Assiut Scientific Nursing Journal

http://asnj.journals.ekb.eg
http://www.arabimpactfactor.com

Effect of Uterine Fibroid on Women's Health Related Quality of Life and Nursing Management for Patients Undergoing Hysterectomy

Huda Ebrahiem Elsaied[1], Sanaa Ali Nour Eldin[2], Amany Hamed Gad[3] & Heba Al-Kotb Mohamed[4].

1. M.Sc. Nursing, Faculty of Nursing- Suez Canal University, Egypt.
2. Professor of Obstetric & Gynecological Nursing-Faculty of Nursing Zagazig University, Egypt.
3. Assistant Professor of Obstetric & Gynecological Nursing, Faculty of Nursing Zagazig University, Egypt.
4. Assistant Professor Family and Community Health Nursing Faculty of Nursing Suez Canal University, Egypt.

Abstract

Background: Uterine fibroids place a large economic burden both on the women who suffer from them, and on the health systems and societies in which they live. Symptoms may lead to significant loss of working time, and other consequences such as spontaneous abortions, pre-term delivery and Caesarean sections. **Aim:** The present study aimed to assess the effect of uterine fibroid on their women's life and to evaluate the effect of nursing program for women's undergoing hysterectomy. **Design:** Descriptive and a quasi-experimental design were utilized to conduct this study. **Setting:** the study was conducted at Gynecological outpatient clinic and department at Zagazig University Hospital. **Sample:** purposive sample 285 females with UF were recruited for estimating average health related quality of life (HRQOL) and 50 females undergoing hysterectomy was choose for the program. **Tools:** four tools were used in the present study; **Tool I:** a structured interview questionnaire, **Tool II:** scale of HRQOL, **Tool III:** patient record and nursing management checklist and **Tool IV:** follows up scale of HRQOL after 3 month of the program. **Results:** the majority of the sample was ≥ 40 years, (81.8%) of studied woman had severity of symptoms, woman had negative impact on HRQOL concern, control , energy, activities, self-conscious and sexual function (90.2%,86.7%,84.2%,83.2%, 81.1% and 63.5%)(severe score ≥ 75%) **Conclusion**: Severity of symptoms had very great deal in almost subjects in the present study. Fibroids impact negatively on women's health and quality of life. After the program intervention, women's health related quality of life had been improved in the study group except impaired in sexual function. **Recommendation:** Preoperative assessment and counseling of patients undergoing hysterectomy concerning alleviation of fear and clearing up misconception are essential to reduce postoperative pain, prevent complication and improve patient's quality of life.

Keywords: Uterine Fibroid, HRQOL & Hysterectomy.

Introduction

Uterine fibroids or uterine leiomyoma (UL) are the most common disease of reproductive-age women. They are the commonest benign tumors of the smooth muscle of the uterus taking origin in the myometrium, and are typically round well-circumscribed masses. They are usually multiple, and can range in size from a few millimeters to massive growths of 20 cm diameter and more. The etiology is largely unknown, but they are estrogen-and progesterone-dependent tumors, very rare before menarche and frequently regress in size after menopause. UF aren't associated with an increased risk of uterine cancer **(Sparic et al., 2016).**

Although fibroids are often asymptomatic, UL can cause excessive menstrual bleeding, pelvic pain, and other symptoms that seriously affect a woman's quality of life. Symptomatic UL may require medical or surgical intervention and increased medical utilization. Excessive vaginal blood loss can lead to severe anemia which can even be life-threatening, yet some patients do not recognize the severity of the problem **(Angelos et al., 2015).** UF place a large economic on the women who suffer from them, and on the health systems and societies in which they live. Symptoms may lead to significant loss of working time, or career aspirations **(Borah et al., 2014).**

Health related quality of life (HRQOL) among women with UF was significantly impacted by UF-related symptoms. Greater impact was observed as the number and severity of symptoms increased **(Soliman et al., 2017).** Most women reported fears associated with their fibroids, including being afraid that the fibroids will grow and that they will need a hysterectomy, as well as fears regarding relationships, sexual function, body image, loss of control and hopelessness. Almost two-thirds of women were concerned about missed days from work due to their symptoms, and 24 percent of employed respondents felt that their symptoms prevented them from reaching their career potential. Women with extreme pain from fibroids may lose contact with friends and coworkers because of their inability to go to work or even just leave their bed for an extended period of time **(Mayo Clinic, 2019).**

Uterine fibroids are the leading cause of hysterectomy in the United States, with nearly half of hysterectomies being performed for uterine fibroids. Hysterectomy involves permanent removal of the uterus, which prevents fibroid recurrence but also results in loss of reproductive potential. Surgical treatment takes the form of hysterectomy or myomectomy, the choice depending on the size, number and extent of fibroids, and on the patient's wishes with regard to fertility. **(Donnez & Dolmans, 2016)**

The most common complications of hysterectomy can be categorized as infectious, venous thromboembolic, genitourinary, gastrointestinal tract injury, bleeding and nerve injury. Infectious complications after hysterectomy are most common, ranging from 10.5% for abdominal hysterectomy to13.0% for vaginal hysterectomy and 9.0% for laparoscopic hysterectomy. Injury to the genitourinary tract is estimated to occur at a rate of 1-2% for all major gynecologic surgeries, with 75% of these injuries occurring during hysterectomy. Injury to the gastrointestinal tract after hysterectomy is less common, with a range of 0.1-1% **(Clarke & Geller, 2013).**

Pre- and post-operative care provided by the nurse midwife is as vital to the patient as is surgery. Adequate pre-operative preparation of the patient, both physically and psychologically, is important to provide optimum intra-operative conditions, and lays the basis for a smooth post-operative recovery. A well planned post-operative care regimen leads to a reduction in morbidity, shorter hospital stay and greater patient satisfaction **(Torb et al., 2013).**

Significance of the study

Fibroids have a considerable impact on women's quality of life as well as their productivity. According to a 2010 World Health Organization report, fibroids affects between 20-25% of women, and close to 235 million women which represent 6.6% of global women population are estimated to have been affected worldwide. **Momen et al., 2017** study in Faculty of Medicine, Assiut University, Egypt show the incidence of fibroid was 47.5% of participants in age group 30-35 years menorrhagia seen in 95.7% of the participants in this study is a common clinical presentation in women with uterine fibroids. Menorrhagia in severe cases may result in anemia. Most women reported fears associated with their fibroids, including being afraid that the fibroids will grow and that they will need a hysterectomy, as well as fears regarding relationships, sexual function, body image, loss of control and hopelessness.

Aim of the study

This study aims to

1) Assess the effect of uterine fibroid on their women's life and evaluate the impact nursing management program for women's undergoing hysterectomy.
2) Describe and evaluate the effect of uterine fibroid on women's health related quality of life
3) Evaluate the women's health related quality of life after hysterectomy

Research Question

What is the impact of nursing management for women's undergoing hysterectomy?

Subject & Methods

Research design: descriptive design and a quasi-experimental design

Setting: The study was conducted at Gynecological outpatient clinic and department of Zagazig university hospital.

