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# Effect of Enhanced Recovery nursing program on recovery process of women after hysterectomy operation in Suez Canal University Hospital and General Hospital at Ismailia City

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Abstract: The enhanced recovery after surgery concept emerged as a multimodal approach directed at optimizing the patient experience, standardizing perioperative care, and improving surgical outcomes. Aim: -this study aimed to evaluate the effect of enhanced recovery pathway on women's post-operative recovery process (reducing level of pain, length of stay and return defecation in short hours) on women undergoing hysterectomy operation at Suez Canal University Hospital and General Hospital in Ismailia City. Design: - the design was used in this study called a quasi-experimental study. Sample: - convenient sample of 132 women undergoing hysterectomy operation. Tool: - Structured interviewing questionnaire included questions about pre- and post-operative intervention and care, The Verbal Numerical Rating Scale and Recovery process assessment record. Results: the level of pain encountered by women during first, second and third day in post-operative period, that the women in study group experience less mean score compared to those in control group. More than half (54.5%) of the studied women stayed from 1-3 days in hospital compared to controlled group 4-5 days (59.1%) mean duration of hospitalization in the study group was significantly shorter than those in control group (3.46±.86 vs 5.07±1.61 respectively). Women in study group were more likely to have lesser mean time of first defecation after operation compared to control group (10.07±4.15 vs 21.16±8.90 hours). Recommendation: Enhanced recovery pathway management which proved to be successful for women undergoing hysterectomy should be implemented to improve recovery process at the study settings and in other health care settings.

Keywords: Enhanced recovery program, Hysterectomy and enhanced Recovery after Surgery.

## I. INTRODUCTION

Hysterectomy is the second most commonly performed major surgical operation on women all over the world especially pre and post-menopausal, second only to caesarean. (Koyuncu et al., 2018)&(Elweley & Sabra, 2015). The "enhanced recovery" after surgery concept emerged as a multimodal approach focused at optimizing the patient experience, standardizing peri-operative care, and improving surgical outcomes.(Modesitt et al., 2016) &(Silva Filho et al., 2018). ERAS guidelines in gynecologic operation are a set of multiple recommendations based on the best available evidence(Pache et al., 2019).

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Review of the literature, in combination with clinical expertise of the multi-disciplinary team was used to form the hysterectomy enhanced recovery (HER) pathway. The HER pathway is a cooperative, multi-disciplinary method to perioperative patient care that is delineated into pre-operative, intraoperative, and postoperative components (Miller et al., 2015; Miralpeix et al., 2016).

Pre-operative Enhanced Recovery after Surgery (ERAS) including patient Counseling and Education, pre-operative medical optimization, bowel preparation, carbohydrate loading, thromboembolism prophylaxis, skin preparation and standard anesthetic protocol. (Nelson et al., 2016). Post-operative ER program using a multidisciplinary approach involving the anesthetist and ward staff. The post-operative involves optimal positioning, early feeding, optimizing pain control, and observations using an early warning chart. It is important that any ER program is evaluated to ensure patient safety, positive knowledge, and pathway efficiency.(Shehmar, 2016)

The discharge criteria were as follows: normal temperature, good control in pain with oral analgesia only, tolerance of food, no intravenous fluids, and willingness to be discharged. (Liang et al., 2016) All patients were discharged when eat, mobilized and drink without nausea, passing flatus and their pain was controlled on oral analgesia. On discharge analgesia, laxatives and 4 weeks of thromboprophylaxis were provided. Patients were given a clear plan for the removal of skin sutures and wound care(Myriokefalitaki et al., 2016)&(Forsmo, 2017).

Enhanced recovery after surgery pathways have decreased post-operative pain and decreased hospital stays. This quality improvement project at a tertiary care academic medical center sought to implement an ERAS pathway for patients undergoing minimally invasive hysterectomy for benign indications and evaluate perioperative outcomes (**Bozzuto et al.**, **2018**).

