

▪ **Basic Research**

Effect of Implementing Educational Program on Self-Care Management among Patients Undergoing Pilonidal Sinus Surgery

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Abstract

Background: Pilonidal Sinus Disease is a common source of morbidity and loss of work-productivity in healthy young adults, necessitating operative treatment and adequate postoperative self-care management. **This** study aimed to evaluate the effect of implementing an educational program on self-care management among adult patients undergoing pilonidal sinus surgery. **Design:** a quasi-experimental research design (pre-posttest) of two groups (study and control). **Setting:** The study was conducted in the colorectal surgery department and outpatient surgical clinic at Damanhour National Medical Institute in El Beheira, Egypt. **Subjects:** A purposive sample of 90 adult patients was randomly divided into two groups: a control group who received routine hospital care (n = 45) and a study group (n = 45) who received an educational program on self-care management. **Tools:** Three tools were used. Tool (I): "Patients' Undergoing Pilonidal Sinus Surgery Structured Interview Schedule". Tool (II): "post pilonidal sinus surgery: a 0–10 pain rating scale." Tool (III): "Post Pilonidal Sinus Surgery Self-Care Management Questionnaire" **Results:** The results showed a significant improvement in the study group's pain severity and overall self-care management compared to the control group. **Conclusion:** This study concluded a good overall self-care management level among the study group post pilonidal sinus surgery. Therefore, it is recommended that healthcare providers incorporate such education as a routine part of the care provided to adult patients undergoing pilonidal sinus surgery to improve their outcomes and reduce healthcare costs.

Keywords: Educational Program, Pilonidal Diseases, Pilonidal Sinus Surgery, Self-care Management,

Introduction

Pilonidal sinus disease (PSD) is a common acquired inflammatory debilitating status, caused by the ingrowth of thick hair into the skin of the sacrococcygeal region, resulting in cysts or abscesses formation at the buttock groove, discharge of serous, purulent, and pyogenic exudates flowing out and recur from the ruptured abscess. Also, one or more sinuses can be observed with primary openings appearing as midline pits in the natal cleft, that may communicate with secondary pits away from the midline (Johnson et al., 2019).

The PSD condition can be asymptomatic or displayed as an acute abscess of the gluteal cleft accompanied by swelling, discomfort, pain, and impair quality of life sometimes over a prolonged period (Luedi et al., 2021). Furthermore, it can be transformed into a chronic condition with intermittent sinus discharge with repeated skin ulceration and sinus tract expansion, enlarged lesion areas, and complex infections that complicate the treatment of PSD (Salih et al., 2021).

The incidence rate of PSD ranges from 26 to 94 cases per 100,000 and has been commonly growing in recent decades (Odlo et al., 2022). PSD is observed more habitually in young adults and is found primarily in males' gender than females. In addition, obesity, excessive sweating, hirsutism, deep intergluteal clef, localized trauma, family history, a sedentary lifestyle, and poor hygiene are commonly known predisposing factors of PSD development (Harries et al., 2019; Serup et al., 2023).

The diagnosis of pilonidal sinus relies on symptoms, signs, and additional examinations using color Doppler ultrasound or MRI in complex conditions (Song et al., 2023). sacrococcygeal pilonidal sinus is ordinarily treated surgically however; the most appropriate surgical treatment for PSD is still under debate. (Bi et al., 2020). Therefore, the crucial factor to guarantee surgery's therapeutic effect is to completely remove the lesion and select the appropriate repair method (Yildiz et al., 2017). The most commonly performed surgical procedures are excision with primary closure and excision with leaving the wound open for healing by secondary intention (Hussein., 2018).

The expected healing rates of pilonidal sinus wounds (PSWs) range from eight to ten weeks or longer. Delayed wound healing is caused by infections, poor hygiene, and poor wound care, physical activity that causes increased frictional forces. In addition anxiety and depression are associated with delayed wound healing due to prolonged recovery periods, frequent hospital visits, loss of work time, and restricted day activities either due to pain and discomfort post-surgery (Rudd et al, 2021).

Considering this, the nurses must be knowledgeable about PSD disease and its management to provide adequate patient care. As well as assess any lack of patient understanding about PSD and its wound care. So the nurses must provide patients with comprehensive education about self-care to manage their wound and periwound environment through (wound cleansing, dressing changes, disinfection, hair removal, minimizing friction, keeping hips clean, avoiding sitting for a long time, and avoiding vigorous and high-intensity physical activity. (Song et al., 2023)

Moreover, patient education concerning self-care management post pilonidal sinus surgery is very important to improve patients' experiences with a pilonidal sinus wound. The given education about optimal positioning for wound assessment and care, use of systemic and topical antibiotics, local wound interventions, wound cleansing, periwound skin care, pain control, nutrition, and allowed pre and post-healing physical activities. Postoperative management measures are considered the key elements to preventing recurrence, improving wound healing rates, reduce disease recurrences, and positively impacting patient health outcomes (Segre., 2021; Rudd et al., 2021).

