice, firstly; pre-educational guidelines to assess the nurses' knowledge and practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease, then, secondly; repeated after one month during follow-up to evaluate the effect of the educational guidelines.

The educational guidelines included simple and clear information about phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease. It also included the preparation of educational materials such as Photos, videos, and PowerPoint presentations. Arabic brochure was designed by the researchers; including

educational guidelines regarding phenolisation dressing technique was introduced to nurses at the end of the sessions.

This phase included 12 weeks to implement educational guidelines regarding the phenolisation dressing technique. The subject contents have been sequenced through three sessions (two sessions for theoretical content and one session for practice), and each session took 40- 50 minutes. The total time was about 2 hours for each group; nurses involved in the study were divided into 7 groups. Each group included seven to eight nurses.

### Contents of sessions

#### Session 1:

All researchers began with an introduction about the contents of the session and then the learning outcomes of the session. The session was performed by the researchers using the Arabic language that is appropriate for the nurse's understanding. The researchers explained the importance phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease. The researchers start to assess the knowledge and practices of nurses regarding phenolisation dressing technique (pretest).

#### Session 2:

The theoretical part contained knowledge about the phenolisation dressing technique such as the definition, general information regarding the phenolisation dressing technique, and its effect on the sacrococcygeal pilonidal sinus disease. The average time spent on nurses completing the data collection tools was approximately 40-50 minutes. It was implemented through, Photos, videos, posters, and PowerPoint presentations.

#### The educational guidelines included knowledge regarding phenolisation dressing technique as follows:

- Definition of phenolisation dressing technique
- General information regarding of phenolisation dressing technique
- Effect of phenolisation dressing technique on the sacrococcygeal pilonidal sinus disease

#### Session 3:

The practical part contained information about current nurses' practices of phenolisation dressing technique. It was implemented through lectures, posters, and educational films about phenolisation dressing technique.

#### The educational guidelines included practices regarding phenolisation dressing technique as follow:

- Preparation before the technique such as Performing hand hygiene., Prepared waterproof bag, Provided privacy, Put on clean gloves, removed and discarded soiled dressing., Prepared equipment and opened sterile supplies., Applied sterile gloves,
- The assessment included assisting the client to a comfortable position, assessing of wound in mind color, amount, odor sinus pain frequency, and surrounding tissues,
- Steps of phenolisation dressing technique included applying the appropriate dressing. Disposed of used equipment, removed gloves, and performed hand hygiene.
- Putting phenol dressing technique based on concentration phenol (CAS is 108-95-2) and 70% ethyl alcohol was dissolved in one liter of 70% ethyl alcohol to obtain 80% phenol solution (**Ozturk & Karakose, 2019**).
- Put the patient in the prone position and the area was sterilized with povidone-iodine solution, a large piece of cotton was used to protect the anus while the rest of the area was liberally coated with vaseline and covered with gauze except the targeted sinus area.
- The researchers instructed nurses to start the procedure by the skin and sacrococcygeal fascia along with the sinus's surrounding tissue and its lateral tract was infiltrated with an adequate amount of lignocaine with adrenaline. If the sinus opening was less than 3 mm in diameter, it was enlarged by use of a mosquito clamp after local anesthesia but If not enlargement was not required. Following the determination of the sinus, researchers start removing the hairs with the same clamp. If there was a sinus abscess detected, the drainage was required with the removal of the content of pus and the hair

then the sinus tract was curetted with a biopsy curette.

- The researchers instructed nurses to put an eighty percent phenol was injected into the main sinus with the aid of a 5 mL disposable syringe to fill the sinus tract with the snugly fitted nozzle of the syringe with a plastic or metallic cannula into the opening of the sinus in which the nurse protecting the surrounding skin during manipulation.

The researchers instructed nurses to perform phenol instillation slowly using minimum pressure to avoid phenol being forced into the tissue surrounding the sinus and causing a local inflammatory reaction left the phenol in situ for approximately (3-5) min then the nurse expressed it by pressure while the excess phenol was mopped along with debris removed from the sinus, then phenol dressing by covering the wound with a gauze piece.

- Documentation for any abnormalities.

### The Evaluation phase:

After one month from implementing the educational guidelines regarding phenolisation dressing technique, evaluation of research sample knowledge and practice were done using the same format of tools (tool II and III) that was used in the pre-test to evaluate the effect of the educational guidelines.

### Statistical analysis:

Data entry and statistical analysis were performed using SPSS for Windows, version 20. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and mean and SDs for quantitative variables. Differences between the two means tests (t-test) were used. Statistical significance was considered at P-value < 0.05.

