

Effect Of Fast-Track Surgery Pathway Integrated Nursing Intervention On Postoperative Recovery And Quality Of Life Among Cervical Cancer Women

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Key-words:	Abstract
Cervical Cancer, Fast-Track Surgery Pathway, Postoperative Recovery, Quality of Life	Fast track surgery is a multimodal patient care strategy that expedites postoperative recovery by combining several pre, intra and post-operative interventions. Aim: To evaluate the effect of fast-track surgery pathway integrated nursing intervention on postoperative recovery and quality of life among cervical cancer women. Design: A quasi-experimental study design. Setting: Was done in operating room and inpatient Obstetrics and Gynecology Department at Benha University Hospital. Sample: A Convenient sample involved 96 women divided equally into study and control groups. Tools: Three tools were used, a Structured interviewing questionnaire involved four parts, assessment of postoperative recovery (fast track surgery) and Quality of life questionnaire which includes (EORTC questionnaire modules QLQ-C30 and QLQ-CX24). Results: The study group revealed statistically significant improvements in postoperative pain, nourishment, complications, mobilization and satisfaction compared to the control group. Furthermore, all items of the EORTC QLQ-C30 and QLQ-CX24 showed a statistically significant improvement in the study group after the intervention as compared to before intervention ($p \leq 0.001$). Conclusion: By integrating nursing interventions into the fast-track surgery pathway,

	cervical cancer women's postoperative recovery and quality of life were enhanced. Recommendation: Periodic ongoing health teaching programs about Fast-Track Surgery Pathways should be conducted to all health care providers in all obstetrics and gynecology departments.
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Introduction

Globally, cervical cancer ranks the highest among gynecological cancers and is on the rise, particularly among younger generations (Xu et al., 2024). Cervical cancer is one of the leading causes of death for women worldwide. Currently, medical professionals have a very difficult time identifying this type of cancer before it spreads quickly. Cervical cancer mortality rates can be considerably reduced and the likelihood of successful treatment can be greatly increased with early detection and prediction (Mohapatra et al., 2023).

One of the most important symptoms of cervical cancer is abnormal bleeding from the vagina or after intercourse, which is rarely accompanied by a foul-smelling discharge. Examining the patient, especially the pelvis, can reveal the condition, although in its early stages it often causes no symptoms at all. The reliable standard for cervical cancer diagnosis is histopathological analysis of a cervical biopsy, which may use direct, cone, or endo-cervical curettage as appropriate for endo-cervical abnormalities. cytology, colposcopy, and clinical evaluation are the three methods that can be used to make a correct diagnosis. (Guimarães et al., 2022).

The concept of quality of life is crucial in the care of cancer patients, as it refers to an individual's perception of their overall well-being within the context of their culture, values, and goals. Cervical cancer, a persistent and life-threatening disease, has had a detrimental effect on numerous women. Each year, new cases of cervical cancer emerge globally, significantly impacting the quality of life for many women. The disease and its treatment often pose challenges that hinder their ability to work and engage in everyday social activities (Salama et al., 2024).

Women with cervical cancer, compared to the general population, were found to have greater sadness and frustration, and being dissatisfied with sexual relationship and self-perception as mothers or wives. Additionally, women who have overcome cervical cancer have expressed a diminished quality of life as a result of various side effects, including sexual, urinary, and/or psychological challenges, which are directly associated with the disease and its treatment (Soares and Dantas., 2024).

A concept in perioperative nursing, fast-track surgery (FTS) aims to improve patients' quality of life by reducing surgical trauma and continuously optimizing nursing procedures by combining diverse disciplines (Lu et al., 2023). The main nursing interventions which based on FTS include Preoperative psychological support and reducing fasting time, warming during operation, postoperative therapeutic approaches include; early functional exercise, preventive analgesia, posture control, and oral fluid and solids intake (Wang et al., 2023).

Fast-track surgery is considered as multimodal approach that requires organized cooperation between many specialties such as anesthesiologists, surgeons, and nursing staff. This approach is centered around the patient, that is why it is essential to furnish the patient with the requisite information, education, and motivation (Lambat et al., 2021). Due to its emphasis on revolutionizing perioperative care through the application of evidence-based methods by a multidisciplinary team, the idea of enhanced recovery after surgery (ERAS), also known as fast-track surgery, has attracted significant attention. The ultimate goal is to expedite the recovery process, reduce postoperative complications, abbreviate hospitalization periods, and minimize stress (Zhou et al., 2024).

A team of European surgeons created the ERAS protocol in 2001. It is designed to enhance postoperative recovery, ensure timely hospital discharge, and reduce surgical complication rates, with a particular emphasis on multidisciplinary care. The team has recommended the following strategies: moderating fluid intake, addressing postoperative pain and vertigo, encouraging early mobility, preventing thromboembolic events, and avoiding the occurrence of infections. Additionally, the patient's nutritional status should be monitored (Ubinha et al., 2024).

Nurses, being the primary caregivers for cancer patients, are often regarded as the most trusted individuals. Nursing must identify patients' interests and needs, use effective communication skills to convey the truth, furnish them with the necessary information, assist them in decision-making, and advocate for their rights as patients. Consequently, they can experience a greater sense of self-control and reduced psychological burden. In addition to improving quality of life, these treatments have the potential to reduce symptoms of anxiety, depression, and gynecological problems (Syifa et al., 2024).

Significance of research:

Cervical cancer is the fourth most frequent gynecological tumor, accounting for 560,000 new cases annually. Also, considered as the second most common gynecological tumor in low- and middle-income nations and it is invariably accompanied with a delayed diagnosis (Chen et al., 2020). According to the National Cancer Institute, 4,310 women lost their lives related to cervical cancer in 2023, out of 13,960 new cases. Countries with low- or medium-income levels account for nearly 90% of cervical cancer cases (Soares and Dantas., 2024). At the beginning of 2024, the American Cancer Society published studies that analyzed data from 2012 to 2019. Among American women aged 30-44, the prevalence of cervical cancer is increasing at a rate of 1.7% each year, according to the research (Duska et al., 2024). In Egypt, cervical cancer accounted for 0.12% of the overall mortality rate (Farak et al., 2024).

