

# Health-Related Quality of Life Among Iranian Women with Uterine Fibroids: A Cross Sectional Study

Hanieh Najafiarab; M.D.<sup>1</sup>, Farah Farzaneh; M.D.<sup>1</sup>, Niki Talebian; M.D.<sup>2</sup>, Zahra Ghasemi; M.D.<sup>1</sup>, Maryam Talayeh; M.D.<sup>1</sup>

<sup>1</sup> Preventative Gynecology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

<sup>2</sup> School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Received May 2024; Revised and accepted August 2024

## Abstract

**Objective:** Uterine fibroids (UFs) are the most common benign tumors in women, and their prevalence varies between 5.4 and 77.0% in reproductive-aged women. Patients with UFs may experience severe symptoms that they can affect different aspects of their lives, including quality of life. This study aimed to investigate the health-related quality of life among Iranian women with UFs.

**Materials and methods:** This cross-sectional study was conducted at Imam Hossein Hospital, Tehran, Iran, between November 2023 and February 2024. Data collection was based on the census method. Uterine Fibroid Symptom and Health-related Quality of Life (UFS-QOL) questionnaire was used to assess symptom severity and health-related quality of life (HRQOL) of women with UFs. Data were analyzed using the SPSS software version 23.0.

**Results:** Overall, 220 patients with a mean age of  $43.10 \pm 5.01$  years were included in the study. Patients had total UFS-QOL score of  $64.11 \pm 20.35$  with the following subscales' scores: symptom severity: ( $19.00 \pm 6.39$ ), concern: ( $60.79 \pm 26.47$ ), activities: ( $71.76 \pm 23.02$ ), energy/mood: ( $54.39 \pm 25.14$ ), control: ( $66.52 \pm 22.82$ ), self-consciousness: ( $77.63 \pm 26.39$ ), and sexual function: ( $59.40 \pm 31.18$ ). Furthermore, patients with multiparity history ( $P = 0.001$ ), obesity ( $P < 0.001$ ), increased menstrual duration ( $P < 0.001$ ), irregular menstruation ( $P < 0.001$ ), and hyper menorrhea ( $P < 0.001$ ) had lower HRQOL scores.

**Conclusion:** All subscales' scores of HRQOL were over 50 in patients with UF. HRQOL in these patients can be affected by certain factors, such as features of the menstrual cycle, multiparity, and obesity.

**Keywords:** Leiomyoma; Quality of Life; Uterine Fibroid Symptom and Health-related Quality of Life; Menstrual Cycle

## Introduction

Uterine fibroids (UFs) are the most common benign gynecological tumors that originate from the smooth

muscles of the uterus (1). The prevalence of UFs in reproductive-aged women ranges from between 5.4 to 77.0%, depending on the diagnostic methods and the study population (2). However, owing to many asymptomatic cases, the majority of UFs remain undiagnosed, leading to the underestimation of their

## Correspondence:

Dr. Farah Farzaneh

Email: [pgrc1400@gmail.com](mailto:pgrc1400@gmail.com)



Copyright © 2024 Tehran University of Medical Sciences. Published by Tehran University of Medical Sciences.

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license (<https://creativecommons.org/licenses/by-nc/4.0/>).

Noncommercial uses of the work are permitted, provided the original work is properly cited.

prevalence (2). Several risk factors such as age, race, obesity, parity, hypertension, vitamin D deficiency, and late-life diets, contribute to the development of UFs (3).

Untreated UFs can lead to various debilitating complications, including acute or chronic pelvic pain, anemia, hydronephrosis, premature delivery, and fetal intrauterine growth retardation (4). Beyond the impact on individual health, the high prevalence of UFs has substantial implications for global healthcare expenditure. The annual direct and indirect costs associated with UFs are estimated at \$34.4 billion in the United States (5). Moreover, symptomatic UFs cause substantial morbidity and profoundly impact the quality of life of reproductive-aged women, thereby presenting a growing public health concern worldwide (5).

