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EPIDEMIOLOGY OF UTERINE FIBROIDS: A COMPREHENSIVE STUDY ON PREVALENCE, RISK FACTORS AND THEIR IMPACT ON QUALITY OF LIFE AMONG WOMEN IN RURAL AREA OF PALGHAR DISTRICT, MAHARASHTRA

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ABSTRACT Complex in nature and classified according to where they occur in the uterine layers, uterine fibroids are impacted by a wide range of risk factors, such as age, race, parity, and lifestyle decisions that have an impact on a woman's life. A cross-sectional study conducted in a private medical college found a significant prevalence of uterine fibroids among women aged 20 or older. The study found a prevalence of 66.6%, with intramural fibroids dominating at 80.5%. Menorrhagia was the most common symptom, with the majority falling into the 40-49 age range. Significant associations were found between fibroid diagnosis, menopausal status, age, oral contraceptive pill use, and hypertension. The study also highlighted the need for customised healthcare interventions in rural Palghar district to address the complex issues raised by uterine fibroids.

KEYWORDS : fibroids, UFS-QOL,rural area

INTRODUCTION:

Within the complex web of women's health, uterine fibroids are unseen master builders of deep change, their effect woven into life itself. Fibroids (aka leiomyoma) are uterine smooth muscle cell monoclonal tumours composed of a significant amount of extracellular matrix, which includes proteoglycan, fibronectin, and collagen.[1] They can be single or multiple, and they are categorised as subserous, intramural, or submucous depending on where they are in relation to the uterine layers. Numerous risk factors influence the complex phenomena of uterine fibroids. Age, race, Low parity and early menarche add to the complex puzzle, and pregnancy's protective effects add another level of intricacy. Lifestyle factors such as alcohol and caffeine consumption combine with genetic changes, obesity, and diet to create a complex picture of the formation of fibroid tumors.[2] Some studies done in India showed that age, race, hormones, obesity, uterine infection, and lifestyle factors like alcohol intake, physical activity, stress, and smoking are among the risk factors for developing fibroids [3–6]. In India, a positive family history of fibroids, a history of infertility, and a higher body mass index (BMI) are additional risk factors for fibroids. Fibroids have been shown to produce prolactin and have higher local levels of oestradiol, which may have an impact on fertility. Furthermore, there is a connection between the pathophysiology of uterine fibroids and alcohol consumption.[7] Overall, the development of fibroids in India is attributed to a mix of modifiable and non-modifiable risk factors.

Since most women with uterine fibroids have no symptoms, they receive less clinical attention and the tumours are frequently left undetected. Women with symptoms usually report abnormal uterine bleeding, particularly heavy and protracted bleeding.[8]

Beyond just being a medical condition, these benign uterine growths become powerful yet subtle orchestrators that direct the course of a woman's life. Significant psychological burdens are experienced by women with fibroids, which lowers their quality of life (QoL).[9] Women's quality of life (QOL) is negatively impacted by uterine fibroids. A Study suggested that they may interfere with daily activities, worsen symptom-related distress, and lower quality of life related to health.[10]. Another study reported that anaemia, pain, heavy menstrual bleeding, and other symptoms can be caused by fibroids and have a serious negative impact on a woman's health.[11] Research indicates that hysterectomy—the removal of the uterus—can improve quality of life more than myomectomy, particularly when it comes to severity of symptoms, concern levels, tolerance to activity, and control.[12,13] The complex interactions between symptoms, lack of knowledge about the illness, and possible effects on fertility can be concerning for mental and emotional health. A holistic approach to healthcare that not only attends to the physical manifestations but also recognizes and supports the emotional and mental well-being of those navigating the complexities of living with uterine fibroids becomes imperative with the recognition and treatment of the psychological aspects of fibroid experiences. Keeping that in mind, this study attempts to completely rethink how we think about, diagnose, and treat this prevalent illness in women.

AIM:

To explore the epidemiology of uterine fibroids by determining their prevalence, identifying risk factors and evaluating their impact on quality of life in women of reproductive age group.

OBJECTIVES:

1. To determine the prevalence of uterine fibroids among women under study.
2. To explore various risk factors associated with uterine fibroids.
3. To assess the quality of life in women with uterine fibroids.

