Problems Encountered among Patients Undergoing Hyesterecetomy and Nursing Implications

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Abstract

Background: Hysterectomy, which is the surgical removal of the uterus and cervix, is the commonest major gynecological operation in both developed and developing countries. **The aim** of the study was to estimate the types, indications, complications of hysterectomy and evaluate the effectiveness of nursing interventions program on patients undergoing hysterectomy operation. A prospective descriptive **Research design** was used to investigate the current research problem over a one-year period between June 2015 to the end of May 2016 and patients number was235 &quasi-experimental for the implemented nursing intervention program (20) nurse. The research was conducted in the department of gynecology, at Zagazig University hospital. **Results** the prevalence of hysterectomy was 33.5% according to 2016 hospital record. The mean age and parity were 48.7 ±9.6 years and 4.3 ± 2.3respectively, 77.9 % of the studied patients underwent AH, the rest had vaginal and laparoscopic approach (11.5% &10.6% respectively). The most common indications were leiomyomata (62.6%) & bleeding disorders (60.0%) and complications were present in 27.7%, A statistically significant improvements were observed at the posttest in all areas of tested nurses' knowledge & practices related to hysterectomy (p= 0.000*).The study group received adequate and significant preoperative counseling concerning hysterectomy, in terms of clearing up misconceptions, alleviating fear and physical preparation of the patient compared to those in the control group. The program had resulted in an average reduction in length of stay of 3.29±1.56 days and a decrease in complications by as much as 5%. Meanwhile, earlier return of gastrointestinal function (65%), mild to moderate pain scores (25% to 45%), early ambulation (80%) as well as early removal of the urinary catheter (2.2±0.8 day), were also observed. It also significantly improved patient's satisfaction. **Conclusion,** the prevalence of hysterectomy was 33.5% with abdominal hysterectomy constituting the most common type. The intervention nursing program resulted in shorter hospital stay, less postoperative pain and an increase of patients' satisfaction compared to the control group. **Recommendation**: Maternity nurses should use these guidelines to help integrate existing knowledge into practice, align perioperative care, and encourage future investigations of optimal preoperative and postoperative care for patients undergoing gynecologic/oncology operations.

Key words: Hysterectomy, Indications, Complications & Nursing program

Introduction

Hysterectomy is the most commonly performed gynecological surgical procedure. It is the surgical removal of the uterus, or womb, depending upon the type of procedure that is performed and the reason for the surgery, hysterectomy may also include removal of the adjacent fallopian tubes and ovaries **(Hoffman et al., 2014)**.

There are three main types of hysterectomies namely; total hysterectomy (complete removal of uterus and cervix), subtotal hysterectomy (removal of the uterus, leaving the cervix in situ) and radical hysterectomy(complete removal of uterus, cervix, upper vagina and parametrium). The different approaches to hysterectomies are abdominal, vaginal and laparoscopic hysterectomy (**Renner et al., 2010**). The indications of hysterectomy are many and include; uterine leiomyomas, dysfunctional uterine bleeding, chronic pelvic pain, endometrial, ovarian and cervical cancers. Other indications include; cervical intraepithelial neoplasia, genital prolapse, endometriosis and benign ovarian tumors. The possible complications of hysterectomy include surgical wound infection; excessive bleeding; injury to the bowel, bladder, ureter, or major blood vessel. Also, urinary tract infection, nerve damage, postoperative thromboembolism, atelectasis, early onset of menopause, and loss of ovarian function (**Clarkeetal., 2013**).The success of surgery is as much dependent on thorough pre- and post-operative care, careful asepsis and anesthesia. Adequate pre-operative preparation of the patient by the nurse, both physically and psychologically, is important to provide optimum intra-operative conditions and lays the basis for a smooth post-operative recovery (**Pike, 2009**). Beside this; the nurse midwife has a great role in detection and correction of misconceptions and fears about the effect of hysterectomy. Thus, correct information is provided to the woman and reassurance is given that assist her in making a positive emotional adjustment to the surgery.

Significance of the study

Hysterectomy threats women's femininity, their ability to conceive and their roles as wives and mothers. Loss of uterus may produce a sense of incompleteness and distortion of the body image. The minimizing of hysterectomy complications represents a great challenge for the nurses (**Clarke, 2012**).The maternity nurse today is increasingly called upon to improve both physical and psychological preoperative and postoperative intervention for patient undergoing hysterectomy. There is paucity of data on hysterectomy for gynecological conditions in Zagazig. A baseline data on the local population will ascertain the indications, clinical characteristics and the pattern of morbidity associated with elective hysterectomies which are the aims of this study together with the nursing implication**.**

Aim of the study:

1- Determine types and indications for hysterectomy during the study period(one year).

2- Find out problems encountered(physiological& psychological) among women undergoing hysterectomy.

3- Determine the incidence of immediate postoperative complications within 24h among these women.

