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Awareness and Prevalence of Endometriosis among Women with Fertility Challenges attending Gynaecology Clinic in a Tertiary Hospital in Nigeria

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ABSTRACT

Background: Endometriosis is a chronic gynecological condition with significant implications for fertility and quality of life. This study investigates the awareness and prevalence of endometriosis among women with fertility challenges attending the gynaecology clinic of a tertiary hospital in southeast Nigeria.

Methods: A descriptive cross-sectional study was conducted on 421 women aged 18–49 years presenting with fertility challenges. Participants were systematically sampled and completed a structured questionnaire assessing sociodemographic characteristics, awareness, and symptomatology of endometriosis. Clinical records were reviewed to confirm diagnoses. Data were analyzed using SPSS version 26.0, with descriptive statistics summarizing key findings.

Results: The mean age of participants was 31.2 years (SD ± 5.4). Awareness of endometriosis was moderate (57.24%), with healthcare providers being the primary source of information (68.46%). Despite this, only 16.86% knew its etiology, and 19.48% recognized its symptoms. The prevalence of endometriosis was 24.47%, with stages II (43.70%) and I (25.24%) being most common. Symptoms such as dysmenorrhea (33.66%) and pelvic pain (27.72%) were prevalent, significantly impacting daily life in 22.80% of participants. Primary infertility was more common (79.57%), and 50.12% reported being informed by healthcare providers about the potential impact of endometriosis on fertility.

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Conclusion: Awareness of endometriosis among women with fertility challenges remains suboptimal, despite a notable prevalence rate. Efforts should focus on improving education about endometriosis and enhancing early diagnostic capabilities in clinical settings.

Keywords: Endometriosis, Fertility Challenges, Awareness, Prevalence, Dysmenorrhea.

INTRODUCTION

Endometriosis is a chronic gynecological condition characterized by the presence of endometrial-like tissue outside the uterus, causing inflammation, pain, and infertility in affected individuals. Globally, endometriosis affects approximately 10% of women of reproductive age, with prevalence estimates varying based on population demographics and diagnostic criteria [1]. Among women experiencing infertility, endometriosis prevalence rates are significantly higher, ranging between 20–50%[2]. Despite its high prevalence, endometriosis remains underdiagnosed and undertreated in many low- and middle-income countries, including Nigeria, due to a lack of awareness, cultural stigmas, and limited access to specialized healthcare [3].

In Nigeria, infertility is a major reproductive health issue, with a prevalence of approximately 25% among couples, and it is often a source of social and psychological distress [4]. Endometriosis, as a significant contributor to infertility, has garnered increasing attention in clinical research due to its multifaceted impact on women's health and quality of life. Studies have identified several risk factors for endometriosis, including delayed diagnosis, genetic predisposition, hormonal imbalances, and environmental factors such as exposure to endocrine-disrupting chemicals [5]. However, the awareness of endometriosis among women and healthcare professionals in Nigeria remains low, contributing to delayed diagnosis and inadequate management of the condition [6].

The pathophysiology of endometriosis involves complex interactions between genetic, hormonal, and immune factors. Retrograde menstruation, one of the most widely accepted theories, postulates that menstrual blood containing endometrial cells flows backward through the fallopian tubes into the pelvic cavity, leading to ectopic implantation [7]. However, this theory alone does not fully explain the variability in disease severity and symptomatology, suggesting a multifactorial etiology. The clinical presentation of endometriosis varies widely, ranging from asymptomatic cases to severe pelvic pain, dysmenorrhea, dyspareunia, and infertility [8].

The lack of awareness and limited knowledge about endometriosis among women and healthcare providers in Nigeria contribute to delayed diagnosis, with an average diagnostic delay of 7–10 years globally [9]. In low-resource settings, this delay is exacerbated by inadequate diagnostic facilities and the scarcity of trained specialists. Consequently, many women endure years of debilitating symptoms before receiving an accurate diagnosis and appropriate treatment [10].

