

## Effect of Enhanced Recovery after Surgery Protocol on Hospital Stay and Satisfaction of Women undergoing Abdominal Hysterectomy

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### Abstract

**Background:** Enhanced recovery after surgery protocol is applied to the conventional perioperative techniques to improving surgical outcomes. **Aim of Study:** Was to assess the effect of enhanced recovery after surgery protocol on hospital stay and satisfaction of women undergoing abdominal hysterectomy. **Design:** A quasi experimental design was adopted in this study. **Setting:** The study was conducted at Obstetric and Gynecological department in Benha University Hospital. **Sample:** A purposive sample of 148 women undergoing abdominal hysterectomy divided into two groups. **Tools of data collection:** Data were collected by using three tools included: a structured interviewing questionnaire, follow up after surgery sheet and the women satisfaction with nursing care quality questionnaire. **Results:** Majority (81.1%) of the study group spent only 2 days after surgery while half (50.0%) of the control group spent from 3-4 days after surgery. 91.9% of the study group was satisfied with care provided compared to 48.6% of the control group. **Conclusion:** Women undergoing abdominal hysterectomy who received enhanced recovery after surgery protocol had shorter period of hospital stay and better women's satisfaction than women who received routine perioperative care. **Recommendation:** Enhanced recovery after surgery protocol should become the standard practice for all women undergoing elective gynecologic surgeries .

**Keywords:** Abdominal hysterectomy, Enhanced recovery after surgery, Hospital stay, Satisfaction.

### Introduction

Hysterectomy is one of the most common major gynecological operations. It is a surgery that performed to remove a woman's uterus (womb) and may also involve the removal of the cervix, ovaries, fallopian tubes and other surrounding structures (Swenson et al.,2018). Nearly 40% of all abdominal hysterectomy indications are due to uterine myomas, other indications includes endometriosis (12.8%), malignancy (12.6%), abnormal uterine bleeding (9.5%), pelvic inflammatory disease (3.7%) and uterine prolapse (3.0%) (Orady, 2018).

Several surgical approaches are used for hysterectomy such as abdominal, vaginal or laparoscopic operation. Although minimally invasive methods such as vaginal or laparoscopic operations are now recommended as first choice when possible, abdominal hysterectomy remains the standard procedure for a great number of women, for instance when the uterus is enlarged or in the case of known adhesions (Alexander et al., 2019) . The main reasons for recommending laparoscopic or vaginal hysterectomy over the abdominal approach are faster return to normal activities, shorter duration of hospital stay, less

bleeding, and fewer wound infections (**Wijk, 2017**).

Full recovery after major abdominal surgery has been greatly improved by the introduction a series of evidence-based treatments covering the entire perioperative period and formulated into a standardized protocol. Compared with traditional management, Enhanced recovery after surgery represents a fundamental shift in perioperative care (**Ljungqvist, 2020**). The Enhanced recovery after surgery concept emerged as a multimodal approach directed at optimizing the patient experience, standardizing perioperative care, and improving surgical outcomes (**Sandrucci, et al., 2018**).

The enhanced recovery after surgery protocol focuses on the patient's journey, which includes all the different wards and departments involved in the care. The protocol also focuses on the importance of all members of the team participating in order to optimize the patient pathways which includes nurses, surgeons, anesthesiologists, dieticians, and physiotherapists. It is crucial that everyone understands how actions taken by any member of the team along the chain affect the treatment given later, the patient, and ultimately the outcomes (**Trowbridge et al., 2019**).

The nurses play a significant role to apply the enhanced recovery after surgery protocol. Their intervention begin before woman's hospitalization (with preoperative consultation) , intra and post-operative care to minimize the incidence of post-operative complication after abdominal hysterectomy and reduce the woman stay in the hospital , and continue after discharge (with telephone follow up) to ensure the woman satisfaction after applying the enhanced recovery after surgery protocol (**Forsmo, 2017**).

