Original Article

Impact of Uterine Fibroids on Perceived Health-Related Quality of Life among Women in Selected Tertiary Institutions across Nigeria: A Prospective Cross-Sectional Survey

Akinola Lateef Adekunle, Okohue Jude Ehiabhi[1], Adewole Adebayo Alade[2], Oshodi Yusuf Abisowo[3], Akinajo Opeyemi Rebecca[4], Anolue Fredrick Chiedozie[5], Ibrahim Saidu Adamu[6], Kadas Saidu Abubakar[7], Obajimi Gbolahan Oladele[8], Afolabi Bosede Bukola[4]

Department of Obstetrics and Gynaecology, Medison Specialist Women's Hospital and Fertility Assyst Center, Lagos, [1]Department of Obstetrics and Gynaecology, Gynescope Hospital and Madonna University, Port Harcourt, Rivers State, [2]Department of Obstetrics and Gynaecology, Federal Medical Center, Lokoja, Kogi State, [3]Department of Obstetrics and Gynaecology, Lagos State University Teaching Hospital, Ikeja, Lagos, [4]Department of Obstetrics and Gynaecology, Lagos University Teaching Hospital, Idi Araba, Lagos, [5]Department of Obstetrics and Gynaecology, Imo State University Teaching Hospital, Orlu, Imo State, [6]Department of Obstetrics and Gynaecology, Aminu Kano Teaching Hospital, Kano, Kano State, [7]Department of Obstetrics and Gynaecology, Abubakar Tafawa Balewa University, Yelwa, Bauchi State, [8]Department of Obstetrics and Gynaecology, University College Hospital Ibadan, Ibadan, Oyo State, Nigeria

Abstract

Introduction: Uterine fibroids can be associated with poor health-related quality of life (HRQoL) when symptomatic. Our objective was to assess the severity of uterine fibroid symptoms (UFSs) and its impact on perceived HRQoL among women with uterine fibroids attending selected secondary and tertiary health institutions across Nigeria. **Materials and Methods**: This was a prospective and questionnaire-based cross-sectional survey. Data collected included demographics, symptoms severity, medical/gynecological history, mental health status, perceived HRQoL, and myomectomy benefits. The study was conducted between May 1, 2019 and August 31, 2019, across the six geopolitical zones in Nigeria, namely: Northeast, Northwest, North Central, South–South, Southeast, and Southwest zones, including Lagos. A total of 464 women were interviewed. **Results**: The average age of the respondents was 37 years (range 18–59 years). About 81%–87% experienced UFS-related menstrual disorders, with 50% experiencing moderate to severe symptoms. Overall, up to 70% of the women indicated that UFS impacted their HRQoL, with the majority reporting moderate to severe impact across all domains, including concern (55.6 ± 26.6), control (54.3 ± 26.4), self-conscious (53.5 ± 27.3), energy/mood (52.1 ± 24.5), and sexual function (49.1 ± 26.4). About 75% reported improvements after myomectomy. **Conclusion**: This study revealed that a significant number of women with uterine fibroids had symptoms affecting their perceived HRQoL. Many of the respondents reported a decreased overall HRQoL with significant improvement after myomectomy. Early recourse to definitive care is therefore imperative in the quest to improve overall HRQoL, including reproductive health.

Keywords: Fibroids, quality of life, symptoms, uterus

Introduction

Uterine fibroids or leiomyomas are benign monoclonal neoplasms arising from the smooth muscle cells of the uterine myometrium. They occur in about 20%–80% of women of reproductive age and can be located in the subserosal, intramural, or submucosal layers of the uterus.[1-3] Fibroids are more common in women of African descent.[4] The exact cause of uterine fibroids is unknown, but in about 40% of women, there is a genetic association and a strong family background.[5] Fibroids are hormone-dependent, with estrogen, progesterone,

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Address for correspondence: Dr. Lateef Adekunle Akinola, Department of Obstetrics and Gynaecology, Medison Specialist Women's Hospital and Fertility Assyst Center, Lagos 105102, Nigeria.
E-mail: lakinola@fertilityassyst.com

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and growth factors, including epidermal growth factors, insulin-like growth factors, and transforming growth factor-beta, potentiating its growth.[6]

Most patients with fibroids are asymptomatic. It is, however, associated with poor health-related quality of life (HRQoL) when symptomatic.[1,2] Symptoms include abnormal menstruation, infertility, miscarriage, premature birth, and other antepartum and postpartum complications.[7,8] Treatment of symptomatic fibroids, including surgery, significantly ameliorates these negative impacts.[9-11] A study to understand the impact of UF symptoms on perceived HRQoL of women was conducted in France in 2018 and concluded that 64% of surveyed women reported a moderate to severe impact of fibroids on their quality of life and a significant impact on their perceived overall level of discomfort.[2]

This study is the first conducted to document the impact of fibroids on perceived HRQoL among women in Nigeria.