4- Plan, implement &evaluate an educational program for upgrading nurses' knowledge and practice pertaining to the proper nursing intervention for women undergoing hysterectomy and evaluate the impact of such program on patient 's outcome.

Research hypothesis:

- Nurses received the educational program about proper nursing intervention pertaining to women undergoing hysterectomy show better knowledge and practice than those who did not have this program.

- Patients received the proper standard care pertaining hysterectomy show better outcome than those who received the hospital routine care.

   Setting:

- The research was conducted in the department of gynecology, at Zagazig University hospital

❖ **Research Design:**

   Two different research designs were used in carrying out this study.

- **The first** was prospective descriptive analytic design used to investigate the current research problem.

- **The second** was carried out using a controlled quasi-experimental research design for nurses with pre-post assessment to evaluate their knowledge and practice regarding care of hysterectomy. Followed by testing the impact of such program on the outcome of patient's management.

❖ **Sampling**

   The study population consisted of all patients undergoing hysterectomy attending the study settings. **The first sample** consisted of all hysterectomy patients who recruited from gynecological inpatient department and their number was235patients. Women were eligible for recruitment in the study sample if they met the following:

✓ **Inclusion criteria**:

- Patient's age ranging from20 years and more and agreed to participate in the study.

- Patient's encountered a gynecological problem that indicated hysterectomy.

✓ **Exclusion criteria**:

- Women undergoing hysterectomy for obstetrical problems

   Concerning the second Sample (the intervention part of the study), it included all nurses working in the gynecological department of Zagazig University hospitals who have agreed to participate in the educational program. These were twenty nurses. Meanwhile, two similar groups of hysterectomy patients were recruited to find out the implication of this program on patient's management.

   Sampling method: forty women fulfilling the inclusion criteria were recruited in the study sample. They were assigned in an alternating way to one of the two following groups:

- **Study group:** those patients who were subjected to the standard care provided by the trained nurses about hysterectomy (20);

- **Control Group**: those women who were to receive the hospital routine care (20).

❖ **Tools of data collection:**

➤ **Tool I) Structured Interviewing Questionnaire**

🔸 Socio-demographic characteristics about the study subjects such as age, level of education, occupation**,** marital status and residence.

🔸 Obstetric history such as gravida, para, birth interval.

♦ Medical history and surgical history; include data about the presence of hypertension, cardiac disease, anemia, diabetes and urinary and liver diseases. As well as history of previous surgical operation.

♦ Gynecologic history, including history of previous gynecological diseases as well as previous gynecological surgery.

♦ Types, indications and problems encountered among patients undergoing hysterectomy.

♦ Degree of pain that a patient is experiencing (**Visual Analog Scale**)

➤ **Tool II**:-This is designed to asses' nurses' knowledge and practice concerning patient's undergoing hysterectomy. It was used for the pre and post-test. A booklet was designed that would follow the entire patient' scare comprehensively; preoperative, and postoperative care. The care of each patient was elaborated& documented in the knowledge& practice checklist to easily score the correct and incorrect answer on what is provided for the patient.

➤ **Tool III**

Patient record dairy and management checklist was instituted and used for patients in the study group.Such tool included the following sub checklists:

✓ Initial Assessment upon arrival to hospital

✓ Comprehensive preoperative care

✓ Care on recovery room(immediate postoperative care)

✓ Care at arrival to the ward room (late postoperative care)

✓ Care at discharge

*The main outcome on which the comparison between the study and control group was the following:

❖ Postoperative hypotension/tachycardia….

❖ Starting of ambulation.

❖ Removal of urinary catheter.

❖ Return of bowel movement

❖ Length of hospital stay.

❖ Postoperative complications.

❖ Degree of visual analogue scale

❖ Patient satisfaction

❖ 9- 30 days' readmission which include readmission length of stay, postoperative day from discharge to readmission.

B) Operational design:

The operational design includes preparatory phase, validity, reliability, pilot study and fieldwork.

*Preparatory phase

It includes reviewing of literature, different studies and theoretical knowledge of various aspects of the research topic using books, articles, internet, periodicals and magazines. This also helped in designing the study tools.

*Validity and Reliability

Tools were reviewed by a panel of five experts in the field of obstetrics and gynecological nursing to test its content validity. Modifications were done accordingly based on their judgment. Cronbach's alpha coefficient was calculated to assess the reliability of the

developed tool through their internal consistency.

C. Administrative Design.

An official permission was granted by submission of an official letter from the Faculty of Nursing of Zagazig University to the responsible authorities of the study setting to obtain their permission for data collection.

Ethical consideration

All ethical issues were taken into consideration during all phases of the study; the researcher maintained an anonymity and confidentiality of the subjects. She introduced herself to the women and briefly explained the nature and aim of the study to every woman before participation and women were enrolled voluntarily after the written informed consent process. Women were also assured that all information obtained during the study was confidential and used for the research purpose only and they have the chance to withdraw from the study when they want.