Finally, the integration of the enhanced recovery after surgery protocol is an

opportunity to highlight the impact of nurses performance on the quality of perioperative care, as well as their direct influence on the surgical out comes to the woman (**Bajwa& Mehdiratta, 2021**).

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

Hysterectomy is the second most common operative procedure performed worldwide following cesarean section. The incidence of hysterectomy varies significantly among countries. More than 600,000 hysterectomies in the United States and around 140,000 in Germany hysterectomies are performed each year (**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 (**EidFarrag, et al., 2018**). The incidence of hysterectomy increased among gynecological operations to reach 240 cases, according to the annual statistics of Benha University hospital .

In fact, careless of the women undergoing abdominal hysterectomy, expose them to serious complications. Many complications accompanying hysterectomy such as hemorrhage, deep venous thrombosis, wound infection, bowel problems, these complications have negative impact on the women functional status and consequently quality of life, therefore, the minimizing of these complications represents a great challenge for all members in the surgical team (**Abdel-Aleem& El-Nemer, 2019**). A well-planned perioperative care regimen by using ERAS strategies leads to a reduction in morbidity, shorter hospital stays and greater woman's satisfaction (**Noh, et al., 2021**).

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

This study aimed to assess the effect of enhanced recovery after surgery protocol on hospital stay and satisfaction of women undergoing abdominal hysterectomy.

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## **Research hypothesis:**

Applying enhanced recovery after surgery protocol for women undergoing abdominal hysterectomy would reduce the hospital stay and increase the women's satisfaction.

## **Subjects and Method**

### **Research design:**

A quasi experimental study design was utilized in carrying out this research.

### **Setting:**

This research was conducted at Obstetrics and Gynecological Department of Benha University Hospital.

### **Sampling:**

A purposive sample of 148 women who admitted to the above-mentioned setting for abdominal hysterectomy, they were assigned into two equal groups, control group including (74) women received routine perioperative care according to the hospital policy. Study group including (74) women enrolled in the ERAS protocol. Sample was selected when the women fulfill **Inclusion Criteria** : (women who admitted to hospital for abdominal hysterectomy, free from any chronic diseases). **Exclusion Criteria:** (women who admitted to hospital for vaginal or laparoscopic hysterectomy, urgent surgery).

**Sample Size calculation:** The sample size calculated by using the following formula:

$$n = \frac{[DEFF*NP (1-P)]}{[(d^2/Z^2) - a/2*(N-1) + P*(1-P)]}$$

N = population size 240, P = hypothesized % frequency of outcome factor in the population: 3% +/-5, d = confidence limits as% of 100

(absolute +/- 5%), Design effect (for cluster surveys –DEFF), z = value 1.96

Based on above formula the sample size required was 148(74/ each group)

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

Three tools were used for data collection:

#### **Tool (I): A structured interviewing questionnaire:**

It encompassed of three main parts:

Part I: General characteristics of woman (age, marital status, educational level, residence, occupation, height, weight and body mass index).

Part II: Current surgical history (woman chief complains, surgical indication of hysterectomy and surgical approach).

#### **Tool (II): Follow up after surgery sheet:**

This tool was constructed by the researchers based on recent literature review (**Ali et al., 2018**) and used for patients in both groups to recorded post-operative complications (during primary stay and after discharge ), hospital stays from end of the surgery to discharge (days), readmission and reoperation rate.

#### **Tool (III): Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ):**

This tool was adapted from (**Ksykiewicz-Dorota et al, 2011**) and modified by the researcher to assess the level of women satisfaction with nursing care quality after abdominal hysterectomy. It included 8 items.

The score system of PSNCQQ had three point likert scales (3 = satisfied, 2 = neutral, and 1= dissatisfied). Total score ranging from (8-24) was classified into two levels:

- Satisfied woman  $\geq 65\%$  ( $\geq 14$ )
- Unsatisfied woman  $< 65\%$  ( $< 14$ )

**Supportive materials regarding enhanced recovery after surgery protocol for hysterectomy (educational booklet):**

Enhanced recovery after surgery booklet was prepared by the researcher in simple Arabic language supported by clear, colored and descriptive pictures, revised and modified by the study supervisors and jury of experts.