Enhanced recovery in gynecologic surgery has been shown to reduce length of stay in hospital, and medical costs while having stable complication and readmission rates. (Wasson & Butler, 2016). Implementation of an ERP protocol is associated with decreased length of hospital stay, a decrease in rates of postoperative complication, decreased morbidity, and cost savings while preserving patient satisfaction and quality of life (Barber & Van Le, 2015) & (Zhu et al., 2017).

### **II. SUBJECTS AND METHOD**

#### **Research Design: -**

A quasi-experimental study design was used in this study.

#### Study Setting: -

The study was carried out at obstetric and gynecological inpatient department in the governmental hospitals located at Ismailia city, which include: - Suez Canal University Hospital – and General Hospital.

#### Sampling design: -

Convenience sampling of 132 women that divided into two groups. 66 for study group and 66 for control group. During data collection, a convenience sampling technique was used, where the investigator recruited one woman in the study then another one in the control group until calculated sample size was achieved for study and control group according Inclusion criteria (Women in aged 40 - 60 years, Women with total abdominal hysterectomy) and Exclusion Criteria

(Uncontrolled medical diseases as hypertension, diabetes mellitus, ....etc).

**A)** Control group: women managed by routine pre-operative care which include medication as (antibiotics and crystalloid fluid), monitoring vital signs, perform enema and night starvation. Post-operative care which include monitoring vital signs every one hour for first six hours, monitoring urine output, taking blood sample for complete blood count after six hours from operation and auscultating bowel sound post-operative.

**B**) Study group: women managed by implement guide lines of enhanced recovery pathway.

#### **Tool of Data Collection:**

Tool (1)

#### Structured Interviewing questionnaire:

It was consisted of the following two parts:

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## Part 1:

Included Personal and socio-demographic characteristics about the study subjects, it consisted of 4 questions including age, level of education and occupation and marital status. (Elweley & Sabra, 2015).

## Part 2:

Used to assess pre- and post-operative intervention and care provided for women in control group by medical and nursing staff. Pre-operative included 10 questions as preparation of operation, fasting hours, medication.....etc and post-operative included12 questions as diet, mobilization, exercise .....etc. (Alhj , 2017)& (J. Lee et al., 2018)& (Heeba et al., 2019).

## Tool (2): The Verbal Numerical Rating Scale

This scale was used to measure pain at first, second, third day and day of discharge. Pain Scale, which is a 11points verbal rating scale. In this scale, women were asked to choose one of six words, the scale ranged from 0 to 10 which were: '0' for no pain, '1-3' for mild pain, '4-7' for moderate pain, '8-10' for severe pain. This tool was used for study and control group. (Koyuncu et al., 2018)& (Alhj, 2017)



### Tool (3): Recovery process assessment record:

Recovery process assessment record included length of stay, hours to defecate and pain score in day of discharge. This tool was used for study and control group. (Koyuncu et al., 2018) & (Heeba et al., 2019).

### Field of work

Before conducting of this study, a written letter was directed from the dean of the faculty of nursing, Suez Canal University to every manager of each hospital to obtain a permission to conduct this study. All ethical considerations were considered for privacy and confidentiality. A pilot study was conducted on 10% of the study sample to examine the clarity and effectiveness of the study tool. Data were collected within an 8- month period started in July 2019 and ended in February 2020. Data was collected 4 days/ week (Monday, Thursday in Suez Canal University Hospital, Saturday and Wednesday in General Hospital) from women undergoing hysterectomy operation. The investigator recruited the subjects according to the previous mentioned criteria. The investigator introduced her, explained the purpose of the study for each subject, ensured privacy to obtain their co-operation. women undergoing hysterectomy operation and accepted to be included in the study (in both groups) were interviewed individually on admission at the obstetric and gynecological wards to collect data related to demographic characteristics, past and present obstetric, gynecological and surgical history. The investigator asked women in Arabic and recorded her answers in the questionnaire. The interview lasted for 10 minutes for each woman. In addition, for control group, women were asked (immediately before going operation) about instructions and pre- operative care they actually received.

