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Original Article

# Impact of Enhanced Recovery Pathway Application for Outcomes on Women Undergoing Abdominal Hysterectomy

**Mervat Gaber Metwalli Zaghloul 1, Sara saied Hassan 2 , Anaam Ebrahim El Nagar 3 , Heba Abd Elrehem Mohamed Zedan 4**

*1.Maternity, obstetrics and gynecological nursing, Faculty of nursing, Port Said University 2. Lecturer at obstetric and gynecological nursing department Faculty of Nursing, suez canal University 3. Lectrurer in maternal and neonatal health nursing faculty of nursing Tanta university 4. Lecturer at woman's Health and Midwifery Nursing Department, Faculty of Nursing, Mansoura University*

## 1.ABSTRACT

**Background**: Clinical pathway nursing management is standardized, multidisciplinary approaches to caring for patients with a goal of decreasing length of stay and care without negatively affecting patient outcomes. **Aim of Study:** To assess the Impact of Enhanced Recovery Pathway application Outcomes on Women Undergoing Abdominal hysterectomy A quasi-experimental design (nonequivalent control group pretest/posttest) was adopted to test the proposed hypotheses. **Research setting**: The research was conducted at the obstetric and gynecology department and the operative unit in Mansoura university. **Sample:** A convenience sample was used to collect data; it's included 80 post hysterectomy. **Data were collected** by using three tools included: Stucture interview questionaire, Assessment and Follow up Sheet and Enhanced Recovery Pathway intervention**. Results:** The majority While 50% of the control group stayed in the three to four day range following operation, over 75% of the study group only stayed in the same location for 2 days. 91.9% of the study group and 48.6% of the control group expressed satisfaction with the care they received. **Conclusion**: Compared to women who got standard perioperative care, women having abdominal hysterectomy who received enhanced recovery after surgical protocol had shorter hospital stays and higher levels of satisfaction**.Recommendation:** All women having abdominal hysterectomy should adopt enhanced recovery following surgery as normal procedure**.**

**Keyword:** *Abdominal Hysterectomy , Enhanced Recovery Pathway Application after surgery*

## 2.Introduction

Gynecological procedures, enhanced recovery applications have been established in general settings [1,2]. Nevertheless, no clinical research has examined patient satisfaction or self-assessment with regard to ERAS protocol compliance for benign hysterectomy to date. The purpose of this study is to ascertain the effect of compliance with each ERAS aspect on patient outcomes following a hysterectomy, as well as to assess if better clinical outcomes and patient experience are connected with improved compliance with the ERAS protocol modified for gynecological surgery. Furthermore, using individual ERAS element compliance, we created a model to forecast the likelihood of experiencing a postoperative problem. [3,4,5]

One of the biggest challenges facing nursing is incorporating new developments into the practice of medicine. Enhanced Recovery after Surgery (ERAS) is a structured approach to preoperative care that has been widely accepted in various medical specialties, such as gynecologic, colorectal, hepatobiliary, and urologic surgery. Shorter hospital stays, fewer problems, and fewer readmissions to hospitals were among the clinical and health system benefits of the ERAS. [6,7]

Clinical pathway comprises defined processes designed to steer evidence-based healthcare away from inconsistent practices, improve treatment quality and clinical outcomes, keep a safe distance from needless delays, and save costs.It has been extensively used in many different clinical organization fields. [7,8]

One of the most popular major gynecological procedures is the hysterectomy. For many patients, particularly those with larger uteruses or adhesions, abdominal hysterectomy is still the conventional procedure, even though minimally invasive techniques like vaginal or laparoscopic surgeries are now advised as the first choice when feasible [9].

The full recovery after major abdominal surgery has been significantly improved by the implementation of a set of evidence-based

treatments that are incorporated into a standardized protocol and cover the whole perioperative period. Improved postoperative recovery, as opposed to usual management, indicates a major shift in perioperative care [10].The idea of "Enhanced recovery after surgery" arose as a multimodal strategy aimed at enhancing patient outcomes, standardizing perioperative treatment, and maximizing the patient experience. [10,11].