METHODOLOGY:

From September 1 2023, to November 30, 2023, a cross-sectional study using purposive sampling was carried out in the gynaecology outpatient department of a private medical college. The study focused on women 20 years or older, who complained of menorrhagia or had ultrasounds confirming the presence of uterine fibroids giving consent. A predesigned semi structured interview schedule along with Validated

Uterine Fibroid Symptom and Quality of life questionnaire [14](UFS-QOL) was used. Patients who were pregnant, had undergone hysterectomy were excluded. The target group was submitted to ultrasonography and an interview during the same OPD visit once consent was obtained. Microsoft Excel and SPSS (trial version) were used for data entry and analysis respectively.

RESULTS:

In a 3-month study, 350 participants had complaints of menorrhagia or ultrasound confirmed diagnosis of fibroid. Out of 350 participants, 50 refused for Ultrasonography and were excluded. Among 300 participants which were included, 200 (66.6%) had fibroids. Among them, 80.5% were Intramural fibroids (Figure 1). Demographics and clinical characteristics of a study population revealed the epidemiology of uterine fibroids. The majority of participants are aged 40-49 (53.3%), with Mean Age 42.2±7.984 and the highest percentage is from the Scheduled Tribes category (56.3%). The majority of participants are married (88.0%) with 14.1±0.887 being the mean age of menarche. Education levels are varied, with a significant proportion having education up to primary and secondary levels. Employment status is significant, with a quarter of participants employed. Socioeconomic status is diverse, with a notable percentage falling into the lower-middle category. Health insurance coverage is relatively small as shown in Table 1.

Menorrhagia, which affects 73.7% of study participants, is the most common symptom among those reported by the participants, indicating the prevalence of excessive menstrual bleeding. One other noteworthy symptom that 53.3% of the women reported was the passage of blood clots, highlighting the effect of fibroids on the menstrual process. Even though it is less common, a sizable portion of people (23.0%) still report losing weight. (Figure 2)

Important details about the health status and medical procedures of women with uterine fibroids are revealed by the data. Arterial hypertension was reported by 120(40%) of participants whereas Diabetes was found to exist in 161(53.7%) of the cases. The majority of people i.e. 233(77.7%) reported never using oral contraceptives (OCPs), followed by 33(11%) who used them for less than three months and 34(11.3%) who used them for more than three months. Furthermore, a significant percentage of participants i.e. 222(74%) stated that they had previously breastfed for a duration longer than three months. 221(73.7%) of the participants overall said they had anaemia.

Association between various contributing factors and the diagnosis of uterine fibroids among study participants was determined by Chi Square test. Age is the most significant factor, with the highest prevalence in the 30-39 age group (76.25%). No significant association was found between a family history of fibroids, Obesity classes and diagnosis of fibroid. Smoking, alcohol, and caffeine consumption did not show a significant association with fibroid diagnosis. Dietary factors like red meat and green vegetables did not show a significant association with fibroids. Hypertension showed a significant association with fibroid diagnosis but not diabetes mellitus. Oral contraceptive pill use and Menopausal status was significantly associated with fibroid diagnosis as shown in Table 2.

The UFS-QoL scores show that women with uterine fibroids experience significant symptom severity, high concern, moderate impact on daily activities and energy/mood, and a high sense of control over their impact. They also experience significant challenges in self-consciousness and sexual function, with higher scores indicating greater challenges. The overall Health-Related Quality of Life (HRQL) Total Score is 70.04 ± 4.49, indicating a greater severity of uterine fibroid symptoms and a significant impact on women's lives. (Table 3)

DISCUSSION:

In women who are fertile, uterine fibroids are a typical cause for concern. They can cause pain and multiple bleeding episodes, which can negatively affect a variety of areas of a woman's life.[8] The study found that 66.6% of participants had fibroids, with 80.5% being intramural fibroids. This prevalence of intramural fibroids varies; a study done in urban Maharashtra[15] revealed a prevalence of 19.3% and 66.7% in rural North India[16].

Menorrhagia is the most common symptom among the participants which is similar to the findings of study by Laksham et al. [17] Regarding concomitant medical conditions, 40% of our subjects reported having arterial hypertension, and 53.7% of cases had diabetes. These results contrast with those of Khalil et al.[18], who found that 56.2% of women presenting with menorrhagia had fibroid prevalence as a major factor. The variability of risk factors among populations is demonstrated by the lack of significant association between a fibroid diagnosis and family history in our study.