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## Guidelines of enhanced recovery pathway for women undergoing hysterectomy were implemented for women in study group.

Pre-operative period (Nelson et al., 2016)& (Vandrevala et al., 2016).

#### Investigator and nurse's role:

1-Give preoperative instruction about: Preparation before the operation, fasting 6-8 hrs for solids and 2 hrs for liquids, drink 250 cc oral carbohydrate 2-4 hours prior to operation (as orange or apple juice) and agreement about operation

2- Pre-operative care: avoid enema and prescribed medication.

#### Medical staff role:

Prescribed pre-operative antibiotic, antiemetic and thromboprophylaxis 1 hour prior to surgical incision when this is indicated.

#### Operative period (Barber & Van Le, 2015).

#### Anesthetist role:

1- Calculated amount of IV fluid solution based on formula ((patient weight in kg +40) + (amount of blood loss \*3)).

2-Don't insert nasogastric intubation and drainage

#### Nurses role:

1-Warmed women with thermal blanket or use warm IV fluid to avoid hypothermia according to patient condition.

2-Give IV fluid as prescribed

**Post-operative period** 

Investigator and nurses staff role:

**1-Instructed women immediately postoperative** to start oral fluid 6 hours after surgery and mobilization 8 hours after surgery. (Vandrevala et al., 2016)

**2-Instructed women first day post-operative** to eat normal diet according to tolerance, gave intravenous analgesia and antiemetic prophylaxis as prescribed. Remove urinary catheter within 24 hours. (Alhj, 2017)

#### Second post-operative day

#### Investigator and nurses staff role:

Instructed women to eat normal diet and take medication as prescribed

#### **Ethical considerations:**

Formal approval for conducting the study was taken from research ethics committee of faculty of nursing. All ethical considerations were considered for privacy and confidentiality. Written approval was obtained from the women participated in the study before conducting the study, ensuring for women that these data would use for the research purpose only, and she has the opportunity to withdraw at any time

#### (4)-Statistical Analysis:

The collected data were organized, tabulated and statistically analyzed using SPSS software (Statistical Package for the Social Sciences, version 20, SPSS Inc. Chicago, IL, USA). For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, which describe a categorical set of data by frequency, percentage or proportion of each category, comparison between two groups and more was done using Chi-square test ( $\chi^2$ ). Significance was adopted at p<0.05 for interpretation of results of tests of significance.

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## **III. RESULTS**

## Table (1): Distribution of the study sample according to their Personal data

	Study	roup (66)	Control	Tost	
Variables	Study g	roup (oo)	Control	group (oo)	Test
	Ν	%	Ν	%	P value
	Personal da	ata			
Age					
40-<51` years	42	63.6	46	69.7	$\chi^2 = .54$
51-60years	24	36.4	20	30.3	(P=0.580)
Marital status					
Married	54	81.8	52	78.8	$\chi^2 = 1.43$
Widowed	9	13.6	11	16.7	(P=0.609)
Single	0	0	1	1.5	
Divorced	3	4.5	2	3	
Educational level					
Illiterate	14	21.2	20	30.3	
Write and read	4	6.1	4	6.1	$\chi^2 = 2.02$
Basic education	13	19.7	9	13.6	(P=0.731)
Secondary education or its equivalent	25	37.9	22	33.3	
High education	10	15.2	11	16.7	
Job status					
Working	25	37.9	52	78.8	$\chi^2 = 4.40$
House wife	41	62.1	14	21.2	( <b>P=0.036</b> *)

 $\chi^2$  = is chi-square test; \*=P value is significant.

*Table (1)* shows that, distribution of the study and control group according to personal data. As shown, the majority of study women aged from 40-<51 years. The highest frequency of studied women was married (81.8% study group and 78.8% control group). The highest frequency of studied women had secondary level of education or its equivalent (37.9% study group and 33.3% control group). 78.8% of control group were working while 62.1% of study group were house wife's with statistically significant difference P=0.036.

## Table (2): Distribution of the study and control group according to pre-operative instruction of enhanced recovery pathway.