Recent surveys on women in the United States, Canada, France, and Spain have highlighted the substantial impact of fibroid-related symptoms on health-related quality of life (HRQOL). These symptoms are associated with prolonged menstruation, increased healthcare visits and analgesic consumption, greater direct and indirect costs, and increased workplace absenteeism (6). Furthermore, the symptoms of UFs have a negative impact on both affected women and the general population due to economic loss and decreased productivity (7).

Since the Persian version of UFS-QOL questionnaire is validated recently (8), this study aimed to investigate the HRQOL in Iranian women with UFs considering the Uterine Fibroid Symptom and Health-Related Quality of Life (UFS-QOL) questionnaire.

## Materials and methods

**Study design and participants:** This cross-sectional study was performed at Imam Hossein Hospital, Tehran, Iran, between November 2023 and February 2024. The inclusion criteria were: women with UFs diagnosed with ultrasound by an expert radiologist, largest diameter of UFs between 2 and 10 cm, age between 18 and 45 years, and literacy for reading and writing. Patients with the following features were also excluded: history of surgery due to gynecological diseases, underlying chronic diseases (diabetes, hypertension, rheumatological diseases, psychological disorders, and cancer), presence of other pathologies visualized by ultrasound (e.g., adenomyosis or gynecological malignancies), and

pregnancy or breastfeeding.

**Data collection:** In this study, the data were collected using the census method. After explaining the purpose of the study, the eligible patients signed an informed consent form for study participation. The study participants were interviewed by a research team member regarding their demographics and clinical characteristics. Ultrasound findings of the patients were obtained by reviewing their medical records. Finally, participants completed the UFS-QOL questionnaire.

**Study instrument:** Uterine Fibroid Symptom and Health-related Quality of Life (UFS-QOL) is a 37-item questionnaire assessing symptom severity and HRQOL in women with UFs over the previous three months. Each item is scored on a Likert scale ranging from 1 (none of the time/not at all) to 5 (a very great deal/all the time). In this questionnaire, higher scores indicate better quality of life. This questionnaire consists of seven subscales, one of them is symptom severity and the others are health-related quality of life as follows: concern, activities, energy/mood, control, self-consciousness, and sexual function. The original English version of the UFS-QOL questionnaire was developed by Spies et al., which had acceptable validity and reliability (9). Additionally, a study by Najafiarab et al. reported the reliability and validity of the Persian version of the UFS-QOL questionnaire with a Cronbach's alpha coefficient of 0.956 (8). Symptom severity score range between 0-100, and score  $\geq 40$  indicates moderate to severe symptoms, and HRQOL range from 0-100; a higher score indicates better quality of life (10).

**Statistical analysis:** Data were analyzed using the IBM Statistical Package for Social Sciences (SPSS)® software version 23.0. Variables were described as frequency, percentage, mean, and standard deviation. Variables were compared between groups using the independent-samples *t*-test and ANOVA followed by post-hoc tests (Tukey). In this study, a P-value less than 0.05 was considered statistically significant.

**Ethical considerations:** The Ethics Committee of Shahid Beheshti University of Medical Sciences, Tehran, Iran, approved the study protocol (IR.SBMU.RETECH.REC.1402.384). All the study steps were performed followed by the Declaration of Helsinki 2000.

## Results

**Baseline characteristics of the patients:** Of 234

patients initially included in the study, 14 were excluded due to the following reasons: adenomyosis (3), gynecologic cancers (10), and pregnancy (1). Finally, 220 samples with a mean age of  $43.10 \pm 5.01$  years (range: 18 to 45 years) entered the analysis. The majority of them had a normal body mass index (BMI) (43.1%), while others were overweight (36.7%) or obese (20.2%). On ultrasound assessment, 56.4% had one UFs, 21.3% had two UFs, and the remaining (22.3%) had three or more UFs.

According to the International Federation of Gynaecology and Obstetrics (FIGO) classification system, the most common location of the UFs was 4 or intramural (49.1%), followed by 6 (19.5%), 5 (15.9%), 7 (5.3%), 2 (3.5%), 0 (2.7%), 1 (2.7%), and 8 (1.3%).