Many parts of women's life, particularly quality of life, might be impacted by cervical cancer. Therefore, it is essential for cervical cancer women to receive treatment not only to enhance physical health but also to address various aspects of their quality of life (Syifa et al., 2024). In contrast to other postoperative interventions, Fast-Track Surgery places a strong emphasis on helping women with cancer to improve quality of life following surgery by offering them psychological counseling and mental support (Wang et al., 2023). Therefore, this research aims to evaluate the effect of fast-track surgery pathway integrated nursing intervention on postoperative recovery and quality of life among women with cervical cancer.

Aim of the research

The goal of the research was to evaluate the effect of fast-track surgery pathway integrated nursing intervention on postoperative recovery and quality of life among cervical cancer women.

Research hypotheses

H1- Women with cervical cancer who will receive the multimodal patient care strategy will exhibit an improvement in postoperative recovery compared to the control group.

H2- Women with cervical cancer who will receive the multimodal patient care strategy will exhibit an improvement in quality of life compared to the control group.

Operational definitions

Fast-track surgery

A multimodal strategy to patient care that combines a number of evidence-based peri-operative therapies to speed the healing process following surgery.

2. Subjects and method:

2.1. Research Design

A quasi-experimental design was utilized (Two groups; intervention and control groups, pre/post design) to fulfill the aim of the research.

2.2. Setting

Specifically, the research was conducted in the operating room and inpatient Obstetrics and Gynecology Department of Benha University Hospital in Egypt. All medical services related to gynecology and obstetrics are provided by Benha University Hospital to the adjacent area and other neighboring areas.

2.3. Sampling

A Convenient sample involved all women who attended at Benha University Hospital and undergone surgery for cervical cancer during six months (96 women) and met the following inclusion criteria:

- Willing to participate in the research
- Without any significant illnesses like pulmonary edema, heart or kidney failure.
- Without any mental health issues

2.4 Tools of Data Collection

Three tools were used for data collection:

2.4.1. First tool: A Structured Interviewing Questionnaire:

This tool was prepared by the researchers following their examination of related information. The tool was written in Arabic. It consisted of four main sections:

First part: General characteristics of the studied sample which included age, residence, marital status, educational level, occupation, economic status and smoking history.

Second part: Anthropometric measures as: “Weight, Height and Body mass index”.

Third part: Reproductive health history such as: “age of first intercourse, number of births, number of Children and number of abortions, reaching menopause or not, using of contraceptive method and its type if used”.

Fourth part: Current clinical and pathological characteristics of the studied sample which included “Presence of bleeding or not, amount of bleeding if found, stage of the disease, tumor size, degree of differentiation of tumor and type of carcinoma”

2.4.2. Second tool: Assessment of Postoperative recovery (fast-track surgery): This tool was adapted from (Wang et al., 2022, Chen et al., 2021 and Carter, 2012) which include assessment of (post-operative pain immediately after surgery and at the second and third day, need for analgesia, Post-operative vomiting, need of anti-emetics, postoperative blood pressure and heart rate, postoperative mobilization, postoperative nourishment, removal of drain and catheter post-operative, return of bowel mobility, Length of post-operative hospital stay, presence of postoperative complications and postoperative satisfaction).

2.4.3. Third Tool: Quality of life questionnaire which includes (EORTC questionnaire modules QLQ-C30 and QLQ-CX24):

A total of thirty items makes up the EORTC QLQ C-30, with five functional scales measuring different aspects of health and well-being. These include physical functioning, role operation, cognitive functioning, emotional functioning, and social functioning. The symptom scale comprises items for dyspnea, insomnia, diarrhea, constipation, nausea, and vomiting, as well as

pain and fatigue. One item was included in the financial difficulties, and a global health status scale was used to evaluate the overall quality of life.

There are a total of twenty-four questions that comprise the EORTC QLQ CX-24. These questions assess functional capacities, sexual and vaginal health, symptoms, body image, and symptoms experience

Each symptom or functional indicator, as well as the overall health state, is evaluated using a four-point Likert scale in both surveys: (not at all, a little, quite a bit, and very much). The higher score of the functional scale or the global health status/QOL indicates a higher level of functioning or QOL, whereas the higher score of the symptoms for the symptom scales indicates a higher level of dysfunction.

2.5. Method

This research was implemented through the following steps:

2.5.1 Administrative Approval

The Dean of the Faculty of Nursing provided a written letter to the director of Benha University Hospital. This study was carried out with the endorsement of the Ethical Committee of the Faculty of Nursing at Benha University. Every woman in the study was required to give their agreement during data collection after receiving a clear and proper explanation.

2.5.2. Validity

Three nursing professors evaluated the tool's content validity by reviewing it. adjusted based on the advice of the panel to ensure sentences are clear, content is consistent, relevant, simple, and applicable. Changes were made based on helpful feedback, including adjusting certain words to ensure the clearest interpretation for items that were unclear.

2.5.3. Reliability

The researchers made sure the tools were consistent with each other by testing their reliability. The Cronbach's alpha coefficient for Tool II Assessment of Postoperative Recovery (fast-track surgery) was 0.83. For tool III, the eight domains of the EORTC QLQ-C30 it was 0.85 and it ranged from 0.84 to 0.89 f. Beyond that, the EORTC QLQ - CX24 had a Cronbach's alpha of 0.87, ranging from 0.85 to 0.89 for its five domains.

2.5.4. Ethical considerations

The Scientific Research Ethical Committee of the Faculty of Nursing at Benha University granted permission for the purpose of conducting this research. Each woman was apprised of the research's objective prior to completing the tools. Schedules were consistently communicated to each woman throughout the duration of the research. In order to participate in the research and withdraw, if necessary, the woman provided verbal consent. During data collection, the research instruments were validated to guarantee the safety and preservation of the participants' dignity, religious beliefs, and cultural values. No psychological, physical, or social hazards were encountered by the participants in the research. The tools supported human rights and did not include any unethical statements

2.5.5. A Pilot Study

Ten women represented 10% of the entire sample, participated in pilot research to evaluate the intelligibility, content validity, and applicability of the tools. Additionally, the time required for data collection was quantified. As no modifications were implemented in response to the data analysis findings, the researchers incorporated the women who participated in the pilot study into the sample.