Sample: purposive sample

Subjects: The study population consisted of women having uterine fibroids. This sample collected according to number of cases for last 6 months.(hospital statistics)The first sample (purposive sample) consisted of 285 women diagnosed as having uterine fibroid since one year or more for this study according to the following

Inclusion criteria

1. Women diagnosed with uterine fibroid since one year or more.
2. Women's age ranged between 17- 55.
3. Women's undergoing hysterectomy
4. Women's agree to participate

Concerning the second Sample it included 50 women undergoing hysterectomy. They were also selected from the above mentioned setting and who agreed to participate in the program. 50 women were divided into two groups (through the range of cases in the last 6 months)

1. Study group (n=25): women received the standard care of the program
2. Control Group (n=25): women received the routine hospital care

Tools

Tools of data collection

Four tools were used for data collection:

Tool I: A structured interview questionnaire:

It was developed by the researcher to collect the necessary data for the study. It composed of three parts:

Part 1: Socio-demographic characteristics of the studied subjects as; age, sex, educational level, occupation and residence

Part 2: Obstetric history such as gravida and para.

Part 3: Gynecological history included history of previous gynecological diseases as well as abnormal uterine bleeding, dysmenorrhea, urinary tract infection, infertility, endometriosis, polycystic ovary syndrome and previous D&C.

Tool II: Scale of HRQOL **(Coyne et al., 2012)** is divided into two sections:

Section 1: Symptom severity

The first eight questions these questions use a 5-point Likert-type scale ranging from 1 (not at all) to 5 (a very great deal). The data obtained from this scale are at the ordinal level. The participants received points based upon their response as indicated: 1 point for not at all, 2 points for a little bit, 3 points for somewhat, 4 points for a great deal and 5 points for a very great deal. This section has eight questions total; therefore, scores for this section ranged from 8 to 40 (with scores closer to 40 reflecting greater perceived symptom severity)

Section 2: HRQOL scale

These questions are evaluates HRQOL and consists of 27 questions. This section is broken down into six subsections:

(1)concern (Questions 9, 15, 22, 28, 32), **(2)activities** (Questions 10, 11, 13, 19, 20, 27, 29), **(3)energy/mood** (Questions 12, 17, 23, 24, 25, 31, 35),

(4)control (Questions 14, 16, 26, 30, 34),

(5)self-conscious (Questions, 18, 21, 33), and **(6)sexual function** (Questions 36 and 37).

The subscales are used to assess feelings and experiences regarding the impact of uterine fibroids symptoms on various areas of each participant's life. These questions use a 5 point Likert scale ranging from 1 (none of the time) to 5 (all of the time). The participants received points based upon their response as indicated: 1 point for none of the time, 2 points for a little bit of the time, 3 points for some of the time, 4 points for most of the time and 5 points for all of the time.

Scoring system

- **According to severity of symptoms**
  Low score < 50%
  Moderate score 50% - < 75%
  Severe score ≥ 75%
- **According to HRQOL**
  Poor score < 50%
  Moderate score 50% - < 75%
  High score ≥ 75%

Tool III: Nursing management checklist for women undergoing hysterectomy was collected by the researcher. It includes all procedures related to (pre and post) operative care of hysterectomy and outcome;

1- Preoperative care: Initial Assessment upon arrival to hospital. Comprehensive preoperative care (Psychological care, bowel preparation, vaginal cleaning, skin preparation) (session for women before operation)
2- Postoperative care (assessment vital signs, activity, pain, diet, amputation, vaginal bleeding, exercise such as deep breathing and coughing, leg exercise, observation of complication and discharge plan(session for women before operation)
3- The main outcome on which the comparison was made between the study and control group was the following:

- Postoperative hypotension.
- Hours for removal of bladder catheter.
- Hours of regular diet.
- Hours to ambulate.
- The use of analgesia
- Length of hospital stay.
- The time of resumption of bowel movement.
- Postoperative complications.
- Visual analogue scale for pain.

30 days' readmission which include readmission length of stay, postoperative day from discharge to readmission

Tool IV: Follow up Scale of HRQOL was used for women after hysterectomy (After 3 month).

The researcher called women by telephone at the day after discharge and then once weekly until the first month outpatient visit. The purpose of these calls was firstly the early detection of complications and secondly to remind the participant to complete the questionnaires. Then after 3 month woman was asked to record her QOL using the same scale used in the pretest.

The preparatory phase

Construction of the program, the first step in construction of this program to determine the objectives. These objectives were derived from the assessed women's problem. In addition about health related quality of life among women's using textbooks, web sites, and articles in the scientific periodicals and journals.

Content validity and reliability

The tools were reviewed by five experts from the departments of obstetrics and gynecological Nursing, at the Faculty of Nursing, Zagazig University and Suez Canal University. And department of Community Nursing at the Faculty of Nursing Suez Canal University these experts assessed the tools for clarity, relevance, application and comprehensiveness. This constituted the content validation of tools. All recommended modifications were applied.

Pilot study

A pilot study was carried out on 28 **women diagnosed uterine fibroid** from the study setting 10% of the calculated sample for main study they were selected randomly from Gynecological outpatient clinic in Zagazig university hospital, and were later excluded from the sample of research work to assure stability of the answers. The purposes of pilot were to test the questions for any obscurity, and to assess the practicability and feasibility of using the structured interview questionnaire. It also helped the researcher to determine the time needed for filling out the forms. The tools were finalized after doing necessary modifications according to the pilot study results. The pilot subjects were not included later in the main study sample.

Field of work

Once permission was granted to proceed with the study, the researcher started to prepare a schedule for collecting the data. Participants were interviewed by the researcher who introduced herself and explained the aim of the study briefly, and reassured them that information obtained is strictly confidential and would not be used for any purposes other than research. The fieldwork was executed in 12 months. It extended from the first of January 2018 to the end of December 2018. The researcher went daily during the whole week.

The study was conducted at Gynecological outpatient clinic of Zagazig university hospital (consists of two room with the total capacity of (2 bed) and included 4 nurses and gynecological department (consists of 3 room with the total capacity of (31 bed) and included 11 nurses. The sample was collected at nursing room. The above mentioned setting was chosen because it is the main health hospital in Zagazig where women attend to receive proper care for different gynecological health problems. Moreover, it covers a wide range of population with different socio-demographic and obstetrical characteristics as well as the rate of attendance was high.

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

1-First phase: The researcher collected data daily during the whole week according to the inclusion criteria. Concerning the first descriptive part of this research, the researcher used the first tool and collects the pertinent information. This was also used as post-test (HRQOL scale). The researcher contacted the women by telephone after completing the structured interviewing schedule and HRQOL scale until the doctor makes a decision for surgical operation (hysterectomy)

2-Second phase: As for the second part "nursing management" the researcher prepared the contents of the program sessions about the standard nursing management for hysterectomy. It was reviewed by experts in the same specialty. Self-learning booklet was prepared by the researcher using the recent and evidence based guideline for nursing care of women undergoing hysterectomy. It was used as a guide for women to upgrade their knowledge and practice about the care before and after hysterectomy.