Materials and Methods

A cross-sectional and prospective study was conducted to evaluate fibroid-related symptom severity and its impact on patient's quality of life. One of the objectives was to have nationally representative information on the impact of uterine fibroids on perceived HRQoL among Nigerian women with uterine fibroids. Data was collected from the six geopolitical zones of the country using a previously verified QoL questionnaire by Spies *et al.*[1] This allowed for the assessment of multiple dimensions of QoL in symptomatic patients. The survey was divided into two sections: symptom severity from the fibroid and HRQoL, alongside six subscales of concern, activities, energy/mood, control, self-consciousness, and sexual function from women diagnosed with UF.[1,12] We also examined the impact of prior myomectomy on the improvement of QoL of women with UF. The study was conducted in one state each from the six geopolitical zones of Nigeria: Ibadan, Oyo state—Southwest zone; Orlu, Imo state—Southeast zone; Port Harcourt, Rivers state—South–South zone; Kano, Kano state—Northwest zone; Lokoja, Kogi state—North Central zone; Bauchi, Bauchi state—Northeast zone; in addition to Lagos, a major cosmopolitan city. Each section was evaluated using a 5-point Likert scale [Table 1].

Ethics

All participants signed an informed consent form before participating in the survey. Approval for the study was obtained from the health research and ethics committee of each participating institution.

Sample size

A sample size of 500 women was proposed and split across the cities selected in the six geopolitical zones during the implementation stage. The sample allocated to each city was proportionate to the population figures in the respective states. Four hundred and sixty-four questionnaires (92.8%) were completed and analyzed.

Method of data collection

The direct questionnaire method was used with each researcher directly asking the respective questions and marking the correct response in the presence of the respondent. The Likert scale was the survey tool used to evaluate the HRQoL of the women.

The first section of the UFS-QoL measures symptom severity. It uses a five-point Likert scale where "1" means "not at all severe," "2" means "a little bit severe," "3" means "somewhat severe," "4" means "much severe," and "5" means "very much severe." With eight questions in the first section, the attainable scores were between 8 and 40, and by implication, the closer the total score is to the maximum attainable score (40), the more the severity of symptoms experienced.

The second section on HRQoL, which measures the impact of symptoms on QoL, consists of twenty-nine questions with six subscales of categories which were defined by specific questions: concern (Questions 9, 15, 22, 28, and 32), activities (Questions 10, 11, 13, 19, 20, 27, and 29), energy/mood (Questions 12, 17, 23, 24, 25, 31, and 35), control (Questions 14, 16, 26, 30, and 34), self-conscious (Questions, 18, 21, and 33), and sexual function (Questions 36 and 37).

Table 1: Recategorization of Likert scale groups

UFS		Impact of UFS	
Original scale	**New scale**	**Original scale**	**New scale**
Not at all	None	None of the time	None
A little bit	Mild symptom	A little of the time	Mild impact
Somewhat	Moderate symptom	Some of the time	Moderate impact
Much	Severe symptom	Most of the time	Severe impact
Very much	Severe symptom	All the time	Severe impact

Each subscale measured different levels of emotional state as related to the impact of symptoms of uterine fibroids on the quality of life of individuals.

Just like the first section, the second section was also based on a five-point Likert scale where "1" means "none of the time," "2" means "a little of the time," "3" means "some of the time," "4" means "most of the time," and "5" means "all of the time." The number of questions in the six subscales determined the range of attainable scores.

The attainable scores of the subscale "concern" had five questions, ranging from 5 to 25. The subscale "activities" with seven questions had possible scores between 7 and 35, while the attainable scores of "energy/mood," which consisted of seven questions, were also between 7 and 35. Control, a subscale with five questions, had possible scores between 5 and 25. The subscale for "self-conscious" had three questions; this implied that the attainable scores ranged from 3 to 15, while the final subscale, "sexual function," with two questions, had possible scores between 2 and 10.