The absence of organized patient education is one of the biggest obstacles to the implementation of these pathways. It involves patient aims and preferences around surgery, avoiding preoperative fasting and bowel preparation, early oral intake, limiting the use of drains and catheters, multimodal analgesia, early ambulation ,and prioritizing euvolemic and no-euvolemia. Various interventions in these areas are merged to produce a master convention, which is then put into action as a package to improve surgical results [12]

**2.1Significance of the study**

Through clinical observation in clinical area settings, the researcher saw that over the previous two years, the incidence of hysterectomy had increased. The number of hysterectomy cases at Mansoura University Hospitals in 2009 (0.66 %), while in 2010, (1.15 %) it means that hysterectomy incidence doubled year by year (Mansoura university hospitals statistical sinuses, 2010). Numerous complications following a hysterectomy, such as hemorrhage, deep vein thrombosis, wound infection, and bowel problems, have a detrimental impact on the woman's functional capacity and, consequently, her quality of life. Reducing these consequences is therefore a major task for the nurse. [12,13].

One of the primary abdominal surgery that poses a risk to a woman's health is a hysterectomy. such as bleeding, the requirement for a transfusion, harm to other organs, infections, and problems following anesthesia [14]. The prevalence of hysterectomy varies greatly between nations. Every year, more than 600,000 hysterectomies are performed in the US and about 140,000 in Germany. (Ala-Nissilä, et al. 2017).

The National Center for Health Statistics reports that the annual incidence rate for hysterectomies in Egypt was 165 per 100,000 [16]. According to annual statistics from the Mansoura University Hospitals, its prevalence increased to 200 cases among gynecological operations.Actually, because of carelessness, women who get abdominal hysterectomy run the danger of serious complications. For all members of the surgical team, minimizing these effects is a significant task because they have a detrimental impact on the women's functional level and, consequently, their quality of life. These complications include bleeding, deep vein thrombosis, wound infection, and gastrointestinal issues. [17]. Using ERAS methods in a well-applied Multimodal Approach results in lower morbidity, shorter hospital stays, and more satisfaction among women. [18]. Furthermore, maternal mortality and morbidity from gynecological operation is higher after post-operation therefore this study done to prevent any complication after gynecological operation[19].

**2.2Aim of the study**

This study aimed to assess the Impact of Enhanced Recovery Pathway intervention Outcomes on Women Undergoing Abdominal hysterectomy

**2.3Study hypothesis:**

Women with gynecological operation (hysterectomy) who received the multimodal approach will exhibit an improvement in their clinical outcomes compared to the control group.

**3.Subjects and method:**

**3.1Research design:** A quasi-experimental research design was in this study.

**3.2Research setting**

The study was carried out in the operating room and in the inpatient obstetric and gynecology department of the Mansoura University Hospitals in Egypt.

**3.3Subjects:**

There was a convenience sample. 80 post-hysterectomy women were recruited based on the following eligibility criteria: they had to be between the ages of 50 and 65, have never had a chronic illness, and had been admitted to the hospital for an abdominal hysterectomy in order to be eligible to participate in the study. The woman was excluded if she had a history of bilateral oophorectomy or if the current procedure would result in her losing her ovaries, had a serious mental illness, was physically or psychologically incapacitated, or had restricted movement in her lower limbs.The sample was split into two groups of 40 women each: group B, or the study group, was fully assessed and got planned nursing care protocol, while group A, or the control group, received daily routine care in accordance with hospital policy. The women were assigned to each group at a random basis. Information gathered

throughout a four-month period, starting in December 2022 and ending in May 2023.

**The sample size was calculated using the following formula**:

**n = [(Zα/2 + Zβ) 2 × {2(SD)2 }]/ (mean difference between the two groups)2**

**Were SD = standard deviation**

**Zα/2: This depends on level of significant, for 5% this is 1.96**

**Zβ: This depends on power, for 80% this is 0.84**

**Therefore,**

**n= [(1.96 + 0.84)2 × {2(17.0)2 }]/ (10.7)2 =39.6**

Based on the above formula, the sample size required is 40 women in each group.

Reference:sabra and Booth JL, Harris LC, Eisenach JC, Pan PH:2016:ARandomized cotrolled trial comparing multimodal techniques in patient after gynecological operation.

**3.4Tools of data collection**

I. **structure interview questionaire**: Personal information about the patient, medical history, gynecological history, and obstetric history were all taken care of.
II**. Assessment and Follow up Sheet**: Vital signs, neurological integrity, cardiovascular system, respiratory system, renal system, gastrointestinal system, lower extremities, and general observation and assessment for (bleeding, wound site, intravenous infusion, potency of drainage tube, pain location and site) were among the postoperative physical assessment components that it was intended to cover.

III.**Enhanced Recovery Pathway intervention:**

♣personal and physical assessment for post hysterectomy women.

♣ Implementation of multimodal approach of care.

♣ Follow up and Evaluation of care.