Significance of the study:

Pilonidal diseases represent a significant disease load, affecting people in their most productive years with massive socioeconomic implications (Mahmood et al., 2020). In addition, a meta-analysis of 15 studies with a minimum 5-year follow-up showed an overall recurrence rate of 13.8% following pilonidal surgery along with a high complication rate. Considering this, the care of a patient with sacrococcygeal pilonidal sinus can be complex and challenging. So, the nurse has an important role in providing holistic patient education regarding comprehensive self-care management to achieve a good treatment outcome (Salih et al., 2021; Abdel Halim et al., 2021).

The AimAim the Study:

This study aimed to evaluate the effect of implementing an educational program on self-care management among patients undergoing pilonidal sinus surgery.

Research Hypotheses: To fulfill the aims of the study, the following research hypothesis was formulated:

(H1): There is a significant effect of implementing an educational program on self-care management among adult patients undergoing pilonidal sinus surgery compared to the control group.

Subject and Methods:**Study Design and Setting:**

This study was conducted in the Colorectal Surgery Department and Outpatient Surgical Clinic at Damanhour National Medical Institute in El Beheira governorate, Egypt, utilizing a quasi experimental research design.

The study included a purposive sample of 90 adult patients diagnosed with primary sacrococcygeal pilonidal sinus type III admitted to the Colorectal Surgery Department between November 2022 and August 2023. Using Epi Info 7, the sample size was determined to be 90 patients. Participants were randomly assigned to a study group (n = 45) and a control group (n = 45). The study group received self-care management instruction, while the control group received hospital routine care. Patients who had an acute infection stage, perianal abscess disease, or comorbidities such as diabetes, autoimmune disease, cardiovascular diseases, malignancy, or mental disorders were excluded from the study.

Tools of the study:

The researchers developed two tools and adopted one tool for the study based on an analysis of the relevant related literature (Song et al., 2023; Serup et al., 2023; Odlo et al., 2022; and Yildiz et al., 2017) and translated it into Arabic.

Tool (I): Patients' Undergoing Pilonidal Sinus Surgery Structured Interview Schedule It includes two parts:

Part (I); assesses the demographic characteristics, including age, gender, education level, marital status, residence area, occupation, and nature of work.

Part (II); Assessing patients' clinical data related to patients' past medical health history (history of previous pilonidal cyst, previous injury in the natal cleft area, family history of pilonidal sinus, and associated medical diseases), patients' lifestyle behaviors (smoking, body mass index, nature of body hair distribution as extensive body hair, excessive sacral hairs, and stiff prominent sacral hair), hygienic condition as good or poor, type of underwear material, type of practiced sports} In addition, the patient's current health history includes the chief complaint, number of sinus orifices, duration of manifestation, and surgical techniques used in pilonidal cyst removal.

Tool (II): The 0–10 Numeric Rating Scale: Adopted from Ho et al. (2022) to assess the patient's pain severity post pilonidal sinus surgery by asking the patient to place a mark on the scale itself or say the number that best matches his pain level. Zero means that the patient has no pain, while 10 represents the most intense pain.

Scoring System: The score was interpreted and categorized as follows: **0:** no pain; **1 to 3:** mild pain; **4 to 6:** moderate pain; **7 to 9:** severe pain; and **10:** very severe pain.

Tool III: Post-Pilonidal Sinus Surgery Self-Care Management Questionnaire: It was developed by the researchers based on a review of relevant recent literature (Dupuis et al., 2021; Mahmood et al., 2020) and was used for the self-care management undertaken by the patients. It includes five main categories, namely, hygiene and incision care, activity, diet, medication compliance, and follow-up care, related to self-care post-pilonidal sinus surgery. Patient responses were rated on a 5-point Likert scale ranging from 1 (never), 2 (rarely), 3 (sometimes), 4 (often), and 5 (always).

Scoring System: The total score was summed up and converted into percent. The patient's self-care management was evaluated as follows:

- Below 50% of the total self-care management score, it was considered poor.
- 50–75% of the total self-care management score was considered fair.
- More than 75% of the total self-care management score was considered good.

Ethical Consideration

The study received written approval from the ethical committee of the faculty of nursing at Damanhour University, Egypt on October 20, 2022. The study was assigned the ethical approval code (63-d). Additionally, official permission was obtained from the Dean of the Faculty of Nursing, Damanhour University, and the administrative authorities of the selected setting. Consent from participants was obtained after explaining the research objectives. Patients were given detailed information about the purpose and benefits of the study and had the option to participate voluntarily. The study adhered to standard ethical principles and ensured strict confidentiality and anonymity for all participants during data collection. No risks were posed to the participants.

Validity and reliability of the tools

To ensure the validity of the tools and booklet content, five experts in medical-surgical nursing were consulted, and their feedback was used to refine the tools. The reliability of the developed tools was assessed using the test-retest method by Cronbach's alpha coefficient test for devices 2, and 3, with $r = 0.865$ and $r = 0.903$, respectively, which denotes good reliability.