The program consisted of 7 sessions before surgery and the **total** time of the sessions was 11 hours. The number of **women** in each session was only 4 or 5 women in order to facilitate the learning process and allow every woman to participate in the discussion as well as ensure adequate supervision. Sessions were conducted for woman during the morning (The session started at 9AM and end at 11 AM. Or at the afternoon (The session started at 12PM and end at 2 PM) according to time available.

The theoretical and training session (deep breathing exercises, coughing, and leg exercise) were conducted together with a demonstration and re-demonstration for each element of care using simulation in the gynecological unit utilizing the available resources. Sessions were conducted in Arabic to get the simple information for women and to understand the program.

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

***The specific objectives;** at the end of the sessions, **women's were being able** to

1. Be aware of the definition, sites, causes & risk factors, signs & symptom, diagnosis and treatment of uterine fibroid.
2. Be aware of the definition, different types and approaches, indications and complications of hysterectomy.
3. Recognize the pre and postoperative care needed for hysterectomy.

Administrative and ethical considerations

An official permission was granted by submission of an official letter from the Faculty of Nursing of Suez Canal University to the responsible authorities of the study setting to obtain their permission for data collection, explained the study aim to the women and the importance of the study and its procedures, and asked for his cooperation. A verbal agreement for participation of the informants was taken. Participants was given the opportunity to refuse the participation, and they was notified that they could withdraw at any stage of the data collection interviews; also they was assured that the information would be confidential and used for the research purpose only. The researcher assured maintaining anonymity and confidentiality of subjects' data. The researcher phone number and all possible communicating methods were identified to the

participants to return at any time for any explanation.

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.

Results

Table (1): Distribution of studied women according to their socio demographic characteristics (n=285).

Socio-demographic data		No	%
Age in years	17-30	36	12.6
	40-	104	36.4
	50-55	145	51.0
	Mean Std. Deviation	**47.32±5.939**	
Education	Illiterate	16	5.6
	Read and write	38	13.3
	Primary school	35	12.5
	Secondary school	108	37.8
	University	88	30.8
Occupation	House wife	178	62.5
	Working	107	37.5
Residence	Rural	149	52.3
	Urban	136	47.7
Marital status	Single	9	3.1
	Married	233	81.8
	Divorced	18	6.3
	Widow	25	8.8

Table (2): Distribution of studied women according to Obstetric history (n=285).

Obstetric history		No	%
Normal menstrual cycle	No	197	69.1
	Yes	88	30.9
Abnormal menstrual cycle	Menorrhagia	102	70.8
	Metrorragia	63	43.8
	Polymenorrhea	22	15.3
	Polymenorrhagia	32	22.2
	Post-menopausal bleeding	25	17.4
Parity	Nulliparous	22	7.7
	1-3	128	44.9
	4+	135	47.4
Mean Std. Deviation		**2.29±.757**	
Gynecological history	None	111	38.9
	Abnormal uterine bleeding	100	35.1
	Dysmenorrhea	88	30.9
	Urinary tract infection	25	8.8

Obstetric history		No	%
	Infertility	12	4.2
	Endometriosis	9	3.2
	Polycystic ovary syndrome	18	6.3
	History of D&C	57	20.0

☺ *More than one answer*

Table (3): Distribution of studied women according to history of uterine fibroid disease (n=285).

Disease data		No	%
Time to seek treatment in yeas	< 3	126	44.2
	> 3+	159	55.8
	Mean Std. Deviation	**3.49±1.498**	
Delayed in having treatment	No	160	56.1
	Yes	125	43.9
Cause of delayed treatment	Refuse husband	8	6.4
	Afraid of treatment and operation	58	46.4
	Unavailability of health services	9	7.2
	Financial problem	37	29.6
	Lack of knowledge about disease and treatment	11	8.8
	Hope for pregnancy	29	23.2
	Emotional factor	40	32.0
Duration of delay in yeas (n=125)	1 year	35	28.0
	2 year	46	36.8
	3 year	25	20.0
	4+ year	19	15.2
	Mean Std. Deviation	**2.22±1.023**	
Complications of delay	Emotional problem	43	34.4
	Sexual problem	22	17.6
	Excessive bleeding	80	64.0
	Anemia	21	16.8
	Abortion	14	11.2
	Blood transfusion	12	9.6
	Infertility	13	10.4

☺ *More than one answer*

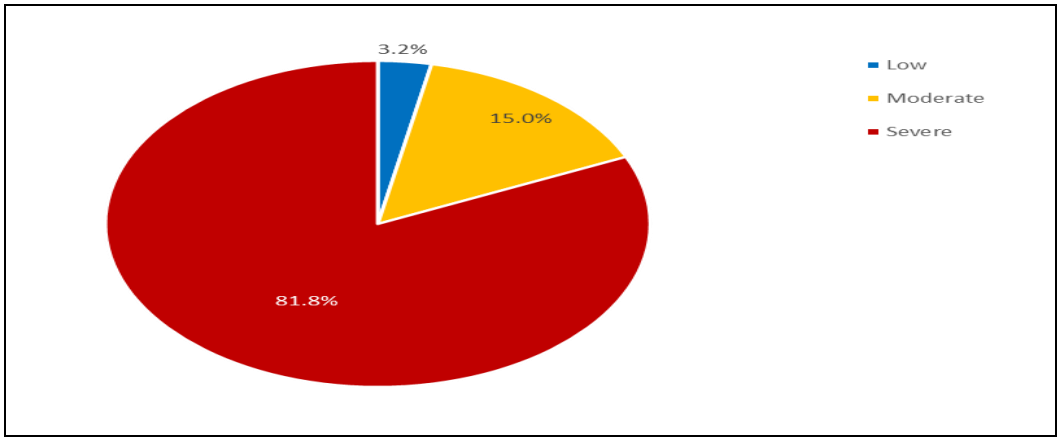

Figure (1): Distribution of studied women according to severity of symptoms (n=285).

Table (4): Distribution of studied women according to severity of symptoms (n=285).

Items	Not at all		A little bit		Some-what		A great deal		Very great deal	
	N	%	N	%	N	%	N	%	N	%
Heavy bleeding during menstrual period	0	0.0	0	0.0	20	7.0	0	0.0	265	93.0
Passing blood clots during menstrual period	14	4.9	5	1.8	25	8.8	0	0.0	241	84.6
Fluctuation in the duration of menstrual period compared to previous cycle	6	2.1	0	0.0	17	6.0	2	0.7	260	91.2
Fluctuation in the length of monthly cycle compared to previous cycles	14	4.9	1	0.4	20	7.0	7	2.5	243	85.3
Feeling tightness or pressure in pelvic area	11	3.9	2	0.7	44	15.4	2	0.7	226	79.3
Frequent urination during daytime hours	21	7.4	8	2.8	37	13.0	3	1.1	216	75.8
Frequent nighttime urination	36	12.6	4	1.4	53	18.6	5	1.8	187	65.6
Feeling fatigued	32	11.2	2	0.7	64	22.5	0	0.0	187	65.6

Table (5): Distribution of studied women according to Health related quality of life concern (n=285)

Items	None of the time		A little of the time		Some of the time		Most of the time		All of the time	
	N	%	N	%	N	%	N	%	N	%
Made you feel anxious about the unpredictable onset or duration of periods?	10	3.5	0	0.0	20	7.0	5	1.8	250	87.7
Made you concerned about soiling underclothes?	10	3.5	0	0.0	17	6.0	7	2.5	251	88.1
Made you concerned about soiling bed linen?	3	1.1	2	0.7	26	9.1	9	3.2	245	86.0
Made you feel inconvenienced about always carrying extra pads, tampons, and clothing to avoid accidents?	2	0.7	1	0.4	26	9.1	10	3.5	246	86.3
Made you concerned about soiling outer clothes?	7	2.5	0	0.0	25	8.8	4	1.4	249	87.4

Table (6): Distribution of studied women according to Health related quality of life activities (n=285).