Pilot study

A pilot study was conducted on a sample of 10% of caseswho were not included in the total sample size. It was done to test the study tools in terms of clarity and feasibility, and the time required to be applied. Following the pilot study, the questionnaire was reconstructed and necessary modifications were done to reach the final form.

The field study of this work was carried out on two phases:

1- **First phase:** data collection took a period of one year, from the first of June 2015 to the end of May 2016. The researcher collected data daily during the whole week whenever there was a hysterectomy patient.

Concerning the first descriptive part of this research, the researcher used the first tool and collects the pertinent information.

2- **Second phase:** As for the second part "nursing intervention" the researcher prepared the contents of the educational sessions about the standard nursing guidelines for hysterectomy and methods of teaching. It was reviewed by experts in the same specialty. A pretest self-administered questionnaire and observation checklist was submitted to (20) nurses. This was also used as post-test assessment. **A learning booklet** was prepared by the researcher using the recent and evidence based guideline for nursing care of a hysterectomy patient. It was used as a guide for them to upgrade their knowledge and practice pertaining to the care of hysterectomy patients.

The educational program consisted of 5 sessions and the total time of the sessions was 10 hours. The number of nurses in each session was only 5 nurses in order to facilitate the learning process and allow every nurse to participate in the discussion as well as ensure adequate supervision. Sessions were conducted for nurses during the afternoon shift. The session started at 12pm and end at 2 PM. It was the most suitable time for the nurses after they have completed their duties.

The theoretical and training session were conducted together with a demonstration and re-demonstration for each element of care using simulation in the faculty of nursing lab or the gynecological unit utilizing the available resources. Sessions were conducted in

English because nurses elected were internships or graduates of the THI

* The general objective; of the program was to upgrade nurse's knowledge and practice pertaining to pre- &postoperative care of patients undergoing hysterectomy.

* The specific objectives; at the end of the sessions, nurses were being able to;

• Be aware of the definition, different types and approaches, indications and complications of hysterectomy

• Be able to deliver proper nursing care for the patient during the pre-and postoperative period.

All nurses were tested using the same format for the pre-and post-test using the following score:

Scoring: For each area of knowledge, the scores of the items were represented into number of frequency then converted into a percent score. Knowledge was considered satisfactory if the percent score was 60% or more and unsatisfactory if less than 60%.

Observation checklist: This form was used to record the nursing care provided for patient undergoing hysterectomy during pre-and postoperative period. Score 1 was given for correctly done and score zero was given if the procedure was incorrectly done.

• Unsatisfactory: if less 60%

• Satisfactory: if 60% or more

Patients recruited for testing the outcome of management provided by nurses (20; study group) were matching with the control group (20) as far as their personal characteristics, diagnoses, types

of hysterectomy to maintain the homogeneity of the studied groups and avoid the effect of the confounding variables. Tool III was used to estimate the impact of the nursing intervention on patient's management.

*Statistical analysis

Data entry and statistical analysis were done using SPSS 20 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. Quantitative continuous data were compared using Student t-test in case of comparisons between two groups. When normal distribution of the data could not be assumed, the non-parametric Mann-Whitney test was used instead. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. In larger than 2x2 cross-tables, no test could be applied whenever the expected value in 10% or more of the cells was less than 5. Statistical significance was considered at p-value <0.05.

After collection of data it was revised, coded and fed to statistical software IBM SPSS version 20. The given graphs were constructed using Microsoft excel software. All statistical analysis was done using two tailed tests and alpha error of 0.05. P value less than or equal to 0.05 was considered to be statistically significant.

The following statistical tests were used:

A. Descriptive statistics: Frequencies and percent were used to describe the categorical data while mean & standard deviation(SD) for numeric normally distributed data and median for skewed data**.**

B. Analysis of numeric data:

One-Sample Kolmogorov-Smirnov Test: a procedure compares the observed cumulative distribution function for a variable with a specified theoretical distribution which was the normal distribution at the current data (testing for distributional assumption for numerical data).

C. Analysis of categorical data: -

a. **Marginal homogeneity test:** It is a statistical test used to compare categories of variables when measured twice for the same group and the categories are dichotomous (yes and no) or multichotomus.

b. **Pearson's chi square test:** it is a non-parametric statistic that is used to test for the association (or relationship) between the categories of two independent samples (sample characteristics and study groups) to reflect a real association between these 2 variables in the population.

c. **Mont Carlo exact test and Fishers exact test:** they are alternatives for the Pearson's chi square test if there were many small expected values.

Difference at frequency rate for knowledge and practice items during different study phases (related samples).

d. **Mc-Nemar test**: It is a non-parametric test used to test for difference at frequency rate for knowledge and practice items during different study phases (related samples).

Results:

Table (1): Distribution of Hysterectomy Patients According to their Socio-Demographic Characteristics (n=235).

