



## Short-Term Health-Related Quality of Life After Hysterectomy Compared With Myomectomy for Symptomatic Leiomyomas.

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### Abstract:

**Background:** Uterine fibroids are the most common tumor in women of reproductive age. By the time they are 50-years-old around 80% of women will have developed one. Of these, around half will experience symptoms which will impact negatively on their quality of life. Hysterectomy is the traditional treatment for women with symptomatic fibroids. For women who do not wish to undergo a hysterectomy, two invasive treatments are commonly available: myomectomy or uterine artery embolization (UAE). **Aim and objectives:** The present study has been done to compare quality of life after hysterectomy or myomectomy as treatment of fibroid. **Methods:** Women with symptomatic fibroids diagnosed by ultrasound were randomized to myomectomy or hysterectomy. Endpoints at 1 year were QoL measured by a validated questionnaire. **Results:** A statistically significant lower mean score was reported in the summary score ( $47.85 \pm 20.587$  vs  $53.35 \pm 27.548$ ;  $P < 0.001$ ). The symptom severity score was higher among women planning hysterectomy compared with those planning myomectomy ( $62.85 \pm 26.547$  vs  $49.89 \pm 26.854$ ), indicating worse symptoms among those scheduled for hysterectomy. Based on the EuroQoL 5-Dimension Health Questionnaire VAS, hysterectomy patients reported a lower quality of life compared with those planning to undergo myomectomy ( $68.26 \pm 21.424$  vs  $74.37 \pm 17.847$ ;  $P < 0.001$ , respectively). **Conclusion:** Hysterectomy and myomectomy substantially improved HRQOL at short-term follow-up (24 months), and there were small but statistically significant differences favoring hysterectomy in the Uterine Fibroid Symptom

Quality of Life—specific subscales (concern, activity, and self-consciousness) and overall symptom severity.

**Keywords:** Uterine, Hysterectomy, Myomectomy, Quality Of Life, Menstrual, Fibroid.

## 1. Introduction

Uterine fibroids are the most common benign uterine tumors in the female genital tract. They are clinically apparent in up to 25% of women and cause significant morbidity, including prolonged or heavy menstrual bleeding, pelvic pressure or pain, and, in rare cases, reproductive dysfunction. (1). The symptoms experienced by the woman with fibroids may vary depending on the position, size and number of fibroids. Intramural fibroids are the most common form of fibroid but are frequently asymptomatic. (2) Subserosal fibroids, located on the outer surface of the uterus, can become very large and create feelings of bulkiness. Submucosal fibroids project into the uterine cavity and are associated with HMB. As they may distort the uterus and change the local morphology of the uterine tissue, some clinicians believe that the presence of fibroids may have a negative impact on fertility. (3).

As a result, women may be impaired in their ability to work or participate in leisure activities, and in their general quality of life. (4) Surgery has been the mainstay of fibroid treatment, and various minimally invasive procedures have

been developed in addition to hysterectomy and abdominal myomectomy, such as the classic intrafascial supracervical hysterectomy (CISH), uterine artery embolization (UAE) and laparoscopic uterine artery occlusion. (5).

Hysterectomy and myomectomy are the most common surgical treatments for women with symptomatic leiomyomas, accounting for approximately 90–95% of all procedures nationally, with hysterectomy alone accounting for 70% of all leiomyoma procedures, with this proportion remaining relatively constant despite the introduction of newer alternatives. (6).

Myomectomy is the time-honored conventional treatment of proven efficacy with regard to symptom relief and improved fertility outcome, but it is associated with significant morbidity, especially excessive operative blood loss, adhesion formation, and recurrence of fibroids, all of which might compromise the fertility potential for which it often is performed. (7)

Hysterectomy remains the most common surgical treatment for symptomatic fibroids because it remains the only definitive treatment

available, an attractive option to women who have undergone years of suffering from their fibroids. (8) There is a knowledge gap regarding the comparative effectiveness of hysterectomy and myomectomy on patient-centered measures, such as health-related quality of life (HRQOL) and other patient-reported outcomes. (9) The present study was aimed to compare quality of life after hysterectomy or myomectomy as treatment of fibroid.