Consequently, the possible attainable scores from all the six subscales (with twenty-nine questions), which indicated HRQoL, were between 29 and 145, whereas scores closer to the maximum score, 145, indicated a higher impact on HRQoL.

Data analysis

Data was entered into an Excel spreadsheet and analyzed using Excel Analyze-it® statistical software (Analyse-it Software, Ltd., Leeds, United Kingdom). Uterine fibroid symptoms (UFSs) and the impact of UFS on HRQoL were recategorized [Table 1] before analysis. Likert scale responses were converted into median values for analysis and interpretation of data. The level of statistical significance was set at 0.05.

Results

Demographics

The response rate was 92.8%. The women were aged 18–59 years (mean = 37 years), with age distribution in years as 4.5% (18–24), 34.3% (25–34), 48.3% (3–44), and 12.9% (45–59) as detailed in Table 2.

The locations of the 464 women surveyed are shown in Table 2: South–South (21.98%, n = 102/464), Lagos (20.04%, n = 93/464), Southwest (15.08%, n = 70/464), Northwest (14.65%, n = 68/464), Northeast (12.07%, n = 56/464), North Central (9.70%, n = 45/464), and Southeast (6.47%, n = 30/464)

Two hundred and seventy women (58.2%) had no children at the time of the survey, whereas 345 (74.4%) were married. Of 437 women who provided their social class, 321 (73.5%) were in the middle class, 90 (20.6%) lower class, and 26 (5.9%) upper class.

Table 2: Location and age of 464 women with fibroids

Age (years)	Lagos	North Central (Lokoja)	Northeast (Bauchi)	Northwest (Kano)	Southeast (Orlu)	South (Port Harcourt)	Southwest (Ibadan)	Total	Percentage (%)
18–24	6	3	0	7	0	0	5	21	4.5
25–34	35	14	21	34	7	24	24	159	34.3
35–44	40	22	24	21	20	64	33	224	48.3
45–59	12	6	11	6	3	14	8	60	12.9
Total	93	45	56	68	30	102	70	464	100.0

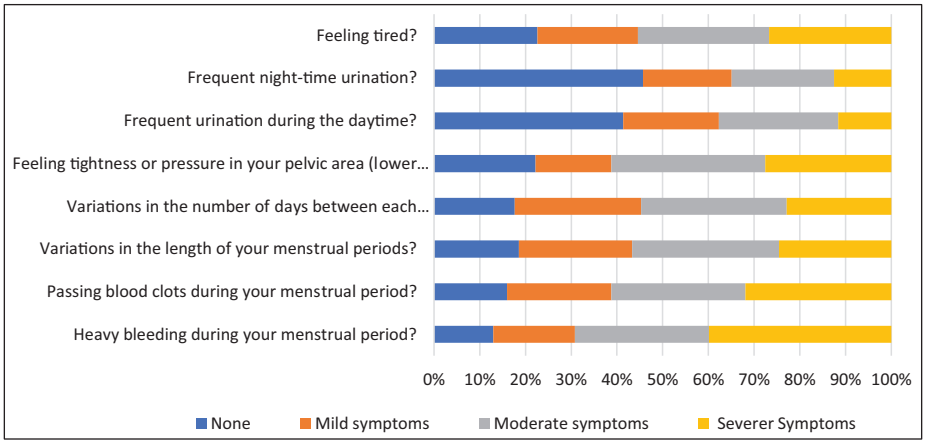


Figure 1: Breakdown of symptom severity experienced among 464 women with uterine fibroids

Table 3: Presence of UFSs among 464 women with uterine fibroids (n = 464)

Symptoms experienced in last 3 months	No symptoms (%)	Symptoms (%)
Heavy bleeding during your menstrual period?	13	87
Passing blood clots during your menstrual period?	16	84
Variations in the length of your menstrual periods?	19	81
Variations in the number of days between each menstrual period?	18	82
Feeling tightness or pressure in your pelvic area (lower part of the belly)?	22	78
Frequent urination during the daytime?	41	59
Frequent night-time urination?	46	54
Feeling tired?	23	77

Table 4: Global impact of UFS on HRQoL among 464 women with uterine fibroids

Symptoms experienced in last 3 months	No impact (%)	Mild impact (%)	Moderate-severe impact (%)
Concern	22	21	57
Self-consciousness	26	20	54
Energy/mood	23	25	52
Sexual function	31	21	48
Activities	27	21	52
Control	21	21	58

Symptom severity among women with uterine fibroids

Overall, 81%–87% of the women experienced UFS-related menstrual disorders, with about 50% observing moderate to severe symptoms [Figure 1]. More than 50% of the women experienced symptoms related to urination [Table 3]. Furthermore, more than 50% of the women expressed moderate to severe feelings of tiredness, whereas about 78% of the women felt pressure or tightness in the pelvic area [Figure 1].