### Results:

**Table (1)** shows that 54% of the studied nurses were between 20 to less than 30 years old with a mean age was  $33.25 \pm 6.08$ , 62% of the studied nurses were female, while 38% were male. More than two-fifth of the studied nurses (44%) have a diploma from secondary nursing school. Regarding years of experience,

42% of the studied nurses have less than ten years of experience.

**Table (2):** Illustrates that there were highly statistically significant differences found between nurses' knowledge regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease pre/post-educational guidelines ( $P < 0.001$ ).

**Figure (1):** Demonstrates that 43% of the studied nurses had satisfactory knowledge regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease pre-educational guidelines which improved post-intervention and become 96% of them had satisfactory knowledge.

In the comparison of the studied nurses' practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease table (3) illustrated that there were highly statistically significant differences between nurses' practice at pre and post educational guidelines ( $p < 0.001$ ) Regarding all aspects of phenolisation dressing technique.

**Figure2:** Portrays the nurses' total practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease pre and post educational guidelines, and indicated that 52% of the studied nurses had competent level of practice pre- educational guidelines, but post-educational guidelines 85% of them had a competent level of practice.

**Table (4)** showed that there was a statistically significant positive correlation between the total knowledge and total practice scores of the studied nurses regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease ( $p < 0.001^{**}$ ).

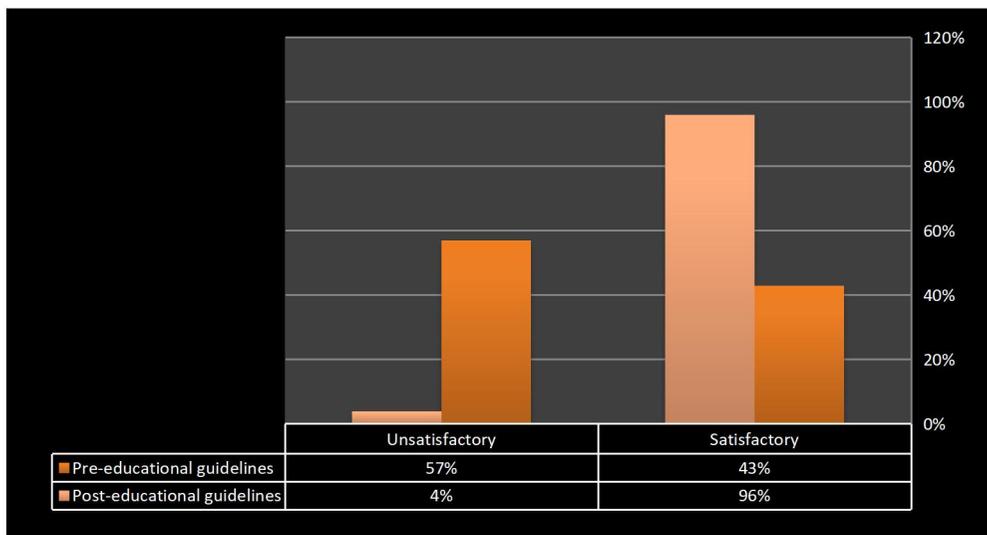
**Table (1):** Percentage distribution of the studied nurses regarding their demographic characteristics

Variables.	The Studied Nurses (n=50)	
	N	%
<b>Age:</b>		
• 20 < 30	27	54.0
• 30 < 40	12	24.0
• ≥40	11	22.0
(X±SD): 33.25±6.08		
<b>Gender:</b>		
• Male	19	38.0
• Female	31	62.0
<b>Qualification:</b>		
• Nursing Diploma.	22	44.0
• Bachelor of nursing.	15	30.0
• Master of nursing.	13	26.0
<b>Years of experience:</b>		
• < 5	19	38.0
• <10	21	42.0
• >10	10	20.0

**Table (2):** Comparison of Nurses' Knowledge regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease pre and post educational guidelines (N-50)

Knowledge items	Pre- the educational guidelines		Post- the educational guidelines		X <sup>2</sup>	P-value
	No	%	No	%		
Definition of phenolisation dressing technique	24	48	50	100	136.43	<0.001**
General information regarding phenolisation dressing technique.	27	54	47	94	150.22	<0.001**
Effect on the sacrococcygeal pilonidal sinus disease.	28	56	48	96	123.24	<0.001**