Demographic data		N0=235	%
Age in years	30-	40	17.0%
	40-	95	40.4%
	50&more	100	42.6%
Mean ± SD		48.7 ±9.6	
Education	Illiterate / read and write	100	42.6%
	Primary and preparatory	37	15.7%
	Secondary	59	25.1%
	University	39	16.6%
Occupation	Housewife	197	83.8%
	Working	38	16.2%
Residence	Urban	110	46.8%
	Rural	125	53.2%

Table (1):-shows the socio-demographic characteristics of the studied patients. It reveals that the age of women ranged between40-50&more.Meanwhile, the majority (83.0%)

was 40 years and above with a mean of 48.7 ± 9.6 years. More than two fifths (42.6%) were illiterate or can read and write and most of them (83.8%) were housewives and married (68.0%). Moreover, more than half (53.2%) of them were coming from rural areas.

Table (2) :-Distribution of Hysterectomy Patients According to their Obstetric History (n=235).

Obstetric history		NO =235	%
Parity	Nullipara	27	11.5%
	Primipara	3	1.3%
	2-3	89	37.8%
	4& more	116	49.4%
Mean ± SD		**4.3 ± 2.3**	
Abortion	Yes	71	30.2%
	No	164	69.8%
Number of living children	1-3	(n=208) 93	44.7%
	4-5	74	35.6%
	6+	41	19.7%
Mode of last delivery	NVD	112	53.8%
	CS	96	46.2%

Table (2):- shows that 11.5% nulliparous and 1.3% primiparous patients underwent hysterectomy and almost one half (49.4%) of hysterectomy patients had 4 paras and more with a mean of 4.3 ± 2.3. Nearly one third (30.2%) of them had a history of previous abortion. As for the number of living children more than two fifths (44.7%) of women had less than 4 children and 46.2% had previous CS delivery.

Table (3) :-Distribution of Hysterectomy Patients According to the Indications of Hysterectomy (n=235).

Indications ofHysterectomy[§]		N0=235	%
	Menstrual disorders	141	60.0%
	Atypical endometrial hyperplasia	33	14.0%
	PMB	19	8.1%
	Endometriosis/Dysmenorrhea	25	10.6%
	Adenomyosis	18	7.7%
	Leiomyomata	147	62.6%
	Ovarian cancer	39	16.6%
	DUB	39	16.6%
	PID/pelvis abscesses	15	6.4%
	Utero-vaginal prolapsed	38	16.2%
	Cervical cancer	32	13.6%
Grade of cervical cancer	Two	**(n=32)** 16	50.0%
	Three	14	43.7%
	Four	2	6.3%
Degree of prolapsed	1st	**(n=38)** 5	13.2%
	2nd	19	50.0%
	3rd	14	36.8%

[§] *More than one response was allowed*DUB: Dysfunctional Uterine Bleeding. PMS: Post-Menopausal Bleeding

Table 3-reveals that, leiomyomata &menstrual disorders were the most common indications (62.6% & 60.0% respectively), followed by equal percentages of ovarian cancer and DUB (16.6%). Meanwhile, partially equal percentages of atypical endometrial hyperplasia (14.0%), utero-vaginal prolapsed (16.2%) and cervical cancer (13.6%) constituted other indications for hysterectomy. Second degree prolapse was the most common prolapse (50.0%) and grade of cervical cancer was mostly the second or the third grade cervical cancer (50.0% and 43.7%respectively).

Table (4): - Distribution of Hysterectomy Patients According to the Postoperative Complications (n=235).

Postoperative Complications	N=235	
	No	%
Wound infection		
No	202	86.0%
Yes	33	14.0%
Urinary tract infection		
No	223	94.9%
Yes	12	5.1%
Hematoma		
No	204	86.8%
Yes	31	13.2%
Paralytic ileus /Pnumonia		
No	217	92.3%
Yes	18	7.7%
DVT/Pulmonary embolism		
No	222	94.5%
Yes	13	5.5%
Fever(38c in absences of wound infection excluding 1st 24hrs).		
No	214	91.1%
Yes	21	8.9%

Table 4shows the postoperative complications which can be categorized as wound infection (14.0%),hematoma (13.2%). In addition, fever (8.9%), pneumonia /paralytic ileus (7.7%). Moreover, DVT pulmonary embolism (5.5%), UTI (5.1%),urinary retention (3.4%) constituting the rest of postoperative complications.

Table (5) :-Distribution of Hysterectomy Patients According to the Duration of Hospital stay& Operational time (n=235).