Items	None of the time		A little of the time		Some of the time		Most of the time		All of the time	
	N	%	N	%	N	%	N	%	N	%
Made you anxious about traveling?	21	7.4	0	0.0	21	7.4	4	1.4	239	83.9
Interfered with your physical activities?	9	3.2	0	0.0	27	9.5	6	2.1	243	85.3
Made you decrease time you spent on exercise?	12	4.2	0	0.0	22	7.7	4	1.4	247	86.7
Made you feel that it was difficult to carry out your usual activities?	2	0.7	1	0.4	42	14.7	9	3.2	231	81.1
Interfered with social activities?	13	4.6	1	0.4	47	16.5	6	2.1	218	76.5

Items	None of the time		A little of the time		Some of the time		Most of the time		All of the time	
	N	%	N	%	N	%	N	%	N	%
Caused you to plan activities more carefully?	15	5.3	1	0.4	33	11.6	7	2.5	229	80.4
Caused you embarrassment?	2	0.7	1	0.4	32	11.2	10	3.5	240	84.2

Table (7): Distribution of studied women according to Health related quality of life energy/ mood (n=285).

Items	None of the time		A little of the time		Some of the time		Most of the time		All of the time	
	N	%	N	%	N	%	N	%	N	%
Caused you to feel tired or worn out?	12	4.2	0	0.0	19	6.7	4	1.4	250	87.7
Caused you to feel drowsy or sleepy during the day?	4	1.4	0	0.0	32	11.2	9	3.2	240	84.2
Made you feel sad, discouraged, or hopeless?	14	4.9	6	2.1	29	10.2	9	3.2	227	79.6
Made you feel down hearted and blue?	9	3.2	5	1.8	25	8.8	11	3.9	235	82.5
Made you feel wiped out?	10	3.5	5	1.8	36	12.6	10	3.5	224	78.6
Made you feel irritable?	4	1.4	0	0.0	25	8.8	12	4.2	244	85.6
Made you feel weak as if energy was drained from your body?	17	6.0	0	0.0	28	9.8	7	2.5	233	81.8

Table (8): Distribution of studied women according to Health related quality of life control (n=285).

Items	None of the time		A little of the time		Some of the time		Most of the time		All of the time	
	N	%	N	%	N	%	N	%	N	%
Made you feel as if you are not in control of your life?	6	2.1	4	1.4	23	8.1	0	0.0	252	88.4
Made you feel less productive?	1	0.4	10	3.5	29	10.2	0	0.0	245	86.0
Caused you to be concerned or worried about your health?	4	1.4	11	3.9	28	9.8	5	1.8	237	83.2
Made you feel uncertain about your future?	11	3.9	10	3.5	25	8.8	0	0.0	239	83.9
Made you feel that you are not in control of your health?	12	4.2	6	2.1	26	9.1	0	0.0	241	84.6

Table (9): Distribution of studied women according to Health related quality of life self-conscious (n=285).

Items	None of the time		A little of the time		Some of the time		Most of the time		All of the time	
	N	%	N	%	N	%	N	%	N	%
Made you feel self-conscious of weight gain?	15	5.3	2	0.7	34	11.9	9	3.2	225	78.9
Made you feel conscious about the size and appearance of your stomach?	11	3.9	6	2.1	30	10.5	9	3.2	229	80.4
Affected the size of clothing you wear during your periods?	12	4.2	0	0.0	23	8.1	3	1.1	247	86.7

Table (10): Distribution of studied women according to Health related quality of life sexual function (n=285).

Items	None of the time		A little of the time		Some of the time		Most of the time		All of the time	
	N	%	N	%	N	%	N	%	N	%
Diminished your sexual desire?	48	16.8	3	1.1	52	18.2	0	0.0	182	63.9
Caused you to avoid sexual relations?	52	18.2	2	0.7	53	18.6	0	0.0	178	62.5

Table (11): Distribution of studied women according to HRQOL (n=285).

QOL domain	Poor		Moderate		High	
	No	%	No	%	No	%
Concern	4	1.4	24	8.4	257	90.2
Activities	5	1.8	43	15.1	237	83.2
Energy	1	4	44	15.4	240	84.2
Control	1	4	37	13.0	247	86.7
Self-conscious	19	6.7	35	12.3	231	81.1
Sexual function	48	16.8	56	19.6	181	63.5

Table (12): Distribution of studied women according to practice domains (n=50).

Variables	Group				t (P)
	Control		Study		
	Mean	SD	Mean	SD	
Pre-operative care	25.8	2.4	100.0	0.0	55.3 (.001)*
Surgery day	60.9	9.1	100.0	0.0	21.1 (.001)*
Immediate post-operative care	57.8	5.9	100.0	0.0	28.6 (.001)*
Ongoing Care	45.8	6.1	100.0	0.0	40.4 (.001)*
Discharge instructions	11.3	7.9	100.0	0.0	46.9 (.001)*

Table (13): Comparison between study groups regarding outcome measures (n=50).

Outcome measures		Group				^{MC}P
		Control		Study		
		No	%	No	%	
Gastrointestinal system	• None	0	0.0	20	80.0	.001*
	• Vomiting	8	32.0	1	4.0	
	• Diarrhea	5	20.0	0	0.0	
	• Constipation	9	36.0	2	8.0	
	• Nausea	3	12.0	2	8.0	
Use of laxatives	• No	16	64.0	23	92.0	.017*#
	• Yes	9	36.0	2	8.0	
Use of antiemetic	• No	17	68.0	24	96.0	.010*#
	• Yes	8	32.0	1	4.0	
Ambulation/h. after	• 4 hours	3	12.0	25	100.0	.001*
	• 9 hours	18	72.0	0	0.0	
	• 18 hours	4	16.0	0	0.0	
Analgesics use	• No	0	0.0	0	0.0	-
	• Yes	25	100.0	25	100.0	
Hours to oral fluids	• 10h	3	12.0	0	0.0	.001*
	• 4h	0	0.0	9	36.0	