Variables	Study group (66)		Contro	l group (66)	$\chi^2$	Divoluo
v ar lables	Ν	%	Ν	%	χ	r value
1-Instruction before the operation about						
-Bathing	66	100	0	0	132	( <b>P=0.000</b> *)
-Preparing the place of the operation	66	100	0	0	132	( <b>P=0.000</b> *)
2-Instruction regarding pre- and post-						
operative care as						
- Diet	66	100	0	0	132	( <b>P=0.000</b> *)
- Exercise, mobilization	66	100	0	0	132	( <b>P=0.000</b> *)
- Fluid chart	66	100	0	0	132	( <b>P=0.000</b> *)
- Wound care	66	100	0	0	132	( <b>P=0.000</b> *)
3-Agreement about operation	66	100	66	100	E	qual
4-Instruct about number of fasting hours	51	77.3	2	3	99.66	( <b>P=0.000</b> *)
Mean ± SD	8.54	±2.34	19.	50±7.70	t=11.05	( <b>P=0.000</b> *)

 $\chi^2$  = is chi-square test; \*=P value is significant.

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**Table (2):** shows that, distribution of the study and control group according to pre-operative instructions of enhanced recovery pathway. As shows, all women in study group received pre-operative instruction compared to control group (P=0.000). Women in both groups talk agreement about operation and study women had less mean duration of fasting hours compared to those in control group with statistically significant difference ( $8.54\pm2.34$  vs  $19.50\pm7.70$ ) respectively.

## Table (3): Distribution of the study and control group according to pre-operative care of enhanced recovery pathway

Variables	Study group (66)		Control	group (66)	$\alpha^2$	Dyahua
variables	Ν	%	Ν	%	λ	1 value
Perform enema	0	0	43	65.2	63.77	( <b>P=0.000</b> *)
Oral carbohydrate drink pre- operative.	66	100	0	0	132	( <b>P=0.000</b> *)
Antibiotic prophylaxis medication.	66	100	66	100	Equal	
Thromboprophylaxis medication.	66	100	8	12.1	103.45	( <b>P=0.000</b> *)

 $\chi^2$  = is chi-square test; \*=P value is significant

**Table (3):** shows that, distribution of the study and control group according to pre-operative care of enhanced recovery pathway. As shows, women in both groups received antibiotics during preoperative period. None of study women received enema compared to control group (0.0% vs 65.2% respectively). All women in study group drink oral carbohydrate pre -operative compared to no one in control. All women in study group received thromboprophylaxis medication. Pre- operative compared to no one in control (100 % vs 12.1 % respectively).

<b>Table (4):</b>	Distribution	of the	study	and	control	group	according t	o p	oost-operative	care of	enhanced	recovery
pathway												

	Study group (66)		Control	group (66)		
Variables	Correct		Co	rrect	$\chi^2$	P value
	Ν	%	N	%		
Vital signs monitoring	66	100	0	0	132	( <b>P=0.000</b> *)
Input and Output chart	66	100	0	0	132	( <b>P=0.000</b> *)
IV fluids restriction	66	100	14	21.2	85.80	( <b>P=0.000</b> *)
Early removal of urinary drainage (24 hours)	66	100	32	48.5	45.79	( <b>P=0.000</b> *)
Intravenous analgesia	66	100	66	100		
Antiemetic	12	18.2	37	56.1	28.20	( <b>P=0.000</b> *)
Wound care (in third day)	64	97	65	98.5	.580	0.563
Hours of auscultation of bowel movement Mean ± SD	3.92±1.22		6.89 ±3.57		t= 6.39	( <b>P=0.000</b> *)

 $\chi^2$  = is chi-square test; \*=P value is significant.

**Table (4):** describes distribution of the study and control group according to post-operative care of enhanced recovery pathway, all of study group removed urinary catheter at the first 24 hours of operation compared to only 45.79% of control group. Women in the study group were significantly more likely to have no vomiting compared to those in the control group P=0.000. 18.2 % of women in the study group were need antiemetic compared to 37 (56.1 %) in the control group. Less mean hours of bowel movement auscultation after operation were observed in study group compared to study group ( $3.92\pm1.22$  vs  $6.89\pm3.57$ hours). Differences observed are statistically significant P=0.000.