Duration of hospital stay (days)	Groups						MCP
	Abdominal n=183		Laparoscopic n=25		Vaginal n=27		
Mean ± SD	11.4 ± 5.2		4.0 ± 0.8		4.7 ± 1.6		
Duration of operational surgery							
0-60minutes	30	16.4%	0	0.0%	19	70.4%	0.001*
60-120 m	107	58.5%	10	40.0%	8	29.6%	
120-180m	46	25.1%	15	60.0%	0	0.0%	
Mean ± SD	2.6± 0.5		3.6± 0.7		1.5+ 0.4		

MCP: Mont Carlo exact probability   * P < 0.05 (significant)

Table 5 reveals that patients underwent abdominal hysterectomy had the longest mean duration of hospital stay compared to those who had vaginal or laparoscopic hysterectomies (11.4±5.2 vs. 4.7±1.6 & 4.0±0.8 days respectively). On the contrary, patients underwent laparoscopic hysterectomy had the longest mean duration of the operation compared to those who had abdominal or vaginal hysterectomies (3.6± 0.7 vs. 2.6± 0.5&1.5+ 0.4 hours respectively). Differences observed are statistically significant (p=0.001*).

Table (6): Distribution of the Control and Study Groups in Relation to their Postoperative Assessment (n=40).

Variables	Control Group (n=20)		Study Group (n=20)		X	P Value
Length of hospital stay Mean± SD	5.82±1.82		3.29±1.56		4.84	0.007*
Mobilization out of bed 4hour 9hrs	13 65.0% 7 35.0%		16 80.0% 4 20.0%		1.12	0.28
Urinary catheter removal day Mean± SD	4.2±0.68		2.2±0.8		2.8	0.07
Readmission Before or after 30 day	2	10.0%	0	0.0%	0.00	0.07
Return of bowel movement*6hrs * 9hrs	945%	1155%	1365%	735%	1.08	0.24

Table 6 displayed that the mean length of hospital stay was shorter in the studied group compared to those in the control group (3.29±1.56 vs. 5.82±1.82) days. Meanwhile, mobilization out of bed and urinary catheter removal day was higher in the control group than the study group but with no statistical significant difference. More satisfaction and agreement were noticed among the study group (table 7) about the cleanliness of patient's unit, regularity in administration of medications and care (65%&70% respectively). Furthermore, information about the problem and its effect on their quality of life as well as pre-&postoperative instructions given were fruitful (85%&90% respectively).

Figure (1): Prevalence of Hysterectomy among the Studied Women (n=235).
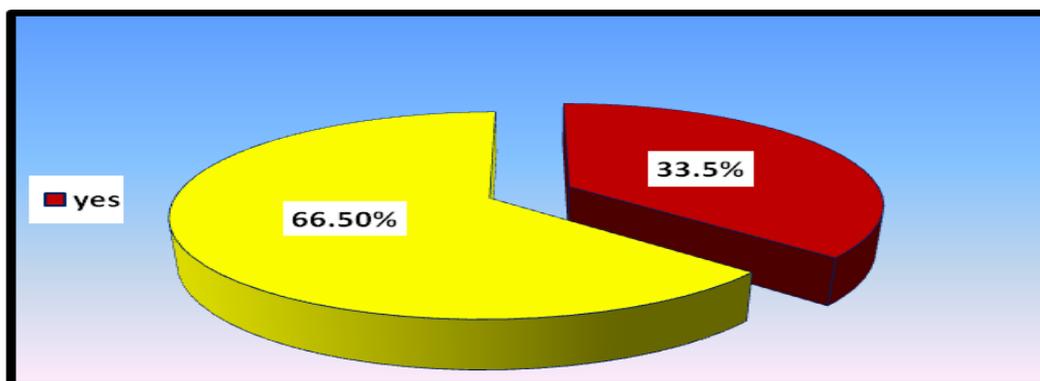
Figure 1:-show that the total gynecological surgeries at gynecological department of ZUH in one-year period from 1st June 2015 to the end of May 2016was 700, out of which hysterectomy operation found was 235 (33.5%).**Figure 2**:- illustrates that, more than three fourths (77.9 %)of the studied patients underwent abdominal hysterectomy while partially equal and small percentages had vaginal and laparoscopic approach of hysterectomy (11.5%&10.6% respectively).

Figure (2) Distribution of the Hysterectomy Patients According to their Degree of Visual Analogue Scale(n=235).
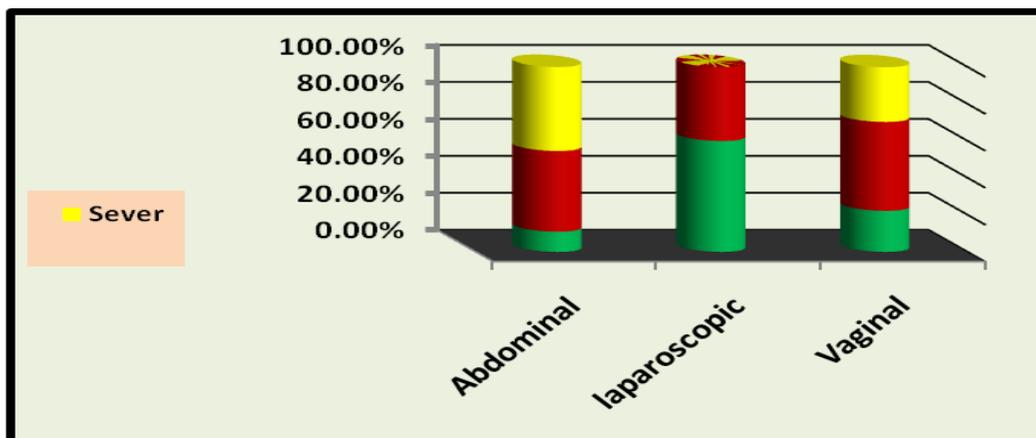