Efforts to improve awareness and early detection of endometriosis are crucial for mitigating its impact on fertility and overall health. Public health campaigns, educational programs, and capacity building for healthcare providers are essential strategies for addressing the knowledge gap in Nigeria. Moreover, the integration of minimally invasive diagnostic tools, such as laparoscopy, into routine gynecological care can enhance the detection and management of endometriosis [11].

This study aims to evaluate the awareness and prevalence of endometriosis among women with fertility challenges attending a gynecology clinic in a tertiary hospital in Nigeria. By assessing the level of knowledge and the burden of endometriosis in this population, the findings will provide insights into the need for targeted interventions and policy reforms to improve reproductive health outcomes in Nigeria.

MATERIALS AND METHODS

Study Design

This research employed a descriptive cross-sectional study design to assess the awareness and prevalence of endometriosis among women with fertility challenges attending the gynecology clinic of a tertiary hospital in Nigeria. The study collected quantitative and qualitative data to explore participants' knowledge of endometriosis, its associated symptoms, and prevalence rates in the study population.

Study Area

The study was conducted in the gynecology clinic of a Tertiary Hospital in southeast Nigeria. This hospital was chosen due to its high volume of patients with fertility issues, availability of experienced medical personnel, and advanced diagnostic facilities for gynecological disorders.

Study Population

The study population included women of reproductive age (18–49 years) presenting with fertility challenges and attending the gynecology clinic. Fertility challenges were defined as the inability to conceive after 12 months of regular, unprotected sexual intercourse. Participants were recruited based on the following inclusion and exclusion criteria:

Inclusion Criteria:

1. Women aged 18–49 years diagnosed or suspected of having fertility challenges.
2. Attendees of the gynecology clinic during the study period.
3. Women who provided informed consent to participate in the study.

Exclusion Criteria:

1. Women who declined consent.
2. Women with diagnosed infertility due to causes unrelated to endometriosis (e.g., male factor infertility or structural abnormalities unrelated to endometriosis).

Sample Size Determination

The sample size was determined using the Cochran formula for estimating proportions in a population outlined by[12]:

$$n = \frac{Z^2(Pq)}{e^2}$$

where n = minimum sample size

Z = 1.96 at 95% confidence level,

P = known prevalence of endometriosis in Nigeria

e = error margin tolerated at 5% = 0.05

q = 1 - p

According to a recent study by[13], the prevalence of endometriosis in Nigeria is 48.1%.

P = 48.1% = 0.481

q = 1 − p

= 1 − 0.481

= 0.519

$$n = \frac{(1.96)^2 (0.481 \times 0.519)}{(0.05)^2}$$

$$n = \frac{3.8416 \times (0.249639)}{0.0025}$$

$$n = \frac{0.959}{0.0025} = 383.61$$

The minimum sample size was 384 but was adjusted to 421 to account for a non-response rate of 10%.

Sampling Technique

A systematic random sampling technique was used to recruit participants. Patients were selected from the clinic register using a sampling interval calculated by dividing the estimated patient population during the study period by the sample size.

Data Collection Tools

1. **Structured** **Questionnaire:**
   A pretested structured questionnaire was designed to collect data on participants' sociodemographic characteristics, endometriosis awareness, and self-reported symptoms. The questionnaire consisted of three sections:

   o   Section A: Sociodemographic data (age, marital status, education level, occupation, etc.).

   o   Section B: Awareness and knowledge of endometriosis.

   o   Section C: Symptomatology and medical history.

2. **Clinical Records Review:**

   Participants' medical records were reviewed to confirm the diagnosis of endometriosis and assess relevant clinical details.

Data Collection Procedure

Data collection was conducted over twelve (12) months. Participants were briefed about the study objectives and provided written informed consent before completing the questionnaire. Trained research assistants administered the questionnaires in a private setting to ensure confidentiality. Clinical records were reviewed with participants' permission to confirm the diagnosis and assess related clinical parameters.