**Validity of tools:**

Content validity of tools was assessed by three experts in Obstetric and Gynecological Nursing field, who reviewed the tool for clarity, relevance, comprehensiveness, understanding and applicability; according to the opinion of the experts the modification was done.

**Reliability of tools:**

The internal consistency of the tools was tested for reliability by using Cronbach Alpha coefficient test by a statistician to assess reliability of the tools;

Tool	Cronbach's alpha value
<b>Follow up after surgery sheet</b> (Tool II ,part two)	<b>88.5%</b>
<b>Women Satisfaction with Nursing Care Quality Questionnaire</b> (Tool III)	<b>86.4%</b>

**Ethical considerations:**

- Ethical approval was obtained from the Research Ethics Committee at the Faculty of Nursing, Benha University.
- An official approval for conducting the study was obtained from the directors of Benha University Hospital and Head of Obstetrics and Gynecological Department.
- The aim of the study was explained to each woman before applying the tools to gain their confidence and trust.

- Oral consent was obtained from all women before enrollment in the study.
- The women were assured that confidentiality of the collected data would be maintained and the results would be used for research purposes as well as for future publication and education only.
- Women were assured that they would have the right to withdraw from the study at any time.
- The study didn't have any physical, social or psychological risks on the women.

**Pilot Study:**

A pilot study was carried for 10% of the total sample (15 women) to evaluate simplicity, clarity and applicability of study tools and the time needed to fill in the questionnaire, no modification were done. So, pilot study was included in the main study sample.

**Field work:**

The researcher attended the study setting three days every week from 9 am to 3 pm, until the predetermine size of sample was completed. Data collection was implemented for one year, from first of April 2020 to the end of April 2021. Data collection related to the control group were first obtained, and then followed by collecting data of the study group. The study was conducted through the following phases:

**Assessment phase:** During assessment phase the researcher attended to the previous mentioned setting after taking permission and interviews with patients at the admitted ward before surgery to collect baseline data. The researcher screened all participating patients in both studied groups to excluded the patients who not full field the criteria. At the beginning of interview; the researcher welcomed patients, explained the purpose of the study and take their oral approval to participate in the study

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prior to data collection. Then the researcher started to collect data regarding general characteristics, past obstetrical history, and current surgical history (**Tool I**). The interview consumed about 15 minutes for each woman.

### **Implementation phase:**

#### **For control group (Receiving routine care)**

Concerning the control group, the role of the researcher was just observing and recording the routine care performed concerning perioperative care of patients according to hospital policy. Routine hospital care was included:

- Preoperative care (prolonged fasting from food and drink from 12 am, routine mechanical bowel preparation such as enema and laxative medication and wearing well-fitting compression stockings before admission to the operating room).
- Intraoperative care (in the operating room all patients inserted a urinary catheter, no maintain of normothermia during surgery and intravenous antibiotics were given during surgery as prescribed by surgeon).
- Postoperative care (intravenous fluids were continued until the intestinal motility was regained, patients were given single type of NSAIDS analgesics such as prescribed by surgeon. If the pain score is severe give ketorolac 30 mg as a single dose or 30 mg every 12 hours. No enforced mobilization. Removal of abdominal drain and start oral nutrition when presence of bowel motility).

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

The researcher should establishment of a multi-disciplinary team to implement the protocol of ERAS. The team consisted of gynecologist, anesthetist, nurse specialist, and ward nurse managers.

#### **Preoperative preparation**

- **Women counseling and education:**

The researcher began the counseling early in the initial preoperative visit, which provided information about the ERAS protocol, what to expect during the hospital stay and instruction about early discharge planning by using the information illustrated in the ERAS booklet. The researcher helping patients to understand the active role they may play in their care.

- **Perioperative diet:**

All women were admitted on the day before the operation. They were advised to eat normally until midnight (fasting of no more than 6 h preoperatively) for solid foods, and allowed to drink clear fluids until 2 hours before surgery. They received 400 mL of a clear carbohydrate drink containing 200 kcal, carbohydrate fluid intake such as (orange juice, lemonade and apple juice) to minimize effect of fasting.