\*\*; Highly significant at p-value < 0.001

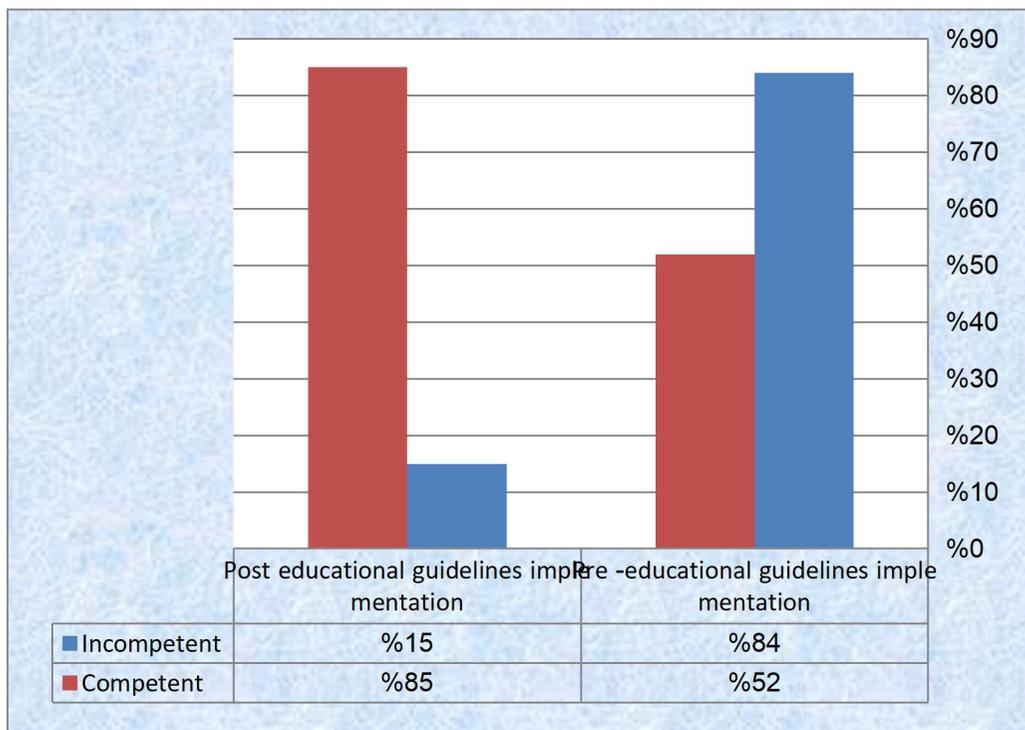


**Figure (1):** Percentage distribution of the studied nurses' total knowledge regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease pre and post- educational guidelines (N-50)

**Table (3):** Comparison of nurses' practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease pre and post educational guidelines

Steps of phenolisation dressing technique Practices	Studied nurses (n=50)				X <sup>2</sup>	P-value
	Pre- the educational guidelines		Post- the educational guidelines			
	N	%	N	%		
Performing hand hygiene • Done • Not done	33 17	66.0 34.0	50 0	100 0.0	75.07	<0.001**
Preparing waterproof bag, Provided privacy, Put on clean gloves, removed and discarded soiled dressing, Prepared equipment and opened sterile supplies, Applied sterile gloves • Done • Not done	35 15	70.0 30.0	46 4	92.0 8.0	123.02	<0.001**
Assisting client to a comfortable position, assessment of wound in mind color, amount, odor sinus pain frequency, and surrounding tissues • Done • Not done	33 17	66.0 34.0	47 3	94.0 6.0	67.82	<0.001**
Applying appropriate dressing. Disposed of used equipment., Removed gloves, Performed hand hygiene • Done • Not done	31 19	62.0 38.0	49 1	98.0 2.0	67.92	<0.001**
Put the patient in the prone position and the area was sterilized with povidone-iodine solution, a large piece of cotton was used to protect the anus while the rest of the area was liberally coated with vaseline and covered with gauze except the targeted sinus aria. • Done • Not done	26 24	52.0 48.0	48 2	96.0 4.0	26.75	<0.001**
Starting procedure by the skin and sacrococcygeal fascia along with sinus's surrounding tissue and its lateral tract was infiltrated with an adequate amount of lignocaine with adrenaline. If the sinus opening was less than 3 mm in diameter, it was enlarged by use of a mosquito clamp after local anesthesia but If not enlargement was not required. Following the determination of the sinus, researchers start removing the hairs with the same clamp. If there was a sinus abscess detected, the drainage was required with the removal of the content of pus and the hair then the sinus tract was curetted with a biopsy curette. • Done • Not done	31 19	62.0 38.0	47 3	94.0 6.0	87.83	<0.001**
Putting an eighty percent phenol was injected into the main sinus with the aid of a 5 mL disposable syringe to fill the sinus tract with the snugly fitted nozzle of the syringe with a plastic or metallic cannula into the opening of the sinus in which the nurse protecting the surrounding skin during manipulation • Done • Not done	25 25	50.0 50.0	46 4	92.0 8.0	36.74	<0.001**
Documentation for any abnormalities. • Done • Not done	32 18	64.0 36.0	49 1	98.0 2.0	67.34	<0.001**