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## Table (5): Distribution of the study and control group according to post-operative instructions of enhanced recovery pathway.

	Study group (66) Correct		Control g	roup (66)		
Variables			Cor	rect	$\chi^2$	P value
	Ν	%	Ν	%		
Instruct to early post-operative diet	66	100	14	21.2	85.80	( <b>P=0.000</b> *)
(6 hours)	00	100	14	21.2		
Instruct to early post-operative	66	100	23	13	63 77	( <b>P=0.000</b> *)
mobilization (8 hours)	00	100	23	45	03.77	
Instruct to perform breathing	66	100	0	0	132	( <b>P=0.000</b> *)
Exercise	00	100	0	0		

 $\chi^2$  = is chi-square test; \*=P value is significant.

**Table (5):** describes distribution of the study and control group according to post-operative instruction of enhanced recovery pathway. All of study group start regular diet after 8 hours of operation compared to only 85.80 % of control group and all of study women started ambulation out of the bed after 6 hours of operation compared to only 63.77% of control group. All of study women perform breathing exercise. Differences observed are statistically significant (P=0.000).

### Table (6): Distribution of the study and control group regarding post -operative pain.

Pain score	Study group (66)		Control group (66)		Test	P value	
	Ν	%	Ν	%			
1 <sup>st</sup> day							
Mild (1-3)	0	0	0	0	2	( <b>P=0.049</b> *)	
Moderate (4-7)	31	47	20	30.3	χ=3.86		
Severe (8-10)	35	53	46	69.7			
Mean ± SD	2.53±.50		2.69±.46	<u> </u>	t=2.17	(P=0.032*)	
2 <sup>nd</sup> day							
Mild (1-3)	8	12.1	0	0	2 25 50	( <b>P=0.000</b> *)	
Moderate (4-7)	55	83.3	35	53	χ==35.50		
Severe (8-10)	3	4.5	31	47			
Mean ± SD	$1.92 \pm .40$		2.46±.50 t=		t=9.53	( <b>P=0.000</b> *)	
3 <sup>rd</sup> day							
Mild (1-3)	43	65.2	6	9.1	2 17 00		
Moderate (4-7)	23	34.8	57	86.4	χ=45.38	(P=0.000*)	
Severe (8-10)	0	0	3	4.5	-		
Mean ± SD	1.34±.48		1.95±.36		t=11.59	( <b>P=0.000</b> *)	

 $\chi^2$  = is chi-square test; \*=P value is significant.

**Table (6):** shows that, distribution of the study and control group regarding post- operative pain. As shows the level of pain encountered by women during first, second and third day in post-operative period, that the women in study group experience less mean score compared to those in control group  $(2.53\pm.50 \text{ vs } 2.69\pm.46 \text{ respectively})$  at first day,  $(1.92\pm.40 \text{ vs } 2.46\pm.50 \text{ respectively})$  at second day and  $(1.34\pm.48 \text{ vs } 1.95\pm.36 \text{ respectively})$  at third day. Differences observed are statistically significant (P=0.032, P=0.000, and P=0.000 respectively).

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Figure (1): Distribution of the study group according to their pain score in the three days post-operation (n=66).

**Figure (1):** shows, distribution of the study group according their pain score in 1<sup>st</sup> three days post-operation. As shows, that the women in study group experience had severe level of pain in first day, moderate level of pain in second day and mild level of pain in third day.





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**Figure (2):** show, distribution of the control group according their pain score in 1<sup>st</sup> three days post operation. As shown, the level of pain encountered by women in control group were sever in first and second day compared to third day (mild level of pain).