- **Mechanical bowel preparation:**

Rectal enemas and mechanical bowel preparations were avoided for women in ERAS group.

#### **Intraoperative preparation**

Intravenous fluids were warmed before infusion during operation to maintain normal body temperature. Patients received prophylactic antibiotic and antiemetic 30 min – 1 hour prior to incision, as prescribed by surgeon. All patients inserted a urinary catheter while trying to limit prophylactic peritoneal drains.

#### **Postoperative preparation:**

- **Postoperative fluid management:**

As for postoperative fluid management, administer crystalloids fluid 500 mL during the first 24 h, and then stop.

- **Postoperative nutrition :**

- Promote early restart of the intestinal function. As for the prevention of ileus, laxatives are commonly used within the study group

- Study group was started early gradual oral nutrition, 2 hours by liquid such as hot drinks, and then semisolid diet and then solid food.
- **Pain control:**  
Women in study group were given multimodal pain management strategy as prescribed by surgeon to minimize opioid administration.
- **Drains and tubes:**  
The study group was encouraged for early removal of all tubes, drains and catheter when women able to go to bath room (with in 24hours after surgery).
- **Postoperative mobilization**  
Women were encouraged for early progressive ambulation throughout 2 hours in the bed postoperatively on the first day of surgery (passive leg exercise, change patient position, and then sitting in bed, site in wheelchair, followed by walk with assist and finally walk without assist (4-6) time per day).

**Assessment of discharge criteria:**

The ERAS group was discharged when achieved the strict criteria before hospital discharge.

1. Adequate oral feeding
2. Recovery of bowel function
3. Pain and discomfort controlled by oral analgesia
4. Adequately mobilizing without assistance
5. No clinical or laboratory signal of postoperative complication
6. Having adequate home supervision after discharge.

**Evaluation phase:**

- This phase started immediately after completion of the operation where the researcher will evaluate the both studied groups regarding complication during primary stay and length of the stay).

- Before the women discharge from the hospital in the study group the researcher give oral instruction about home care after discharge and distributed the ERAS booklet to help them to know about the important aspects of discharge education after surgery.
- After hospital discharge, weekly telephone follow-up for month to assess the women satisfaction (**Tool III**) and recorded all occurrences of long-term postoperative complications, readmissions to hospitals and/or need to reoperation.

**Statistical analysis:**

Data analysis was performed using IBM SPSS statistical software version 22. The data were explored. Descriptive statistics with mean and standard deviation (SD) for continuous variables and frequency for categorical variables were analyzed. Qualitative variables were compared using qui square test ( $X^2$ ) as the test of significance, independent (t) test was used to compare mean score between two groups.

**Strength point of the study:**

- Although the implementation of ERAS is complex and difficult because many of these procedures work against current clinical practice, there has been cooperation between health care providers to implement this protocol.
- Application of ERAS protocol has been shown to ease the postoperative recovery and improve clinical outcomes for women after abdominal hysterectomy.

**Results:**

**Table (1)** shows that, there was no statistically significant difference among the study and control groups regarding general characteristics.

**Table (2)** presents that, more than half (55.4% and 66.2%) of the study and control groups respectively complained of abnormal

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uterine bleeding. In relation to surgical indication, uterine fibroid was the most common medical indication for abdominal hysterectomy in both study and control groups (44.6% vs. 52.7% respectively). As regarding surgical approach of hysterectomy, hystosalpingo-oophorectomy was the most common surgical approach of hysterectomy in both study and control groups (47.3% vs. 56.8% respectively). Also, there was no statistically significant difference between the studied groups regarding current surgical history.

**Table (3)** illustrates that, there was statistically significant difference between the studied groups regarding postoperative complication and readmission. Meanwhile, there was no statistically significant difference

between the studied groups regarding reoperation.