Outcome measures		Group				MCP
		Control		Study		
		No	%	No	%	
	• 5h	0	0.0	9	36.0	
	• 6h	11	44.0	7	28.0	
	• 7h	9	36.0	0	0.0	
	• 9h	2	8.0	0	0.0	
Hours to site	• 10h	3	12.0	0	0.0	.001*
	• 4h	0	0.0	10	40.0	
	• 5h	7	28.0	12	48.0	
	• 6h	12	48.0	3	12.0	
	• 7h	3	12.0	0	0.0	
Hours to regular diet	• > 20h	21	84.0	0	0.0	.001*
	• 10-14h	0	0.0	22	88.0	
	• 15-20h	4	16.0	3	12.0	
Postoperative day of return of bowel function	• 14-24h	0	0.0	24	96.0	.001*
	• 25+	25	100.0	1	4.0	
30 day presence of complications	• No	17	68.0	24	96.0	.010*#
	• Yes	8	32.0	1	4.0	
30 day Re-admission/reoperation	• No	22	88.0	25	100.0	.074#
	• Yes	3	12.0	0	0.0	
Cause of admission	• None	22	88.0	24	96.0	.555#
	• wound infection	3	12.0	0	0.0	
Length of hospital stay	• 3 days	16	64.0	25	100.0	.004*
	• 4 days	5	20.0	0	0.0	
	• 5 days	4	16.0	0	0.0	
Urinary catheter removal day	• 1 day	6	24.0	24	96.0	.001*
	• 2 days	15	60.0	1	4.0	
	• 3 days	4	16.0	0	0.0	

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

Table (14): Follow-Up Health related quality of life among women 3 months after hysterectomy (Study Group=25).

Variables		No	%
Symptom severity		25	100.0
Concern		25	100.0
Activities		25	100.0
Energy		25	100.0
Control		25	100.0
Self-conscious		25	100.0
Sexual function	0.0 (poorest)	13	52.0
	25.0 (poor)	6	24.0
	50.0 (intermediate)	6	24.0

Table (1): Shows that, the majority of the sample (87.4%) was ≥ 40 years, with mean score of 47.32±5.939 they were mostly coming from rural areas and married (52.3% and 81.8%) More than two thirds (69.1%) of them had less than university level of education and 62.5% were housewives. **Figure (1):** Demonstrated that, the majority (81.8%) of studied woman had severity of symptoms (severe

score ≥ 75%)**.**

Table (2): Indicates that, about two thirds of the sample (69.1%) suffered from abnormal menstruation, menorrhagia was the most common (70.8%), and followed by metrorrhagia and polymenorrhgia (43.8% and 22.2%). Regarding gynecological history 61.1% of them had gynecological problems ranged from (AUB 35.1%, dysmenorrhea 30.9%, D & C 20.0% respectively). As for parity, more than two fifths (47.4%) of the sample had 4 para and more with mean score of 2.29±.757.

Table (3): Illustrated that, more than half of the studied women (55.8%) had > 3+ years duration of disease with mean score of 3.49±1.498, less than half of them (43.9%) delayed in having treatment, the common causes of delayed treatment was afraid of treatment and operation (46.4%), more than one third (36.8%) of them was 2 years duration of delayed with mean score of 2.22±1.023, and more than two thirds (64.0%) of them had excessive bleeding as complications of delay.

Table (4): Illustrated that, severity of symptoms had very great deal in almost subjects regarding heavy bleeding during menstrual period, Fluctuation in the duration of menstrual period compared to previous cycle, Fluctuation in the length of monthly cycle compared to previous cycles and passing blood clots during menstrual period (93.0%, 91.2%, 85.3% and 84.6% respectively)

Table (5): Shows that, the majority of the study subjects were concerned all of the time regarding soiling underclothes, feel anxious about the unpredictable onset or duration of periods, concerned about soiling outer clothes, feel inconvenienced about always carrying extra pads and concerned about soiling bed linen (88.1%, 87.7%, 87.4%, 86.3% and 86.0% respectively)

Table (6): This table described that, the majority of the study subjects had interfered in their activities as decreased time of exercise, interference with activities, had embarrassment, anxious about traveling, difficult to carry out your usual activities, plan activities more carefully and interference with social activities (86.7%, 85.3%, 84.2%, 83.9%, 81.1%, 80.4%, and 76.5% respectively).

Table (7): This table described that, the majority of the study subjects had interfered in their life energy/ mood as caused you to feel tired or worn out?, made you feel irritable?, caused you to feel drowsy or sleepy during the day?, made you feel down hearted and blue?, made you feel weak as if energy was drained from your body?, made you feel sad, discouraged, or hopeless? and made you feel wiped out? (87.7%, 85.6%, 84.2%, 82.5%, 81.8%, 79.6% and 78.6% respectively)

Table (8): Illustrated that, the study subjects had interfered in their control, made you feel as if you are not in control of your life?, made you feel less productive?, made you feel that you are not in control of your health?, made you feel uncertain about your future? and caused you to be concerned or worried about your health? (88.4%, 86.0%, 84.6%, 83.9 and 83.2% respectively)

Table (9): Illustrated that, the study subjects had interfered in their self-conscious, affected the size of clothing you wear during your periods? , made you feel conscious about the size and appearance of your stomach? and made you feel self-conscious of weight gain? (86.7%, 88.4%, and 78.9% respectively)

Table (10): this table described that, more than two thirds of the study sample was diminished your sexual desire? 63.9% and 62.5% of the study sample caused you to avoid sexual relations?

Table (11): Demonstrated that, studied woman had negative impact on HRQOL concern, control , energy, activities, self-conscious and sexual function (90.2%,86.7%,84.2%,83.2%, 81.1% and 63.5%)(severe score ≥ 75%)

Table (12): This table described that, all of practice domains are statistically significant on the study group compared with control group.

Figure (2): Show that, the majority (68.0%) of studied woman had little pain in study group. Meanwhile more the two thirds (60.0%) had more pain in control group

Table (13): This table described that, patient outcome measures are statistically significant on the study group according to gastrointestinal system, ambulation, hours to oral fluids, hours to site and hours to regular diet. According to control group more than two thirds of them don't use of laxatives and antiemetic (64.0% & 68.0%). Statistically significant on the study group according to postoperative day return of bowel function and urinary catheter removal day. According to control group more than two thirds of them (68.0%) don't presence of complications in 30 day.

Table (14): Illustrated that, improvement of Health related quality of life among women 3 months after hysterectomy except more than half of study sample had negative impact in sexual function.

Discussion

Uterine fibroid or uterine leiomyoma is a common reason for gynecological consultation in most hospitals as well as the most common benign genital tract tumor which are associated with sub-fertility and early pregnancy loss in women of reproductive age **(Momen et al., 2017).** Women's HRQOL and well-being, including daily physical and social

activities, are known to be negatively affected by the symptoms of uterine leiomyoma **(Borah et al., 2014).**

Therefore the present study was conducted to assess the effect of uterine fibroid on women HRQOL and evaluate the impact of management program for women undergoing hysterectomy on their quality of life. Socio-demographic factors appear to influence women health related quality of life. About half of the women were aged 50-55 years with the mean score of 47.3±5.9 and about half of them resided in rural areas. The majority was married and about two thirds of them were house wives. This was similar to **Lígia Flávia, (2012)** in Portugal who reported that most women had UL between 40 and 59 years and **Borah et al., (2014)** study in UAS who found that about 70–80% of the study women aged 50 years. Also **Mohammed Abdelsalam, (2017)** reported that highest incidence of uterine fibroid was in the age group 36-40 years**. Borah et al., (2013)** found that the majority of respondents were married. This discrepancy between the previous studies was due to the differences in study design, and the criteria of selection of the sample as well as women profile.