2.5.6. Field Work

The research began in early August 2024 and concluded in late February 2025, spanning six months. From Sunday through Thursday, 9 a.m. to 2 p.m., researchers visited the aforementioned location. The researchers reviewed literature from both local and international sources on different facets of the research issue to develop appropriate data collection instruments. Then, these instruments were given to three specialists for evaluation of their suitability, clarity, and usefulness.

Assessment phase

This phase was designed to gather baseline data from the women who participated in order to ascertain their educational requirements. After the researchers greeted each woman and introduced themselves, they went on to explain the research purpose and importance. In the aftermath of this, they managed to secure the women's agreement to take part in the research. The researchers started to interview women prior to undergoing surgery in the admission ward using the structured interviewing questionnaire (Tool I) to assess General characteristics, Anthropometric measures, Reproductive health history and Current clinical and pathological characteristics of the studied women.

Implementation phase

The research group was divided randomly into two equal groups to avoid bias.

For control group

The researchers' responsibility was merely to monitor the control group for later comparison, while the control group received standard medical care according to hospital policy as:

Pre-operative care:

- Putting on compression stockings
- Prolonged period of fasting
- Utilizing an enema or laxative medication

Intra-operative care:

- Placement of urinary catheter
- Regulation of the body's temperature
- I.V antibiotics

Post-operative care:

- Intravenous fluids until bowel movement occurred
- Provide treatment plan
- Administer analgesia in case of severe pain
- Removal of abdominal drain, once the intestinal motility returns and the woman began eating by mouth.

For intervention group (Application of FTS protocol):

Preparation before surgery:

1- Education and counselling:

The researchers started this process by explanation of the surgery, potential risks, benefits and what to expect post-surgery.

Researchers also helped the woman to realize her ability to participate actively in care process. Researchers used aids for clarification such as the booklet for FTS protocol.

2- Diet instructions:

Regarding fasting before to the procedure, the woman was allowed to eat normally and may only fast for a maximum of six hours. In an effort to lessen the effects of fasting, she was also permitted to consume liquids up to two hours prior to the procedure, such as water and natural juices that have a portion of carbohydrates.

3- Bowel preparations:

In order to prevent dehydration, electrolyte imbalance, and distress, the women in this group were advised to refrain from undergoing rectal enemas or mechanical intestine preparations.

Preparation during surgery:

- 1- Maintain normal body temperature: Intravenous fluids were warmed before injection to avoid sympathetic reactions, irregular heartbeats, and wound issues
- 2- The woman was also given prophylaxis against bacterial infection and nausea within an hour before surgery.
- 3- Insertion of urinary catheter

Preparation after surgery:

- 1- During first 24 hours after surgery, the woman was given IV fluids (crystalloids) then stopped.
- 2- FTS protocol aimed to quickly restore bowel function by using some laxatives to avoid intestinal obstruction. Oral food was also introduced early and gradually by offering hot drinks for two hours, followed by a semi-solid meal, and finally solid food.
- 3- Multimodal analgesia was used to control pain after surgery, which lower the risk of central sensitization, and prevent the negative consequences of excessive opioid use.
- 4- Once the women have access to the bathroom, all tubes, drains, and catheters should be removed.
- 5- Early mobilization was suggested and considered to be safe.

Evaluation phase:

After surgery, researchers immediately began to evaluate the woman's condition in both groups using (Tool II) to assess (post-operative pain, need for analgesia, post-operative vomiting, need of anti-emetics, postoperative blood pressure and heart rate, postoperative mobilization, postoperative nourishment, time of removal of drain and catheter post-operative, bowel mobility, length of post-operative hospital stay and postoperative complications).

The women in the study group were given verbal instructions by the researchers on self-care practices to follow at home. The researchers also gave them a Fast-Track Surgery booklet to help them understand the importance of post-surgery discharge education.

Follow-up phase:

Following the discharge of both groups, there was an additional month of phone follow-up to evaluate quality of life after surgery using (Tool III)

Statistical Design

Information was double-checked before being input into the database. Data tabulation and analysis were performed using SPSS version 20. We used frequency, percentages, standard deviation, and mean for descriptive statistics. Important tests for significance (t-test, chi-square test) were used. When the p-value was 0.05 or lower, it refers to significant level. Furthermore, a high significant level was detected at $p < 0.001$.

Results:

Table (1): Distribution of the studied women (study and control groups) according to their general characteristics (n= 96).

General characteristics	Study group n= 48		Control group n=48		X2	p-value
	No	%	No	%		
Age (years)						
< 35	5	10.4	8	16.7	4.51	0.105
35-45	23	47.9	13	27.1		
>45	20	41.7	27	56.2		
Mean ± SD	43.58±6.96		45.22±7.13		t-test -1.143-	0.256

Residence						
Urban	11	22.9	15	31.3	0.844	0.358
Rural	37	77.1	33	68.7		
Marital status						
Married	29	60.5	32	66.7	0.700	0.873
Widow	10	20.8	9	18.8		
Single	4	8.3	4	8.3		
Divorced	5	10.4	3	6.2		
Educational level						
Read and write only	8	16.7	10	20.8	0.328	0.955
Basic education	15	31.3	15	31.3		
Secondary education	18	37.5	17	35.4		
High education	7	14.5	6	12.5		
Occupation						
House wife	35	72.9	30	62.5	1.191	0.275
Working	13	27.1	18	37.5		
Economic status						
Low	18	37.5	20	41.7	2.221	0.329
Medium	26	54.2	20	41.7		
High	4	8.3	8	16.6		
Smoking						
Yes	3	6.3	5	10.4	0.545	0.460
No	45	93.7	43	89.6		

Test t= independent t test

No statistically significant (P>0.05)

Table (1) discovers that the control group had an average age of 45.22 ± 7.13 years, whereas the study group had an average age of 43.58 ± 6.96 . The study group, in contrast to the control group, inhabited rural areas to the extent of 77.1%. Furthermore, there were 66.7% married women in the control group and 60.5% in the study group. Among the study group around 37.5% had secondary level of education, with 72.9% and 62.5% of the study and control groups respectively were mothers who remained at home to care for their children. About 54.2% and 41.7% of study and control groups respectively were designated to the median income level. Not only that, but 89.6% of the control group and 93.7% of the study group were nicotine-free. Additionally, the two groups did not exhibit any statistically significant difference ($p > 0.05$). Consequently, there was no discernible distinction between the two groups.