**Table (4)** shows that, there was highly statistically significant relation between the study and control groups regarding length of hospital stay.

**Figure (1)** shows that, the majority (91.9%) of the study group was satisfied with care provided, compared to less than half (48.6%) of the control group

**Table (5)** shows that, there was highly statistically significant relation between women's satisfaction and length of hospital stay in the study group Also, there was statistically significant relation between women's satisfaction and length of hospital stay in the control group.

**Table (1). Distribution of the studied groups according to general characteristics (n= 148).**

General characteristics	Study group(n=74)		Control group(n=74)		X <sup>2</sup>	p-value
	No.	%	No.	%		
<b>Age (years)</b>						
20 -	10	13.5	6	8.1	<b>2.67</b>	<b>0.263</b>
30 -	12	16.2	19	25.7		
≥40	52	70.3	49	66.2		
<b>Mean ±SD</b>	45.7 ±9.7		46.1 ±12.3		<b>0.219</b>	<b>0.826</b>
<b>Marital status</b>						
Single	11	14.9	15	20.3	<b>2.734</b>	<b>0.435</b>
Married	36	48.6	36	48.6		
Divorced	9	12.2	12	16.2		
Widow	18	24.3	11	14.9		
<b>Educational level</b>						
Illiterate	38	51.3	37	50.0	<b>2.271</b>	<b>0.518</b>
Basic education	21	28.4	27	36.5		
Secondary education	10	13.5	8	10.8		
High education	5	6.8	2	2.7		
<b>Residence</b>						
Urban	32	43.2	36	48.6	<b>0.435</b>	<b>0.509</b>
Rural	42	56.8	38	51.4		
<b>Occupation</b>						
Working	29	39.2	25	33.8	<b>0.467</b>	<b>0.495</b>
Not working	45	60.8	49	66.2		

Table (2). Distribution of the studied groups according to current surgical history (n= 148).

Current surgical history	Study group(n=74)		Control group(n=74)		X <sup>2</sup>	p-value
	No.	%	No.	%		
<b>Woman chief complain</b>						
Abnormal uterine bleeding	41	55.4	49	66.2	1.883	0.390
Lower abdominal pain	20	27.0	16	21.6		
Abdominal mass	13	17.6	9	12.2		
<b>Surgical indication of abdominal hysterectomy</b>						
Endometrial carcinoma	16	21.6	14	18.9	1.562	0.767
Ovarian cancer	9	12.2	7	9.5		
Endometriosis	5	6.8	2	2.7		
Adenomyosis	7	9.5	9	12.2		
Uterine fibroid	33	44.6	39	52.7		
Cervical cancer	4	5.4	3	4.1		
<b>Surgical approach of hysterectomy</b>						
Total Hysterectomy	18	24.3	15	20.3	1.341	0.719
Hystosalpingo-oophorectomy	35	47.3	42	56.8		
Subtotal Hysterectomy	12	16.2	11	14.9		
Radical Hysterectomy	9	12.2	7	9.7		

Table (3). Distribution of the studied groups regarding follow up after surgery (n= 148).