As for the level of education the present study showed that more than two thirds of women had less than university level of education and were housewives and in fact this reflect nothing more than actual distribution. This coincides with **Lígia Flávia, (2012)** who reported that about two thirds of LU women had an education level of high-school. Moreover, **Mohammed Abdelsalam, (2017)** found that more than two thirds of the study groups were unemployed. While **Brito et al., (2014)** found that more than half were employed.

The present study finding showed that more than two thirds of women suffered from menorrhagia. Incongruence, with these studies **Pramod Philip Nittala & Roshni Shukla, (2013)** & **Momen et al., (2017)** found that menorrhagia was the most clinical presentation in women with uterine fibroids .Also, **Carolyn et al., (2009)** was described uterine fibroids signs and symptoms as follows: Abnormal uterine bleeding with longer, heavier menstrual periods. While **Mohammed Abdelsalam, (2017)** found that menorrhagia was present in only one third of his study women. This difference could be related to the size and location of uterine fibroids among the study women.

The current study result indicates that more than one third of women suffered from metrorrhagia. In contrast, **Carolyn et al., (2009)** were described uterine fibroids signs and symptom as follow bleeding between menstrual period occur. Here data are difficult to compare due to differences in the study population and screening methods. Moreover, **Lígia Flávia, (2012)** in Portugal reported that metrorrhagia was present in two thirds of the study women. **Borah et al., (2014)** study reported that nearly one third of women characterized their cycles as uterine bleeding at irregular interval particularly between the expected menstrual period similar to the finding of the present study.

This study revealed that two thirds of the sample suffered from abnormal menstruation, which agrees with finding of **Borah et al., (2014)** who found that abnormal menstrual cycle was present in half of the study women and **Brito et al., (2016)** who mentioned that abnormal menstruation was the most prevalent sign. On the other hand, one third of the studied women had dysmenorrhea this partially similar with **Pramod Philip Nittala & Roshni Shukla, (2013)** & **Abdullah & Gomaa, (2013).**

The present study finding that fibroids were mostly prevalent in multiparas group (≥ 4 para) this agree with **Borah et al., (2014), Momen et al., (2017)** and **Mohammed Abdelsalam, (2017)** who found that the majority of their study women were multiparas. In contrast **Ezeama et al., (2012)** found that about two thirds of the study women were nulliparous. This difference persisted even after accounting for potential confounding due to differences of baseline characteristics.

Infertility was found supported by other studies. **Osman, (2010)** study in Gazera state reported 5.5% incidence of infertility in 200 studied women with UF. Also, **Bendifallah et al., (2011), Pramod Philip Nittala and Roshni Shukla, (2013)** and **Abdullah & Gomaa, (2013)** estimated that fibroids may be associated with infertility in 5 to 10% of cases. Moreover, **Mohammed Abdelsalam, (2017)** showed that infertility was 6.5% .

According to **Borah et al., (2014**) the mean amount of time to seek treatment for all women in the survey was 3.6 years, while the median wait time for seeking treatment was 2 years and one quarter of women sought treatment within the first year of experiencing symptoms. This is similar to the present study finding except that more than half of women sought treatment within the first year of experiencing symptoms. Moreover, **Brito et al., (2014)** lack of knowledge of the actual physiopathology of the disease may influence the treatment decision-making process therefore; it is worrisome that women do not have adequate knowledge to make the right decision.

They added that the most reported fears, including being afraid that their UL will grow, that there is something inside of them that doesn't belong there, that they would experience future health complications, that they will need a hysterectomy, that the UL would turn into cancer, or that the UL

would affect their sex life. This is partially in agreement with the present study finding regarding the causes of delay in treatment in addition to hoping for pregnancy, financial problems and lack of knowledge about disease and treatment which may influence the treatment decision-making process taken by the woman. Here comes the indispensable role of the maternity nurse in alleviating women's fear and clearing up misconceptions.

Most women preferred noninvasive options for treatment irrespective of the desire for childbearing. A considerable number of hysterectomies occur each year in the United States, with substantial costs for the health care system. Despite the curative effect of hysterectomy for UL, the long-lasting health impact of hysterectomy, even with ovarian conservation, is not completely understood **(Hartmann et al., 2006)** and **(Wechter et al., 2011)**

Observational study showed that UF had a negative impact on the women's quality of life. They presented social and professional limitations with fear, disbelief and despondency regarding their symptoms, and these factors strengthened their will to undergo hysterectomy. Thus, the impact of UF symptoms on women's health-related quality of life (HRQL) is a major indicator for treatment **(Harding et al., 2008)** & **(Brito et al., 2014).**

The current study revealed that, women with UF presented worse quality of life when analyzed by means of the SF-36 questionnaire. This may indicate that the UFS-QOL questionnaire is fulfilling its task of targeting women with UF. These data are similar to what was found in the validation studies conducted by **(Harding et al., 2008** & **Coyen et al., 2012).**

As regards HRQOL, symptom severity showed the highest mean score among all factors in the health related quality of life scale. This result was supported by **Karin et al., (2012)** & **Brito et al., (2016).** The highest concern was about the feeling of anxiety and soiling underclothes as well as interference with physical or social activities thus causing women embarrassment. This result is supported by **Brito et al., (2016)**

Furthermore, in agreement with **Brito et al., (2016)** most of them were exposed to the feeling of tiredness, drowsiness, irritability as well as they had the feeling of no control of health or life and being less productive. They also were anxious about the change in their body image due to the increase of the size and appearance of their stomach. In addition to the feeling lack of sexual desire .The above mention findings are in agreement with **Borah et al., (2014)** and **Mohamed Elessawy, (2013)** study at Holstein, who found that the symptoms of women with UF strongly correlated with lower HRQL subscales and higher severity symptoms scores.

The final objective of this study was to evaluate the impact of management program for UF women undergoing hysterectomy on their quality of life. This was carried out through the selection of 50 women for whom hysterectomy was the choice for the treatment of UF. This was divided into two groups the study and control group 25 patient each.

Maternity nurse today is increasingly called upon to provide both physical & psychological intervention for women undergoing hysterectomy, the objective of the nursing care is to assist the patient in her return to normal function as quickly, safely and comfortably as possible, prevent complications as well as offering psychological support **(Liu, 2012).**

Postoperative physical inactivity is a risk factor for various adverse outcomes. **Minig, et al., (2009)** reported that postoperative prolonged bed rest is a risk factor for pulmonary embolism following cardiac surgery. A systematic review showed that immobilization defined as confinement to bed and/or armchair was associated with 6 fold increase in deep vein thrombosis. According to the present study finding, women in the study group were significantly more likely to sit and ambulate earlier than the control group. In agreement with this **Kalogera et al., (2013)** shows that a failure to mobilize is a common reason for ER protocol deviation and is associated with increased length of stay suggesting that early mobilization is a key to achieve the beneficial outcomes.

Careful preoperative information and education was essential to obtain a confident and well informed patient before surgery. This practice has been shown to reduce the need for pain relief postoperatively **(Shehmar & Gupta, 2010).** Postoperative nausea and vomiting is, together with pain, the most prevalent postoperative symptom with an incidence between 20- 30% in relation to anesthesia and surgery **(Lassen et al., 2009)**.