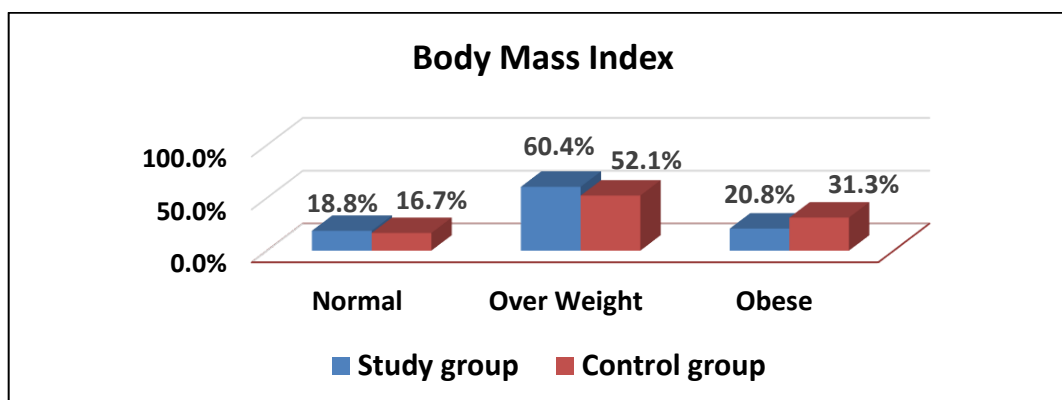


Figure (1) Distribution of the studied women (study and control groups) regarding to Body mass index (n=96)

Figure (1) illustrates that among the study participants, 60.4% were overweight, compared with 52.1% were in the control group. Among the study and control groups about 20.8% and 31.3%

respectively were obese. In addition, only 18.8% of the study group met the criteria for being classified as having a normal weight compared with 16.7% in the other group.

Table (2): Distribution of the studied women (study and control groups) according to reproductive health history (n= 96).

Reproductive Health History	Study group n= 48		Control group n=48		X2	p- value
	No	%	No	%		
Age of 1 st intercourse (years)						
< 20 years.	29	60.4	26	54.2	0.383	0.536
≥ 20 years	19	39.6	22	45.8		
Number of births						
No birth	4	8.3	3	6.3	2.575	0.462
Two times	6	12.6	12	25.0		
3 times	22	45.8	18	37.5		
More than 3 times	16	33.3	15	31.3		
Number of Children						
No children	4	8.3	3	6.3	2.096	0.553
2 children	10	20.8	15	31.2		
3 children	18	37.5	19	39.6		
More than 3 times	16	33.4	11	22.9		
Number of abortions						
No abortion	35	72.8	32	66.6	2.225	0.527
One time	6	12.6	5	10.4		
Two times	2	4.2	6	12.6		
More than two times	5	10.4	5	10.4		
Presence of bleeding						
Yes	29	60.4	28	58.3	0.043	0.835
No	19	39.6	20	41.7		
Amount of bleeding						
Mild	12	25.0	16	33.3	2.043	0.360
Moderate	27	56.2	20	41.7		
Sever	9	18.8	12	25.0		
Menopause						
Yes	27	56.3	22	45.8	1.042	0.307
No	21	43.7	26	54.2		
Is using Method of contraception						
Yes	28	58.3	33	68.7	1.124	0.289
No	20	41.7	15	31.3		
If answer yes what of methods used						
Oral contraceptive pills	5	17.9	7	21.2	3.405	0.333
Injection	12	42.9	7	21.2		
Subcutaneous implants	5	17.9	9	27.3		
IUD	6	21.3	10	30.3		

No statistically significant (P>0.05)

Table (2) demonstrates that 60.4% of study group and 54.2% of control group had their first sexual intercourse before the age of twenty. Additionally, 60.4% of the study group and 58.3% of the control group experienced hemorrhage. While, 56.2% of the study group and 41.7% of the control group suffered moderate bleeding. Furthermore, about 56.3% of the study group

and 45.8% of the control group reached menopause. The percentage of women who used injections for birth control was around 42.9% in the study group and 21.2% in the control group.

Table (3): Distribution of the studied women (study and control groups) according to clinical and pathological characteristics (n= 96).

Clinical and pathological characteristics	Study group n= 48		Control group n=48		X2	p- value
	No	%	No	%		
Stage of the disease						
1a	22	45.8	17	35.4	1.176	0.759
1b	16	33.3	20	41.7		
2b	5	10.4	6	12.5		
3b	5	10.4	5	10.4		
Tumor size						
<2 cm	39	81.2	43	89.6	1.338	0.247
≥2 cm	9	18.8	5	10.4		
Degree of differentiation of tumor						
Well differentiated	17	35.4	14	29.2	1.547	0.461
Moderate differentiated	20	41.7	26	54.2		
Poor differentiated	11	22.9	8	16.6		
Type of carcinoma						
Squamous	38	79.2	43	89.6	1.975	0.160
Adenocarcinoma	10	20.8	5	10.4		

No statistically significant (P>0.05)

Table (3) There was a statistically significant difference between the two groups, with 45.8% of the study group and 35.4% of the control group having cervical cancer in its 1a stage. In the control group, 89.6% had tumors less than 2 cm, compared with 81.2% in the study group. Tumors with moderate differentiation were seen in 54.2% of the control group, compared to just 41.7% of the study participants. About 79.2% of the study group had squamous cell carcinoma in contrast to 89.6% of the control group.

Table (4): Distribution of the studied women (study and control groups) according post-operative pain (n= 96).