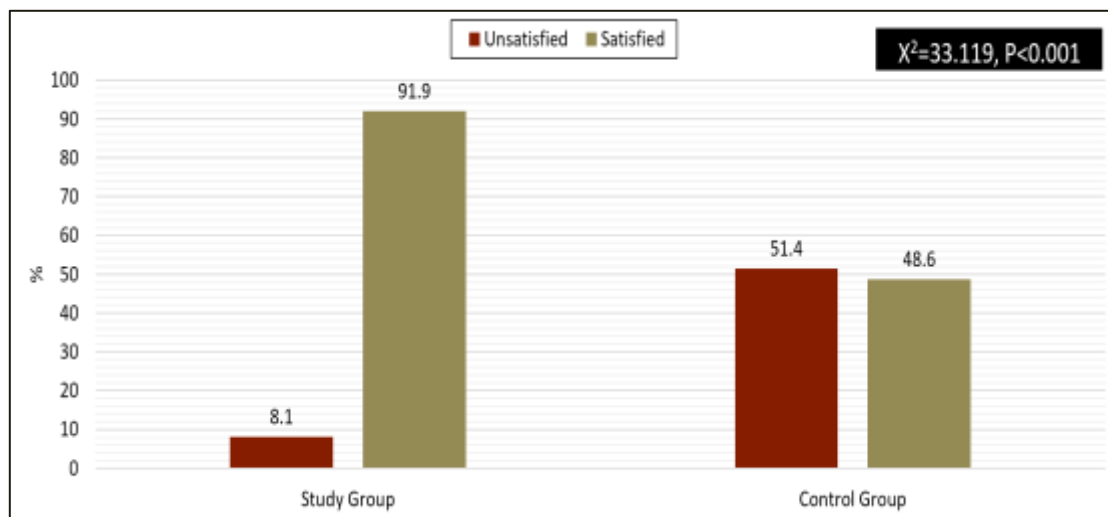
Follow up after surgery	Study group (n=74)		Control group (n=74)		X <sup>2</sup>	p-value		
	No.	%	No.	%				
<b>Postoperative complications</b>								
Yes	3	4.1	20	27.0	14.877	<0.001**		
No	71	95.9	54	73.0				
<b>Type of complication</b>	<b>(n= 3)</b>		<b>(n=20)</b>		1.519	0.823		
<b>During primary stay</b>								
Post-operative bleeding	1	33.3	4	20.0				
Urinary bladder injury sutured	0	0.0	2	10.0				
Urinary bladder retention	0	0.0	3	15.0				
<b>After discharge</b>								
Wound infection	2	66.7	9	45.0				
Burst abdomen	0	0.0	2	10.0				
<b>Readmission</b>								
No	72	97.3	65	90.5	4.812	0.028*		
Yes	2	2.7	9	12.2				
<b>Reoperation</b>								
No	70	100.0	72	97.3	2.027	0.154		
Yes	0	0.0	2	2.7				



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**Table (4). Distribution of the studied groups regarding postoperative hospital stay (n= 148).**

postoperative hospital stay	Study group (n=74)		Control group (n=74)		X <sup>2</sup>	p-value
	No.	%	No.	%		
<b>Hospital stays from end of the surgery to discharge (DAYS)</b>						
2 days	60	81.1	9	12.2	<b>72.984</b>	<b>0.000**</b>
3-4 days	12	16.2	37	50.0		
> 4 days	2	2.7	28	37.8		
<b>Mean ±SD</b>	2.1 ±0.4		3.9 ±1.7		<b>8.524</b>	<b>0.000**</b>



**Figure (1). Distribution of the studied groups regarding total women's satisfaction.**

**Table (5). Relation between women's satisfaction and length of hospital stay among the studied groups (n=148).**

Length of hospital stay	women's satisfaction										X <sup>2</sup>	P		
	Study group					Control group								
	Satisfied (n=68)		Unsatisfied (n=6)		X <sup>2</sup>	P	Satisfied (n=36)		Unsatisfied (n=38)				X <sup>2</sup>	P
	No.	%	No.	%			No.	%	No.	%				
<b>Hospital stays from end of the surgery to discharge (DAYS)</b>														
<b>2 days</b>	60	88.2	0	0.0	<b>38.209</b>	<b>&lt;0.001**</b>	9	25.0	0	0.0	<b>11.483</b>	<b>0.003*</b>		
<b>3 – 4 days</b>	8	11.8	4	66.7			17	47.2	20	52.6				
<b>&gt; 4 days</b>	0	0.0	2	33.3			10	27.8	18	47.4				

## **Discussion**

Hysterectomy is one of the most common major gynecological operations. Although hysterectomy is considered safe surgery, several possible complications are associated with the procedure. Some of these complications may cause death or permanent injuries and disabilities (**Torné et al., 2021**). Full recovery after hysterectomy has been greatly improved by the introduction of ERAS protocol, which represents a fundamental shift in perioperative care (**Feldheiser et al., 2016**).