Table (7): Distribution of the study and control group according to length of hospital stay hours to defecate after
defecation

Variables	Study group (66)		Control group (66)		Test	P value
	Ν	%	Ν	%		
Length of hospital stay (days)	36	54.5	7	10.6	2 40 70	
4-5	30	45.5	39	59.1	χ <sup>2</sup> =40.73	(P=0.000*)
>6	0	0	20	30.3		
Mean ± SD	3.46±.86		5.07±1.61		t=7.45	(P=0.000*)
Hours to defecate after defecation						
Mean ± SD	10.07±	4.15	21.16±8.90		t=9.167	( <b>P=0.000</b> *)

 $\chi^2$  = is chi-square test; \* = P value is significant.

**Table (7):** shows, that mean duration of hospitalization in the study group was significantly shorter than those in control group ( $3.46\pm.86$  vs  $5.07\pm1.61$  respectively). Women in study group were more likely to have lesser mean time of first defecation after operation compared to control group ( $10.07\pm4.15$  vs  $21.16\pm8.90$  hours). Differences observed are statistically significant P=0.000.



#### Figure (3): distribution of the study and control group according to their length of hospital stay

**Figure (3):** illustrates distribution of the study and control group according their length of hospital stay. As shown, the mean duration of hospitalization in the study group was significantly shorter than those in control group  $(3.46\pm.86 \text{ vs} 5.07\pm1.61 \text{ respectively})$ .

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## **IV. DISCUSSION**

In our data, the socio-demographic data of the studied sample more than half of both control and study groups age were ranged between 40 to less than 51 years old. This finding agreed with **Ali et al., 2015** who study effect of designed nursing care protocol on minimizing post hysterectomy complications at el Manial University Hospital they found that the socio-demographic data of the studied sample nearly half of both control and study groups age were ranged between 40 to less than 50 years old respectively and no significant difference between two groups.

The current study showed that more than half of studied women had secondary level of education or its equivalent in both groups This finding agreed with **Heeba et al., 2019** who study of "clinical pathway of post-operative nursing care for women undergoing gynaecological operation at port said hospitals" they found that more than half from studied women had secondary level of education or its equivalent in both groups.

This study found that when applied ERP on women underwent hysterectomy operation in the study group were significantly more likely to have no vomiting compared to those in the control group. Thus, lesser number were need antiemetic compared to more than half in the control group. The result agreed with, **Moon et al., 2018** who found that the study group was significantly more likely to have no vomiting compared to those in the control group.

The same observations were obtained by **Trowbridge et al., 2018** who found that the interventions of ERP improve patient nausea/vomiting. Also, these results are in the same line with **Wijk et al., 2019** in the thesis under the title of "International validation of Enhanced Recovery After Surgery Society guidelines on enhanced recovery for gynecologic surgery" which reported that found lower incidence of nausea or vomiting in study group. In a similar direction **Hansen et al., 2018** that found the ERP was associated with lower nausea/vomiting. In the researcher point of view, this result may be due to drink oral carbohydrate juice and early mobilization, this agree with **Trowbridge et al., 2018** found drink oral carbohydrate, and avoid enema associated with lower nausea and vomiting.

The results also showed that the mean score of pain in the women in study group was less compared to those in control group. These finding was agreed with, **Litz et al., 2017** who found the implementation of enhanced recovery pathway led to a decrease level of pain in post-operative period. In addition, **Prabhakaran et al., 2020** found that women in study group had pain score less than women in control group. From the perspective of the researcher this result may be due to early mobilization, breathing exercise and coughing exercise this agree with, **Alhj , 2017** under title of the Impact of Preoperative Education on the Psychological and Physiological Aspects of Patients Undergoing Abdominal Surgery said that post-operative exercise decrease level of pain.