Post-operative pain	Study group n= 48		Control group n=48		X2	p- value
	No	%	No	%		
1st postoperative day						
Moderate	16	33.3	7	14.6	4.63	0.03*
Sever	32	66.7	41	85.4		
2nd postoperative day						
Mild	15	31.3	9	18.8	9.22	0.01*
Moderate	24	50.0	16	33.3		
Sever	9	18.7	23	47.9		
3rd postoperative day						
Mild	33	68.8	18	37.5	9.41	0.009*
Moderate	9	18.8	18	37.5		
Sever	6	12.4	12	25.0		
The need for analgesia						
Non	3	6.2	0	0.0	8.42	0.01*

1-2 times	33	68.8	24	50.0		
3-4 times	12	25.0	24	50.0		

*Statistically significant ($P \leq 0.05$).

Table (4) displays that 66.7%, 18.7% and 12.4% of the study group had intense degree of pain during 1st, 2nd and 3rd postoperative days respectively. On the other hand, 85.4%, 47.9% and 25% of the control group had intense degree of pain during 1st, 2nd and 3rd postoperative days respectively. Analgesics are only required three to four times by 25% of the study group and around 50% of the control group.

Table (5): Distribution of the studied women (study and control groups) according post-operative nourishment (n= 96).

Post-operative nourishment	Study group n= 48		Control group n=48		X2	p-value
	No	%	No	%		
Initiation of oral fluids (hours)						
10 or less	9	18.8	4	8.3	6.51	0.03*
11-20 hrs.	29	60.4	23	47.9		
>20h	10	20.8	21	43.8		
Amount of oral fluids intake (liters)						
<100 L	5	10.4	7	14.6	9.22	0.01*
100-200 L	20	41.7	32	66.7		
>200 L	23	47.9	9	18.8		
Initiation of regular diet (hours)						
<12hrs.	13	27.1	4	8.3	10.47	0.005 *
12-24 hrs.	28	58.3	25	52.1		
>24hrs.	7	14.6	19	39.6		
Post operative vomiting						
Non	15	31.2	8	16.7	6.96	0.03*
1-2 times	25	52.1	21	43.7		
3 or more times	8	16.7	19	39.6		
Need of anti-emetics						
Yes	19	39.6	30	62.5	5.04	0.02*
No	29	60.4	18	37.5		

*Statistically significant ($P \leq 0.05$).

Table (5) brings attention to the fact that 60.4% of the study group and 47.9% of the control group started taking oral fluids between 11 and 20 hours after surgery. Additionally, about 47.9% of the study group reported drinking over 200 liters of oral fluids, while only 18.8% of the control group did the same. In addition, 31.2% of the participants in the study group did not experience postoperative vomiting, and 60.4% did not require anti-emetics. In contrast, about 16.7% and 37.5% of the control group didn't have post operative vomiting and didn't need anti-emetics respectively.

Table (6): Distribution of the studied women (study and control groups) according post-operative complications (n= 96).

Post-operative complications	Study group n= 48	Control group n=48	X2	p-value
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	No	%	No	%		
Surgical site infection	3	6.3	15	31.3	9.84	0.002*
Urinary tract infection	5	10.4	14	29.2	5.31	0.02*
Pneumonia	6	12.5	16	33.5	5.89	0.01*
Sepsis/septic shock	2	4.2	9	18.8	5.03	0.02*
Wound dehiscence	1	2.1	7	14.6	4.90	0.02*
Deep venous thrombosis	0	0.0	5	10.4	5.27	0.02*
Pulmonary embolism	1	2.1	9	18.8	7.14	0.008*
Intra\Postoperative transfusion	5	10.4	13	27.1	4.37	0.03*
Return to the operating room	0	0.0	2	4.2	2.04	0.153
Readmission	2	4.2	5	10.4	1.38	0.239

*Statistically significant ($P \leq 0.05$).

Table (6) indicates that the study and control groups experienced statistically significant relation related to surgical site infection, urinary tract infection, pneumonia, septic shock, wound dehiscence, deep venous thrombosis, pulmonary embolism, and intra/postoperative transfusion ($P \leq 0.05$). However, there was no statistical relationship between the study and control groups in terms of return to the operating room and readmission ($P < 0.05$).

Table (7): Distribution of the studied women (study and control groups) according post-operative mobilization and removal of drain and catheter (n= 96).

Post-operative mobilization/ removal of drain and catheter	Study group n= 48		Control group n=48		X2	p-value
	No	%	No	%		
First time of sitting in bed (hours).						
< 3hrs.	22	45.8	9	18.8	8.05	0.01*
3-4 hrs.	10	20.9	15	31.3		
> 4 hrs.	16	33.3	24	50.0		
First time of ambulation out of bed						
< 6 hrs.	24	50.0	12	25.0	6.41	0.04*
6-12 hrs.	11	22.9	16	33.3		
> 12 hrs.	13	27.1	20	41.7		
Time of removal of bladder catheter (hours)-						
< 12 hrs.	27	56.3	16	33.3	6.28	0.04*
12-24 hrs.	15	31.3	18	37.5		
> 24 hrs.	6	12.5	14	29.2		
Time of removal of drains (days)						
One day	16	33.3	9	18.8	6.51	0.03*
Two days	23	47.9	19	39.6		
Three or more days	9	18.8	20	41.6		
Length of post-operative hospital stay (Day)						
1-2 days	11	22.9	3	6.3	7.29	0.02*
3 days	23	47.9	21	43.7		
> 4 days	14	29.2	24	50.0		
Bowel mobility (hours)						
First bowel sound	4.08±0.61		4.58±0.73		t-test -3.608-	0.000**
First passage of flatus	4.22±0.75		4.75±0.63		t-test -3.668-	0.000**

First passage of stool	5.02±0.95	5.83±1.20	t-test -3.652-	0.000**
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Test t= independent t test

*Statistically significant ($P \leq 0.05$).

**highly statistically significant ($P \leq 0.001$).

Table (7) clarifies that 45.8% of the study group started to sit in bed first time before 3 hrs. post operative and about 50.0% of them started ambulation before 6 hrs. post operative compared with 18.8% of the control group sit in bed first time before 3 hrs. post operative and about 25.0% of them started ambulation before 6 hrs. post operative. Also, 56.3% of the study group removed bladder catheter before 12 hrs. compared with 33.3% of the control group. One day after surgery, 33.3% of patients in the study group had their drains removed, compared to 18.8% in the control group. About duration of hospital stays following surgery, 50% of the control group stayed over four days in hospital, whereas 29.2% of the study group stayed longer than four days. In addition, the two groups differed significantly with respect to the resumption of bowel mobility ($P < 0.001$).