The instruments were created by the researchers using a review of the literature (Ali et al., 2018). Patients in both groups were able to record hospital stays from the time of surgery to release, readmission, and reoperation, as well as post-operative problems during and after the original stay

**The reliability of the proposed tools** was tested using Cronbach's alpha coefficient test.

**3.5PilotStudy**

To determine whether the study was feasible and whether the tool was applicable, a pilot study including 10% of the study population was conducted. The primary goals of the pilot study were to assess the usefulness of the instruments employed, estimate the amount of time required for data collection, identify any tool-specific issues, and identify any issues that would cause issues for the data gathering process.

Administrative Approval

Before beginning the study, the directors of each study setting received an official letter from the dean of the Mansoura University Faculty of Nursing seeking permission to conduct the study. The purpose of the study was stated in this letter along with requests for assistance and approval for data gathering.

**3.7Ethical considerations**

The research protocol received approval from the Research Ethics Committee of Faculty of Nursing at Mansoura University (approval issued on February 19th 2023 under Ref. No. o419).

**3.8Field work:**

Data was gathered over the course of six months, from the beginning of December 2022 to the end of May 2023, with the researcher attending the study on the designated days each week from 3 pm to 10 pm.

**(Tool I)**

**Assessment phase:** In order to create the data collection tools, an updated review of the relevant literature was conducted during this phase. Additionally, baseline data was gathered through patient interviews conducted by the researcher before to surgery in the admitting ward. To begin gathering information on general features, prior obstetrical history, and recent surgical history, each patient underwent an individual interview.

1) **Interviewing phase**: For each woman, the interview lasted approximately fifteen minutes. Prior to the procedure, the researcher conducted interviews with every woman in both groups at the admitted ward in order to gather information on sociodemographic characteristics, prior medical history, and current obstetric history.

2)**Assessment phase**: Following the hysterectomy, the researcher began the evaluation right away. The evaluation covered vital signs, particularly temperature, chest clearance, wound (site, color, discharge), home warning signs for deep vein

thrombosis (DVT), examination for urinary tract infection (urgency of urination, dysuria), and bowel sound and movement to detect paralytic ileus.

**(Tool II)**

**3) Implementation phase:**

**For control group** Regarding the control group, the researcher's job was to simply watch and document the standard care given to patients during their perioperative treatment in accordance with hospital policy. Standard medical treatment was provided by:

- Preoperative care, which includes wearing properly fitting compression stockings before to surgery, maintaining an extended fast starting at 12 a.m., and using an enema or laxative medication as part of a regular mechanical bowel preparation regimen.
- Intraoperative care, which included the insertion of urine catheters in all patients, the maintenance of a normal body temperature during the procedure, and the administration of intravenous antibiotics.
- Postoperative treatment (IV fluids were administered until intestinal motility was restored, and patients were prescribed a single type of NSAIDS). Give ketorolac if the pain level is really high. Not a forced mobilization. After intestinal motility was restored, the abdominal drain was removed, and oral feeding was initiated.

**For study group (Applying ERAS protocol)**

**Preoperative preparation**

- **Women counseling and education**:

Early in the initial preoperative visit, the researcher began the counseling process, using the material displayed in the ERAS booklet to teach the patient about early release planning, the hospital stay, and the ERAS protocol. Researchers assist patients in realizing that they may participate actively in their care.

- **Perioperative diet**:

Women are permitted to eat normally until midnight (fasting for no more than six hours prior to surgery) and are permitted to drink liquids up until two hours prior to the procedure. To lessen the effects of fasting, they were given 400 mL of a clear drink that included 200 kcal of carbohydrates, such as apple juice.

- **Mechanical bowel preparation:**

For the women in the ERAS group, rectal enemas and mechanical bowel preparations were avoided.

**Intraoperative preparation**

In order to maintain normal temperature during the procedure, IV fluids were warmed prior to infusion. Thirty minutes to an hour before the incision, patients received prophylactic antibacterial and antiemetic treatment. Women attempted to minimize preventive peritoneal drainage when inserting a urinary catheter.

**Postoperative preparation:**

- **Postoperative fluid management:** Give 500 mL of crystalloid liquids during the course of the first 24 hours, and then stop.
- **Postoperative nutrition :**

Encourage an early resumption of intestinal function. Laxatives are frequently employed in the study group to prevent ileus. The study group was begun early and gradually fed orally, followed by liquids (hot beverages) for two hours, a semisolid meal, and finally solid food. **Pain control:**

Women in study group were given multimodal pain management strategy

**Drains and tubes:**

When the women were able to use the bathroom, the study group was advised to remove all tubes, drains, and catheters as soon as possible.