Impact of symptoms severity on HRQoL

Overall, up to 70% of the women (median) indicated that UFS impacted their HRQoL, with the majority reporting moderate-severe impact across all domains [Table 4 and Figure 2].

Concern

One-half or more of the women indicated a moderate to severe impact on concerns related to menstruation and soiling. The most severe impacts were on inconvenience by always carrying extra sanitary materials and concern about soiling the underwear.

Self-consciousness

Over 50% of the women reported a moderate-severe impact on perceptions about their self-consciousness. The most severe impact was on feelings about the size and appearance of their "stomach" (62%) and not being in control of their health (58%).

Energy and mood

Most of the women (52%) indicated a moderate to severe impact on feelings related to low energy and mood changes. Irritability (59%), tiredness (56%), and weakness (54%) were the most severely impacted.

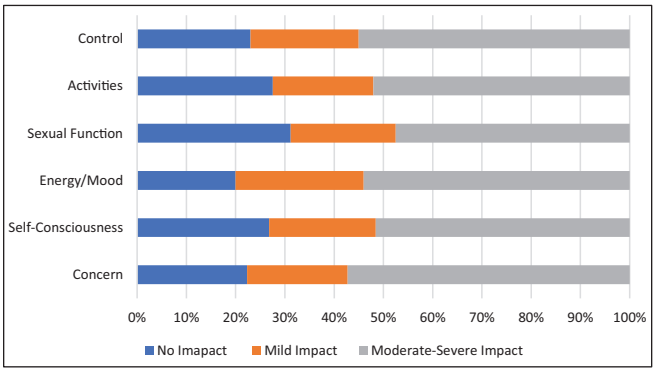


Figure 2: Global impact of UFS on HRQoL among 464 women with uterine fibroids

Sexual function

The impact on sexual functions among the women was moderate to severe in 48% [Table 5].

Activities

Most of the women indicated a moderate-severe impact across all the perceptions related to day-to-day activities surveyed. The most severe impacts were planning activities (63%) and interference with physical activities (55%).

Control

More than 50% of the women indicated a moderate-severe impact on their ability to control their lives. The most impacted feelings were worries about health (71%) and not being in control of their health (58%).

Table 5: Impact of UFS on sexual function among 464 women with uterine fibroids

Sexual function	No impact (%)	Mild impact (%)	Moderate-severe impact (%)
Decreased your sex drive?	29	23	48
Caused you to avoid sexual relations?	32	20	48

The number of women who had previous fibroid surgery

Overall, 115 (24.8%) of the women had a previous fibroid surgery, and 75 (65.2%) of them were aged 35–44 years.

Previous fibroid surgery and improved quality of health

One hundred and thirty-two women responded to the question about improvements in general health following fibroid surgery. Of these, 93 (70.5%) indicated that the surgery had improved their general health. Age, location, marital status, and type of fibroid had no significant impact ($P > 0.05$) on perceived improvement in general health following fibroid surgery.

Discussion

Our study, a foremost attempt at assessing fibroid impact on symptom severity and perceived HRQoL in Nigerian women, has a strength that lies in its national spread, confirmation of diagnosis by the interviewing gynecologist, from physical examination and pelvic ultrasound scan reports. From our study, the most prevalent age of the respondents with UF was 35–44 years, and the age range was 18–59 years with a mean of 37 years. These findings were similar to the prevalence rates reported in several studies in selected Nigerian communities.[13-16]

Overall, our study revealed that about 81%–87% of our respondents experienced UFS-related menstrual disorders, with about 50% experiencing moderate to severe symptoms. In comparison, a 2011 study found that the common presenting complaints in women with fibroids in Southwestern Nigeria were menstrual irregularities (47.7%), abdominal swelling (39.1%), and infertility (31.9%).[17] Another study in Nnewi, SouthEast of Nigeria, reported the commonest presenting complaints as lower abdominal mass in 67.7%, menorrhagia in 41.7%, and infertility in 30.1%.[14] In that study, many of the patients presented with more than one symptom. We also found from our study that about 75% of the surveyed women reported moderate to very severe fibroid-related symptoms, with the majority UFS-related to menstrual disorders. More than 50% of the interviewed women experienced symptoms related to frequent urination [Table 3] and severe feelings of tiredness, pressure, or tightness in the pelvic area [Figure 1].