Several studies emphasized that early hydration after surgery is a safety approach that does not increase the risks of gastrointestinal complications. In agreement with **Minig et al., (2009)** reported that, early feeding and reducing the volume of routine intravenous fluid infusion is encouraged. This approach is safe and is associated with less nausea, shortened length of stay and higher patient satisfaction. Also, **Kalogera et al., (2013)** found that, reduced the rate of ileus symptoms, mean time interval to bowel movement and duration of IV administration. Meanwhile, it causes less suffering from thirst and hunger; less side effects, postoperative wound healing, and shorter hospital stay and save cost.

Based on the present study finding, women in the study group were significantly (P=<0.001) more likely to start oral fluids within the first 10 hours after the operation compared to those in the control group and the majority of them began regular diet within the first 24 hours after the operation compared to those in the control group. In the same line **Gerardi et al., (2008)** demonstrated that time to tolerance of diet decreased by 3 days in the study group as compared to the control group. Meanwhile, **Kalogera et al., (2013)** showed that despite early feeding was associated with a higher rate of nausea and vomiting, 87% rated their satisfaction with nausea and vomiting control as excellent or very good, suggesting that early feeding is overall well tolerated.

Significant difference in the postoperative bowel mobility was observed between present study and the control groups (p=<0.001*). Patients in the study group were more likely to have lesser mean time of first bowel sounds, first passage of flatus, and first defecation after surgery. In the same line **Al-Ghareeb et al., (2013)** study in Kingdom Saudi Arabian about Effect of Early Oral Hydration on Post Cesarean Outcomes reported that the experimental group significantly had earlier initiation of bowel sounds with a median value of 3 hours vs. 6.5 hours in the control group. Consequently the bowel movement returned significantly earlier with median duration of 29 hours among the study group compared to 54 hours among the control group.

The time of removal of urinary catheter was lesser in the study group than those in the control group. In this respect **Ghosh et al, (2016)** study in India mentioned that the Foley catheters could be removed on postoperative day one for patients who have undergone laparoscopic procedures and by postoperative day two for patients who have undergone open abdominal procedures. Catheter removal is important to minimize the risk of infection. Patients are also more likely to get out of bed and ambulate after catheters are removed.

Postoperative complications revealed no incidence among all women in the study group, while it was found in the control group as; hematoma, wound infection, fever, and urinary tract infection it was seen with **Mohamed Elessawy, (2013)** reported that hematoma were recorded in 15 cases of the AH, wound infection 3 cases and urinary tract infection occurred in 1 cases and fever 5 cases. These results also were found by **Ezeama et al., (2012)** and **Momen et al., (2017)** this is partially in agreement with the present study finding regarding postoperative complications. On the other hand, **Abdelrhman et al., (2010)** found that wound infection was 16.7% in the control group compared with 3.3% of the study group with significant difference between two groups.

Regarding Length of hospital stay, all women in the study group in the present study stayed only three days, while one third from the control group in the present study styed more than three days, This result showed statistically significant difference between the two groups. In the same line **Abdelrhman et al., (2010)** & **Chunhua Zhang & Silan Ren, (2016)** found statistically significant difference between the control group and the study group regarding length of hospital stay after hysterectomy. In contrast, according to **Deshpande et al., (2016)** the mean hospital stay in days was significantly less among VH as compared to AH.

On the other hand, this result antagonized with **Mohamed Elessawy, (2013)** in the study conducted in Holstein that patients in the study stayed more than seven days. This difference may be due to the difference in the design used in this study.

The present study finding revealed that severe pain was more common among study and control group. Similarly, **Deshpande et al., (2016)** found that post-operative pain in patients underwent AH were higher. Also, **Ezeama et al., (2012)** who found that, the common postoperative complications were prolonged pain in both groups.

Finally, the nursing management of UL women's underwent hysterectomy has a positive impact on women's HRQL after 3 months of the operation with the exception of their sexual concern that was mostly impacted.

Conclusion

Severity of symptoms had very great deal in almost subjects in the present study. Fibroids impact negatively on women's health and quality of life. After the program intervention, women's health related quality of life had been improved in the study group except impaired in sexual function.

Recommendations

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

2-Replication of the study on nurses to improve their awareness, health practices and beliefs regarding the prevention and early detection of uterine fibroid, which will be reflected in improving women's awareness, health practices and beliefs.

3-Screening programs with high coverage of the "at risk" group for reducing the number of new cases

with fibroid and the decrease the mortality rate associated with it.