A pilot study:

A pilot study was conducted on 10% of the patient sample (nine patients), who were excluded from the actual study sample from the previously mentioned settings, to ascertain the clarity and applicability of the developed study tools and to identify obstacles that may

be faced during data collection. Researchers substituted the excluded sample with another sample that is similar in characteristics to the original sample. The data obtained from the pilot study were analyzed, and the final form of the tools was reconstructed and ready for use.

Data collection

Data collection started at the beginning of November 2022 and ended in August 2023. Individual interviews were conducted with each patient using the study tools to collect the data needed for the study objective.

Fieldwork: This study conducted through the following phases:

Phase I: Assessment Phase:

After explaining the study's purpose, both groups were assessed for sociodemographic and clinical data using Tool (I) at the time of admission. Pain severity was assessed for both groups post-pilonidal sinus surgery using Tool II on the first day post-operative, after 1 week, and after 2 weeks of follow-up post-operative. Self-care management practices were assessed using Tool III after 1 week and after 2 weeks of follow-up post-surgery for both groups. The time needed to complete each patient's study tools ranged from 30 to 45 minutes.

Phase II: Planning Phase:

Based on the assessment of the patient's needs, goals, priorities, and expected outcomes, the researchers developed a self-care management program (Dupuis et al., 2021; Mahmood et al., 2020; Harries et al., 2019). The content of the program was developed in a colored, illustrated booklet that included colored pictures of self-care management and was given to each patient in the study group during the implementation phase. The self-care program consisted of two sessions for each patient.

Phase III: Implementation Phase:

In phase III of the study, a self-care management program was implemented for each patient in the study group. The program consisted of verbal instructions and a written educational booklet. The guidelines were repeated in two sessions, each lasting 30–45 minutes. The first session took place before surgery in the Colorectal Surgery Department, while the second session occurred during the postoperative period until the patient's discharge. The purpose of the second session was to reinforce the information provided in the first session using an illustrated educational booklet.

Aim and Contents of Sessions

The sessions aimed to equip patients with the necessary knowledge to make informed decisions about their treatment and effectively manage their condition after surgery. Session I covered various aspects such as disease epidemiology, risk factors, causes, pathophysiology, diagnosis, and surgical management of pilonidal diseases. Additionally, session II discussed the advantages and disadvantages of different surgical approaches as well as post-operative complications. Furthermore, self-care management activities were emphasized, including proper wound assessment and care, antibiotic usage, peri-wound skin care, hair removal, personal hygiene, wound dressing, pain management, nutrition, physical activity, return to work and sports, follow-up care, and the impact of psychosocial aspects on daily activities.

Phase IV: Evaluation Phase

After implementing the educational program, the study conducted an evaluation phase in the first and second weeks. Patients were contacted via phone to ensure compliance and follow-up. The purpose was to assess the impact and effectiveness of the program on self-care management in adult patients undergoing pilonidal sinus surgery. Tools II and III (post-test) were used to evaluate both groups.

Statistical analysis of the data:

The data in this study were analyzed using IBM SPSS software package version 26.0. The normality of the distribution of variables was verified using the Shapiro-Wilk test. The Chi-square test (Monte Carlo or Fisher Exact) was used to compare categorical variables between groups. Paired t-tests were used to compare variables within each group at one and two weeks after surgery. Student t-tests were used to compare normally distributed quantitative variables between two groups, while Mann-Whitney tests were used for non-normally distributed variables. The Friedman Test was used to compare different stages. A significance level of 5% was used to judge the results obtained.

Results

Table (1) showed that less than half of the control group (44.4%) were between the ages of 20<30 years, while (46.7%) of the study group were between the ages of 30<40 years. As regards sex, more than three quarters (82.2% and 77.8% respectively) of the control and study groups were male. Regarding educational level (57.8% and 66.7% respectively) of the control and study groups had secondary education. Also, more than half of both studied groups (53.3% and 60.0% respectively) were married. As regards the place of residence, it was found that more than two-thirds (68.9%) of both studied groups were from urban areas. Concerning occupation, it was found that less than half of the control and study groups (48.9% and 44.4% respectively) have manual work. Regarding nature of work

it was noticed that (57.8% and 48.9% respectively) of the control and study groups were driving vehicles.

In addition, more than one third of the control and study groups (40.0% and 44.4% respectively) had history of previous pilonidal cyst. Moreover, 46.7% of the control group and 57.8% of the study group had normal body weight according to the calculated BMI. Regarding nature of body hair distribution, nearly two thirds of the studied groups (66.7% and 60.0% respectively) had extensive body hair, while (48.9%) and (44.4%) respectively of the control and study group had excessive sacral hairs. As well, around half of the studied patients (60.0% and 48.9% respectively) had stiff prominent sacral hairs that are coarse and curly. No statistical significance differences were found between the control and study groups with their socio-demographic characteristics.