Diagnostic Criteria for Endometriosis

Participants were classified as having endometriosis based on one or more of the following criteria:

1. Laparoscopic confirmation of endometriosis.

2. Histological confirmation of endometriotic lesions.

3. Clinical diagnosis based on characteristic symptoms (e.g., chronic pelvic pain, dysmenorrhea, dyspareunia) and exclusion of other causes.

Data Analysis

Data were entered into SPSS software (version 26.0) for analysis. Descriptive statistics (mean, standard deviation, frequencies, and percentages) were used to summarize sociodemographic data and levels of awareness. Prevalence rates of endometriosis were calculated as the proportion of participants with confirmed cases.

Ethical Considerations

Participants were informed about the study's objectives, assured of confidentiality, and allowed to withdraw at any stage without consequences. Data were anonymized to protect participants' privacy.

RESULTS

The sociodemographic characteristics of the study participants are presented in **(Table 1)**. The majority of participants (52.26%) were aged between 30–39 years, followed by those aged 20–29 years (31.12%). Most participants had secondary education (62.23%), while 32.54% had tertiary education. A significant proportion were self-employed (61.76%), and 24.23% were civil servants.

In terms of awareness and knowledge of endometriosis, as shown in **(Table 2)**, 57.24% of participants had heard of endometriosis, with healthcare providers being the primary source of information for 68.46% of those aware. However, only 16.86% knew what causes endometriosis, and just 19.48% recognized its symptoms. Knowledge ratings revealed that 30.17% of participants considered their understanding of endometriosis to be good, while 28.27% rated their knowledge as poor.

Table 3 highlights the symptomatology and medical history of the participants. Pelvic pain (27.72%) and dysmenorrhea (33.66%) were the most common symptoms, with 57.24% of participants experiencing these symptoms for over three years. All participants had consulted a healthcare provider for these symptoms, with 75.53% reporting using medications for symptom relief. Additionally, 22.80% described the impact of their symptoms on daily life as severe. Concerning fertility, 50.12% of participants had been informed by a healthcare provider that endometriosis could affect their fertility, and 73.40% had undergone fertility treatments.

(Figure 1) illustrates the types of infertility among the participants, with the majority (79.57%) experiencing primary infertility. Figure 2 shows that 24.47% of participants had been diagnosed with endometriosis, while 75.53% had not. Among those with endometriosis, Figure 3 depicts the distribution of the disease stages, with Stage-II being the most common (43.70%), followed by Stage-I (25.24%).

Table 1: Sociodemographic Data

Variable	Frequency (n = 421)	Percentage (%)
Age		
<20 years	08	1.90
20–29 years	131	31.12
30–39 years	220	52.26
40–49 years	62	14.73
Education Level		
No formal education	00	0.00
Primary education	22	5.23
Secondary education	262	62.23
Tertiary education	137	32.54
Occupation		
Full House wife	46	10.93
Self-employed	260	61.76
Civil servant	102	24.23
Others	23	5.46

Table 2: Awareness and Knowledge of Endometriosis

Variable	Frequency (n = 421)	Percentage (%)
Have you ever heard of endometriosis?		
Yes	241	57.24
No	180	42.76
If yes, where did you first hear about it?		
Healthcare provider	165	68.46
Media (TV, radio, internet)	41	17.01
Family/friends	31	12.86
Others	04	1.66
Do you know what causes endometriosis?		
Yes	71	16.86
No	350	83.14

Do you know the symptoms of endometriosis?		
Yes	82	19.48
No	339	80.52
How would you rate your knowledge of endometriosis?		
Excellent	44	10.45
Good	127	30.17
Fair	131	31.12
Poor	119	28.27