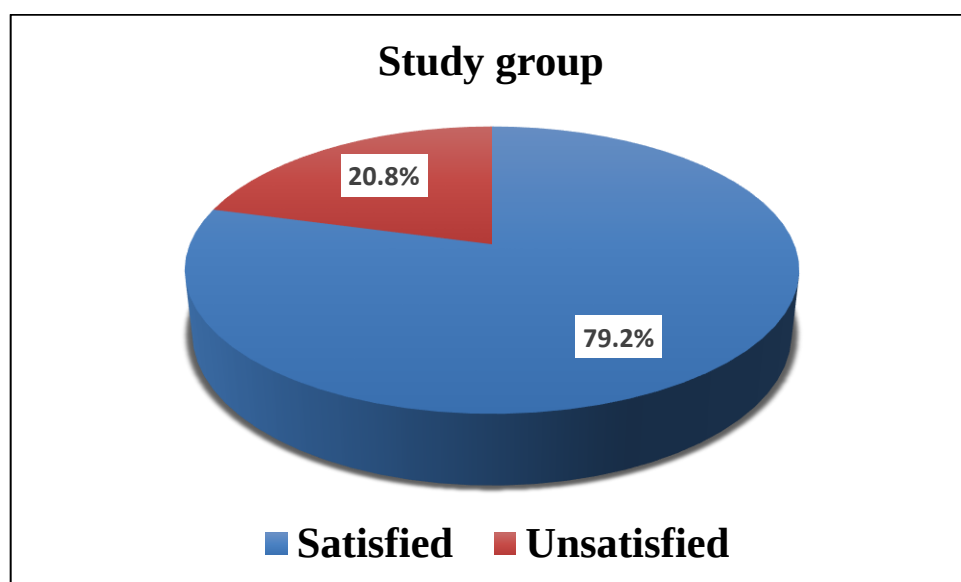


Figure (2) Distribution of study group' satisfaction regarding effect of fast-track surgery pathway integrated nursing intervention on postoperative recovery and quality of life (n=48)

Figure (2) shows that 79.2% of the study group were satisfied with the application of Fast Track Surgery Pathway Integrated Nursing Intervention while only 20.8% of them weren't satisfied.

Table (8): Distribution of the studied women (study and control groups) according to total score EORTC QLQ-C30 (n= 96).

EORTC QLQ-C30	Pre-intervention			Post-intervention		
	Control group n=48	Study group n=48	t test p-value	Control group n=48	Study group n=48	t test p-value
	Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD	
Physical Functioning	15.89± 2.62	16.58± 1.91	1.466 0.146	15.77±2.61	12.22±2.75	6.45 0.000**

Role operation	11.97 ± 2.74	11.89 ± 2.76	0.148 0.882	11.60±2.63	7.95±0.54	9.37 0.000**
Emotional Functioning	11.79 ± 1.82	12.41 ± 2.17	1.528 0.130	12.04±2.21	8.33±0.75	10.99 0.000**
Cognitive Functioning	7.00 ± 1.11	6.81 ± 1.17	0.802 0.425	6.43±1.21	4.39±0.86	9.45 0.000**
Social Functioning	6.41 ± 1.25	6.50 ± 1.22	0.330 0.742	6.16±1.07	4.22±1.01	9.06 0.000**
Financial difficulty	3.25 ± 0.83	3.50±0.68	1.601 0.113	3.16±0.80	2.58±0.49	4.25 0.000**
Symptoms Scale	33.81±2.35	33.56±2.80	0.473 0.638	32.79±2.47	23.62±2.40	18.41 0.000**
Global Health Status Scale	6.41 ± 1.28	6.58 ± 1.14	0.671 0.504	6.10±1.09	5.27±0.73	4.37 0.000**
Total score	96.56±11.64	97.85±10.12	0.580 0.563	94.08±13.02	68.62±2.38	13.31 0.000**

No statistically significant difference ($p > 0.05$) difference ($P \leq 0.001$) **A high statistically significant

t= independent t test

Table (8) demonstrates that the study group experienced a significant improvement in all items of the EORTC QLQ-C30 following the intervention in comparison to preintervention. In addition, the study and control groups did not differ significantly in their responses to any item of the EORTC QLQ-C30 preintervention ($p > 0.05$). while, the two groups showed a statistically significant difference in the period after the intervention ($p < 0.001$).

Table (9): Distribution of the studied women (study and control groups) according to total score of EORTC QLQ – CX24 (n= 96).

EORTC QLQ – CX24	Pre-intervention			Post-intervention		
	Control group n=48	Study group n=48	t test p-value	Control group n=48	Study group n=48	t test p-value
	Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD	
Symptoms experience	36.58± 2.90	36.54± 5.70	0.045 0.964	34.66±5.13	27.97±2.15	8.32 0.000**
Body image	9.72 ± 1.97	10.22 ± 1.54	1.380 0.171	9.22±1.74	6.93±0.80	8.26 0.000**
Vaginal / Sexual functioning	11.52 ± 2.30	11.75 ± 1.52	0.574 0.567	11.18±2.14	7.60±0.91	10.66 0.000**
Symptoms items	11.93 ± 3.05	12.31 ± 3.10	0.597 0.552	11.60±2.70	7.66±0.75	9.72 0.000**
Functional items	6.50 ± 1.27	6.47 ± 1.20	0.082 0.934	6.33±1.11	4.50±0.74	9.46 0.000**
Total score	76.22±12.51	77.35±7.00	0.544 0.588	73.02±12.23	54.68±4.77	9.67 0.000**

No statistical significant difference ($p > 0.05$) difference ($P \leq 0.001$) **A high statistical significant

t= independent t test

Table (9) found that after the intervention, the study group showed relative enhancement in all variables of EORTC QLQ-CX24. Also, no statistically significant difference was observed between the study and control groups concerning all variables of EORTC QLQ- CX24 preintervention ($p > 0.05$) while, postintervention a statistical significant difference was seen between study and control groups ($p \leq 0.001$).