\*\*; Highly significant at p-value < 0.001



\*\*; Highly significant at p-value < 0.001

**Figure (2):** Differences between nurses' total practice pre and post educational guidelines regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease(n=50)

**Table (4):** Correlation between total knowledge and total practices scores of the studied nurse (n=50).

Items	Total knowledge score	
	R	P
Total practices score	.453	0.000**

\*\*; highly significant at p < 0.001

## Discussion:

Phenol has a cheap financial cost, minimal tissue excision with a decreased recurrence rate, a short hospital stay, minimal workforce loss, quick return to regular life, and minimal scar tissue formation, as well as wound healing acceleration (Akan et al, 2018). Pilonidal sinus is a common, costly, and deteriorating condition among young adults that causes social problems and reduces life comfort (Humphries & Duncan, 2019).

The results of the present study revealed that there were highly statistically significant differences found between nurses' knowledge regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease ( $P < 0.001$ ). These findings are in the same line with results in a study conducted by Awan et al., (2018) who studied "Surgical site infection in elective surgery" and reported that nurses had a poor level of knowledge about phenolisation dressing. This result is not similar to Benson & Powers, (2017) who studied "Your role in infection prevention" they reported that about two-fifths of their sample had adequate knowledge about wound dressing. This result reflects the positive effect of educational guidelines implementations on knowledge regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease, which met the nurse's needs and provide them with sufficient knowledge. This indicates the actual need of the studied nurses for this study.

Concerning the studied nurses' total knowledge more than two-fifths had satisfactory knowledge regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease pre-educational guidelines which improved post-intervention. From the researchers' point of view, this reflects the importance and effectiveness of instructional guidelines implementation that are commonly associated with improving knowledge and a better understanding of phenolisation dressing technique among the studied nurses.

These findings are supported by Thaler, (2020) who conducted a study on "Treatment of pilonidal sinuses by Phenol solution injections" and found that accentuating

Crystalline phenol is a successful treatment modality for pilonidal sinus disease, In comparison to other surgical therapies, uncomplicated treatment approaches for pilonidal illness, such as minimally invasive surgery or non-excisional treatments, have been linked to lower morbidity and recurrence rates. The phenol solution and crystallized form were seen to destroy pilonidal cyst cavities, as well as to narrow lipoid tissue, sacral fascia, and skin. It irritates the inner wall of the pilonidal sinus cavity, causes granulation and contraction, and results in cavity closure.

The present study results revealed that there were highly statistically significant differences between nurses' practice at pre and post-educational guidelines regarding all aspects of phenolisation dressing technique. From the researchers' point of view, it reflected the positive impact of the educational guidelines in improving nurses' practices. These confirmed the effective modifications in nurses' practices that reflected the success of the main goals of the implementation of the instructional guidelines. This result is in the same line as Topuz et al., (2021) who conducted a study about "Crystallized phenol treatment of pilonidal disease improves the quality of life" and revealed that the practice of phenol treatment improved pilonidal sinus healing.

Also, it supported the results conducted by Omer et al., (2021) entitled "A useful alternative surgical technique to reconstructing large defects following excision of recurrent pilonidal sinus disease in the intergluteal region" and observed that phenol dressing was an effective alternative surgical technique to treat excision of recurrent pilonidal sinus disease.

The present study revealed that there was a positive correlation ( $P = 0.000$ ) between the total knowledge and total practice scores of the studied nurses' pre-and post-educational guidelines implementation. This reflected the importance of improving nurses' knowledge and practices to help them learn and acquire good knowledge and apply it. This association is explained that when nurses had sufficient knowledge that can help them practice well which is reflected in their patient care.

The findings of the present study have supported the aim and hypothesis of the study and confirmed that the knowledge and practices among the studied nurses have improved. From the researchers' point of view, this is reflected in the success of educational guidelines implementation and its positive effects. Also, reflects the importance and effectiveness of introducing those guidelines for nurses regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease that associated with improving practice.

### **Conclusion:**

Based on the findings of the current study, aim, and hypotheses, it was concluded that the majority of nurses had unsatisfactory knowledge and inadequate practices toward phenolisation dressing technique pre educational guidelines implementation while this improved after implementation. Educational guidelines had a positive effect on improving surgical nurses' knowledge and practice regarding phenolisation dressing technique for patients with sacrococcygeal pilonidal sinus disease.

### **Recommendations:**

**Based on the findings of the present study, the following recommendations were suggested:**

- Educational programs about the importance of phenolisation dressing technique should be provided to nurses working in surgical units.
- Replication of the current study on a larger probability sample is recommended for generalized results.
- A simplified illustrated booklet regarding phenolisation dressing technique should be available to nurses during care for patients with sacrococcygeal pilonidal sinus disease.

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