- **Postoperative mobilization**

Early walking After surgery, the patient spends two hours in bed (passive leg exercise, changing positions, and using a wheelchair) before moving on to walking with assistance and, eventually, walking alone (4-6 times a day).

**Assessment of discharge criteria:**

**4) Follow-up and evaluation phase**: Following their hysterectomy, the researcher checked in with both study groups to see whether there had been any issues. This included monitoring their vital signs, conscious level, wound site, drainage, skin color, intake, and output during their first stay as well as the duration of their stay. After both groups were discharged, there was one further month of phone follow-up. Prior to their hospital discharge, the researcher verbally instructed the women in the study group on how to take care of themselves at home. She also provided them with an ERAS booklet to assist them comprehend the need of

discharge education after surgery. A monthly phone follow-up to gauge the women's satisfaction after hospital discharge

- **(Tool III)** kept track of any instances of persistent postoperative problems, hospital readmissions, and/or the requirement for additional surgery.

**3.9 Statistical analysis:** For statistical analysis, the software program SPSS21.0 was utilized, and GraphPad Prism 8.0 was employed for illustration. The measurement data were presented as mean ± standard deviation (mean ± SD); the independent samples t-test was utilized to compare the data between groups, and the paired t-test was employed to evaluate the data within each group. The $\chi 2$ test was used to compare the groups based on the number of cases and percentage (n, %) of the counting data. A difference in terms of statistics was defined as $p < 0.05$.

Version 20.0 of SPSS for Windows was used for all statistical analyses (SPSS, Chicago, IL). While categorical data were expressed as numbers and percentages, continuous data were expressed as mean ± standard deviation (SD). The t-test was used to compare two variables with continuous data. To compare variables related to categorical data, the chi-square test was used. The correlation coefficient test was used to look for correlations between two variables in continuous data. At $p<0.05$, statistical significance was established.

**4.Results**

**Table (I)** The general characteristics of the two patient groups in Table (I) indicate that there was no statistically significant difference in age, education level, occupation, or BMI ($p>0.05$). The variable age had the highest p-value of (0.866), and the study group's mean age was (34.2%) with a standard deviation of 9.0, while the control group's mean age was (33.8%) with a standard deviation of (8.7).

**Table (2)** showed that abnormal uterine bleeding was reported by more than half (90% and 75%, respectively) of the study and control groups. When it came to surgical indications, the most prevalent medical reason for hysterectomy across study groups was uterine fibroids (75% vs. 80.2%, respectively). Hystosalpingo-oophorectomy was the most often performed surgical hysterectomy technique in both the study and control groups (62.5% vs. 67.5%, respectively). Furthermore, there was no statistically significant variation in the forms of surgical hysterectomy between the studied groups.

**Table (3)** explained that the postoperative complications for both groups—which included "post hysterectomy complications" including fever, shock, hemorrhage, etc.—showed statistically significant differences. Since the chi-square value was less than 0.05, the fever and constipation-related p-value was the highest (0.045), followed by the chest infection p-value (0.043), and the bleeding-related p-value (0.022). Additionally, there were statistically significant differences between the study and control group in terms of the clinical outcomes for paralytic symptoms, which included vomiting, diarrhea, distension, and abdominal spasm. The p-values for these symptoms were (0.039, 0.026, and 0.022,)respectively, for the symptoms of vomiting, diarrhea, and abdominal spasm. Furthermore, the mean timeframes for the clinical post-operative outcomes for the four bowel functions (bowel sound, flatus, intestinal movement, and first meal ingestion) showed statistically significant variations between the two groups. The study group's mean value for flatus was (3.9) with SD (1.1), while the control group's mean value was (4.7) with SD (1.1). The highest p-value for flatus was (0.045). The means of flatus and the study group differed as well (chi-square = 0.045), and bowel sound came in second. The first meal ingestion had the lowest p value (0.002) (mean value was 1.5, SD 0.8 versus 2.2, SD 1.1) for both groups.

**Table (4)** demonstrates that, in terms of the duration of hospital stay, there was a very statistically significant relationship between the study and control groups. The study group's mean ±SD was 2.6 ±0.9, while the control group's was 3.1 ±0.7. Given that the chi-square value was (0.007).

