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Perception of Health Workers on Risk Factors associated with Development of Uterine Fibroids in Ilorin Metropolis, Kwara State, Nigeria

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Abstract

Uterine fibroids are benign growths of the uterus that can cause a swollen abdomen, pelvic pain, and other uncomfortable symptoms. Understanding the factors that predispose women to fibroids is therefore important for reducing their incidence. This study examined the risk factors associated with the development of fibroids as perceived by health workers in selected health facilities in Ilorin Metropolis. Specifically, the study investigated whether (i) obesity, (ii) family history, and (iii) lifestyle are perceived as risk factors of uterine fibroids among health workers in health facilities in Ilorin Metropolis. A descriptive survey research design was adopted. The population comprised health workers in selected health facilities across Ilorin West and Ilorin South Local Government Areas of Ilorin Metropolis. A multi stage approached was use to select a total sample of 215 respondents. A researcher-developed questionnaire, validated by experts and tested for reliability using the test retest method, was used for data collection; a Cronbach's alpha coefficient of 0.77 was obtained. The questionnaire was administered by the researcher with the assistance of two research assistants. Demographic data were analysed using frequency counts and percentages, while the Chi-square test was used to test the study hypotheses at the 0.05 alpha level. The findings revealed that: Obesity is significantly perceived as a risk factor of uterine fibroids, as the calculated Chi-square value of 314.69 is greater than the critical value of 21.03 ($df = 12$, $\alpha = 0.05$). Family history is significantly perceived as a risk factor of uterine fibroids, as the calculated Chi-square value of 198.15 is greater than the critical value of 16.92 ($df = 9$, $\alpha = 0.05$). Lifestyle is significantly perceived as a risk factor of uterine fibroids, as the calculated Chi-square value of 129.54 is greater than the critical value of 21.03 ($df = 12$, $\alpha = 0.05$). Based on these findings, it was concluded that obesity, family history, and lifestyle are significantly perceived as risk factors of uterine fibroids by health workers in health facilities in Ilorin Metropolis. It was recommended that public health educators organise targeted community education and awareness programmes that promote healthy eating, physical activity, and weight management, in order to reduce obesity rates and the associated risk of fibroid development among women in Ilorin Metropolis.

Keywords: uterine fibroids, risk factors, obesity, family history, lifestyle and health workers

Introduction

Uterine fibroids, also known as uterine leiomyomas, are the most common benign neoplasms affecting women. They are typically composed of disordered fascicles of smooth-muscle cells, vascular smooth-muscle cells, fibroblasts, leiomyoma-associated fibroblasts, and an excess of acellular extracellular matrix. Fibroids tend to be multiple and may develop in any part of the uterus, although they occur most commonly in the muscular wall of the uterus (the myometrium). Several epidemiological risk factors have been associated with uterine leiomyomas, including advanced age, race, age at menarche, low parity or nulliparity, family history, obesity, diet, physical activity, smoking, use of oral contraceptives, hormone

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replacement therapy, environmental exposure to elevated oestrogen and progesterone levels, and vitamin D deficiency (Arnett, 2019). Ferri (2017) found that an early age at menarche is associated with a higher risk of uterine leiomyomas, whereas multiparity is linearly associated with a reduced risk; the risk reduction among multiparous women, relative to nulliparous women, ranges from about 20% to 50%. Overweight and obesity are independent risk factors for uterine leiomyomas. Most studies have found low serum vitamin D levels to be associated with an increased risk of uterine leiomyomas, although a few reports no effect, and the association appears stronger among Black women than White women. Exposure to sunlight for more than an hour a day has similarly been associated with a reduced risk. Smoking has been associated with a reduced risk of uterine leiomyomas, particularly among women with a low body mass index (BMI), and most studies report an inverse relationship between regular physical activity and fibroid risk. The use of oral and injectable contraceptives has generally been associated with a reduced risk, although a few studies report an increased or negligible effect, while hormone replacement therapy or exposure to exogenous hormones particularly among postmenopausal women has been associated with an increased risk in some studies (Kashani et al., 2018).