Patients had total UFS-QOL score of  $64.11 \pm 20.35$  with the following subscales' scores: symptom severity: ( $19.00 \pm 6.39$ ), concern: ( $60.79 \pm 26.47$ ), activities: ( $71.76 \pm 23.02$ ), energy/mood: ( $54.39 \pm 25.14$ ), control: ( $66.52 \pm 22.82$ ), self-consciousness: ( $77.63 \pm 26.39$ ), and sexual function: ( $59.40 \pm 31.18$ ) (Table 1).

**Table 1:** Total UFS-QOL Score and its subscales

Variables	UFS-QOL Score (Mean $\pm$ SD)
Symptom Severity	$19.00 \pm 6.39$
Concern	$60.79 \pm 26.47$
Activities	$71.76 \pm 23.02$
Energy/Mood	$54.39 \pm 25.14$
Control	$66.52 \pm 22.82$
Self-consciousness	$77.63 \pm 26.39$
Sexual Function	$59.40 \pm 31.18$
Total HRQOL score	$64.11 \pm 20.35$

UFS-QOL; Uterine Fibroid Symptom and Health-Related Quality of Life, SD; Standard deviation

Table 2 illustrates the association between variables and the total HRQOL score. According to the findings, these variables were not significantly associated with the HRQOL. Patients with multiparity history had significantly lower HRQOL scores than those with monoparity ( $P=0.213$ ) and nulliparity ( $P=0.001$ ). Obese patients had significantly lower HRQOL scores than those with normal BMI ( $P=0.002$ ) and overweights ( $P<0.001$ ) (Figure 1). Regarding menstrual duration, women with increased menstrual duration had lower HRQOL scores than those with normal ( $P<0.001$ ) or decreased ( $P=0.013$ ) menstrual duration. Patients with regular menstrual cycles had higher HRQOL scores than those with irregular menstrual cycles ( $P<0.001$ ).

Furthermore, women with hypermenorrhea had lower HRQOL scores than those with normal menstrual volume ( $P<0.001$ ) or hypomenorrhea ( $P=0.009$ ) (Figure 2).

**Table 2:** Association between variables and health-related quality of life (HRQOL) score

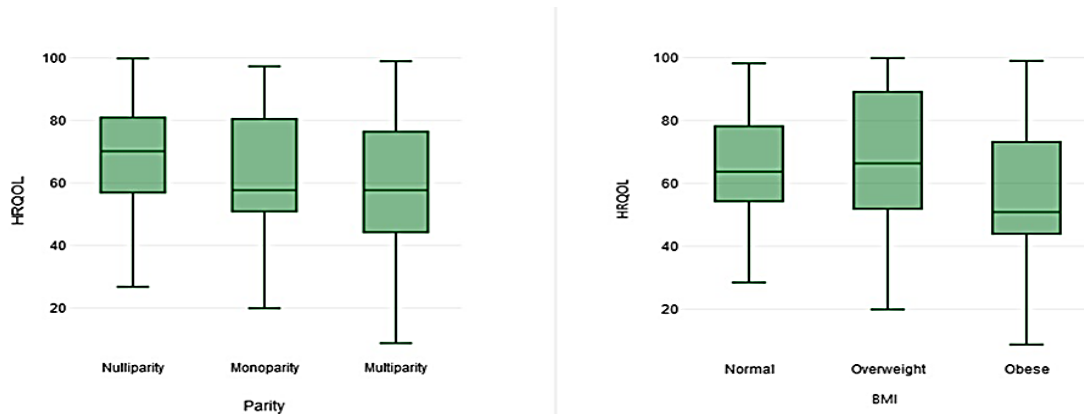
Variables	Total HRQOL Score (Mean $\pm$ SD)	P-Value
Age* (years)		0.710
18-30	$61.78 \pm 12.95$	
31-45	$64.92 \pm 19.92$	
>45	$62.74 \pm 22.04$	
Marital Status**		0.411
Single	$66.86 \pm 19.61$	
Married	$63.66 \pm 20.48$	
Educational status*		0.240
Elementary	$64.90 \pm 18.75$	
Diploma	$59.69 \pm 19.96$	
Bachelor or higher degree	$67.82 \pm 20.79$	
Occupational Status**		0.108
Unemployed	$62.29 \pm 21.81$	
Employed	$66.72 \pm 17.86$	
Familial History of UFs**		0.180
Negative	$66.45 \pm 19.51$	
Positive	$59.76 \pm 21.28$	
Parity*		0.004
Nulliparity	$69.55 \pm 17.34$	
Monoparity	$63.74 \pm 19.11$	
Multiparity	$59.43 \pm 22.46$	
Size of Largest UFs**		0.493
Less than 100 mm	$64.38 \pm 20.76$	
More than 100 mm	$60.85 \pm 14.44$	
Number of UFs**		0.820
One	$64.38 \pm 19.57$	
More than one	$63.75 \pm 21.46$	
FIGO of Largest UFs*		0.460
FIGO 0,1,2	$62.80 \pm 18.37$	
FIGO 3,4,5	$62.03 \pm 21.03$	
FIGO 6,7,8	$69.73 \pm 18.40$	