**Table (5)** demonstrate that the mean and standard deviation of the outcomes of the postoperative hysterectomy were statistically different; for example, the "mean time of I.V. line infusion per hours" for the study group was (6.4) with SD (2.4) and for the control group it was (5.2) with SD (1.9). Additionally, there were statistically significant differences between the study and control groups for the "mean time of first hydration per hours" (2.4) with SD (1.0) against 5.9 with SD (1.8). This was demonstrated by p-values less than 0.001. The mean time of first nutritional intake/hours showed statistically significant differences between the study and control groups; the mean was (1.5) with SD (0.8) against (2.2) with SD (1.1). There were disparities between the "mean of time of first nutritional intake/hrs" and the p-value, which was less than 0.001. between the

control and the study group, pvalue was (0.002). Also, mean time of ambulation was (2.7) with SD (1.3) and (4.1) with SD (2.0), there were statistically significant differences between the studies groups, since p-value (0.02) .As well as, there were statistically significant differences according to duration of mobility per day/ hrs for study and control group respectively ,that was (3.1) with SD (0.2) and (3.5) with SD (0.9) respectively , since the p-value (0.031).

**Results of table (6)** illustrated that there were statistically significant differences according to women after hysterectomy regarding to Performances of activates between both groups, p-value =(0.011*). Also related to analgesia administration consisting of (paracetamol, other drugs). The percentage of paracetamol usage was (95%), while (5%) in the study and control group respectively. The p-value was less than 0.001. Added, there were statistically significant differences according to intensity of pain after hysterectomy. Pain intensity consisted of (mild, moderate, severe) since the p-value was less than (0.026) . As well as, there were statistically significant differences according to duration of surgery/hrs ." the experimental group's mean surgical duration/hour was 46.0 with standard deviation (2.2), while the control group's was 6.2 with standard deviation (1.9). Additionally, there were statistically significant differences between the study group (78.0) with SD (1.7) and the control group (8.7) with SD (1.5) in terms of "mean scar healing duration/week". Similarly, p-value = (0.025*) indicates a highly statistically significant relationship between women's satisfaction in both study groups

**Table(1). Distribution of the study and control groups according to their socio demographic characteristics (n= 80)**

| Socio - characteristics | Study group (N=40) | | Controlgroup (N =40) | | P- value & Significant |
|---|---|---|---|---|---|
| | NO | % | NO | % | |
| <50 years | 16 | 40 | 14 | 35 | 0.866 |
| 50-60 years | 12 | 30 | 14 | 35 | |
| >60 years | 12 | 30 | 12 | 30 | |
| **Mean ±SD** | 34.2 ±9.0 | | 33.8 ±8.7 | | 0.831 |
| **Residence** | | | | | |
| Rural | **18** | **45** | **12** | **30** | 0.651 |
| Urban | **22** | **55** | **28** | **70** | |
| **Educational level** | | | | | |
| Illiterate | **2** | **5** | **4** | **10** | |
| Read & write | **6** | **15** | **8** | **20** | |
| Primary | **8** | **20** | **4** | **10** | 0.150 |
| Secondary | **8** | **20** | **10** | **25** | |
| University | **16** | **40** | **14** | **35** | |
| **Occupation** | | | | | |
| Employer | **18** | **45** | **24** | **60** | 0.179 |
| Housewife | **22** | **55** | **16** | **40** | |
| **BMI** | | | | | |
| ≥22 kg/m2 | **17** | **42.5** | **15** | **37.5** | 0.648 |
| <22 kg/m2 | **23** | **57.5** | **25** | **62.5** | |

**Table 2.Distribution of the study and control groups according tocurrent surgical history (n=80)**

| Current surgical history | Studygroup N=40) | | Control group (N =40) | | P- value & Significant |
|---|---|---|---|---|---|
| | NO | % | NO | % | |
| **Woman complain** | | | | | |
| ❖ Abnormal uterine bleeding | 36 | 90 | 30 | 75 | 0.031(*) |
| ❖ Lower abdominal pain | 2 | 5 | 6 | 15 | |
| ❖ Abdominal mass | 2 | 5 | 4 | 10 | |
| **Indication of hysterectomy** | | | | | |
| ❖ Endometrial carcinoma | 7 | 17.5 | 3 | 7.5 | P<0.001(*) |
| ❖ Ovarian tumor | 1 | 2.5 | 0 | 0.0 | |
| ❖ Endometriosis | 0 | 0.0 | 2 | 5 | |
| ❖ Adenomyosis | 2 | 5 | 1 | 2.5 | |
| ❖ Uterine fibroid | 30 | 75 | 33 | 82.5 | |
| ❖ Cervical cancer | 0 | 0.0 | 1 | 2.5 | |
| **Types of Surgical hysterectomy** | | | | | |
| ❖ Total Hysterectomy | 9 | 22.5 | 10 | 25 | 0.282 |
| ❖ Hystosalpingooophorectomy | 25 | 62.5 | 27 | 67.5 | |
| ❖ Subtotal Hysterectomy | 5 | 10 | 3 | 7.5 | |
| ❖ Radical Hysterectomy | 1 | 5 | 0 | 0.0 | |