Fibroids pose a significant threat to women's reproductive health and can complicate childbirth. During surgery, uterine fibroids may adhere to adjacent organs or tissues, forming what is referred to as a 'parasitic fibroid'. The World Health Organization (2022) reports that between 20% and 80% of women develop fibroids by age 50, with the condition being most common among women in their forties and early fifties. Not all women with fibroids experience symptoms, but those who do often find them difficult to live with, including pelvic pain and heavy menstrual bleeding. Fibroids can also exert pressure on the bladder, causing frequent urination, or on the rectum, causing rectal pressure; when very large, they can cause the abdomen to enlarge, giving the appearance of pregnancy (MedlinePlus, 2018). Fibroids often produce recurring clinical symptoms and, in some cases, can grow to fill the uterine cavity entirely and extend through the cervical canal into the vagina, a presentation referred to as a 'nascent fibroid'. Most women with fibroids are asymptomatic, while others experience painful or heavy menstrual flow; large fibroids may push on the bladder, causing a frequent urge to urinate, and may cause pain during intercourse or lower back pain (Awiwi et al., 2022). Occasionally, though uncommonly, fibroids can make conception more difficult. The exact cause of uterine fibroids remains unclear; however, they tend to run in families and appear to be partly influenced by hormone levels. Reported risk factors include obesity and high consumption of red meat (Wallach & Vlahos, 2018). The epidemiology of uterine fibroids is multifactorial, with reported risk factors including age, family history, obesity, reproductive characteristics, and hormonal influences. Obesity a condition in which excess body fat accumulates to an extent that negatively affects health is a growing concern among women managing a fibroid diagnosis, and weight gain is a common secondary issue in their care (Baird & Dunson, 2018). While there is no direct evidence linking fibroid symptoms to weight gain, larger fibroids add to uterine weight and cause the uterus to expand; the resulting abdominal swelling can create the visual impression of weight gain. Individuals are classified as obese when their BMI weight in kilograms divided by the square of height in metres exceeds 30 kg/m², while a BMI of 25–30 kg/m² is classified as overweight (with some East Asian countries applying lower cut-off values). Obesity is a major contributor to disability and is associated with cardiovascular disease, type 2 diabetes, obstructive sleep apnoea, certain cancers, and osteoarthritis (Duron, 2017). Its causes are individual, socioeconomic, and environmental, including diet, physical inactivity, automation, economic policy, endocrine disorders, and exposure to endocrine-disrupting chemicals; while many obese individuals succeed in losing weight in the short term, maintaining that loss over the long term is comparatively rare (Pischon, 2018).

A family history of fibroids may increase a woman's risk of developing the condition. Some clinical studies suggest that defects in particular genes may contribute to fibroid growth, although further research is needed to confirm a causal relationship between heredity and fibroids. Existing evidence suggests that women with one or more close relatives who have had fibroids particularly a mother or sister are more likely to develop fibroids themselves. Although fibroids are generally non-cancerous, they can cause symptoms such as heavy menstrual bleeding, pelvic pain, and fertility difficulties. While medical and surgical treatment remain the primary management options, lifestyle and dietary factors are also thought to influence symptom severity and possibly fibroid growth. Lifestyle choices before and during pregnancy including

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alcohol consumption, cigarette smoking, illicit drug use, certain medications, strenuous physical activity, high caffeine intake, and diets that promote weight gain have been associated with an increased likelihood of fibroid development (Warland et al., 2019). Evidence from sub-Saharan Africa on this subject remains relatively limited. A systematic scoping review of uterine fibroid epidemiology among Black African women found a shortage of robust epidemiological studies on the incidence, prevalence, and risk factors of fibroids, and highlighted the need for further research within African settings. Against this background, the present study assessed the perceived risk factors associated with uterine fibroids among health workers in selected health facilities in Ilorin Metropolis, Kwara State, Nigeria, focusing on three factors: obesity, family history, and lifestyle.

Statement of the Problem

Allowing fibroids to grow unchecked can adversely affect fertility and increase the likelihood of complications such as miscarriage. Delaying surgical removal also tends to make eventual surgery more complex, further reducing fertility prospects. Although uterine fibroids are usually not life-threatening, they can cause discomfort and complications such as anaemia a drop in red blood cells resulting in fatigue from heavy blood loss and, in rare cases, may require a blood transfusion. When present during pregnancy, fibroids can occasionally affect fetal development or complicate labour. Women with fibroids may experience abdominal pain during pregnancy and face an increased risk of preterm labour. Where large fibroids obstruct the vagina, a caesarean section may become necessary, and in rare cases fibroids can contribute to miscarriage. The severity of complications generally depends on the size, number, and location of the fibroids, which can give rise to both acute and long-term complications. Uterine fibroids are benign growths that occur in or around the uterus, affecting as many as 80% of women by age 50 (Moroni et al., 2019). They can cause heavy bleeding, pelvic pain, and abdominal pressure, and, if left untreated, may in some cases become life-threatening. Heavy bleeding associated with fibroids is a common cause of anaemia, and fibroids that develop within the uterine muscle can obstruct the fallopian tubes, impede conception, restrict fetal growth, and, in severe cases, necessitate preterm delivery. Against this background, this study examined the risk factors associated with the development of uterine fibroids as perceived by health workers in selected health facilities in Ilorin Metropolis.