Regarding general characteristics as a baseline for comparison, it was noticed that no significant difference was found between the studied groups. These findings are consistent with Egyptian study by **Shalaby, (2021)** who conducted study entitled "Effect of clinical pathway of postoperative nursing care on improving postoperative outcomes for women undergoing hysterectomy and found that, no significant differences in patient demographics between the two groups.

As regards woman chief complain, the results revealed that, more than half of the women in both studied groups were complained AUB. This finding is consistent with **Ferghali et al., (2020)** who conducted Egyptian study entitled "implementation of enhanced recovery after surgery as a protocol versus routine care on women undergoing hysterectomy" and represents that, about one third of both studied groups had complained from irregular uterine bleeding. **In the researcher point of view**, abnormal uterine bleeding is the commonest symptom which brings a woman to the hospital because this complain significantly impact women's health, finances, social engagement, and overall quality of life.

Regarding surgical indication, the current study showed that, uterine fibroid was

the most common indication for abdominal hysterectomy in both studied groups. This result is concurrent with **Oseki & Osaikhuwuomwan, (2018)** who reviewed the indications and outcome of total abdominal hysterectomy at a tertiary public health facility in Southern Nigeria" and reported that, uterine fibroid represented the most common indication for abdominal hysterectomy. **In the researcher point of view**, this finding could be attributed to the uterine fibroids is functional disorders can cause abnormal uterine bleeding which may lead to anemia which in turn, impair work capacity and quality of life. In addition, sexual health may be significantly affected.

The results also revealed that regarding approach of hysterectomy, hystosalpingo-oophorectomy was the most common surgery performed with the highest percentage in both study and control groups. This result is consistent with **Yilmaz et al., (2018)** who conducted study entitled "Enhanced recovery after surgery versus conventional postoperative care in patients undergoing abdominal hysterectomies in Turkey " and founded that the majority of women in both studied groups were done hystosalpingo - oophorectomy surgery.

However, this finding isn't coinciding with **Heeba et al., (2019)** who study "Clinical pathways of postoperative nursing care for women undergoing gynecological operations at Port Said Hospitals" and founded that, the majority of women were done total abdominal hysterectomy surgery. **In the researcher point of view**, the observed variance in the current study finding and the other study could be attributed to the different indications for hysterectomy among the studies sample.

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Concerning postoperative complications, the current study showed that there was statistically significant difference between the studied groups. This finding is in harmony with **Liang et al., (2016)** who study "Enhanced recovery program versus traditional care in laparoscopic hepatectomy in Medical College of Zhejiang University" reported that the ERAS group had a significantly lower rate of complications than control group. **The researcher attributes** the reason for this finding to the applications of the ERAS protocol elements.

This finding isn't consistent with **Myriokefalitak et al., (2016)** who evaluate the outcomes of enhanced recovery after surgery (ERAS) implementation in a gynecological oncology center, and showed that ERAS care in major abdominal Gynecology surgery not affecting complication.

Regarding readmission, the current study found that there was statistically significant difference between the studied groups which two women in the study group compared to nine women in the control group required hospital readmission after discharge. This result is in agree with the study conducted by **Yilmaz et al., (2018)**; who reported that, there was significant differences in readmission rates which one patient in the ERAS group and 11 patients in the conventional group required hospital readmission after discharge.

Regarding postoperative hospital stay, the present study revealed that, the majority of the study group spent only 2 days after surgery while half of the control group spent 3-4 days after surgery. **From the perspective of the researcher**, applications of enhanced recovery protocol decreased length of hospital stay due to early mobilization & diet after

surgery and decrease the incidence of postoperative complication.

This finding was supported by **Sarhan et al., (2021)** who reported that, the mean length of hospital stay was  $38.29 \pm 4.95$  hours in the study group and  $68.44 \pm 6.5$  hours in the control group with significant difference between the two groups.