**Table (3): Distribution of the study and control groups according toPost-operative complication (n=80)**

| Post-operative complication | Study group (N=40) | | Control group (N =40) | | P- value & Significant |
|---|---|---|---|---|---|
| | NO | % | NO | % | |
| • Fever above $38c^0$ | 4 | 10 | 11 | 27.5 | (0.045*) |
| • Shock | 3 | 7.5 | 10 | 25 | (0.039*) |
| • Bleeding | 6 | 15 | 15 | 37.5 | (0.22*) |
| • Thrombophelibitis | 6 | 15 | 14 | 35 | (0.039*) |
| • Urinary retention | 5 | 12.5 | 13 | 32.5 | (0.032*) |
| • Wound infection | 8 | 20 | 17 | 42.5 | (0.030*) |
| • Chest infection | 2 | 5 | 8 | 20 | (0.043*) |
| • Constipation | 11 | 27.5 | 4 | 10 | (0.045*) |
| **Paralytic ileus symptoms** | | | | | |
| - Nausea | 6 | 15 | 15 | 37.5 | (0.22*) |
| - Vomiting | 7 | 17.5 | 16 | 40 | (0.026*) |
| - Diarrhea | 4 | 10 | 12 | 30 | (0.025*) |
| - Distension | 2 | 5 | 9 | 22.5 | (0.023*) |
| - Abdominal spasm& burst | 3 | 7.5 | 10 | 25 | (0.039*) |
| **Bowel and intestinal function(Mean ±SD)** | | | | | |
| ❖ Bowel sound/hrs | 3.7 ±1.2 | | 2 4.3 ±1.2 | | (0.028*) |
| ❖ pass flatus/hrs. | 3.9 ±1.1 | | 1 4.7 ±1.1 | | (0.045*) |
| ❖ First meal ingestion/hrs. | 1.5 ±0.8 | | 2.2 ±1.1 | | (0.002*) |
| ❖ Intestinal movement/hrs | 3.6 ±1.1 | | 4.2 ±1.2 | | (0.022*) |

(*)=significant

**Table (4): Distribution of the Control and Study Groups in Relation totheir Length of Hospital Stay/Day (n=80)**

| Length of Hospital Stay/Day | Study group (N=40) | | Control group(N =40) | | P-value &Significant |
|---|---|---|---|---|---|
| | NO | % | NO | % | |
| 0 – 2 days | 32 | 80 | 28 | 70 | 0.025(*) |
| 3-4 days | 4 | 10 | 5 | 12.5 | |
| >4 days | 4 | 10 | 7 | 17.5 | |
| Mean ±SD | 2.6 ±0.9 | | 3.1 ±0.7 | | 0.007(*) |

(*)= significant

**Table (5): the mean and stander deviation (Mean ±SD) between the study and control groups according to their clinical postoperative outcomes**

| Items | Study group (N=40) (Mean ±SD) | Control group (N =40) (Mean ±SD) | P- value & Significant |
|---|---|---|---|
| -Time of I.V line infusion / hrs. | 5.2 ±1.9 | 6.4 ±2.4 | 0.015(*) |
| -Time of first hydration/ hrs. | 2.4 ±1.0 | 5.9 ±1.8 | p<0.001(*) |
| -Time of first nutritional intake/ hrs | 1.5 ±0.8 | 2.2 ±1.1 | 0.002(*) |
| -The first time of ambulation/ hrs. | 2.7 ±1.3 | 4.1 ±2.0 | 0.005(*) |
| -The duration of mobility/ hrs. | 3.1 ±0.2 | 3.5 ±0.9 | 0.010(*) |