HRQOL; Health-related quality of life, UFs; uterine fibroids, FIGO; International Federation of Gynaecology and Obstetrics

\*ANOVA, \*\*Independent Sample T-Test

## Discussion

In the current study, we evaluated the association between total HRQOL and socio-demographic characteristics, familial history of UF, size of the largest UF, number of UFs, FIGO of the largest UF, and menstrual cycle features of patients. Our study findings revealed that menstrual features such as menstrual regularity, volume, and duration were associated with HRQOL.



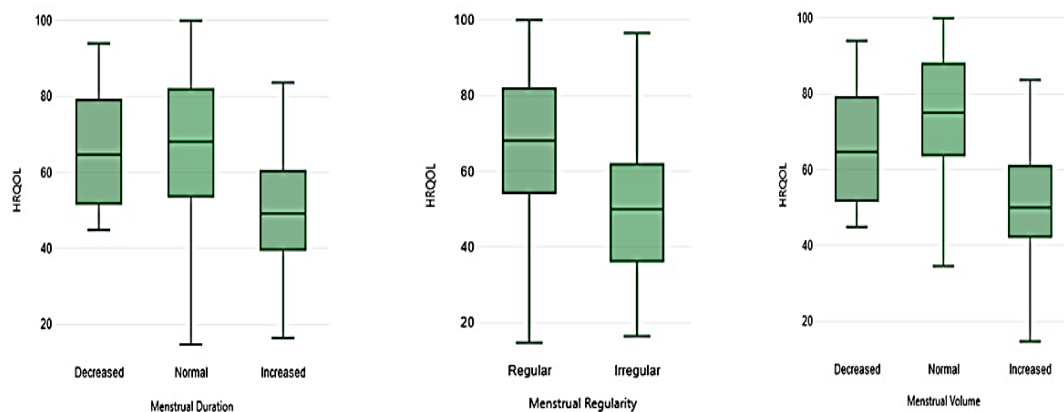
**Figure 1:** Association between Demographic factors (Parity and BMI) and UFS-QOL

This study showed that the most common anatomical location of the UFs was intramural, followed by subserosal and submucosal, which is consistent with previous studies reporting the anatomical distribution of UFs (12, 13). In our study, most patients were in the fourth decade of their lives. According to a study, the risk of UF grows with age, peaks at 35 to 44 years, and then gradually decreases. In this study, it was found that age was not associated with HRQOL score, which is similar to the findings of a publication from Japan (14). However, another study found that older patients had significantly lower symptom severity and higher HRQOL scores (15). Older patients may unaccuately respond the questionnaire. Additionally, other medical conditions, which effect on quality of life, can play the role of confounding variables. This discrepancy among the results regarding the association between age and HRQOL score may be attributed to varying age limits used across studies.

While we found that obese women had significantly lower HRQOL scores, a previous study

reported that the only UFS-QOL subscale that was affected negatively by BMI was self-consciousness (15). Inconsistent with our finding, a study by Soliman et al. reported that almost all subscales of HRQOL were negatively associated with educational level (15). This difference could be resulted from variations in sample sizes of different studies. We also excluded illiterate patients, which could significantly influence the evaluation of the relationship between HRQOL and educational level.