Table (2) illustrated that more than two thirds of the control and study groups (64.4% and 73.3% respectively) had good hygiene where they had bathed 3 or more times a week. Concerning the type of underwear material, it was observed that just half of the control and study groups (53.3% and 51.1% respectively) were worn cotton underwear. As regards practiced sports, less than two thirds of the studied groups (55.6% and 62.2% respectively) were not practiced any kind of sport. Also, it was found that more than half of the control and study groups (57.8% and 53.3% respectively) were non-smokers. It was noticed that (55.6%) of the control group and (51.1%) of the study group had sedentary lifestyle. No statistically significant differences were found between the two studied groups in relation to their lifestyle behaviors.

Table (3) revealed that all patients (100%) in both studied groups had complained of episodes of pain, discomfort, and swelling in the tailbone area, and also felt uncomfortable with practicing certain activities like sitting. As well as, around two-thirds of the control and study group (60.0% and 66.7% respectively) had erythema with acute abscess formation and drainages of yellowish pus-like or bloody discharge from the natal cleft area with foul smelling. Regarding the number of sinus orifices it was found that (53.3% and 51.1% respectively) of the control and study groups had multiple cysts with sinus tract. As well, more than half of the control and study group (57.8% and 53.3% respectively) had duration of symptoms of less than 1 year. Concerning, surgical techniques used for pilonidal sinus removal, around three-quarters of the control and study groups (71.1% and 75.6% respectively) underwent surgical excision and primary closure (closed technique). As regards the nature of pain (53.3%) of the control group and (66.7%) of the study group had throbbing pain nature. No statistically significant differences were found between the two studied groups in relation to their current health history.

Table (4) concerning 1st assessment of pain severity at first post-operative day, it was observed that more than two thirds of the control and study groups (71.1% and 68.9% respectively) had severe pain. Regarding 2nd assessment of pain severity after 1 week post-operative, it was found that (71.1%) of the control group and (93.3%) of the study group had moderate pain with statistically significant differences were found between the two studied groups where $p = (0.006^*)$. As regards, 3rd assessment of pain severity after 2 week post-operative, it noticed that (44.4%) of the control group and (84.4%) of the study group had mild pain with a highly statistically significant difference was found between the two studied groups where $p = (<0.001^*)$. A statistically significant difference was found regarding different assessment stages of pain severity post pilonidal sinus surgery in each studied group.

Figure (1): illustrated that the overall self-care management mean score was (159.84 ± 20.32) for the control group and (197.58 ± 24.25) for the study group after one week of surgery. Compared to (154.18 ± 17.24) for the control group and (184.62 ± 24.01) for the study group after two weeks of surgery.

Table (1): Comparison between the two studied groups regarding their demographic and clinical data characteristics.

| Socio-demographic and clinical characteristics | Control group (n=45) | | Study group (n=45) | | χ^2 | p |
|--|----------------------|-------|--------------------|-------|----------|------------------------|
| | N | % | N | % | | |
| Age | | | | | | |
| - 20<30 | 20 | 44.4% | 17 | 37.8% | 2.267 | ^{MC} p= 0.550 |
| - 30<40 | 16 | 35.6% | 21 | 46.7% | | |
| - 40<50 | 9 | 20.0% | 7 | 15.5% | | |
| Sex | | | | | | |
| - Male | 37 | 82.2% | 35 | 77.8% | 0.278 | 0.598 |
| - Female | 8 | 17.8% | 10 | 22.2% | | |
| Level of education | | | | | | |
| - Primary education | 0 | 0.0% | 2 | 4.4% | 4.419 | ^{MC} p= 0.257 |
| - Preparatory education | 4 | 8.9% | 1 | 2.2% | | |
| - Secondary education | 26 | 57.8% | 30 | 66.7% | | |
| - University education | 15 | 33.3% | 12 | 26.7% | | |
| Marital Status | | | | | | |
| - Single | 19 | 42.2% | 16 | 35.6% | 0.434 | ^{MC} p= 0.870 |
| - Married | 24 | 53.3% | 27 | 60.0% | | |
| - Divorced | 2 | 4.4% | 2 | 4.4% | | |
| Residence area | | | | | | |
| - Urban | 31 | 68.9% | 31 | 68.9% | 0.000 | 1.000 |
| - Rural | 14 | 31.1% | 14 | 31.1% | | |

Table (1) Cont'd: Comparison between the two studied groups regarding their demographic and clinical data characteristics.