**Table (6): Distribution of the study and control groups according to Post-operative follow up (n=80)**

| Items | Study group (N=40) | | Control group (N =40) | | P- value & Significant |
|---|---|---|---|---|---|
| | NO | % | NO | % | |
| **Performances of activates** | | | | | |
| - Independent | 27 | 67.5 | 24 | 60 | 0.011(*) |
| - Partially independent | 12 | 30 | 8 | 20 | |
| - Complete dependent | 1 | 2.5 | 8 | 20 | |
| **Analgesia administration** | | | | | |
| - Paracetamol | 38 | 95 | 28 | 70 | <0.001(*) |
| - Other drugs | 2 | 5 | 12 | 30 | |
| - Mean dose of analgesia intake | 75.0 ±63.0 | | 127.5 ±80.8 | | 0.002(*) |
| **pain intensity** | | | | | |
| - Mild pain | 14 | 35 | 4 | 10 | 0.026(*) |
| - Moderate pain | 16 | 40 | 24 | 60 | |
| - Severe | 10 | 25 | 12 | 30 | |
| - Mean duration of surgery/hrs. | 4.6 ±2.2 | | 6.2 ±1.9 | | p<0.001(*) |
| **After discharge** | | | | | |
| - Mean scar healing duration/ week | 7.8 ±1.7 | | 8.7 ±1.5 | | 0.013(*) |
| **Readmission** | | | | | |
| - Yes | 37 | 92.5 | 35 | 87.5 | 0.034(*) |
| - No | 3 | 7.5 | 5 | 12.5 | |
| **Women's satisfaction** | | | | | |
| - Satisfied | 36 | 90 | 28 | 70 | 0.025(*) |
| - Unsatisfied | 4 | 10 | 12 | 30 | |

**5.Discussion**

One of the most popular major gynecological procedures is the hysterectomy. Despite being regarded as a safe surgery, there are a number of potential side effects. For many patients, especially those with known adhesions or an enlarged uterus, abdominal hysterectomy is still the conventional procedure, even though minimally invasive techniques like vaginal or laparoscopic surgeries are increasingly advised as the first choice when feasible. The ERAS technique marks a significant shift in perioperative care and has greatly enhanced full recovery following hysterectomy [20]. Table (I) provided general characteristics as a baseline for comparison, and it was seen that there was no statistically significant difference in any of the variables (age, residence, education, and occupation) between the studied groups. These results align with a research conducted in Egypt by [21].who researched study entitled "Effect of clinical pathway of postoperative nursing care on improving postoperative outcomes for women undergoing hysterectomy and clarified that, no significant differences in patient regarding to personal characteristics between the two groups.

The postoperative dietary therapy after surgery patients historically has the transition from fluids to semisolid fluid and a regular diet, with the early feed group reporting slightly fewer gastrointestinal issues that parallel with the current study findings [22]. The study and control groups exhibited no significant differences in early feeding of a regular meal and bowel movements and peristalsis after hysterectomy. There was no significant difference in intestinal function . The same table showed that the time of first postoperative bowel movement was faster in the early feed group. Early postoperative feeding after operation was well tolerated and had no negative consequences in patients. In agreement with the previous study, there was a significant difference in nausea & vomiting and bowl function as well as the time of first postoperative bowel movement between the studies groups in the current study according to table 2,. The disagreement between studies (previous and current study) could be due to that; the research sample could also be different crosswise studies; inconsistencies could be in the sample's inclusion and exclusion criteria.

The current results also revealed that related to the types of surgical hysterectomy approach, hystosalpingo-oophorectomy was the most common surgery performed with the highest percentage in both study and control groups.

The majority of the ladies had total abdominal hysterectomy surgery, according to [25], who studied "Clinical pathways of postoperative nursing care for women undergoing gynecological operations at Port Said Hospitals" and found that this finding disagrees with their findings. According to the researcher, the observed discrepancy between the results of the current study and the other study may have resulted from the study sample's varied hysterectomy indications.

The current study demonstrated a statistically significant difference between the study and control groups with regard to postoperative complications. " such as fever, shock, bleeding, …ect) Since the chi-square value was less than 0.05, the fever and constipation-related p-value was the highest (0.045), followed by the chest infection p-value (0.043), and the bleeding-related p-value (0.022). Additionally, paralytic symptoms such as vomiting, diarrhea, distension, nausea, and abdominal spasm showed statistically significant differences between the study and control group in terms of clinical outcomes; the corresponding p-values for these conditions were (0.039), (0.026), and (0.022) for the spasm, vomiting, and nausea, respectively. Based on clinical post-operative results, there were also statistically significant differences in the mean time of bowel motions between the two groups.consisting of intestinal movement, flatus, bowel sound, and first meal consumption; the flatus component had the highest p-value (0.045), and the mean flatus value for the study group was (3.9) with SD (1.1), whereas the mean value for the control group was (4.7) with SD (1.1). The study group and the control group had different means for flatus (chi-square = 0.045). Bowel sound ranked second, and the first meal ingestion component had the lowest p value (0.002) (mean value was 1.5, SD 0.8 versus 2.2, SD 1.1) for both groups.This finding agreement [25].