In our data, women in study group were more likely to have lesser mean time of first defecation after operation than control group  $(10.07\pm4.15 \text{ vs } 21.16\pm8.90 \text{ hours})$ . This results supported by , **Heeba et al., 2019** who found that the mean time of first defecation in study group after surgery was 10.  $5\pm1.9 \text{ vs } 27 \pm 2.4 \text{ hours}$ . This result reinforced by, **Lee et al., 2020** who observed that ERAS protocol was associated with reductions time to defecation. In the researcher point of view, when enema was avoided patient return quickly to defecate and bowel movement this agree with, **Alhj**, **2017** under title of the Impact of Preoperative Education on the Psychological and Physiological Aspects of Patients Undergoing Abdominal Surgery said avoid enema lead to quick recovery process

The present study revealed that more than half of the studied women stayed from1-3 days in hospital compared to controlled group 4-5 days mean duration of hospitalization in the study group was significantly shorter than those in control group. In the same line, **Heeba et al., 2019** study clinical pathway of post-operative nursing care for women undergoing gynaecological operation at portsaid hospitals and found that the mean duration of hospitalization in study group was significantly shorter than of those in the control group. Also, the study performed by **Trowbridge et al., 2018** found that the interventions of Enhanced Recovery Pathway decrease length of stay in study group compared with control group.

In a similar direction, **Elsarrag et al., 2019** stated similar findings that the majority of reviewed studies found that implementation of enhanced-recovery protocols was feasible and associated with a shorter LOS.Also, **Modesitt et al.**,

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**2016** after implementing an ERAS protocol, they demonstrated an association with significant improvements in length of stay. In similar side, **Espino et al., 2018** said that the ERAS protocol was associated with reduced LOS.

The same observations were obtained by **De Groot et al., 2016**, they reported that the ERAS may result in a shorter length of primary and total hospital stay as compared with traditional care. With the implementation of ERAS, a LOS of 1 to 2 days can be reached for women undergoing abdominal hysterectomy for a benign indication while LOS for women with traditional care was 5 days. In addition, **Halawa et al., 2018** said that ERAP decrease length of stay compared with traditional care.

This finding was in line with **Miralpeix et al., 2016** study "A call for new standard of care in peri-operative gynecologic oncology practice: impact of enhanced recovery after surgery (ERAS) programs" and mentioned that, implementation of ERP led to a significant reduction of LOS. Similarly, **Kjølhede et al., 2019** mentioned that, short LOS has recently been reported from other ERAS programmed for gynecological cancer. In addition, this results supported by **Moon et al., 2018** who found that the median length of stay was 3.0 days in pre-ERAS and ERAS patients in gynecological operation.

Moreover, the results of the study done by **Trowbridge et al., 2018** indicated that the ERAS programmed decreased LOS. In similar side, **Wijk et al., 2019** in the thesis under the title of "International validation of Enhanced Recovery After Surgery Society guidelines on enhanced recovery for gynecologic surgery" which reported that the Enhanced recovery programs have demonstrated improvements in clinical outcome, including faster recovery and shortened hospital stay, after gynecological surgery. From the perspective of the researcher, application of Enhanced Recovery Programmed decreased length of stay due to early mobilization and early diet.

In contrast to **Patel et al., 2018** study of "Improved outcomes of Enhanced Recovery After Surgery (ERAS) protocol for radical cystectomy with addition of a multidisciplinary care process in a US comprehensive cancer care center" reported that no significant difference in length of hospital stay clinical outcomes in study and control group. From the perspective of the researcher, this may be due to the majority of the samples belonging to the 60-70-year-old age group in this study and the control group didn't perform exercise as (breathing and coughing) and follow up instruction as early movement that lead to decrease recovery process and prolonged LOS.

## V. CONCLUSION

#### Based on the findings of the present study, it can be concluded that:

Women undergoing hysterectomy operation who received enhanced recovery pathway protocol were more likely to recover early, where they had early intestinal movement, less pain and had shorter period of hospital stay than women who didn't.

### VI. RECOMMENDATION

#### Based on the results, of this study, it was recommended that: -

**1.** Enhanced recovery pathway management which proved to be successful for women undergoing hysterectomy should be integrated in the post-operative management protocol at the study settings and in other health care settings.

**2.** Further research is recommended to use various protocols for hysterectomy management with different evidence-based practices, with a large sample size and in different settings.

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