According to the provided study, there was no significant correlation between the diagnosis of fibroid and smoking, alcohol consumption, or caffeine use. This result is in line with some other research from India, including a study done in rural Telangana that found no link at all between fibroids and alcohol, caffeine, or smoking.[19] Nevertheless, different results have been reported by other studies. For instance, a US study of black women revealed a positive correlation between the risk of uterine leiomyomata (fibroids) and alcohol consumption at the time of the study, especially beer consumption .[20,21] As a result, the relationship between a diagnosis of fibroid and smoking, drinking, and using caffeine may differ based on the population under study and other variables. Apart from this. The study by et al [21] found no significant association between fat intake, dietary fibre, and soya isoflavones and fibroids prevalence. In this study, Hypertension showed a significant association with fibroid diagnosis but not diabetes mellitus.Similar to this, a study by Jarrett et al[22] showed an independent association between the risk of fibroid and raised blood pressure. In contrast, fibroids were found in a study done in Telangana, India, to be not significantly associated with hypertension.[19]. A study by Srilatha J et al[19] found that fibroids are significantly linked to menopausal status, which is similar to the findings of current study about menopausal status and fibroid diagnosis. The study found a significant link between oral contraceptive pill use and fibroid diagnosis. According to the "Impact of Contraception on Uterine Fibroids" study, 59.6% of patients without hormonal contraception had uterine fibroids diagnosed, compared to 37.8% of patients using it.[23] Another study examined the relationship between using oral contraceptives and the risk of uterine fibroids and discovered no evidence of a significant correlation between the two.[24] These results underline the need for more research to completely understand the impact of hormonal contraception on fibroid development and growth by highlighting the complexity of the relationship between the use of oral contraceptive pills and fibroid diagnosis.

When it comes to quality of life, our study used UFS-QoL scores, which showed that uterine fibroids have a complex effect. The participants indicated a relatively high sense of control over the impact of fibroids on their daily lives (83.38 ± 6.45), despite reporting a moderate level of self-consciousness (63.80 ± 9.31). There was a moderate impact on sexual function (72.50 ± 11.38). Herve et al.'s study,[25] on the other hand, identified "concern" as the most significant area, with women disturbed by the fear of soiled undergarments or outer

garments, highlighting the variety of difficulties experienced by women with uterine fibroids. The significant symptom severity and impact on daily activities and energy/mood observed in our study are further supported by the findings of Soliman et al.[26]

CONCLUSION:

In our three-month study on the epidemiology of uterine fibroids in the rural Palghar district of Maharashtra showed a significant prevalence of 66.6%, with intramural fibroids predominating (80.5%). According to the demographic profile, menorrhagia was the most common symptom and the majority of the group fell into the 40–49 age range. Significant associations were discovered between the diagnosis of fibroid and menopausal status, age, oral contraceptive pill use, and hypertension. Apart from this, quality of life evaluations utilising UFS-QoL scores revealed a complex influence on participants' lives. This study highlights the need for customised healthcare interventions in the rural Palghar district of Maharashtra to address the complex issues raised by uterine fibroids.

The limitation of this study is that there are restrictions on determining causality and generalizability due to the cross-sectional design of the study and its reliance on purposive sampling. The reliability could be impacted by selection bias. Restrictions on enrolment for those who are pregnant could reduce the study's applicability and inclusivity to particular populations. The diversity of the larger population might not be fully captured by the single-centre focus.

In order to provide women with uterine fibroids with comprehensive care that prioritises their emotional and mental health in addition to their physical health, it is imperative to cultivate a multidisciplinary approach in healthcare delivery. Through collaboration, gynaecologists, mental health specialists, and other pertinent specialists can offer comprehensive support that takes into account the complex effects of uterine fibroids on a woman's general health and quality of life.