The current study's findings regarding postoperative hospital stays showed that half of the control group stayed in the hospital for three to four days following surgery, while the majority of the study group only stayed for two days. There was highly statistical significant relation between both groups concerning the length of hospital stay in the study group. From the over view of the researcher, applications of enhanced recovery protocol decreased length of hospital stay due to early mobilization and diet after surgery and decrease the incidence of postoperative complication.. This finding is in concurrent with [24] who conducted

research on "Patients' satisfaction with fast-track surgery in gynecological oncology in New South Australia" came to the conclusion that most patients were content with their shorter length of stay in the hospital. According to [25], there was a significant difference in the mean length of hospital stay between the study group (38.29 ± 4.95 hours) and the control group (68.44 ± 6.5 hours). This conclusion is consistent with their findings. According to the researcher, this might be because most samples in the tested groups, who were between the ages of 60 and 70, neglected to follow up on instructions on early movement, which slowed down the healing process and prolonged length of stay.

The current results made it evident that only the remaining study groups experienced postoperative urgent situations, such as urine retention, which varied between the study and control groups 12.0% and 32.5%, respectively (P=0.032). This study was in line with studies by Marie (2004) and Clerk (2012), who noted that bleeding, infection dysuria, and incontenous urine retention are possible postoperative complications. However, in a related study, Clerk (2012) stated that the most common complications were bleeding and urine retention. Regarding wound infection after surgery, it was determined that the remaining individuals in the control group (42.0%) had wound infection after surgery, compared to the study group (20%), with a significant difference between the two groups (P=0.030). This research concurred with [26], who brought up The remaining study participants experienced postoperative wound infection. This study shown that, with regard to postoperative chest infection, the remaining groups under investigation experienced chest infection at rates of 5% and 20%, respectively (P=0.043), with a highly significant difference between the two groups. These results were consistent with the research of [20], who studied Performing a hysterectomy, noted that the most common complaints from the remaining study group were wheezing, cripitations, and chest infections.

About the post-operative drug intake. According to a quasi-experimental study conducted in China on 50 postoperative CS patients, postoperative analgesia is necessary for patients to recover fast after major abdominal surgery. Among the options are analgesic drugs (paracetamol, nonsteroid anti-inflammatory medicines, etc.). Randomized clinical trials have demonstrated that paracetamol reduces surgical morbidity and length of hospital stay while also enhancing recovery [20]. These findings are based on a metaanalysis conducted by the Cochrane Institute. A more recent metaanalysis by [21] provided support for the current findings. Only paracetamol was administered to the study group. Table 6 of the current study shows that the most often used analgesic in the study groups was paracetamol. Significant statistical differences were observed in the post-operative hysterectomy pain intensity when compared to paracetamol.

In terms of readmission, the current study discovered a statistically significant difference between the groups under investigation, with two study group members and nine control group members needing hospital readmission following discharge. This finding is consistent with a study by [24] that found notable variations in readmission rates, with one patient in the ERAS group and eleven patients in the conventional group needing a hospital readmission following discharge.

According to the results of the current study, there was a highly statistically significant relationship between study group satisfaction and women. This result is consistent with that of [23], who investigated "Patients' satisfaction with fast-track surgery in gynecological oncology in New South Australia" and found that most patients were content with their shorter length of stay in the hospital. According to the researcher, a number of factors, including as wound healing, adverse responses, and post-operative pain, might lower a woman's satisfaction level. A desirable and all-encompassing answer to these issues is the use of Recovery Pathway intervention (Multimodal Approach application) Outcomes on Women Undergoing Abdominal Hysterectomy.

**6.Conclusion:**

In comparison to women who got standard postoperative care, the women having hysterectomy who received Recovery Pathway intervention (Multimodal Approach application) experienced a shorter hospital stay and higher levels of satisfaction. In addition, compared to the control group, women who received the multimodal treatment showed improvements in their clinical results. By using a multimodal strategy, their postoperative complications were decreased. As a result, the research findings validated the study's hypotheses and accomplished its goal.

**7.Recommendations**:

1. The multimodal approach should be applied to women after surgery should become the standard practice for all women undergoing

gynecologic surgeries to improve their clinical outcomes.

2. More studies should be carried out on a larger sample about in-service teaching program related to multimodal approach in major gynecological surgeries.
3. Conducting a work shop for health care provider about the importance of Recovery Pathway intervention (Multimodal Approach application) postoperative gynecological surgery.
4. It would be beneficial to share the results of this study with all obstetrics and gynecological departments in all health system settings.

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