Research Questions

The following research questions guided the study:

1. What is the perceived association between obesity and uterine fibroids among health workers in selected health facilities in Ilorin Metropolis?
2. What is the perceived association between family history and uterine fibroids among health workers in selected health facilities in Ilorin Metropolis?
3. What is the perceived association between lifestyle and uterine fibroids among health workers in selected health facilities in Ilorin Metropolis?

Research Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

H_{01}: There is no significant perceived association between obesity and uterine fibroids among health workers in selected health facilities in Ilorin Metropolis.

H_{02}: There is no significant perceived association between family history and uterine fibroids among health workers in selected health facilities in Ilorin Metropolis.

H_{03}: There is no significant perceived association between lifestyle and uterine fibroids among health workers in selected health facilities in Ilorin Metropolis.

Research Methodology

Research Design

A descriptive cross-sectional survey design was adopted. The study was conducted among health workers in selected health facilities in Ilorin Metropolis, Kwara State, Nigeria. Ilorin Metropolis comprises Ilorin West, Ilorin East, and Ilorin South Local Government Areas; Ilorin West and Ilorin South were selected for this study.

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Population and Sample

The accessible population across the selected facilities was 7,134 health workers. A proportionate allocation of 3% was applied to each facility's population, with facility-level allocations rounded to the nearest whole number, yielding a total sample of 215 respondents, as shown in Table 1.

No.	Health Facility	Population	3% Allocation	Sample
1	Community Health Centre	520	15.6	16
2	Avon Healthcare Olarewaju Hospital	637	19.1	19
3	Ayodele Medical Centre	1413	42.4	42
4	Slimfit	250	7.5	8
5	Federal Staff Clinic	690	20.7	21
6	General Hospital	1730	51.9	52
7	Whitewood Hospital	1894	56.8	57
	Total	7134	214.0	215

Sampling Procedure

A multistage sampling procedure was used. Health facilities were first selected through a stratified approach. The multistage sampling procedure was employed thus: a Stratified sampling technique was used to select seven (7) hospital in Ilorin metropolis. This includes Community Health Centre, Avon Healthcare Olarewaju Hospital, Ayodele Medical Centre, Slimfit, Federal Staff Clinic, General Hospital and Whitewood Hospital. Proportionate sampling was used to select 3% of the population. as shown in Table 1.

Instrument

Data were collected using a researcher-developed questionnaire titled 'Perceived Risk Factors Associated with Uterine Fibroids among Health Workers in Selected Health Facilities in Ilorin Metropolis.' The questionnaire comprised two sections: Section 'A' collected demographic information, while Section B assessed perceptions of obesity, family history, and lifestyle as risk factors of uterine fibroids, using a four-point Likert scale (Strongly Agree, Agree, Disagree, Strongly Disagree).

Validity and Reliability

The draft questionnaire was reviewed by three experts in the Department of Health Promotion and Environmental Health Education, Faculty of Education, University of Ilorin, and their comments were incorporated into the final instrument. Reliability was assessed using the test–retest method and Cronbach's alpha, yielding a coefficient of 0.77, indicating an acceptable level of internal consistency.

Data Collection

An introductory letter was obtained from the Department of Health Promotion and Environmental Health Education, University of Ilorin to get access to the respondents. The questionnaire was administered by the researcher with the assistance of two trained research assistants.

Data Analysis

Data were coded and analysed using IBM SPSS Statistics. Frequencies and percentages were used to summarise demographic characteristics and questionnaire responses, while the Chi-square test was used to test the three null hypotheses at the 0.05 alpha level. Because the study measured perceptions rather than clinically confirmed exposure and disease status, the inferential findings should be interpreted as statistically significant response patterns rather than as proof that the investigated factors cause uterine fibroids.

Presentation of Results

Respondents' Characteristics

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Characteristic	Category	n	%
Age	18–22 years	35	16.3
	23–27 years	101	47.0
	28–32 years	58	27.0
	33 years and above	21	9.8
Religion	Islam	127	59.1
	Christianity	88	40.9
Professional category	Nurse	53	24.7
	Midwife	72	33.5
	Laboratory assistant	34	15.8
	Laboratory attendant	26	12.1
	Medical doctor	14	6.5
	Other	16	7.4
Sex	Female	158	73.5
	Male	57	26.5
Marital status	Single	80	37.2
	Married	105	48.8
	Divorced	12	5.6
	Separated	18	8.4

Table 2: Distribution of respondents' demographic characteristics

The respondents were predominantly aged 23–27 years (47.0%). Females constituted 73.5% of the sample, while males constituted 26.5%. Muslims accounted for 59.1% of respondents and Christians for 40.9%. Midwives were the largest professional group (33.5%), followed by nurses (24.7%). Nearly half of the respondents were married (48.8%), while 37.2% were single.