Acknowledgement:
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Conflict of Interest: None

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Table 1: Patient-reported Demographics and Clinical Characteristics

Variables	Frequency (Percentage)
Age	
20 - 29	19 (6.3%)
30 - 39	80 (26.7%)
40 - 49	160 (53.3%)
50 - 59	41 (13.7%)
Caste	
General	10 (3.3%)
SC	63 (21.0%)
ST	169 (56.3%)
OBC	58 (19.3%)
Marital Status	
Married	264 (88.0%)
Unmarried	29 (9.7%)
Divorced/Widowed	2 (0.7%)
Separated	5 (1.7%)
Education	
Illiterate	49 (16.3%)
Below Primary	85 (28.3%)
Primary	97 (32.3%)
Secondary	24 (08.0%)
High School	08 (02.7%)
Higher Secondary/Intermediate	19 (06.3%)
Graduate	03 (01.0%)
Post Graduate and Above	15 (05.0%)
Employment Status	
Yes	72 (24.0%)
No	228 (76.0%)
Socioeconomic Status	
Upper Class	06 (02.0%)
Upper Middle	13 (04.3%)
Middle	84 (28.0%)
Lower Middle	175 (58.3%)
Lower	22 (07.3%)
Health Insurance	
Yes	18 (06.0%)
No	282 (94.0%)

Table 2 : Association between Various factors associated with Uterine Fibroids and Status of Fibroid by Chi Square Test

Association between Various factors associated with Uterine Fibroids and Status of Fibroid						
Risk factors		Diagnosis of Fibroid, n(%)			$\chi 2$ test statistic	P -value
		Yes	No	Total		
Age	20 - 29	16(84.21%)	3(15.79%)	19(100%)	15.23	0.002***
	30 - 39	61(76.25%)	19(23.75%)	80(100%)		
	40 - 49	91(56.88%)	69(43.13%)	160(100%)		
	50 - 59	32(78.05%)	9(21.95%)	41(100%)		
Family History of Fibroid	Yes	18(75%)	6(25.00%)	24(100%)	0.81	0.367
	No	182(65.94%)	94(34.06%)	276(100%)		
Obesity	Normal	7(87.50%)	1(12.50%)	8(100%)	2.60	0.263
	Pre-obese	93(63.27%)	54(36.73%)	147(100%)		
	Obese class I	100(68.97%)	45(31.03%)	145(100%)		
Smoking	Never	135(66.18%)	69(33.82%)	204(100%)	0.69	0.790
	Ever	65(67.71%)	31(32.29%)	96(100%)		
Alcohol	Never	171(66.28%)	87(33.72%)	258(100%)	0.12	0.724
	Ever	29(69.05%)	13(30.95%)	42(100%)		
Caffeine	Never	20(83.33%)	4(16.67%)	24(100%)	3.26	0.071
	Ever	180(65.22%)	96(34.78%)	276(100%)		
Red Meat Consumption	Never	34(68.00%)	16(32.00%)	50(100%)	0.04	0.827
	Ever	166(66.40%)	84(33.60%)	250(100%)		
Regular Green Vegetables	Never	1(100%)	0(0.00%)	1(100%)	0.50	0.479
	Ever	199(66.56%)	100(33.44%)	299(100%)		

Hypertension	Never	65(54.17%)	55(45.83%)	120(100%)	14.06	0.000***
	Ever	135 (75%)	45(25.00%)	180(100%)		
Diabetes Mellitus	Never	108(67.08%)	53(32.92%)	161(100%)	0.02	0.870
	Ever	92(66.19%)	47(33.81%)	139(100%)		
OCP use	Never	156(66.95%)	77(33.05%)	233(100%)	7.66	0.022***
	<3 months	27(81.82%)	6(18.18%)	33(100%)		
	>3 months	17(50%)	17(50.00%)	34(100%)		
History of Breastfeeding	Never	27(65.85%)	14(34.15%)	41(100%)	4.64	0.098
	<3 months	19(51.35%)	18(48.65%)	37(100%)		
	>3 months	154(69.37%)	68(30.63%)	222(100%)		
Menopause	Yes	90(52.94%)	80(47.06%)	170(100%)	33.25	0.000***
	No	110(84.62%)	20(15.38%)	130(100%)		
Anaemia	Yes	141(63.80%)	80(36.20%)	221(100%)	3.10	0.078
	No	59(74.68%)	20(25.32%)	79(100%)		
Deep Vein Thrombosis	Yes	41(82.00%)	9(18.00%)	50(100%)	6.34	0.012***
	No	159(63.60%)	91(36.40%)	250(100%)		

***p< 0.05= Significant, NSp> 0.05= Not Significant

Table 3: Uterine Fibroid Symptom and Quality of Life Questionnaire Scores for Uterine Fibroid Impact on Health - Related Quality of Life Aspects