Most women diagnosed with uterine fibroids are asymptomatic.[18] However, when UF becomes symptomatic, it often has a significant negative impact on HRQoL.[1] Several studies have reported that women with UF present with significant morbidity, impacting their QoL negatively.[12,19] The more severe the symptoms, the worse the negative impact on the HRQoL.[1] Zimmermann *et al.*[20] interviewed 21,479 women across eight countries and found that 53.7% of those with fibroids reported a negative impact of the fibroid on their lives in the previous 12 months, while their sexual life, performance at work, and relationship and family life were negatively impacted in 42.9%, 27.7%, and 27.2%, respectively. Koga *et al.*[21] in Japan noted that uterine fibroids had a significant impact on both the physical and psychological well-being of women with uterine fibroids and identified anemia as a possible predictor of reduced QoL.

Our study also revealed that the global HRQoL score assessment indicated that, on average, 75% (n = 348/464) of women reported a moderate to severe negative effect of UF on their QoL as shown in Table 4. Concern was the area that most impacted women's lives with the worst HRQoL score, with 57% (n = 264/464) reporting moderate to significant impact on their QoL. A total of 78% of the respondents felt that their inability to predict when their menstruation would start made it difficult to plan their activities and life events. Furthermore, more than half of the women interviewed were disturbed (some, most, or all the time) by fear of underwear soiling, bedsheet/linen soiling, inconvenience, and soiling of outer clothes.

Control was the second item that most impacted women's lives. About 55% of the women interviewed reported problems related to less control of life, feeling less productive, worrying about health concerns, future uncertainty, and less control of their health (some, most, or all the time). Problems related to feelings of guilt, being self-conscious of weight gain, appearance, abdominal swelling, and size of cloth worn were also issues affecting the QoL of women with fibroids. About 52% of the women interviewed reported tiredness, drowsiness during the day, being downcast, downhearted, fatigued, irritable, and associated weak energy.

About 51% of the women interviewed felt their energy/mood and activities were adversely impacted by the severity of UF symptoms they experienced. These women reported anxiety, interference with physical and social activities, reduced exercise, sluggishness, consciousness in planning activities, and embarrassment. The "sexual function" item had the least impact on women's perceived HRQoL score. About 46% of the women reported decreased sex drive and avoidance of sexual relations (some, most, or all the time) due to the severity of UF symptoms they experienced [Table 5]. This may invariably be a contributory factor to the infertility observed among

Table 6: Previous myomectomy per age groups

Fibroid surgery	18–24 years	25–34 years	35–44 years	45–59 years	Total (%)
Yes (%)	2 (9.5)	22 (13.8)	75 (33.5)	16 (26.7)	115 (24.8)
No (%)	19 (90.5)	137 (86.2)	149 (66.5)	44 (73.3)	349 (75.2)
Total (%)	21 (4.5)	159 (34.3)	224 (48.3)	60 (12.9)	464 (100)

patients with uterine fibroids. About 24.8% (n = 132/464) of the women had undergone myomectomy in the past, 65.2% (n = 75/464) of whom were aged 35–44 years. Of these women, 70.5% (n = 93/132) experienced improved general health after the surgery, whereas the remaining 29.5% did not experience any improvement. Myomectomy has been demonstrated to improve the QoL of women who experienced symptomatic uterine fibroids,[22] and our findings, like previous studies, confirmed the benefits of myomectomy on symptom improvement and overall benefit on HRQoL. However, in this study, age, location, marital status, and type of fibroid had no significant impact ($P > 0.05$) on perceived improvement in general health following fibroid surgery as depicted in Table 6.

Conclusion

Our study revealed that most women surveyed reported a moderate to significant impact of uterine fibroids on their QoL. This included a wide domain involving concern, activity, sexual function, energy, and control. A significant proportion of these women reported improvements in their HRQoL after myomectomy. This underscores the importance of timely intervention in the management of uterine fibroids which invariably left unattended may become debilitating. Enhancing reproductive health services across the country through the expansion of health insurance services cannot be over-emphasized in a developing country.

Author contributions

All authors contributed substantially to this manuscript. All authors read and approved the final manuscript.

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Conflict of interest

There are no conflicts of interest.

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