| | | | | | | |
|---|----|-------|----|-------|-------|-------|
| Occupation | | | | | | |
| - Employee | 17 | 37.8% | 14 | 31.1% | 1.856 | 0.395 |
| - Manual work | 22 | 48.9% | 20 | 44.4% | | |
| - Housewife | 6 | 13.3% | 11 | 24.4% | | |
| Nature of work | | | | | | |
| - Driving vehicles | 26 | 57.8% | 22 | 48.9% | 4.861 | 0.106 |
| - Sedentary occupation | 18 | 40.0% | 16 | 35.6% | | |
| - Sit down for more than 6 hours a day at a stretch eg. Drivers | 1 | 2.2% | 7 | 15.5% | | |
| Past medical health history: | | | | | | |
| - History of a previous pilonidal cyst (abscess, drainage) | 18 | 40.0% | 20 | 44.4% | 0.182 | 0.671 |
| - Having PSD manifestations for the first time. | 8 | 17.8% | 7 | 15.6% | 0.080 | 0.777 |
| BMI | | | | | | |
| - Normal | 21 | 46.7% | 26 | 57.8% | 1.307 | 0.520 |
| - Obese | 13 | 28.9% | 9 | 20.0% | | |
| Having a deep cleft between buttocks | 11 | 24.4% | 10 | 22.2% | | |
| Nature of body hair distribution | | | | | | |
| - Extensive body hair | 30 | 66.7% | 27 | 60.0% | 0.431 | 0.512 |
| - Excessive sacral hairs | 22 | 48.9% | 20 | 44.4% | 0.179 | 0.673 |
| - Stiff prominent Sacral hair that is coarse and curly | 27 | 60.0% | 22 | 48.9% | 1.120 | 0.290 |

 χ^2 : Chi-square test

MC: Monte Carlo

FE: Fisher Exact

Table (2): Comparison between the two studied groups regarding their Lifestyle Behaviors

| Lifestyle Behaviors | Control group (n=45) | | Study group (n=45) | | χ^2 | p |
|--|-------------------------|-------|-----------------------|-------|----------|------------------------|
| | N | % | N | % | | |
| Hygiene | | | | | | |
| - Poor hygiene (Bathe 2 or fewer times a week) | 16 | 35.6% | 12 | 26.7% | 0.000 | 1.000 |
| - Good hygiene (Bathe 3 or more times a week) | 29 | 64.4% | 33 | 73.3% | | |
| Type of underwear material | | | | | | |
| - Cotton | 24 | 53.3% | 23 | 51.1% | 0.045 | 0.833 |
| - Artificial fibers | 21 | 46.7% | 22 | 48.9% | | |
| Practiced Sports | | | | | | |
| - Not practicing any kind of sport | 25 | 55.6% | 28 | 62.2% | 4.417 | ^{MC} p= 0.099 |
| - Swimming | 1 | 2.2% | 5 | 11.1% | | |
| - Football | 19 | 42.2% | 12 | 26.7% | | |
| Smoking | | | | | | |
| - No | 26 | 57.8% | 24 | 53.3% | 0.180 | 0.671 |
| - Yes | 19 | 42.2% | 21 | 46.7% | | |
| Sedentary lifestyle | | | | | | |
| - Yes | 25 | 55.6% | 23 | 51.1% | 0.180 | 0.671 |
| - No | 20 | 44.4% | 22 | 48.9% | | |

χ^2 : Chi-square test **MC**: Monte Carlo

Table (3): Comparison between the two studied groups regarding patient's current health history

| Patient's Current Health History | Control group (n=45) | | Study group (n=45) | | χ^2 | p |
|--|----------------------|--------|--------------------|--------|----------|-------|
| | N | % | N | % | | |
| Chief complaints | | | | | | |
| - Episodes of pain, discomfort or swelling in the tailbone area | 45 | 100.0% | 45 | 100.0% | - | - |
| - Erythema with acute abscess formation in the tailbone area | 27 | 60.0% | 30 | 66.7% | 0.431 | 0.512 |
| - Drainages of yellowish pus-like or bloody discharge from the natal cleft area with foul smelling | 27 | 60.0% | 30 | 66.7% | 0.431 | 0.512 |
| - Painful lump under the skin in that area | 21 | 46.7% | 27 | 60.0% | 1.607 | 0.205 |
| - Feeling uncomfortable with practicing certain activities like sitting | 45 | 100.0% | 45 | 100.0% | - | - |
| Number of sinus orifices | | | | | | |
| - Multiple cysts with sinus tract | 24 | 53.3% | 23 | 51.1% | 0.045 | 0.833 |
| - Only one | 21 | 46.7% | 22 | 48.9% | | |
| The duration of symptoms | | | | | | |
| - < 1year | 26 | 57.8% | 24 | 53.3% | 0.050 | 0.975 |
| - 1< 3years | 19 | 42.2% | 21 | 46.7% | | |
| Surgical techniques used for pilonidal sinus removal: | | | | | | |
| - Surgical excision and primary closure (closed technique) | 32 | 71.1% | 34 | 75.6% | 0.227 | 0.634 |
| - Obeid's surgical excision (open technique) | 13 | 28.9% | 11 | 24.4% | | |
| Nature of pain | | | | | | |
| - Gnawing | 21 | 46.7% | 15 | 33.3% | 3.665 | 0.056 |
| - Throbbing pain | 24 | 53.3% | 30 | 66.7% | | |

χ^2 : Chi-square test

Table (4): Comparison between the two studied groups regarding pain severity post pilonidal sinus surgery throughout intervention periods of the study.