## **2. Material and Methods:**

A clinical study was conducted between July 2019 and July 2021 at the gynecological department of Beni-suef university hospital and Suez canal university hospital. Patients admitted with fibroids were asked to participate if they met the inclusion criteria. Informed written consent was obtained from each patient to be included in this study.

### **Inclusion criteria:**

Premenopausal women were eligible if they had symptomatic fibroid(s) confirmed by ultrasound as measuring  $\leq 4$  cm in diameter, they were seeking treatment and treatment was considered justified by the physician and No desire for a future pregnancy.

### **Exclusion criteria:**

Fibroids attached to the uterus by a narrow pedicle, or the whole fibroid mass being so large that it extended beyond the level of the umbilicus, or a history of recent or ongoing pelvic inflammatory disease. Women also were excluded if they were not prepared to accept surgery as a treatment option, if they were pregnant, or if they were actively planning or trying to conceive.

### **Surgical technique:**

**Abdominal hysterectomy:** was performed through a midline incision. The round ligaments were divided. If the tubes and ovaries were to be removed, the infundibulopelvic ligaments were ligated and tied. The uterovesical peritoneal fold was divided and the bladder reflected down past the cervix. The parametrial tissue was divided. The uterine vessels were ligated and tied. The paracervical tissue and uterosacral ligaments were ligated and tied. The vagina was opened and the uterus and cervix removed. The vagina was closed with an absorbable suture. Hemostasis was confirmed at all pedicles. The abdomen is closed.

### **Myomectomy:**

The operation was performed via a transverse supra-pubic incision. To minimize perioperative blood loss, the myometrium was infiltrated with vasopressin (Schofield) 20 units diluted in 100

ml of normal saline. Vicryl sutures were used throughout the myomectomy. All visible and/or palpable fibroids were enucleated.

All women received thromboprophylaxis (Fragmin 2500 IU daily) and antibiotic prophylaxis (cephradine and metronidazole). For analgesic control, a combination of PCA (first 24 h) and rectal diclofenac (100 mg in the morning and 50 mg at night) were administered. Intravenous hydration was administered during the first 24–48 h, and antiemetics administered as required by the patient. All patients wore thromboprophylactic stockings.

#### **Follow up:**

Patients' quality of life (QOL) was assessed with the World Health Organization Quality of Life-BREF questionnaire (WHOQOL-BREF) preoperatively and at two and 24 months post-surgery. The QOL pre-operatively and at two months post-surgery was evaluated by face-to-face interviews at administration, and the QOL 24 months post-surgery was evaluated by telephone interviews or face-to-face interviews at administration; all patients were assessed by pelvic ultrasound pre-operatively, and at 2 and 24 months post-surgery. The investigating officer was given a full explanation of acquiring patients about the situation during last 2 weeks.

The WHOQOL-BREF consists of 28 items and covers four aspects of QOL, including physical domain (D1), psychological domain (D2), social relationship domain (D3), and environmental domain (D4) parts. The four aspects encompass a total of 26 features, with one question for each. There are also two general questions, one on the overall QOL (Q1) and the other on the overall health condition (Q2). Each item score of the version of WHOQOL-BREF ranges from 1 to 5 according to severity, and dimension scores range from 4 to 20.

### **3. Results:**

There were 700 participants that met the inclusion criteria and comprised of 350 (50%) hysterectomy patients and 350 (50%) myomectomy patients (Table 1). Hysterectomy participants were older and had longer duration of symptomatology compared with myomectomy patients ( $P, .01$ ; Table 1). They were more likely to have irregular bleeding cycles and more likely to have other associated diagnoses (eg, adenomyosis; endometriosis) that contributed to pain and bleeding. A higher proportion of women undergoing myomectomy reported a family history of uterine fibroids compared with hysterectomy patients.