Table 3: Symptomatology and Medical History

Variable	Frequency (n = 421)	Percentage (%)
*Have you experienced any of the following symptoms? (Select all that apply) (n = 826)		
Pelvic pain	229	27.72
Pain during menstruation (dysmenorrhea)	278	33.66
Pain during intercourse (dyspareunia)	116	14.04
Heavy or irregular menstrual bleeding	49	5.93
Fatigue	123	14.89
Others	31	3.75
How long have you experienced these symptoms?		
<6 months	17	4.04
6 months–1 year	57	13.54
1–3 years	106	25.18
>3 years	241	57.24
Have you consulted a healthcare provider for these symptoms?		
Yes	421	100.00
No	00	0.00
*Have you been diagnosed with any of the following? (Select all		

that apply) (n = 603)		
Endometriosis	103	17.08
Fibroids	267	44.28
Polycystic Ovary Syndrome (PCOS)	126	20.90
Pelvic Inflammatory Disease (PID)	84	13.93
Others	23	3.81
Have you had surgery related to reproductive health?		
Yes	63	14.96
No	358	85.04
Have you used any medications for symptom relief?		
Yes	318	75.53
No	103	24.47
How would you describe the impact of these symptoms on your daily life?		
Severe	96	22.80
Moderate	174	41.33
Mild	110	26.13
No impact	41	9.74
How long have you been trying to conceive?		
<1 year	00	0.00
1–3 years	110	26.13
3–5 years	227	53.92
>5 years	84	19.95
Have you ever been pregnant before?		
Yes	131	31.12
No	290	68.88
Have you undergone any fertility treatments?		
Yes	309	73.40

No	112	26.60
Have you been told by a healthcare provider that endometriosis might affect your fertility?		
Yes	211	50.12
No	210	49.88

* represents multiple responses
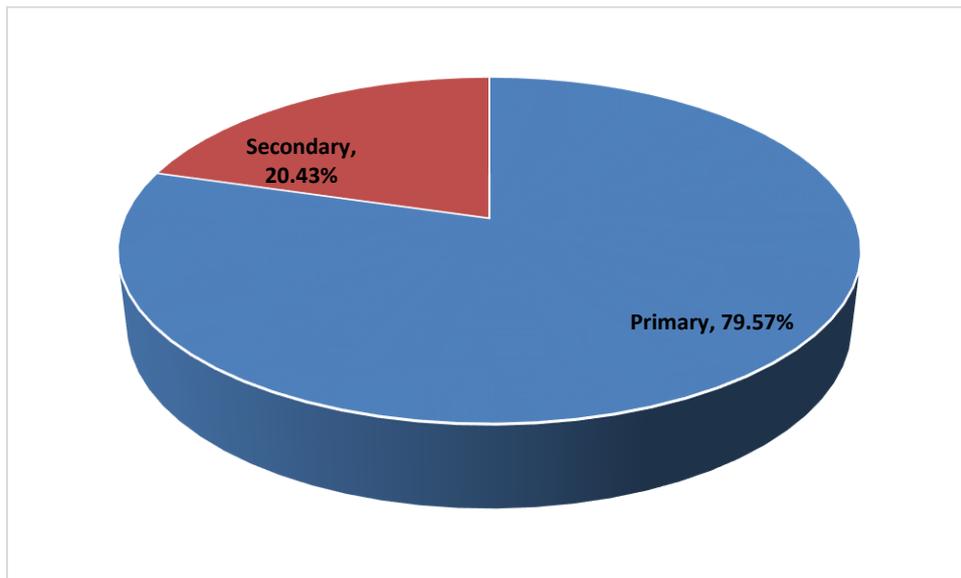
Figure 1: Type of infertility