Figure 2 demonstrates that severe degree of pain was more common among those who had abdominal and vaginal hysterectomies (45.4% &29.6% respectively). On the other hand, patients underwent laparoscopic hysterectomy were more likely to suffer from mild and moderate degree of pain in comparison to the other 2 groups.

Figure 3: Distribution of the Studied NursesRelated to Their Total Practice Score Regarding the care of patients undergoing hysterectomy (n=20)
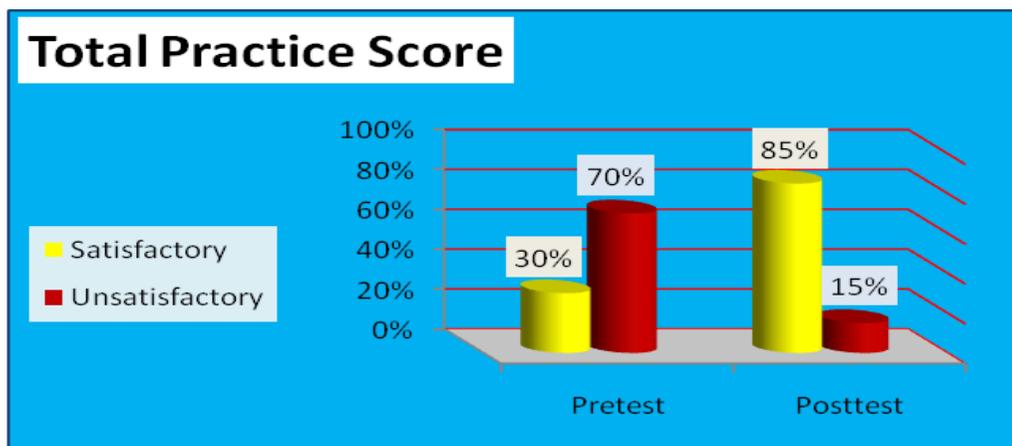

Figure 3 displays the results of the nurse's total practice score about the care of patients undergoing hysterectomy throughout the program phases. It points to statistically significant improvements at the post-test from only one third (30.0%) at the pre-test to the majority of nurses (85.0%) at the post-test (p=0.001*).

Discussion

Hysterectomy, which is the surgical removal of the uterus and cervix, is the commonest major gynecological operation in the developed countries *(Patricia et al., 2009)*. The indications for hysterectomy have changed little over the last decade. The trend in hysterectomy indications, approaches, types and pattern of morbidity has been studied by many researchers *(Ibrahim et al., 2012 & Ismail,2014).*

The aim of the study was to estimate the types, indications, complications of hysterectomy and evaluate the effectiveness of nursing interventions program on patients undergoing hysterectomy operation. From the data presented, the operation was commonly performed on women aged 40-50 years and more, married, having low education as well as multipara. This is similar to reports from other studies in Nigeria *(Awoleke, 2012 and Obilahi et al., 2013).* It was also incongruence with the report from Saudi Arabia by *Sobande et al., (2005)* where the average age is in the early forties and between 20-25% of women would have had a hysterectomy by the time they reach their mid-fifties.

Furthermore, **Ali et al., (2010**) study at El Manial University Hospital-Egypt revealed that more than the half of the hysterectomy patients were married, illiterate& read and write (53.4%). **Onyeabochukwu et al., (2014)** revealed that the majority of women who had hysterectomy were in their 5th to 6th decades of life, their mean age was 50.1 ± 15.6 years. **Paula et al., (2015)** reported that the predominant level of education was completed primary education, in 36.6% of cases, 27.4% had completed secondary educations, and 5.7% of patients attended the university. The patients also were (77%) married & housewives (26.3%).**Alegbeleye & John,**

(2016) showed that, hysterectomy was accepted more by illiterate married women, whose age ranged between 40-49 years with a mean age of 49.9 + 11.3years.

The present study finding was also in accordance with *Onyeabochukwuet al., (2014)* who found that almost half of their studied patients (50.4%) were grand-multipara, while only 1 person (0.8%) was a nulliparous who had hysterectomy for endometrial hyperplasia. While, *Alegbeleye & John, (2016)* reported that the majority of women in their study were between 40-49 years of age and had at least 4 children. Similarly, in a study from Karachi, most of the patients were multiparas having had at least 4 children *(Iftikhar, 2008).* These findings noted that women who accepted hysterectomy procedure tended to increase with age and had a strong correlation with parity. This is logical considering the fact that most patients would likely consent to hysterectomy only after completing their families.