| Patient's pain severity post pilonidal sinus surgery | Control group (n=45) | | Study group (n=45) | | Test of sig. | p |
|---|---------------------------------|-------|---------------------------------|-------|---------------------|-------------------|
| | N | % | N | % | | |
| 1st assessment (interview on the first postoperative day) | | | | | | |
| - Severe pain | 32 | 71.1% | 31 | 68.9% | $\chi^2 = 0.053$ | 0.818 |
| - Very severe | 13 | 28.9% | 14 | 31.1% | | |
| - Mean \pm SD | 3.29\pm0.46 | | 3.31\pm0.47 | | U =990.0 | 0.819 |
| 2nd assessment (interview after 1 week post-operative) | | | | | | |
| - Moderate pain | 32 | 71.1% | 42 | 93.3% | $\chi^2 = 7.601^*$ | 0.006* |
| - Severe pain | 13 | 28.9% | 3 | 6.7% | | |
| - Mean \pm SD | 2.29\pm0.46 | | 2.07\pm0.25 | | U =7 87.50* | 0.006* |
| 3rd assessment (interview after 2 weeks post-operative) | | | | | | |
| - Mild pain | 20 | 44.4% | 38 | 84.4% | $\chi^2 = 15.711^*$ | 0.001* |
| - Moderate pain | 25 | 55.6% | 7 | 15.6% | | |
| - Mean \pm SD | 1.56\pm0.50 | | 1.16\pm0.37 | | U = 607.5* | <0.001* |
| Fr | 77.968* | | 85.719* | | | |
| p | 0.001* | | <0.001* | | | |

χ^2 : Chi-square test U: Mann Whitney test Fr: Friedman Test for comparing between the different stages in each group

*: Statistically significant at $p \leq 0.05$

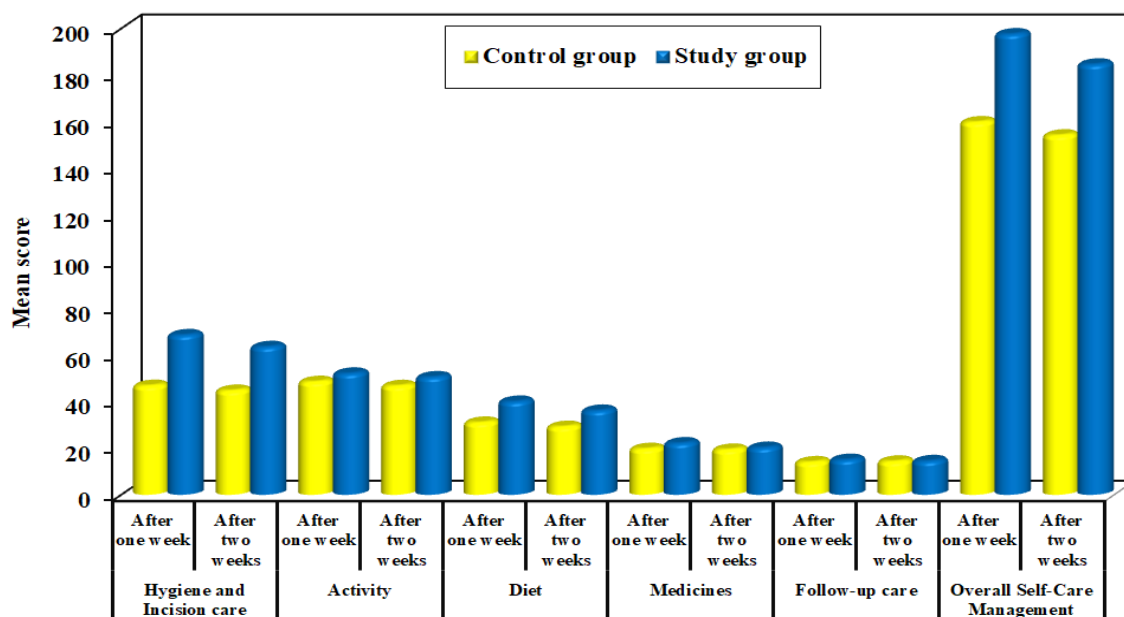


Figure (1): Comparison between mean scores of the two studied groups regarding post-pilonidal sinus surgery self-care management parameters (one and two weeks after surgery).

Discussion

Pilonidal sinus disease is a common source of morbidity and loss of work productivity in healthy young adults, necessitating operative treatment and adequate postoperative self-care management (Serup et al. 2023). The results of the current study show that the demographic and clinical characteristics of the patients undergoing PSD surgery revealed a predominance of male patients, young age, family history, excessive body hair, and smoking observed in this study are consistent with earlier reports by Caliskan et al. (2020), which have shown that PSD is more common in males than females and primarily affects the working-age male population with a mean age of 25.66 ± 7.67 years, with a positive family history. Additionally, the higher proportion of patients from urban areas in this study is in line with the previous study by Lund et al. (2020) which has demonstrated a higher prevalence of the disease in urban areas.

In relation to occupation, the current study revealed that less than half of the studied patients were manual workers which was consistent with Mahmoud et al. (2020), who

identified occupation as a major contributing factor, specifically noting occurrences of pilonidal disease among individuals in occupations where there is repetitive friction or trauma in the natal cleft. In relation to a history of previous pilonidal cysts, the current study results show that more than one-third of the patients had a history of previous pilonidal cysts which is consistent with a previous study by **Doll et al. (2021)** that has shown a high recurrence rate for pilonidal sinus disease.