Figure 2: Prevalence of Endometriosis

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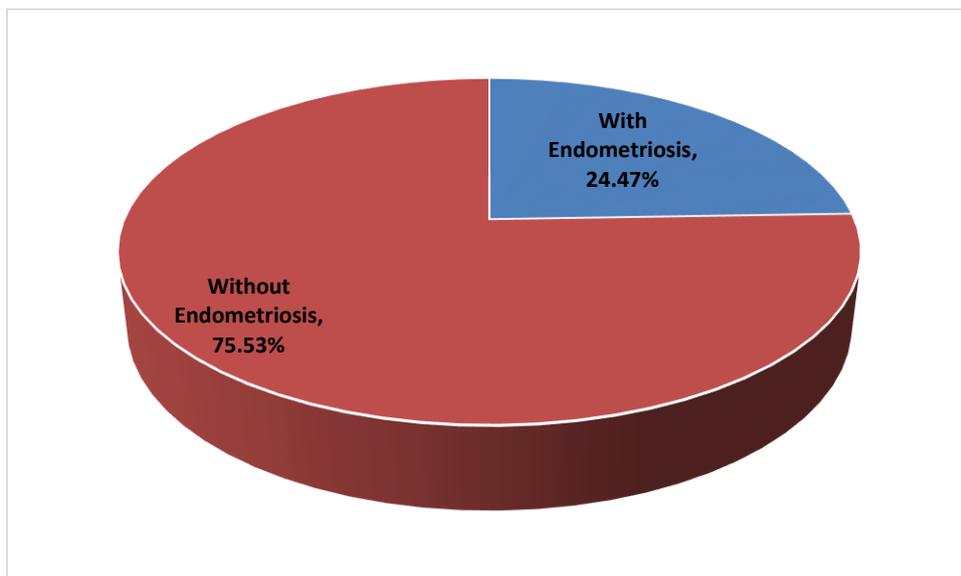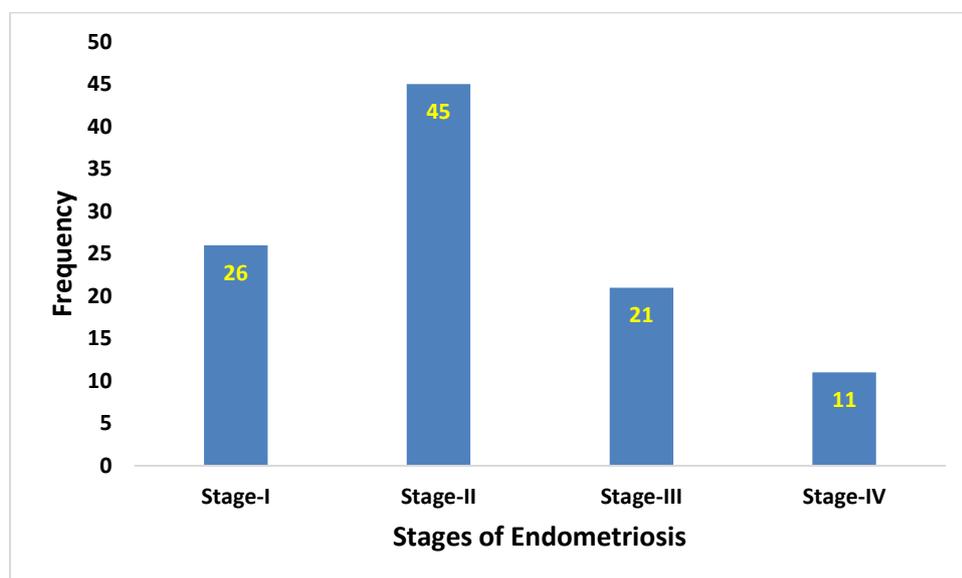Publications

Figure 3: Stages of Endometriosis

DISCUSSION

The sociodemographic distribution of the study participants revealed that the majority (52.26%) were aged 30–39 years, with smaller proportions below 20 years (1.90%) or above 40 years (14.73%). This age profile aligns with the reproductive age range when fertility challenges and gynecological issues, such as endometriosis, are most prevalent [14]. The dominance of women with secondary education (62.23%) and those who were self-employed (61.76%) highlights the socioeconomic factors influencing access to healthcare in this population. Previous studies have shown similar patterns in sub-Saharan Africa, emphasizing that socioeconomic status and educational attainment significantly influence health-seeking behavior [15].