Cooper, Hardy & Kuh, (2008) mentioned that a possible explanation for the above findings are the damage of gynecological organs with birth, a reduced need to maintain fertility and a connection with low social status. The present study also reveals that, leiomyomata & bleeding disorders were the most common indications of hysterectomy, followed by ovarian cancer, prolapse and DUB. In agreement with this *Zaman & Begum (2014)* reported that the leading indications for hysterectomy were uterine fibroid with or without heavy menstrual bleeding 107 (39.6%), while utero-vaginal prolapse 71 (26.3%) was the second most common indication. Other indications include; DUB 40(14.18%), ovarian tumor (7.4%), endometrial& cervical Polyps 11

(4.07%), a denomyosis 8 (3.0%) and PID 5(1.9%).Similarly, *Ibrahim Isaet al., (2012)*, *Ahmed & Taiwo (2015)* and *Malik et al., (2016)* found that the common indication for hysterectomy was uterine fibroid, DUB, chronic cervicitis, cervical dysplasia, adenomyosis. A possible explanation of the foregoing result may be because the surgery was done to correct problems that interfered with normal functions and to improve the quality of life.

Conversely, *Onyeabochukwu et al., (2014)*found that, the leading indications for hysterectomy were utero-vaginal prolapse, 62 (47.3%), while uterine fibroid with or without heavy menstrual bleeding was the second most common 44 (33.6%). Other indications include DUB 12 (9.1%), endometrial hyperplasia 5 (3.8%), cervical intra-epithelial neoplasia 4 (3.1%) chronic pelvic pain and adenomyosis etc…Differences, in indications might be related to variation in the criteria of sample selection or individualized type used as well as numerous clinical variables. Route of hysterectomy is mostly dependent upon institutional trends, personal preference, experience and expertise of the operator with different approaches. Only a small number of surgeons are equally competent in performing hysterectomy by all routes, and most are comfortable with one route only, being trained better in VH or AH*(Naseria,2009).*

A sizable proportion of the current studied patients were exposed to postoperative complications "wound infection, hematoma, fever, DVT pulmonary embolism, UTI, urinary retention, pneumonia and paralytic ileus". This was in accordance with *Bukar et al., (2010), Geidam, (2010)* and *Boker et al., (2011)*who noticed that febrile morbidity was the most prevalent post-operative complications especially among AH patients compared in comparison to VH patients (15.1% vs. 9.6%, respectively,

P>.05). This could be related to antimicrobial resistance with its determinant factors.

According to *Malik et al., (2016)* the mean hospital stay in days was significantly less among VH as compared to TAH. The same trend was also observed in the present study.

It was plausible, to find that a significant improvement was observed regarding patient' outcome after the application of the present enhanced recovery program. Namely better bowel movement and this is possibly due to early intake of oral fluids and reductions of IV fluids, early sitting and ambulation as well as early removal of urinary catheter. Meanwhile, there was significant reduction in total hospital stay and postoperative pain and complications. This could be explained by the fact that the researcher used evidence based practices concerning the care of patients undergoing hysterectomy and avoid traditional or dogmatic intervention that adversely affect postoperative recovery include the use of bowel preparations, caloric restriction, intra-operative hypervolemia, excessive opioid use, prolonged immobilization, and the use of drains and catheters*(Lovely et al., 2012)*.

More satisfaction and agreement were noticed among the study group about the cleanliness of patient's unit, regularity in administration of medications and care. In Egypt *Ali et al., (2010)*study at Ain Shames university about "Effect of Designed Nursing Care Protocol On Minimizing Post Hysterectomy Complications At El Manial University Hospital " reported that a designed nursing care protocol was effective on minimizing post hysterectomy complications and achieve patients satisfaction.

During the study period under review from the first of **June**2015 to the end of May 2016, a total of 700 major

gynecological surgeries were performed in Zagazig University Hospital. Of these, 235 hysterectomies were done for many gynecological conditions giving a prevalence of 33.5%.A similar rate (34.0%) was reported by*Brummer,2012*study in Finland. On the contrary, *Prützetal., (2013)*; *Obilahi,et al., (2013)* & *Alegbeleye & John, (2016)* reported a much lower prevalence than those mentioned above (17.5%, 16.6%&15.4% respectively). Differences in cultural and religious beliefs and attitude to hysterectomy may be responsible for the disparities in rates of hysterectomy reported.