Answers to Research Questions

Research Question 1: Is obesity perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis?

S/N	Item	SA	A	Positive Response	D	SD	Negative Response
1	Body mass index above normal body weight can lead to uterine fibroids	74 (34.4%)	88 (40.9%)	162 (74.4%)	40 (18.6%)	13 (6.0%)	53 (25.6%)
2	Fat cells produce more oestrogen, and a higher oestrogen level can promote fibroid growth	67 (31.2%)	122 (56.7%)	189 (88.0%)	13 (6.0%)	13 (6.0%)	26 (12.0%)
3	Fibroids are 2–3 times more prevalent in women with obesity	88 (40.9%)	98 (45.6%)	186 (86.5%)	19 (8.8%)	10 (4.7%)	29 (13.5%)
4	Obesity is a risk factor for fibroids	80 (37.2%)	103 (47.9%)	183 (85.1%)	17 (7.9%)	15 (7.0%)	32 (14.9%)

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S/N	Item	SA	A	Positive Response	D	SD	Negative Response
5	Excess weight can increase oestrogen production, which contributes to fibroid growth	78 (36.3%)	91 (42.3%)	169 (78.7%)	13 (6.0%)	33 (15.3%)	46 (21.3%)
	Overall			178 (82.6%)			37 (17.4%)

Table 3: Mean analysis of obesity as a risk factor of fibroid

Table 3 shows that 178 respondents (82.6%) gave a positive response, compared with 37 respondents (17.4%) who gave a negative response. This indicates that obesity is perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis.

Research Question 2: Is family history perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis?

S/N	Item	SA	A	Positive Response	D	SD	Negative Response
1	Patients with a family history of fibroids are likely to develop fibroids	115 (53.5%)	50 (23.3%)	165 (76.7%)	23 (10.7%)	27 (12.6%)	50 (23.3%)
2	Maternal history of fibroids is associated with a high risk of development in women	89 (41.4%)	84 (39.1%)	173 (80.5%)	6 (2.8%)	36 (16.7%)	42 (19.5%)
3	Family history combined with prolonged exposure to female sex hormones may increase fibroid risk	97 (45.1%)	68 (31.6%)	165 (76.7%)	24 (11.2%)	26 (12.1%)	50 (23.3%)
4	Family history is a risk factor for uterine fibroids	63 (29.3%)	97 (45.1%)	160 (74.5%)	13 (6.0%)	42 (19.5%)	55 (25.5%)
	Overall			166 (77.2%)			49 (22.8%)

Table 4: Mean analysis of family history as a risk factor of fibroid

Table 4 shows that 166 respondents (77.2%) gave a positive response, compared with 49 respondents (22.8%) who gave a negative response. This indicates that family history is perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis.

Research Question 3: Is lifestyle perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis?

S/N	Item	SA	A	Positive Response	D	SD	Negative Response
1	Poor engagement in exercise triggers fibroid growth in women	53 (24.7%)	70 (32.6%)	123 (57.2%)	73 (34.0%)	19 (8.8%)	92 (42.8%)
2	Excessive smoking can lead to fibroids	76 (35.3%)	91 (42.3%)	167 (77.6%)	30 (14.0%)	18 (8.4%)	48 (22.4%)
3	Stress is a cause of fibroids	62 (28.8%)	92 (42.8%)	154 (71.6%)	54 (25.1%)	7 (3.3%)	61 (28.4%)
4	Poor dietary intake can result in fibroids	59 (27.4%)	111 (51.6%)	170 (79.1%)	32 (14.9%)	13 (6.0%)	45 (20.9%)
5	Excessive alcohol intake among women can result in fibroids	57 (26.5%)	112 (52.1%)	169 (78.6%)	10 (4.7%)	36 (16.7%)	46 (21.4%)
	Overall			157 (73.0%)			58 (27.0%)

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Table 5: Mean analysis of lifestyle as a risk factor of fibroid

Table 5 shows that 157 respondents (73.0%) gave a positive response, compared with 58 respondents (27.0%) who gave a negative response. This indicates that lifestyle is perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis.