The results of the study by Zimmermann et al. showed that bleeding symptoms of UFs had a significant negative impact on women's quality of life (16). We found that patients with prolonged menstrual duration, hypermenorrhea, and irregular menstruation had significantly lower HRQOL scores. These findings are consistent with several previous studies that have demonstrated the negative impact of bleeding symptoms on HRQOL (14, 15). A study by Brito et al. showed that patients with UFs who suffered from bleeding symptoms often felt fear and anxiety due to the unpredictability of these symptoms (17).



**Figure 2:** Association between Menstrual features and HRQOL



Most of them reported that they had to carry extra pads with themselves most of the time. They were concerned and embarrassed about the soiling of underclothing (15, 17). Patients stated that irregular and prolonged menses made them think of having no control over their lives. They also reported using pads during the night, which caused sleep impairments (17). Furthermore, heavy and irregular menstruation can lead to abstinence from school and work, reduced social activities, and impaired sexual functions (18). Other consequences of these symptoms include adverse effects of hormonal treatments, anemia, and as a result, fatigue and loss of concentration (17). In the present study, we found no significant relationship between the size or number of UFs and HRQOL scores. Inconsistent with our findings, another study showed that the size of leiomyoma was significantly correlated with the severity of genitourinary symptoms and impairment of quality of life (19). Unlike the mentioned study, we excluded patients with fibroids larger than 10 cm, which could contribute to the conflicting findings observed. However, other studies reported that size of the uterine fibroid did not affect HRQOL (20, 21).

This study was the first study that assessed the health related quality of life in Iranian women with UFs based on UFS-QOL questionnaire. Face to face interview can establish connection between the interviewer and patients and can provide better understanding, thus using this method instead of online questionnaires, which are commonly used in studies, is considered a substantial strength of this study. Our study had some limitations. The cross-sectional design of the study and lack of a control group restricted the capability of exploring causality, and only associations between variables could be evaluated. Our research project was carried out in only one medical center, and the sample size was small, which limited the generalizability of the findings.

## Conclusion

The study results indicated that patients with UFs had acceptable UFS-QOL scores. Health-related quality of life in these patients can be affected by certain factors, such as features of the menstrual cycle, multiparity, and obesity.

## Conflict of Interests

Authors declare no conflict of interests.

## Acknowledgments

The authors would like to thank the patient and her family.

## References

1. Hervé F, Katty A, Isabelle Q, Céline S. Impact of uterine fibroids on quality of life: a national cross-sectional survey. *Eur J Obstet Gynecol Reprod Biol.* 2018;229:32-7.
2. Ahmad A, Kumar M, Bhoi NR, Badruddeen, Akhtar J, Khan MI, et al. Diagnosis and management of uterine fibroids: current trends and future strategies. *J Basic Clin Physiol Pharmacol.* 2023;34(3):291-310.
3. Yang Q, Ciebiera M, Bariani MV, Ali M, Elkafas H, Boyer TG, et al. Comprehensive Review of Uterine Fibroids: Developmental Origin, Pathogenesis, and Treatment. *Endocr Rev.* 2022;43(4):678-719.
4. Millien C, Manzi A, Katz AM, Gilbert H, Smith Fawzi MC, Farmer PE, et al. Assessing burden, risk factors, and perceived impact of uterine fibroids on women's lives in rural Haiti: implications for advancing a health equity agenda, a mixed methods study. *Int J Equity Health.* 2021;20(1):1.
5. Giuliani E, As-Sanie S, Marsh EE. Epidemiology and management of uterine fibroids. *Int J Gynaecol Obstet.* 2020;149(1):3-9.
6. Luthra J, Halder P, Nahar L, Sultana N, Banerjee A, Kumar A, et al. Evaluation of psychometric properties of the uterine fibroids symptoms and health-related quality of life (ufsqol) questionnaire: The translated Bengali version. *Trop J Obstet Gynaecol.* 2019;36(3):338-47.
7. Downes E, Sikirica V, Gilabert-Estelles J, Bolge SC, Dodd SL, Maroulis C, et al. The burden of uterine fibroids in five European countries. *Eur J Obstet Gynecol Reprod Biol.* 2010;152(1):96-102.
8. Najafiarab H, Keyvanfar A, Rahimi Mansour F, Didar H, Hooshmand Chayijan SH, Rajaei Firouzabadi SH, et al. Validity and Reliability of The Persian Version of Uterine Fibroid Symptom and Health-Related Quality of Life Questionnaire: A Psychometric Study. *Int J Fertil Steril.* 2023;18(1):60-6.
9. Spies JB, Coyne K, Guaou N, Boyle D, Skyrnarz-Murphy K, Gonzalves SM. The UFS-QOL, a new disease-specific symptom and health-related quality of life questionnaire for leiomyomata. *Obstet Gynecol.* 2002;99(2):290-300.
10. Koga K, Fukui M, Fujisawa M, Suzukamo Y. Impact of diagnosis and treatment of uterine fibroids on quality of life and labor productivity: The Japanese online survey for uterine fibroids and quality of life (JOYFUL survey). *Journal of Obstetrics and Gynaecology Research.* 2023;49(10):2528-37.
11. Hunsche E, Rakov V, Scippa K, Witherspoon B, McKain L. The Burden of Uterine Fibroids from the