On other hand, this finding in contrast to **Patel et al., (2018)** reported that no significant difference in length of hospital stay clinical outcomes in study and control groups. **From the perspective of the researcher**, this may be due to the majority of the samples belonging to the 60-70year old age group in the studied groups didn't follow up instruction as early movement that lead to decrease recovery process and prolonged LOS.

The present study revealed that, the majority of the study group was satisfied with care provided, compared to less than half of the control group. This result is supported by **Nikodemski et al., (2017)** who conducted study entitled "Implementation of an enhanced recovery after surgery (ERAS) protocol in a gynecology department—the follow-up at 1 year" founded that the mean of women's satisfaction significantly higher in the ERAS group than control group. **In the researcher point of view**, various factors can reduce woman's satisfaction score includes post-operative pain, adverse reactions, and wound healing. The implementation of an ERAS protocol is both a desirable and comprehensive solution to these problems. Furthermore, the application of ERAS enhances medical staff-patient communications, which would in turn help improve compliance, reduce anxiety, and enhance confidence

The present study revealed that, there was highly statistical significant relation between women satisfaction and length of hospital stay in the study group. The finding revealed that, the women who stayed in the hospital for short period become more satisfied. This finding is in concurrent with **philp et al., (2014)** who studied "Patients' satisfaction with fast-track surgery in gynecological oncology in New South Wales, Australia" concluded that the majority of patients were also satisfied with their shortened LOS in hospital.

### **Conclusion:**

The women undergoing abdominal hysterectomy who received ERAS protocol had shorter period of hospital stay and better women's satisfaction than women who received routine perioperative care according to the hospital policy.

### **Recommendations:**

1. Enhanced recovery after surgery protocol should become the standard practice for all women undergoing elective gynecologic surgeries.
2. Conducting a work shop for health care provider about the importance of applying ERAS protocol in perioperative care.
3. Dissemination of the present study findings to all Obstetrics and Gynecological departments at different health system setting would be helpful.

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## تأثير بروتوكول التعافي المعزز بعد الجراحة على مدة الإقامة في المستشفى ورضا السيدات اللاتي تخضعن لاستئصال الرحم البطني

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تم تحسين التعافي التام بعد جراحات استئصال الرحم البطني من خلال إدخال سلسلة من العلاجات المستندة إلى الأدلة التي تغطي مدة العملية الجراحية وصياغتها في بروتوكول التعافي المعزز بعد الجراحة حيث انه يهدف إلى دعم استرداد الوظائف الجسدية وتفادي الخلل الوظيفي للأعضاء وبالتالي العودة إلى أنشطة الحياة اليومية. لذلك هدفت الدراسة الي تقييم تأثير بروتوكول التعافي المعزز بعد الجراحة على مدة الإقامة في المستشفى ورضا السيدات اللاتي تخضعن لاستئصال الرحم البطني. تم استخدام تصميم شبه تجريبي لإجراء هذه الدراسة. أجريت هذه الدراسة في قسم أمراض النساء والتوليد بمستشفى جامعة بنها. اشتملت عينة الدراسة علي ١٤٨ سيده خضعن لاستئصال الرحم عن طريق البطن ، وتم تقسيمهن إلى ، المجموعة الضابطة ضمت (٧٤) سيده تلقوا الرعاية الروتينية الخاصة بالجراحة والمجموعة التجريبية ضمت (٧٤) سيده طبق عليهن بروتوكول التعافي المعزز بعد الجراحة. حيث كشفت النتائج أن السيدات اللاتي تلقين بروتوكول التعافي المعزز بعد الجراحة كانوا لديهم مستوى أقل من الشعور بالألم بعد الجراحة ، وفترة أقصر للإقامة في المستشفى وتحسين مستوى الرضا لديهم عن اللاتي تلقين الرعاية الروتينية حول الجراحة وفقاً لسياسة المستشفى ، مما يدعم فرضيات الدراسة. كما اوصت الدراسة أن يصبح بروتوكول التعافي المعزز بعد الجراحة هو الممارسة المعيارية لجميع السيدات اللاتي تخضعن لعمليات جراحية اختيارية في أمراض النساء.