Discussion

Cervical cancer remains a significant health issue for women worldwide, with the highest rates observed in developing countries as Egypt. Surgical interventions particularly hysterectomy are essential treatments for cervical cancer. However, the recovery period after such surgeries can be lengthy and fraught with complications, impacting the quality of women's life (Sung et al., 2024).

The Fast-Track Surgery (FTS) pathway, which focuses on minimizing postoperative hospital stays and promoting early recovery has gained intense attention as a way to improve surgical outcomes. By combining early mobilization, pain management, nutritional support and women education to optimize recovery. Nursing interventions are central to the success of this pathway, as nurses play a crucial role in pain management, patient education and psychological support (Ding et al., 2023).

The current research aimed to evaluate the effect of fast-track surgery pathway integrated nursing intervention on postoperative recovery and quality of life among cervical cancer women.

In terms of the general characteristics of the women under study, the current research indicates that the mean age of the study group was 43.58 ± 6.96 years, while the mean age of the control group was 45.22 ± 7.13 years. Not only that, but more than half of the control group and more than three quarters of the study group were from rural regions, and more than half of both groups were married. Less than half of the two groups had secondary education and less than three quarters of them were house wives.

In terms of economic position, less than half of the control group and over half of the study group were in the medium income bracket. Moreover, most of the two groups didn't smoke. Also, there was no statistically significant difference between the two groups ($p > 0.05$). Thus, there was homogeneity between two groups

These findings are in line with study conducted by Shalaby, (2021) Who discovered that the two groups did not differ significantly in terms of patient demographics. As a result, the two categories were homogeneous. As opposed to this, the results of the present research contradict Ferghali et al., (2020) who showed that, mean age was 48.96 ± 8.55 years old in the study group and 47.79 ± 7.61 years old in the control group also, Heeba et al., (2019) found that more than half of studied women had secondary level of education in both groups.

Also, these findings are congruent with Meyer et al., (2022) who found that women younger than 50 years had higher rates of early-stage cervical cancer, more favorable histological types (e.g., squamous cell carcinoma) and improved postoperative recovery. Older women had more advanced disease at diagnosis and often required more extensive surgical interventions. Also, a study conducted by Smith et al., (2023) was determined that women from lower-income backgrounds were more likely to experience treatment delays, which led to poor surgical outcomes and increased complications.

Also, the present findings are aligned with Gad et al., (2023) who found that younger women typically experience better recovery and lower postoperative complications, while older women, particularly those over 60 often face higher surgical risks and slower recovery. This

study's results are slightly different from those of previous studies, but the researchers believe that this could be due to differences in the sample size and the criteria used to select it.

The current research illustrated that more than half of the two groups were overweight, while only a third of them had a normal BMI. These findings line up with Johnson et al., (2022) who found that women with obesity were at a greater risk for complications following cervical cancer surgery, including wound infections and blood clot formation.

Concerning history of reproductive health, the research results given that over half of the women in the study and control groups experienced their first sexual contact before to the age of twenty, this study raises concerns about reproductive health. In addition, more than half of the participants in the study and control groups reported moderate bleeding, suggesting that more than half of both groups experienced bleeding. Also, menopause had already occurred in over half of the study group but less than half of the control group. Concerning methods of birth control, fewer than half of the study group and approximately one third of the control group reported use of injection as a method of contraception.

So far, it seems that the tumor diameters in the majority of both study and control groups were less than 2 cm, and that less than half of both groups had cervical cancer in stage 1a. This data is derived from the women's clinical and pathological features that are being studied. Also, over half of the control group, and over one third of the study group had intermediate differentiation tumors with majority of the control group and majority of study group had squamous cell cancer.

A study was conducted by Johnson et al., (2022) Compared to women with Stage III or IV, who had higher rates of recurrence and distant metastasis after surgery, women with Stage I cervical cancer had a significantly higher 5-year survival rate. Also, these results align with Zhu and Xu, (2024) who found that women with adenocarcinoma of the cervix had a higher risk of lymph node involvement, a higher recurrence rate and poorer survival outcomes compared to women with cervical cancer.

The research found that out of the women who participated in the research, more than two-thirds of the study group felt significant pain on the first day following the operation, while less than one quarter of them felt severe pain on the second and third days. On the first day following surgery, most women in the control group complained of excruciating pain; however, on the second and third days, the number of complaints decreased significantly. Also, half of the participants in the control group needed analgesics three or four times, compared to one quarter in study group.

This finding matches with Gad et al., (2023) who illustrated a significant reduction in opioid consumption, faster recovery and better overall patient satisfaction with pain management

Another study by Harris et al., (2022) found that women who had active support systems reported lower levels of postoperative pain and better emotional recovery. Also, Zhu and Xu, (2024) stated that at 1, 6, and 12 hours after the operation, women undergoing Fast-Track Surgery reported significantly less pain and less opioid administration.

The researchers suggested that decreased opioid consumption and postoperative pain scores were brought about by preoperative counseling in line with fast-track surgery.

Concerning post-operative nourishment of studied women, the research clarifies that over half of the women in the study group began consuming oral fluids between eleven- and twenty-hours following surgery, but only half of the women in the control group did so. Also, one-third of the study group and over half of them did not have postoperative vomiting and didn't need antiemetics respectively. Because of three or more bouts of vomiting, over one-third of the control group need antiemetics.

The findings mentioned above are in line with Smith et al., (2021) who concluded that early nutrition is a cornerstone of fast-track surgery. Proper nutrition enhances tissue healing, boosts immune function and accelerates recovery. Additionally, Benoit et al., (2022) highlighted that early initiation of nutrition within 24 hours after surgery led to a quicker recovery and shorter hospital stays in cervical cancer patients, emphasizing the important role of nursing in ensuring nutritional compliance.

These outcomes highlight the positive effects of integrating pre-operative nursing care with fast-track surgery pathways, as early enteral nutrition can speed up the recovery of GIT function and decrease the hazards of intestinal blockage.

Regarding occurrence of post-operative complications of studied women, Statistical analysis of the risk of surgical site infection, UTI, pneumonia, septic shock, wound dehiscence, deep venous thrombosis, pulmonary embolism, intra-Postoperative transfusion and other complications was carried out and shown to be significantly different between the study and control groups.