Women planning to undergo hysterectomy had statistically significantly lower mean scores in

each of the six subscales of the Uterine Fibroid Symptom QOL compared with those planning to undergo myomectomy (all  $P < 0.001$ ) (Table 2). A statistically significant lower mean score was reported in the summary score ( $47.85 \pm 20.587$  vs  $53.35 \pm 27.548$ ;  $P < 0.001$ ). The symptom severity score was higher among women planning hysterectomy compared with those planning

myomectomy ( $62.85 \pm 26.547$  vs  $49.89 \pm 26.854$ ), indicating worse symptoms among those scheduled for hysterectomy. Based on the EuroQoL 5-Dimension Health Questionnaire VAS, hysterectomy patients reported a lower quality of life compared with those planning to undergo myomectomy ( $68.26 \pm 21.424$  vs  $74.37 \pm 17.847$ ;  $P < 0.001$ , respectively).

**Table (1): Comparison between the two groups as regard to Baseline Characteristics.**

	Hysterectomy (n=350)	Myomectomy (n=350)	P Value
<b>Age</b>	44.97±3.713	39.52±4.004	<0.001*
<b>BMI (kg/m<sup>2</sup>)</b>	36.490±2.039	28.016±4.079	<0.001*
<b>Family history of uterine fibroids (yes)</b>	663(49.1%)	633(50%)	
<b>Duration of symptoms (y)</b>	9.42±2.873	6.95±1.999	<0.001*
<b>Specific symptoms</b>			
Bleeding between periods	186(53.1%)	161(46%)	<0.001*
Abdominal or pelvic pressure	263(75.1%)	238(68%)	<0.001*
Nocturia	214(61.1%)	180 (51.1%)	<0.001*
Pelvic pain requiring medication	168(48%)	126(36%)	<0.001*
Non-menstrual pain	432(32%)	77(22%)	<0.001*
<b>Regular, predictable menses</b>	193(55.1%)	250(71.4%)	<0.001*
<b>History of anemia</b>	200(57.1%)	168(48%)	<0.001*
<b>Previous pregnant</b>	273(78%)	200(57.1%)	<0.001*
2 or more pregnancies	217(62%)	116(33.1%)	<0.001*
<b>Other Medical condition</b>	180(51.4%)	144(41.1%)	<0.001*
<b>Endometriosis</b>	39(11.1 %)	21(6%)	<0.001*
<b>Adenomyosis</b>	20(5.7%)	4(1.1%)	<0.001*

BMI: body mass index; UFS-QOL: Uterine Fibroid Symptom Quality of Life; EQ-5D: EuroQoL 5-Dimension Health Questionnaire; VAS: visual analog scale; QOL: quality of life.

**Table (2): Comparison between the two groups as regard to UFS-QOL and EQ-5D without problem**

	<b>Hysterectomy (n=350)</b>	<b>Myomectomy (n=350)</b>	<b>P Value</b>
<b>UFS-QOL</b>			
Concern	37.25±23.852	46.75±28.872	<0.001*
Activities	46.24±20.652	53.34±26.475	<0.001*
Energy/mood	46.35±23.952	53.57±23.745	<0.001*
Control	49.27±24.458	52.65±22.576	0.041*
Self-consciousness	42.34±29.652	49.26±28.874	<0.001*
Sexual function	43.54±31.421	51.57±31.758	<0.001*
Total (sum of subscales)	47.85±20.587	53.35±27.548	<0.001*
UFS-QOL symptom severity (higher means more severe)	62.85±26.547	49.89±26.854	<0.001*
<b>EQ-5D without problem</b>			
Mobility	250(71.4%)	294(84%)	<0.001*
Self-care	322(92%)	329(94%)	0.060
Usual activities	215(61.4%)	231(66%)	0.009*
Pain/discomfort	60(17.1%)	95(27.1%)	<0.001*
Anxiety/depression	528(39.1%)	144(41.1%)	0.326
VAS (lower means lower QOL)	68.26±21.424	74.37±17.847	<0.001*

BMI: body mass index; UFS-QOL: Uterine Fibroid Symptom Quality of Life; EQ-5D: EuroQoL 5-Dimension Health Questionnaire; VAS: visual analog scale; QOL: quality of life.