UFS-QoL Subscale	Mean ± SD
Symptom Severity	69.56 ± 13.84
Concern	85.75 ± 4.80
Activities	70.88 ± 4.69
Energy/Mood	71.51 ± 4.83
Control	83.38 ± 6.45
Self-Consciousness	63.80 ± 9.31
Sexual Function	72.50 ± 11.38
HRQL Total Score	70.04 ± 4.49

Abbreviations: HRQL, health-related quality of life; SD, standard deviation; UFS-QoL, uterine fibroid symptom quality of life questionnaire

1 Scores range from 0 to 100; higher scores indicate greater symptom severity

2 Scores range from 0 to 100; higher scores indicate better health-related quality of life

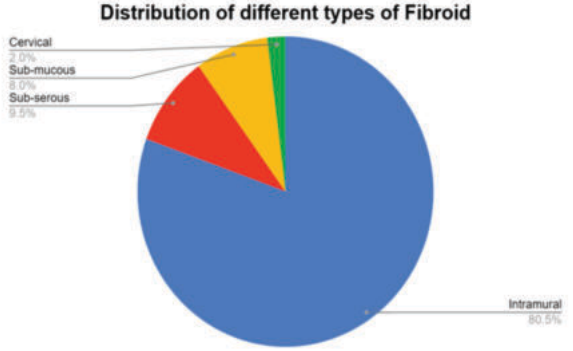

Figure 1: Distribution of different types of fibroid among study participants

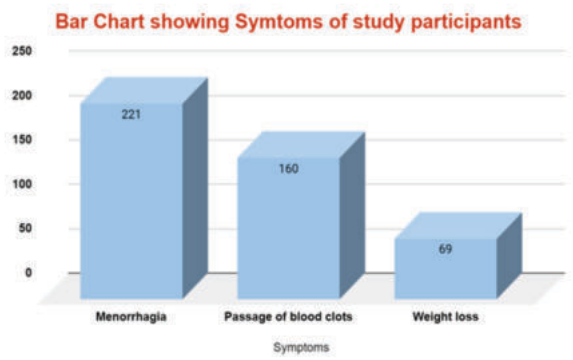

Figure 2: Bar Chart showing symptoms of all the study participants

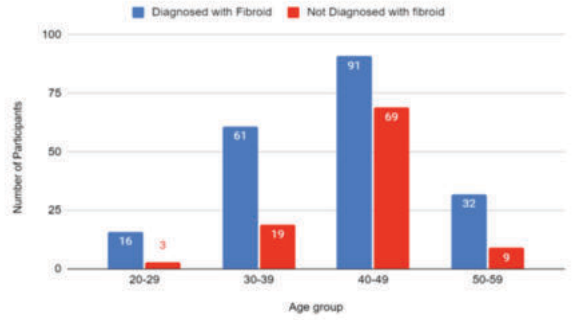

Figure3: Bar chart showing distribution of fibroid diagnosis across various age groups

REFERENCES:

1. Parker WH. Etiology, symptomatology, and diagnosis of uterine myomas. Fertil Steril. 2007 Apr;87(4):725–36.
2. Donnez J, Dolmans MM. Uterine fibroid management: from the present to the future. Hum Reprod Update. 2016 Nov;22(6):665–86.
3. Pavone D, Clemenza S, Sorbi F, Fambrini M, Petraglia F. Epidemiology and Risk Factors of Uterine Fibroids. Best Pract Res Clin Obstet Gynaecol. 2018 Jan;46:3–11.
4. Shahida J. Fibroid in Pregnancy- Associated Factors. Med Sci Monit. 2017 Jan 21;05(01):15832–5.
5. Trivedi P, Abreo M. Predisposing factors for fibroids and outcome of laparoscopic myomectomy in infertility. J Gynecol Endosc Surg. 2009 Jan;1(1):47–56.
6. Subramaniyam NK, Kandluri V, Chadeve A, Modapu D, Dumpala AJ, Gudise BR, et al. Prevalence of Risk Factors for Uterine Fibroids at Tertiary Care Teaching Hospital: A Cross-sectional Study. J Young Pharm. 2020 Apr 30;12(1):86–9.
7. Takala H, Yang Q, El Razek AMA, Ali M, Al-Hendy A. Alcohol Consumption and Risk of Uterine Fibroids. Curr Mol Med. 2020;20(4):247–58.
8. Zimmermann A, Bernuit D, Gerlinger C, Schaefers M, Geppert K. Prevalence, symptoms and management of uterine fibroids: an international internet-based survey of 21,746 women. BMC Womens Health. 2012 Mar 26;12:6.
9. Go VAA, Thomas MC, Singh B, Prenatt S, Sims H, Blanck JF, et al. A systematic review of the psychosocial impact of fibroids before and after treatment. Am J Obstet Gynecol. 2020 Nov 1;223(5):674–708.e8.
10. Frisch EH, Mitchell JR, Yao M, Llarena NC, DeAngelo LP, Falcone T, et al. Desired fertility and its impact on health-related quality of life post-operatively in women with fibroids. Fertil Steril. 2023 Jul 1;120(1):e26–7.
11. Stewart EA, Lukes AS, Venturella R, Li Y, Hunsche E, Wagman RB, et al. Quality of life with relugolix combination therapy for uterine fibroids: LIBERTY randomized trials. Am J Obstet Gynecol. 2023 Mar;228(3):320.e1–320.e11.
12. Mitchell JR, Bradley LD, Falcone T, Frisch EH, Llarena NC, Omosigho UR. Comparison of Postoperative Quality of Life Scores in Women Who Underwent Myomectomy Versus Hysterectomy for Uterine Fibroids [ID: 1379414]. 2023 May 1;141:19S – 19S.
13. Hiba Hashim. Uterine fibroids: symptoms severity and its impact on health-related quality of life among women in reproductive age group in north kerala. Asian Journal of Pharmaceutical and Clinical Research. 2022 Dec 7;50–4.
14. Keizer AL, van Kesteren PJM, Terwee C, de Lange ME, Hehenkamp WJK, Kok HS. Uterine Fibroid Symptom and Quality of Life questionnaire (UFS-QOL NL) in the Dutch population: a validation study. BMJ Open. 2021 Nov 23;11(11):e052664.
15. Ngorili GS, Yadav BB, Takalkar AA. Epidemiological study of uterine fibroids: our experience from urban Maharashtra. Int J Reprod Contracept Obstet Gynecol. 2022;11(8):2101–5.
16. Dayal S, Kumar A, Verma A. Clinicopathologic correlation of leiomyoma with clinical findings and secondary changes in a rural population of north India. Am J Clin Pathol. 2014 Feb;141(2):275–9.
17. Laksham KB, Selvaraj R, Kar SS. Menstrual disorders and quality of life of women in an urban area of Puducherry: A community-based cross-sectional

study. J Family Med Prim Care. 2019 Jan;8(1):137–40.
18. Khalil M, Ali L, Hakeem N. Fibroid; frequency and factors. Professional Med J. 2014;21(4):639–43.
19. Srilatha J, Malathi V. Prevalence of fibroids: a study in a semiurban area in Telangana, India. Int J Reprod Contracept Obstet Gynecol. 2017;6(12): 5247–50.
20. Wise LA, Palmer JR, Harlow BL, Spiegelman D, Stewart EA, Adams-Campbell LL, et al. Risk of uterine leiomyomata in relation to tobacco, alcohol and caffeine consumption in the Black Women's Health Study. Hum Reprod. 2004 Aug;19(8):1746–54.
21. Nagata C, Nakamura K, Oba S, Hayashi M, Takeda N, Yasuda K. Association of intakes of fat, dietary fibre, soya isoflavones and alcohol with uterine fibroids in Japanese women. Br J Nutr. 2009 May;101(10):1427–31.
22. Boynton-Jarrett R, Rich-Edwards J, Malspeis S, Missmer SA, Wright R. A prospective study of hypertension and risk of uterine leiomyomata. Am J Epidemiol. 2005 Apr 1;161(7):628–38.
23. Kwas K, Nowakowska A, Fornalczyk A, Krzycka M, Nowak A, Wilczy□ski J, et al. Impact of Contraception on Uterine Fibroids. Medicina. 2021;57(7):1–9.
24. Parazzini F, Negri E, La Vecchia C, Fedele L, Rabaiotti M, Luchini L. Oral contraceptive use and risk of uterine fibroids. Obstet Gynecol. 1992 Mar;79(3):430–3.
25. 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 Oct;229:32–7.
26. 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 Nov;33(11):1971–8.