References

1. **AbdElrhman H., Ragaa Ali Mohamed, Reda Ismail Riad & Nagwa A., ElFadeel, (2010):** Effect of Designed Nursing Care Protocol On Minimizing Post Hysterectomy Complications At El Manial University Hospital.
2. **Abdullah L., & Gomaa W., (2013):** The Clinicopathological Characteristics of Uterine Leiomyoma: A Tertiary Care Centre Experience in Saudi Arabia. Rep Opinion; 5(10):21-26]. (ISSN: 1553-9873). http://www.sciencepub.net/report.
3. **Al-Ghareeb S., Eman R., Ahmad & Haifa A., Turki, (2013):** Dammam, Obstetrics and GynecologyDepartment, Kingdom Of Saudi. Ara bia.Am Sci;9 (8):70-78: Studies emphasized that early hydration after CS Silver RM, Landon MB, Rouse DJ,
4. **Angelos G., Vilos, Catherine Allaire, Philippe-Yves Laberge & Nicholas Leyl, (2015):** The Management of Uterine Leiomyomas. J Obstet Gynaecol Can; 37(2):157–178.
5. **Atombosoba A., Ekine, Lucky O., Lawani, Chukwuemeka A., Iyoke, Bonafede M., Pohlman S., Miller J., Thiel E., Troeger K., & Miller C., (2018):** Women with newly diagnosed uterine fibroids: treatment patterns and cost comparison for select treatment options. Popul Health Manag; 21:S13–20.
6. **Bendifallah S., Brun J., Fernandez H., Bonafede M., Pohlman S., Miller J., Thiel E., Troeger K., & Miller C., (2018):** Women with newly diagnosed uterine fibroids: treatment patterns and cost comparison for select treatment options. Popul Health Manag; 21:S13–20.
7. **Borah B., Nicholson W., Bradley L., & Stewart E., (2014):** The impact of uterine leiomyomas: a national survey of affected women. Am J Obstet Gynecol; [PMC free article] October 01; 209(4): 319. doi:10.1016/j.ajog.2013.07.017.
8. **Brito L., Panobianco M., Sabino-de-Freitas M., Barbosa Hde F., de & Azevedo G., (2014):** Uterine leiomyoma: understanding the impact of symptoms on womens' lives. Reproductive Health 11:10 http://www.reproductive health journal.com.
9. **Brito L., Malzone-Lott D., Fagundes M., Magnani P., Arouca M., Poli-Neto O., & Nogueira A., (2016):** Translation and validation of the Uterine Fibroid Symptom and Quality of Life (UFS-QOL) questionnaire for the Brazilian Portuguese language. DOI: 10.1590/1516-3180.2016.0223281016. Sao Paulo Med J. 2017; 135(2):107-15
10. **Carolyn J., Hildreth, Cassio Lynm, M., & Richard M Glass. (2009):** Uterine fibroids F. Jama J.; 301 (1): 122.
11. **Chunhua Zhang & Silan Ren. (2016):** Analysis of Perioperative Care in Laparoscopic Pan hysterectomy http://mo.qingres.com Published: August 25.
12. **Clarke-Pearson D., and Geller E., (2013):** Complications of hysterectomy. ObstetGynecol. Mar; 121(3):654-73.doi:10.1097/AOG. https://www.ncbi.nlm.nih.gov/pubmed/23635631
13. **Coyne K., Margolis M., & Bradley L., (2012):** Further validation of the uterine fibroid symptom and quality-of-life questionnaire. Value Health (1):135-42.
14. **Deshpande Hemant, S., Burute & Rachna Malik, (2016):** A Comparative Study of Abdominal Versus Non Descent Vaginal Hysterectomy International Journal of Contemporary Medical Research ISSN 50.43 | Volume 3 | Issue 4 | April 2016
15. **Donnez J., & Dolmans M., (2016):** Uterine fibroid management: from the present to the future. Hum Reprod Update. ; 22(6):665–86. 10.1093/humupd/dmw023 [PubMed free article]
16. **Ezeama C., Ikechebelu J., Obiechina N., & Ezeama N., (2012):** Clinical Presentation of Uterine Fibroids in Nnewi, Nigeria: A 5-year Review. Ann Med Health Sci Res, 2(2): 114-118.
17. **Gerardi M., Santillan A., Meisner B., Zahurak M., DiazMontes T., & Giuntoli II R., (2008):** A clinical pathway for patients undergoing primary cytoreductive surgery with rectosigmoid colectomy for advanced ovarian and primary peritoneal cancers. Gynecol Oncol;108:282–6.
18. **Ghosh Bastab, Varun Wats, & Dilip Kumar P., (2016):** Comparative analysis of outcome between laparoscopic versus open surgical repair for vesico-vaginal fistula. Obstet Gynecol Sci. Nov; 59(6): 525–529. Published online 2016 Nov 15. doi: 10.5468/ogs.59.6.525. PMCID: PMC5120073
19. **Harding G., Coyne K., & Thompson C., (2008):** The responsiveness of the uterine fibroid symptom and health-related quality of life questionnaire (UFS-QOL). Health Qual Life Outcomes; 6:99
20. **Hartmann K., Birnbaum H., & Ben-Hamadi R., (2006):** Annual costs associated with diagnosis of uterine leiomyomata. Obstetrics and gynecology; 108:930–937. [PubMed: 17012456]
21. **Kalogera E., Bakkum-Gamez J., Jankowski C., Trabuco E., Lovely J., & Dhanorker S.,**

(2013): Enhanced Recovery in Gynecologic Surgery. Obestet Gynaeco; 122:319–28

22. **Karin S., Coyne, Mary Kay Margolis, Linda D., Bradley, Richard Guido, G., Larry Maxwell & James B., Spies. (2012):** Further Validation of the Uterine Fibroid Symptom and Quality-of-Life Questionnaire. journal homepage: www.elsevier.com/locate/jval. Published by Elsevier Inc.
23. **Lassen K., Soop M., Nygren J., Cox P., Hendry P., & Spies C., (2009):** Consensus review of optimal perioperative care in colorectal surgery enhanced recovery after surgery (ERAS) group recommendations. Arch Surg144:961–9.
24. **Lígia Flávia da Silva Barbosa, (2012):** Epidemiological factors associated with Uterine Fibroids Universidade Da Beira Interior Ciências da Saúde.
25. **Liu Feng. (2012):** Nursing intervention in laparoscopic hysterectomy application [J]. Chinese Journal of Medicinal Guide, 14 (07):1257-1260.
26. **Mayo Clinic Science Daily, (2019):** Uterine fibroids have significant impact on quality of life, workplace performance. https://www.sciencedaily.com /releases/10/131024085836.htm accessed at 1/2019
27. **Minig L., Biffi R., Zanagnolo V., Attanasio A., Beltrami C., & Bocciolone L., (2009):** Early oral versus "traditional" postoperative feeding in gyecologic oncology patients undergoing intestinal resection: a randomized controlled trial. Ann Surg Oncol; 16:1660–8.
28. **Mohamed Elessawy, (2013):** hysterectomy, a comparative study of the different hysterectomy ROUTES 2002- 2010, a retrospective analysis for 954 PATIENTS
29. **Mohammed Abdelsalam Ahmed Abdelmotalab, (2017):** Anatomical Locations & Types of Uterine Fibroids and their Impact on the Clinical Presentation. Clin Obstet & Gynecol
30. **Momen A., Kamel, Ahmed M., Nasr, Kamal M., Zahran & Sohir A., Ibrahim, (2017):** Reproductive Performance in Women with Fibroid. American Journal of Medicine and Medical Sciences (12): 393-399. Momen: The Role of Surgery. J Gynecol Obstet Biol Reprod.; 40 (8): 885901.
31. **Munro M., (2007):** Management of heavy menstrual bleeding: is hysterectomy the radical mastectomy of gynecology? Clin Obstet & Gynecol, 50:324–53.
32. **Osman A., (2010):** Etiology of Female Infertility in Gezera (Central Sudan). Jornal of Applied Science; 10 (19) 2333-2337.
33. **Pramod Philip Nittala & Roshni Shukla. (2013):** Cystic Degeneration of Uterine Fibroid Mimicking A malignant Uterine Neoplasm on MRI. International Journal of Medicine.; 1 (1): 1-3.
34. **Shehmar M., & Gupta J., (2010):** The influence of psychological factors on recovery from hysterectomy. J R Soc Med; 103:56-59.
35. **Soliman A., Margolis M., Castelli Haley J, Fuldeore M., Owens C., & Coyne K,. (2017):** Impact of uterine fibroid symptoms on health related quality of life of US women: evidence from a cross-sectional survey. Curr Med Res Opin. , 33(11).
36. **Sparic R., Mirkovic L., Malvasi A., & Tinelli A., (2016):** Epidemiology of uterine myomas: a review. International Journal of Fertility and Sterility; Vol 9, No 4, Jan-Mar, Pages: 424-435
37. **Torb E., Crawford R., Nordin A., & Acheson N., (2013):** Enhanced recovery in gynaecology. The Obstetrician and Gynaecologist; 15:263–8.
38. **Wechter M., Stewart E., Myers E., Kho R., & Wu J., (2011):** Leiomyoma-related hospitalization and surgery: prevalence and predicted growth based on population trends. Am J Obstet Gynecol;205:492.e1-5.
39. **Zimmermann A., Bernuit D., Gerlinger C., Schaefers M., & Geppert K., (2012):** Prevalence, symptoms and management of uterine fibroids: an international internet-based survey of 21,746 women. BMC women's health. 12:16. [PubMed: 22727195] March). Available at: http://www.biomedcentral.com/ 1472-6874/12/6. Accessed on November 10, 2014.