The findings mentioned above are attached with Wang et al., (2021) who conducted a study on cervical cancer patients who underwent surgery with an ERAS protocol. The study found that those who received nursing interventions as part of the fast-track pathway had shorter recovery times, fewer complications, and better psychological outcomes compared to those who received traditional care. Also, Huang et al., (2022) demonstrated that Fast-track surgery has been linked to fewer postoperative complications, including infections, gastrointestinal issues, and respiratory complications.

Moreover, Xiaoping, (2021) suggests that women diagnosed with cervical cancer can significantly lessen their chances of complications and pain associated with the fast-track surgery concept. Additionally, compared to the control group, the research group appeared to have a reduced rate of postoperative complications. This demonstrated that the FTS concept was advantageous in decreasing the probability of postoperative complications associated with gynecological malignant tumors. In addition, Abdelrazik and Sanad, (2020) suggested that ERAS significantly decreased hospital stays, improved pain management, and decreased complications without increasing re-admissions.

Early mobilization is critical in the recovery process, not only to improve physical function but also to reduce pain. Gad et al., (2023) emphasized that early postoperative mobilization, guided by nurses and physical therapists, improves circulation, reduces muscle stiffness and prevents complications like deep vein thrombosis.

Concerning post-operative mobilization of studied women, the current research found that women in the study group required less time to get out of bed and walk around following surgery compared to the control group. More specifically, approximately half of the women in the study group began to rise from their beds no later than six hours following surgery, and even fewer began to sit down in bed for the first time no later than three hours following surgery. In contrast, less than one quarter of the control group began sitting in bed for the first time before 3 hours postoperatively, and approximately one quarter of them began ambulating before 6 hours postoperatively.

The results are supported with Marsh et al., (2022) who explored impact of multimodal analgesia and early mobilization on recovery after gynecologic cancer surgery. Their findings indicated that these interventions cause a significantly less period of hospital stay and enhanced pain management, with patients reporting higher quality of life scores post-surgery.

These results were attributed by the researchers to the early mobilization of women, which is a critical element of the fast-track surgery. By reducing postoperative complications, shortening hospital stays, facilitating early discharges, increasing women's comfort, and

speeding up their return to daily living activities, this initiative made is possible for women to recover faster.

Concerning length of post-operative hospital stay, about one-quarter of the study participants spent four days or more in the hospital, which is significantly less than the number of control group. Based on these findings, the researchers concluded that fast-track surgery could shorten women's hospital stays by reducing the occurrence of postoperative complications and getting women back on their feet sooner after surgery.

These results are similar to Marsh et al., (2022) who demonstrated that the incorporation of a fast-track pathway significantly reduced the length of hospital stays for patients undergoing gynecologic cancer surgeries, including cervical cancer. Early mobilization, pain management, and nutritional support enabled patients to recover more quickly and be discharged earlier than those receiving conventional care. Also, Sibbern et al., (2022) determined that over half of the women under investigation were hospitalized for 1 to 3 days, as opposed to 4-5 days for the control group.

The results illustrated that, there was a statistically significant difference between the two groups related to the rates of bowel mobility recovery. This result agree with Atia, et al. (2020) who mentioned that the control group had a longer average time until their first defecation following the operation compared to the study group. The researchers related this result that women who started drinking oral fluids and walking around soon after surgery had a much easier time getting back to their regular bowel movements.

Quality of life (QoL) is a critical aspect of recovery, particularly for women diagnosed with cervical cancer. The emotional, psychological and physical challenges associated with cancer treatment can have profound effects on the overall well-being of the women (Villarreal et al., 2020).

The result of the research illustrated that more than three quarters of the participants in the study group were satisfied with the impact of the fast-track surgery pathway integrated nursing intervention on their quality of life and recovery after surgery. On the flip side, dissatisfaction was reported by less than a third of them.

Regarding total score EORTC QLQ-C30 of studied women, the current research demonstrates a significantly enhancement in all variables of EORTC QLQ-C30 in the study group post intervention compared with pre intervention. Women. Further, no statistically significant difference between the two groups concerning all variables of EORTC QLQ-C30 was observed pre intervention, while, post intervention high statistically significant difference was seen among the two groups.

The results that were previously stated were supported with Huang et al., (2022) who focused on the psychological aspects of fast-track surgery. Their research concluded that integrated nursing care, including preoperative education and postoperative counseling, reduced anxiety and depression, which were significant barriers to recovery. In addition, Smith et al., (2021) found that early mobilization and optimized pain management lead to faster physical recovery, which improves the patient's ability to return to daily activities indicated that patients in the ERAS pathway had better physical recovery outcomes and greater satisfaction with their care.

Finally, the current research demonstrated that Fast-Track Surgery pathway, integrated with nursing interventions, is an effective strategy for improving postoperative recovery and enhancing the quality of life for women undergoing cervical cancer surgery.

Conclusion

Current research concluded that the application of Fast-Track Surgery Pathway integrated nursing intervention was an effective strategy for improving postoperative recovery as there was a significant improvement in postoperative pain, nourishment, postoperative complication, postoperative mobilization, time of removal of drain and catheter and length of hospital stay after surgery in the study group. Also, it improved the quality of Life of study group compared with the control group as a significant enhancement in all variables of EORTC QLQ-C30 and of EORTC QLQ- CX24 was detected among the study group post intervention compared with preintervention. The study was successful since it verified the hypotheses and achieved its aim.

Recommendations:

Based on research findings, it was recommended that:

- Application of Fast-Track Surgery Pathway should be implemented for all women with cervical cancer to improve their clinical outcomes.
- Periodic ongoing health teaching programs about Fast-Track Surgery Pathway should be conducted to all health care providers in all obstetrics and gynecology departments.
- Inservice training programs regarding Fast-Track Surgery Pathway integrated nursing intervention need to be conducted to improve outcomes of all gynecologic surgeries.

Further researches:

- Multicenter studies to confirm these findings and explore the long-term benefits of integrated nursing interventions in FTS pathways.
- Investigating the economic impact of implementing FTS pathways such as reduced hospital stays and lower complication rates

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The researchers have not disclosed any potential conflict of interest regarding the research, authorship or publication of the article.

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