Furthermore, the current study's findings suggest that obesity is not a significant risk factor for PSD, as nearly half of patients in both groups had normal body weight according to BMI. These findings are consistent with **Lund et al. (2020)**. While, as reported by **Johnson et al. (2019)** reported that obesity and a high body mass index are indeed risk factors for the development of PSD. These discrepancies may be due to variations in study populations, methodologies, and sample sizes. Therefore, further study is needed to clarify the relationship between obesity, BMI, and PSD risk.

In relation to personal hygiene and physical activity, this study reported good personal hygiene and irregular physical activity among the studied patients. The study also found that less than two-thirds of the studied groups had not practiced any kind of sport, despite physical activity being shown to have several health benefits, including a reduced risk of PSD. This is consistent with **Mustafa (2023)**, who emphasized that the most important parts of treatment for pilonidal disease and preventing infection and abscess formation are lifestyle modifications and prevention such as good hygiene, removing hair from the area, loose clothing, not sitting for long periods of time, and limiting activities such as horseback riding or bicycling.

In relation to lifestyle behaviors, the current findings also highlight the importance of self-care management in postoperative recovery, emphasizing the need for healthcare providers to educate and support patients in enhancing their self-care management skills for better recovery outcomes. Contrary to previous studies, the current study reveals that more than two-thirds of both the control and study groups had good hygiene practices, bathing three or more times a week. This finding challenges the concept that good hygiene plays a crucial role in preventing PSD, as suggested by **Kraft, Khansa, and Janis (2020)** who reported that good hygiene, regular bathing, and cleansing with mild soap and water are believed to keep the skin clean and free from bacteria and debris that could contribute to the development of the condition. Moreover, maintaining dryness in the area is vital to preventing bacterial overgrowth.

While **Johnson et al. (2019)**, confirmed the association of poor hygiene with pilonidal sinus disease. The conflicting findings regarding the importance of hygiene practices in preventing PSD call for further investigation. Healthcare providers should

emphasize the significance of maintaining good personal hygiene with their patients, as it is considered a fundamental preventive measure. Additionally, patients should be educated about the potential risk factors associated with the condition, such as lack of exercise, sedentary lifestyles, and excessive hair, to encourage appropriate lifestyle modifications.

The finding that around half of the control and study groups wore cotton underwear is noteworthy, which is consistent with a previous study by **Mutus et al. (2018)** that highlights the importance of wearing clean and breathable underwear, preferably made of cotton, to prevent excessive sweating and friction in the area. This finding supports the need to educate patients about the importance of wearing cotton underwear as part of good hygiene practices to reduce the risk of developing PSD.

In relation to chief complaints, revealed that all patients in both studied groups had complained of episodes of pain, discomfort, and swelling in the tailbone area, and also felt uncomfortable with practicing certain activities like sitting. This aligns with the typical presentation of PSD, including symptoms of pain, discomfort, swelling in the tailbone area, and drainage of pus-like or bloody discharge. (**Nixon & Garza (2020)**)

Concerning, surgical techniques used for pilonidal sinus removal, around three-quarters of the control and study groups, underwent surgical excision and primary closure (closed technique). The use of surgical excision and primary closure is consistent with the current standard of care for this condition. However, it is worth noting that there are multiple treatment modalities for PSD, and there is no universally accepted mode of treatment as reported by **Mahmood, Hussain, and Akingboye (2020)**.

As regards pain severity post pilonidal sinus surgery, the current findings acknowledge that severe pain is common morbidity after the surgical treatment of pilonidal sinus disease. The current findings align with **Boztug et al. (2021)**, which reported that more than two-thirds of participants in both groups experienced severe pain on the first postoperative day. This suggests that pain is a prevalent issue that patients often face after PSD surgery. Therefore, understanding and effectively managing pain is crucial for improving postoperative recovery and patient satisfaction. Additionally, the findings of the current study align with a study conducted by **Elliott et al. (2019)**, which also demonstrated a significant reduction in pain severity and an improvement in the quality of life among individuals who underwent a self-care program.

In relation to the effect of self-care management educational program on pain severity post OSD surgery, a statistically significant difference was observed regarding pain severity assessment stages between the studied patients which suggests that the study group experienced a lower incidence of severe and moderate pain and a higher incidence of mild

pain throughout the assessment stages. These results further support the effectiveness of self-care management educational program in managing pain and enhancing the well-being of individuals post-PSD surgery.

Concerning to the effect of self-care management educational program on self-care practices, the results of the current study indicate that the study group exhibited better self-care management practices in terms of hygiene, incision care, and diet compared to the control group after one week of pilonidal sinus surgery. Both groups demonstrated good self-care practices in terms of activity, medication compliance, and follow-up care. These findings emphasized the importance of effective self-care management practices following surgery for pilonidal sinus disease and suggest that educational programs may play a significant role in promoting such practices which is consistent with **Paterick et al. (2017)**.