- Perspective of US Women Participating in Open-Ended Interviews. *Womens Health Rep (New Rochelle)*. 2022;3(1):286-96.
12. Abdelmtalab MA, Tahir O, Hussein K, Badawi K. Anatomical locations of uterine fibroids in Sudanese women. *Anatomy Journal of Africa*. 2020;9(1):1701-6.
13. Medikare V, Kandukuri LR, Ananthapur V, Deenadayal M, Nallari P. The genetic bases of uterine fibroids; a review. *J Reprod Infertil*. 2011;12(3):181-91.
14. Shimamoto K, Hirano M, Wada-Hiraike O, Goto R, Osuga Y. Examining the association between menstrual symptoms and health-related quality of life among working women in Japan using the EQ-5D. *BMC Womens Health*. 2021;21(1):325.
15. Soliman AM, Margolis MK, Castelli-Haley J, Fuldeore MJ, Owens CD, Coyne KS. Impact of uterine fibroid symptoms on health-related quality of life of US women: evidence from a cross-sectional survey. *Curr Med Res Opin*. 2017;33(11):1971-8.
16. Zimmermann A, Bernuit D, Gerlinger C, Schaeffers M, Geppert K. Prevalence, symptoms and management of uterine fibroids: an international internet-based survey of 21,746 women. *BMC women's health*. 2012;12:1-11.
17. Brito LG, Panobianco MS, Sabino-de-Freitas MM, Barbosa Hde F, de Azevedo GD, Brito LM, et al. Uterine leiomyoma: understanding the impact of symptoms on womens' lives. *Reprod Health*. 2014;11(1):10.
18. Adebimpe WO, Farinloye EO, Adeleke NA. Menstrual pattern and disorders and impact on quality of life among university students in South-Western Nigeria. *Journal of Basic and Clinical Reproductive Sciences*. 2016;5(1):27-32.
19. Ekin M, Cengiz H, Öztürk E, Kaya C, Yasar L, Savan K. Genitourinary symptoms and their effects on quality of life in women with uterine myomas. *Int Urogynecol J*. 2014;25(6):807-10.
20. Feng C, Meldrum S, Fiscella K. Improved quality of life is partly explained by fewer symptoms after treatment of fibroids with mifepristone. *Int J Gynaecol Obstet*. 2010;109(2):121-4.
21. Torng PL, Chang WC, Hwang JS, Hsu WC, Wang JD, Huang SC, et al. Health-related quality of life after laparoscopically assisted vaginal hysterectomy: is uterine weight a major factor? *Qual Life Res*. 2007;16(2):227-37.

**Citation:** Najafiarab H, Farzaneh F, Talebian N, Ghasemi Z, Talayeh M. **Health-Related Quality of Life Among Iranian Women with Uterine Fibroids: a Cross Sectional Study.** *J Family Reprod Health* 2024; 18(3): 164-9.