Regarding hysterectomy approaches, the present study revealed that more than three fourths of the studied patients underwent AH while partially equal and small percentages had vaginal and laparoscopic approach. In agreement with this, *Boker et al., (2008)*study in Saudi Arabia reported that of 251 women, 199 (79.0%) underwent AH and 52 (21.0%) underwent VH and only 3 women had laparoscopic approach. Similarly, *Ahmed & Taiwo, (2015)* study in Nigeria about Indications and Outcome of Gynecological Hysterectomy at Aminu Kano Teaching Hospital, Kano: A 5-Year Review found that AH was the most frequently performed, accounting for 78.2% while, VH only constitutes 20.9% of cases.

Recently, *Bukhari et al., (2016)* retrospective review in a Tertiary Canter of Saudi Arabia about A Vaginal versus Abdominal hysterectomy for Benign Gynecological Diseases found that, the route of hysterectomy was abdominal in 187 (82.0%) and only 42 (18.0%) were vagina. This may be explained by the fact that abdominal approach is considered to be the most traditional method which is suitable for many types of indications such as; large fibroid, ovarian mass…etc, while, vaginal approach is limited by

certain conditions such as uterine size and laparoscopic approach need an expertise and special equipment to be performed *(JohnDeLancey, 2013)*.

In disagreement with the present study finding *Nielsen et al., (2011)* found that the proportion of AH decreased in comparison to VH (12.0% vs. 34.0% respectively). Also, *Brummeretal., (2012)* reported that, the rate of TAH was the least common approach in comparison to VH and LH (24.0% vs. 44.0% & 32.0% respectively). A possible reason for this might be due to the fact that when choosing the route and method of hysterectomy, the physician should take into consideration how the procedure may be performed most safely and cost-effectively to fulfill the medical needs of the patient. Most literature supports the opinion that, when feasible, VH is the safest and most cost-effective route by which to remove the uterus *(Nieboer et al., 2009)*.Moreover, the present study finding revealed that severe pain was more common among those who had abdominal and vaginal hysterectomies in comparison to patients underwent LH who suffered from mild and moderate degree of pain. Similarly, *Malik et al., (2016)*found that post-operative pain in patients underwent TAH were higher than that of NDVH.

An important implication of the above mentioned finding was to shed light on the nursing guidelines for enhancing recovery of patients undergoing hysterectomy. These guidelines included pre and postoperative care which was based on the best available evidence. The researcher was hopeful that these guidelines would help integrate existing knowledge into practice, align preoperative care, encourage future investigations to address existing knowledge gaps. It helped in preoperative optimization, preoperative counseling, improvement of postoperative

outcome and more rapid recovery and safe patients discharge and show statistically improvement in nurse' practice regarding to patients care.

In order to maximize the care provided and to obtain a better outcome considering time limitation, the researcher sought the cooperation of 20 internship nurses working in the same study setting. She enhanced their knowledge and practice concerning hysterectomy before the implementation of the program. A booklet, which would follow the entire patient journey comprehensively, was designed. The study involved an intervention group for implementation of the educational program and a control group for comparison. The two groups were chosen to be similar in every respect as regards their characteristics. They had similar age, education, job status, and the same type of hysterectomy. This was quite important to be able to compare the outcomes in the two groups without biases or confounders.

Partially similar successful programs that focus on perioperative management after colorectal surgery, vascular surgery**,** thoracic surgery and more recently radical cystectomy were also reported *(Jefferson et al., 2008; Koupparis, Dunn& Gillatt et al.,2010)*. These programs attempt to modify the physiological and psychological responses to major surgery, and have been shown to lead to a reduction in complications and hospital stay, improvements in cardiopulmonary function, earlier return of bowel function and earlier resumption of normal activities**.** Similar findings have been replicated in a small number of other urological publications(*Nielsen et al., 2010 & Koupparis, Dunn & Gillatt, et al.,2010).*

Conclusion

Based on the present study findings, it can be concluded that; the prevalence of hysterectomy constituted almost one third of the major gynecological surgeries performed in Zagazig University Hospital during the study period. The operation was commonly performed on women aged 40-50 years and more, married, having low education as well as multipara. More than three fourths of the studied patients underwent AH while partially equal and small percentages had vaginal and laparoscopic approach. The most common indications were leiomyomata & bleeding disorders. Operative complications were observed in nearly one third of the present studied patients, they include; bladder, ureter, bowel, visceral injury, intra-operative shock and hemorrhage. A statistically significant improvement was observed at the posttest in all areas of tested nurses' knowledge & practices related to hysterectomy (p= 0.000*). Meanwhile, the implemented nursing intervention program for the study group resulted in shorter hospital stay, less postoperative pain and complications as well as increase of patients' satisfaction

Recommendations

Based on the present study findings, the following recommendations are suggested:

❖ Maternity nurses should use evidence based guidelines to help integrate existing knowledge into practice, align perioperative care, and encourage future investigations of optimal perioperative and postoperative care for patients undergoing gynecologic/oncology operations.

Preoperative assessment and counseling of patients undergoing hysterectomy concerning alleviation of fear and clearing up misconceptions are essential to reduce postoperative pain, prevent complications and improve patient's quality of life.

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