The study also revealed a significant difference between the study group and the control group in terms of overall self-care management levels after surgery, with the study group exhibiting a higher incidence of good self-care practices. This difference was particularly pronounced in the areas of hygiene and incision care, diet, and overall self-care management. This is consistent with **Strong et al. (2021)**, who emphasized the importance of making sure that patients receive comprehensive verbal and written information both about available surgical approaches and about proper post-operative wound care.

Moreover, the mean scores for overall self-care management decreased for both groups after two weeks of surgery. However, the study group consistently achieved higher scores than the control group at both time points, indicating that the intervention employed in the study effectively improved self-care management. These results are consistent with **Segre (2021)** who found that educational programs focused on personal hygiene, wound care, and physical activity were effective in reducing the risk of PSD recurrence after surgery and improving patients' knowledge and self-care management after PSD surgery.

Conclusion and Recommendations

Based on the current findings and research hypotheses this study revealed a significant difference between the study group and the control group in terms of overall self-care management levels after surgery, with the study group exhibiting a higher incidence of good self-care practices. These findings emphasized that good self-care management practices are essential for promoting recovery and reducing the risk of complications after PSD surgery.

Moreover, this study focused on immediate post-operative outcomes after PSD, while the long-term effectiveness of the educational program and its impact on sustained self-care practices and prevention of recurrence is recommended for further research. Additionally, further study can explore strategies to minimize pain and enhance the overall

surgical experience for PSD patients. Therefore, this study concludes with practical recommendations for healthcare providers to incorporate education on self-care management as a routine part of care for patients undergoing pilonidal sinus surgery. This highlights the relevance and potential impact of the study findings on clinical practice.

Strengths and Limitations of the study:

The main strength of this study is providing valuable insights into the effectiveness of educational programs for self-care management in patients undergoing pilonidal sinus surgery, contributing to improved patient outcomes and quality of care. The limitations of this study were found in the subjective patient self-report nature of the self care management outcome measures during the follow up period post hospital discharge may result in bias.

Abbreviations:

Pilonidal Sinus Disease (PSD)

Body Mass Index (BMI)

Pilonidal Sinus Wounds (PSWs)

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Conflict of interest

The authors declare that there is no conflict of interest.

Data and materials availability

All data are available upon reasonable request from the corresponding author.

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الملخص العربي

تأثير تنفيذ برنامج تعليمي على إدارة الرعاية الذاتية بين المرضى الذين يخضعون لجراحة الناسور العصعصي

مقدمه: يعد مرض الناسور العصعصي مصدرًا للمرض وفقدان الإنتاجية في العمل لدى البالغين الأصحاء، مما يستلزم العلاج الجراحي و الرعاية الذاتية الكافية بعد العملية الجراحية
الاهداف : هدفت هذه الدراسة إلى تقييم تأثير تنفيذ برنامج تعليمي علي إدارة الرعاية الذاتية بين المرضى الذين يخضعون لجراحة الناسور العصعصي.

نوع البحث:

تم استخدام تصميم البحوث شبه التجريبية في هذه الدراسة

الطريقة : تضمنت الدراسة تسعون مريض يخضعون لجراحة الناسور العصعصي واجريت الدراسة في قسم جراحة القولون والمستقيم والعيادة الجراحية الخارجية بمعهد دمنهور الطبي القومي بالبحيرة، مصر . تم تقسيم المرضى بشكل عشوائي الي مجموعتين مجموعته دراسه ومجموعه ضابطة. تلقت المجموعه الضابطة الرعاية الروتينية بالمستشفى (عدد = 45) بينما مجموعة الدراسة (عدد = 45) تلقت برنامجًا تعليميًا حول إدارة الرعاية الذاتية.

الأدوات: تم استخدام ثلاث أدوات. الأداة الأولى: "استبيان المقابلة الشخصية للمرضى الذين يخضعون لجراحة الناسور العصعصي. الأداة الثانية: " مقياس تقييم الألم من 0 إلى 10 بعد جراحة الناسور العصعصي: الأداة الثالثة: "استبيان إدارة الرعاية الذاتية بعد جراحة الناسور العصعصي.

النتائج : أظهرت النتائج تحسنا ملحوظا في شدة الألم و كذلك إدارة الرعاية الذاتية الشاملة لدى مجموعة الدراسة مقارنة بالمجموعة الضابطة.

الاستنتاج: خلصت هذه الدراسة إلى أن مستوى إدارة الرعاية الذاتية الشامل كان جيدًا بين مجموعة الدراسة بعد جراحة الناسور العصعصي. لذا فمن المستحسن أن يقوم مقدمي الرعاية الصحية بدمج هذا التعليم كجزء روتيني من الرعاية المقدمة للمرضى الذين يخضعون لجراحة الناسور العصعصي لتحسين النتائج الصحية وخفض تكاليف الرعاية الصحية.

مفاتيح الكلمات : برنامج تعليمي، إدارة الرعاية الذاتية، الناسور، جراحة الناسور العصعصي.