#### **4. Discussion:**

Most leiomyomas are asymptomatic, but 25% to 30% of affected women will experience pelvic pain, heavy or prolonged menstrual bleeding, bulk symptoms and/or reproductive dysfunction. Hysterectomy and myomectomy, the most common surgical treatments for symptomatic leiomyomas, account for approximately 90% to 95% of all procedures nationally; hysterectomy alone accounts for 70% of all leiomyoma surgeries. Little is known about the comparative effectiveness of hysterectomy and myomectomy on health-related quality of life (HRQOL) and other patient-centered measures, or for other patient-reported outcomes. The few studies investigating short-term HRQOL after treatment for leiomyomas found significant improvement after both hysterectomy and myomectomy (10).

Symptomatic uterine leiomyomata, although benign, can cause a plethora of symptoms, including pain, bleeding, infertility, pregnancy loss, and abdominal distention. These symptoms reduce general QOL and can lead to an impaired ability to work, participate in leisure activities, and perform regular exercise. Although hysterectomy is generally offered to women with

symptomatic fibroids, uterine artery embolization can be a more cost-effective alternative and conserve the uterus (11).

Studies (12, 13) have been conducted to assess the physical effects and QOL after gynecologic surgery. An emphasis on the indicators of QOL, including cognitive and neuropsychologic functions, sexual function and intimacy, personal productivity, pain, and sleep disturbances, has gained importance. The present study was aimed to compare quality of life after hysterectomy or myomectomy as treatment of fibroid.

This was a prospective comparative effectiveness analysis of data, the study was conducted on 700 participants that met the inclusion criteria and comprised of 350(50%) hysterectomy patients and 350 (50%) myomectomy patients.

The present study revealed that Hysterectomy participants were older and had longer duration of symptomatology compared with myomectomy patients (P value =0, 01). They were more likely to have irregular bleeding cycles and more likely to have other associated diagnoses (eg, adenomyosis; endometriosis) that contributed to pain and bleeding. Also we found that higher proportion of women undergoing myomectomy reported a family

history of uterine fibroids compared with hysterectomy patients.

Comparing to the study of **Nicholson et al., (10)** that was conducted on total of 1,295 patients (727 with hysterectomy and 568 with myomectomy) enrolled from registry initiation in November 2015 until June 2018 met inclusion criteria.

Another study of **Wallace et al., (14)** reported that Hysterectomy patients were older with a longer history of symptomatic UF compared with myomectomy patients. There were no differences in baseline HRQOL. After adjustment for baseline differences between groups, compared with myomectomy, patients' HRQOL (95% confidence interval [CI], 5.4, 17.2) and symptom severity (95% CI, -16.3, and 8.8) were significantly improved with hysterectomy. When stratified across race/ethnicity and age, hysterectomy had higher HRQOL scores compared with myomectomy. There was little difference in HRQOL (95% CI, 0.1 [-9.5, 9.6]) or symptom severity (95% CI, -3.4 [-10, 3.2]) between abdominal hysterectomy and abdominal myomectomy.

In the present study, Patients' quality of life (QOL) was assessed with the World Health Organization Quality of Life-BREF

questionnaire (WHOQOL-BREF) preoperatively and at two and 24 months post-surgery. In our work, efficient assessment of health-related QOL in the midterm and the long term after treatment was facilitated by use of the same questionnaire for the two evaluation periods. This approach allows appropriate comparison of the same patients' QOL developments over time.