Awareness of endometriosis among participants was relatively high (57.24%) compared to studies in similar low-resource settings, where awareness has often been reported to be less than 40% [16]. However, a deeper exploration of the source of information revealed that healthcare providers were the primary source (68.46%), underscoring the pivotal role of medical professionals in disseminating knowledge about endometriosis. The low percentage of participants (16.86%) who understood the causes of endometriosis or could identify its symptoms (19.48%) mirrors findings from studies in Nigeria and other African countries, where misinformation and poor understanding of gynecological disorders are prevalent [17].

The participants' self-assessed knowledge levels—with 28.27% rating their knowledge as poor—corroborate findings from[18], which highlighted that even among women aware of endometriosis, detailed knowledge about the condition remains limited. This gap in understanding is a significant barrier to early diagnosis and treatment.

Pelvic pain (27.72%) and dysmenorrhea (33.66%) were the most frequently reported symptoms. These findings align with those of [19], who identified pelvic pain and dysmenorrhea as hallmark symptoms of endometriosis

globally. The duration of symptoms, with 57.24% of participants reporting symptoms lasting more than three years, reflects the delayed diagnosis often associated with endometriosis in low-resource settings. Similar findings were reported in Ethiopia, where the average diagnostic delay was 5–7 years [20].

Among those diagnosed with endometriosis, 17.08% had a confirmed diagnosis, which is comparable to the prevalence reported in fertility clinics worldwide, ranging from 10% to 20% [21]. The study also found that other gynecological conditions, such as fibroids (44.28%) and PCOS (20.90%), co-occurred frequently. This reinforces findings by Fauconnier et al. (2020), who reported that endometriosis is often part of a complex spectrum of gynecological disorders.

The impact of endometriosis on daily life was reported as severe by 22.80% of participants and moderate by 41.33%. This aligns with data from the World Endometriosis Society, which highlights the debilitating nature of endometriosis symptoms [20]. The high percentage of participants attempting conception for over three years (53.92%) underscores the profound impact of endometriosis on fertility, consistent with estimates that 30%–50% of women with endometriosis experience infertility [18].

The study's findings that 50.12% of participants were informed by healthcare providers about the potential impact of endometriosis on fertility reflect a positive shift in clinical practice. However, a significant proportion (49.88%) remained uninformed, indicating a gap in patient education.

The prevalence of endometriosis in this study population was 24.47%, which falls within the global prevalence range of 10%–35% among women with fertility challenges [8]. This figure is slightly higher than the 20% reported by [9]in southwestern Nigeria, possibly due to differences in study settings or diagnostic criteria.

The distribution of endometriosis stages showed that Stage II (43.70%) was most common, followed by Stage I (25.24%). This distribution is consistent with findings by[7], who reported that early-stage endometriosis is more frequently diagnosed, likely due to advancements in imaging and diagnostic techniques. However, the proportion of advanced stages (Stage III–IV: 31.07%) reflects the diagnostic delays and barriers to accessing specialized care in low-resource settings [5].

The results of this study align with and expand upon previous research on endometriosis in low- and middle-income countries (LMICs). For instance, [9]highlighted significant gaps in awareness and knowledge of endometriosis in LMICs, similar to the 83.14% of participants in this study who were unaware of its causes. However, the higher prevalence of awareness in this study compared to other Nigerian studies (e.g., Oladokun et al., 2021) may reflect recent improvements in public health education in southeastern Nigeria.

Additionally, the findings on symptomatology corroborate global reports that pelvic pain and dysmenorrhea are the most common symptoms of endometriosis . However, the high prevalence of co-existing conditions, such as fibroids, emphasizes the need for comprehensive diagnostic evaluations in women presenting with infertility.

CONCLUSION

This study highlights significant gaps in awareness, knowledge, and timely diagnosis of endometriosis among women with fertility challenges in southeastern Nigeria. While the prevalence of endometriosis aligns with global estimates, the high proportion of participants experiencing diagnostic delays underscores the need for

improved education, early screening, and access to specialized care. Future interventions should focus on increasing public awareness, training healthcare providers, and integrating endometriosis management into routine gynecological care in low-resource settings.

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