Testing of Hypotheses

Hypothesis	χ^2(calc)	df	Critical χ^2 (α = .05)	p-value	Decision
H01: Obesity	314.69	12	21.03	< .001	Reject H01
H02: Family history	198.15	9	16.92	< .001	Reject H02
H03: Lifestyle	129.54	12	21.03	< .001	Reject H03

Table 6: Summary of Chi-square test of hypotheses

Table 6 shows that the Chi-square results indicate statistically significant differences in the response distributions for all three domains tested. Accordingly, all three null hypotheses were rejected at the 0.05 significance level, indicating that obesity, family history, and lifestyle are each significantly perceived as risk factors of uterine fibroids by health workers in health facilities in Ilorin Metropolis.

Discussion of Findings

The data presented and analysed relate to the risk factors associated with the development of uterine fibroids as perceived by health workers in health facilities in Ilorin Metropolis. Three hypotheses were tested in the course of the study, and the findings are discussed below.

Hypothesis one, which stated that obesity would not significantly be perceived as a risk factor of uterine fibroids, was rejected, as the calculated Chi-square value of 314.69 is greater than the critical value of 21.03. This indicates that obesity is significantly perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis. This is consistent with respondents' views that fat cells produce more oestrogen, that higher oestrogen levels can promote fibroid growth, that fibroids are more prevalent among women with obesity, and that excess weight contributes to increased oestrogen production and fibroid growth. This finding is consistent with the study of Tate (2018), which identified obesity as a significant risk factor for fibroids, particularly among African American women and women of childbearing age. Similarly, Pischon (2018) reported that obesity increases the risk of various health conditions, including reproductive issues, and highlighted the role of BMI and diet in influencing reproductive health.

Hypothesis two, which stated that family history would not significantly be perceived as a risk factor of uterine fibroids, was rejected, as the calculated Chi-square value of 198.15 is greater than the critical value of 16.92. This indicates that family history is significantly perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis. This implies that patients with a family history of fibroids are perceived to be more likely to develop them, that maternal history of fibroids is perceived as carrying a high risk, and that family history combined with prolonged hormone exposure is perceived to increase risk. This finding aligns with the study of Alberts (2018), which indicated that women with a family history of fibroids particularly through their mothers or sisters are at higher risk of developing the condition themselves. Similarly, Poczai (2022) discussed the genetic aspects of trait inheritance, noting that certain gene variants can increase the risk of conditions such as fibroids.

Hypothesis three, which stated that lifestyle would not significantly be perceived as a risk factor of uterine fibroids, was rejected, as the calculated Chi-square value of 129.54 is greater than the critical value of 21.03. This indicates that lifestyle is significantly perceived as a risk factor of uterine fibroids by health workers in health facilities in Ilorin Metropolis. This implies that poor engagement in exercise, excessive smoking, stress, poor dietary intake, and excessive alcohol consumption are all perceived to contribute to fibroid development. This finding is consistent with Warland et al. (2019), who highlighted that lifestyle factors including smoking, alcohol consumption, and diet are associated with fibroid risk,

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and with Lange et al. (2017), who discussed the impact of prenatal alcohol exposure on health outcomes, indirectly linking lifestyle choices to reproductive health concerns such as fibroids.

Limitations

The cross-sectional design does not establish a temporal or causal relationship between the perceived factors and uterine fibroids. In addition, the study assessed health workers' perceptions rather than clinically confirmed fibroid cases and objectively measured risk factors; findings should therefore be interpreted as reflecting perceived associations rather than confirmed causal relationships.

Conclusion

Based on the findings of the study, the following conclusions were drawn:

1. Obesity is significantly perceived as a risk factor of uterine fibroids among health workers in health facilities in Ilorin Metropolis.
2. Family history is significantly perceived as a risk factor of uterine fibroids among health workers in health facilities in Ilorin Metropolis.
3. Lifestyle is significantly perceived as a risk factor of uterine fibroids among health workers in health facilities in Ilorin Metropolis.

Recommendations

1. Public health educators should organize targeted community education and awareness programmes that promote healthy eating, physical activity, and weight management, in order to reduce obesity rates and the associated risk of fibroid development among women in Ilorin Metropolis.
2. Healthcare providers should encourage the inclusion of family medical history assessments during gynecological consultations to identify women at higher risk of developing fibroids.
3. Community health workers should develop lifestyle intervention programmes that educate women on the risks associated with smoking, alcohol consumption, poor diet, and sedentary behaviour, emphasizing their potential contribution to fibroid development and other reproductive health concerns.

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