Our findings revealed that Women planning to undergo hysterectomy had statistically significantly lower mean scores in each of the six subscales of the Uterine Fibroid Symptom QOL compared with those planning to undergo myomectomy (all  $P < 0.001$ ). A statistically significant lower mean score was reported in the summary score ( $47.85 \pm 20.587$  vs  $53.35 \pm 27.548$ ;  $P < 0.001$ ). The symptom severity score was higher among women planning hysterectomy compared with those planning myomectomy ( $62.85 \pm 26.547$  vs  $49.89 \pm 26.854$ ), indicating worse symptoms among those scheduled for hysterectomy. Based on the EuroQoL 5-Dimension Health Questionnaire VAS, hysterectomy patients reported a lower quality of life compared with those planning to undergo myomectomy ( $68.26 \pm 21.424$  vs  $74.37 \pm 17.847$ ;  $P < 0.001$ , respectively).



In comparison with the study of **Nicholson et al., (10)** in which at baseline, leiomyoma-specific HRQOL ( $44.0 \pm 25.4$  and  $50.2 \pm 25.3$ ,  $P < .01$ ), symptom severity ( $60.7 \pm 23.6$  and  $51.7 \pm 24.6$ ,  $P < .01$ ), and generic HRQOL ( $69.3 \pm 20.4$  and  $73.4 \pm 18.9$ ,  $P < .01$ ) were significantly different between the hysterectomy compared with myomectomy groups, respectively. Differences were eliminated by propensity adjustment. Substantial improvement in HRQOL measures were seen in both groups at 6-12 weeks, with the mean propensity-adjusted symptom severity score 4 points lower in hysterectomy patients (mean difference -4.6; 95% CI -7.0 to -2.3), compared with myomectomy patients. Hysterectomy patients had better scores on the concern and self-consciousness subscales compared with myomectomy patients. When stratified by surgical route, these two subscale findings were similar between minimally invasive hysterectomy and minimally invasive myomectomy. Symptom severity scores did not differ after abdominal myomectomy compared with abdominal hysterectomy, but subscale scores on activity and energy/mood were higher with myomectomy

One of the most compelling motivations for choosing myomectomy versus hysterectomy is the preservation of fertility. A survey of **Borah et al., (15)** reported that 43% of women <40 years of age desire future fertility. It is unknown how many women in the current cohort were interested in pregnancy; however, women in the hysterectomy group were more likely to be parous. Those women who were actively trying to conceive or became pregnant during follow-up were excluded from the study. More information is needed regarding the role of fertility in quality of life for women undergoing myomectomy.

**Wallace et al., (14)** should be lauded for producing one of the largest, prospective cohorts comparing long-term outcomes after myomectomy and hysterectomy. These results emphasize that, although fibroids immensely impact quality of life, women who undergo surgery can look forward to long-lasting improvements in symptoms, self-image, sexual function, and overall mental and physical well-being.

Further data are needed to understand motivations for selecting myomectomy versus hysterectomy, and how those motivations impact postoperative outcomes. Further data are needed to understand

motivations for selecting myomectomy versus hysterectomy, and how those motivations impact postoperative outcomes.

In addition, given that differences in quality of life after myomectomy or hysterectomy applied only to minimally invasive procedures, the impact of the surgical approach on quality of life also deserves further study. As the medical treatment of fibroids evolves with increased use of selective progesterone receptor modulators and gonadotropin-releasing hormone antagonists, their role as adjuncts or alternatives to surgery must be considered. Finally, fertility concerns and outcomes are bound to play a critical role in quality of life after fibroid treatment, and attention should be paid in future studies to understanding their contribution (16).

In conclusion, both hysterectomy and myomectomy were associated with substantial improvement in HRQOL at short-term follow-up, with small but statistically significant differences in symptom severity and certain subscales.

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