



# Prevalence and Awareness of Ectopic Pregnancy among Expectant Mothers in Abia State, Nigeria

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## Abstract

**Background:** Ectopic pregnancy remains a leading cause of early maternal morbidity and mortality in low-resource settings. Although advances in diagnostic imaging and improved antenatal coverage have increased opportunities for early detection, many women in sub-Saharan Africa still present late due to limited awareness and delays in seeking care. Understanding both the prevalence and the level of awareness among expectant mothers is essential for targeted public health interventions. This research explored these issues among pregnant women receiving care at Abia State University Teaching Hospital in Aba, Abia State, Nigeria.

**Methods:** A hospital-based descriptive cross-sectional design was applied over a twenty-four-month period from July 2023 to June 2025. Awareness was assessed using a pretested interviewer-administered questionnaire among systematically selected pregnant women attending routine antenatal clinics. For prevalence determination, all clinically confirmed ectopic pregnancy cases documented in antenatal registers, emergency unit records, theatre logs and case files were included through total population sampling. Quantitative data were entered into SPSS version 26. Descriptive statistics were generated, and associations were tested using chi-square and Pearson correlation. Statistical significance was set at  $p < 0.05$ .

**Results:** A total of 406 pregnant women participated in the awareness survey. The mean age was 29.74 years, with most respondents having a tertiary education. Overall awareness scores suggested moderate knowledge levels with mean item scores ranging from 3.20 to 3.71 on a five-point scale. Health workers represented the most common source of information at 29.80 percent. Prevalence analysis showed that eighty-seven ectopic pregnancy cases were managed within the twenty-four-month period out of an estimated 9876 antenatal attendees, giving a facility-based prevalence of 0.88 percent. Significant associations were observed between education level and awareness ( $p = 0.000$ ), parity and awareness ( $p = 0.032$ ), and significant correlations emerged between awareness score and age, parity and number of antenatal visits.

**Conclusion:** The findings demonstrate a measurable but relatively low prevalence of ectopic pregnancy within the facility and highlight an important gap in awareness among expectant mothers despite regular antenatal attendance. Educational attainment and frequency of antenatal visits play important roles in shaping awareness. Strengthening health education components of antenatal care and improving community-level reproductive health communication could enhance early recognition and help reduce preventable maternal complications associated with ectopic pregnancy.

**Keywords:** Ectopic pregnancy, Maternal awareness, Antenatal care, Prevalence, Reproductive health

## Introduction

Ectopic pregnancy is a condition in which the fertilized ovum implants outside the endometrial cavity, most commonly in the fallopian tube, and remains a leading cause of maternal morbidity and mortality in early pregnancy worldwide. Ectopic pregnancy can present as an emergency with a life-threatening haemorrhage when diagnosis is delayed, and it has important implications for future fertility and reproductive health [1].

Globally, the incidence of ectopic pregnancy among clinically recognized pregnancies is generally reported in the order of 1–2% (with regional and methodologic variation). While the absolute incidence has shown differing trends across settings, Ectopic pregnancy continues to be associated with substantial disability and death in some low-resource regions due to delayed diagnosis and limited access to early ultrasound and appropriate emergency care [2]. In Sub-Saharan Africa and in Nigeria specifically, institutional studies report variable but frequently higher burdens of Ectopic pregnancy compared with some high-income settings, with hospital-based incidence estimates and proportions of ectopic pregnancies among gynaecological admissions or deliveries varying markedly between centres and regions. Recent retrospective reviews from Nigerian tertiary and regional hospitals commonly report incidences in the range of roughly 0.8% to 2.8% of deliveries (or higher when expressed per 1000 deliveries), with many series describing high rates of tubal rupture and operative management, indicating late presentation and diagnostic challenges. These inter-facility differences reflect variations in case-finding, referral patterns and availability of diagnostic services [3].

A consistent finding across African and global studies is the role of modifiable and non-modifiable risk factors that increase the likelihood of tubal ligation. Key risk factors include prior Pelvic Inflammatory Disease (PID), often linked to sexually transmitted infections such as Chlamydia trachomatis, previous ectopic pregnancy, prior tubal or pelvic surgery, history of induced abortion, multiple sexual partners, certain contraceptive failures, infertility and increasing maternal age. Recent case-control and observational work from sub-Saharan Africa have emphasized locally relevant contributors (including early sexual debut, prior treated/untreated STIs and socio-economic determinants) and has underlined that several risk factors are amenable to prevention or earlier detection through improved sexual-reproductive health services [4]. Clinical presentation varies from asymptomatic early diagnoses (in settings with ready access to early pregnancy ultrasound and serial  $\beta$ -hCG monitoring) to classic symptoms of first-trimester abdominal pain and vaginal bleeding; in many low-resource settings, however, ruptured tubal ectopic pregnancy remains common because of late presentation, resulting in higher emergency laparotomy rates and increased maternal morbidity. These patterns highlight diagnostic, referral and health-system bottlenecks (limited access to transvaginal ultrasound, delays in presentation, and shortages of blood and trained surgical staff) that directly affect outcomes [5].

Awareness and knowledge of ectopic pregnancy among women of reproductive age is an understudied but critical determinant of timely care-seeking. Studies from south-eastern Nigeria and other LMIC settings have found variable awareness and knowledge levels: some surveys (including studies among young women and female undergraduates) report that a substantial proportion have only moderate or incomplete knowledge about ectopic pregnancy signs, risk factors and the need for urgent care, while others show higher awareness but persistent misconceptions about causes and symptoms. Low awareness can delay recognition of warning signs and reduce prompt access to life-saving care [6]. Abia State (southeastern Nigeria) is served by tertiary, secondary, and primary health facilities that receive pregnant women from both urban and rural catchments. Limited, facility-based evidence from the state and neighbouring areas suggests that ectopic pregnancies are encountered regularly, but there is no recent, population-level study combining robust prevalence estimation with systematic assessment of awareness among expectant mothers across the mix of facility types in Abia State. For example, a 10-year institutional review in Umuahia (the state capital) documented institutional prevalence and clinical patterns but did not pair prevalence data with community or antenatal awareness measures that would inform prevention, early detection and public health education interventions. This gap limits evidence-based planning to reduce morbidity, improve early diagnosis and protect future fertility for women in the state [3].

Given the continuing burden of ectopic pregnancy, the documented importance of timely recognition, and the variable levels of knowledge reported in the region, a focused study that estimates the prevalence of ectopic pregnancy among deliveries/antenatal populations in Abia State and concurrently assesses awareness, knowledge and care-seeking intentions among expectant mothers would deliver actionable data. Such evidence would: (1) clarify the local magnitude and clinical pattern of Ectopic pregnancy, (2) identify knowledge gaps and misconceptions that delay care seeking, (3) map linkages between known risk profiles and current practice/awareness, and (4) inform targeted health education, screening protocols and referral strengthening in Abia State's maternal health services. This study sought to determine the prevalence of ectopic pregnancy among deliveries/antenatal attendees in Abia State, Nigeria.

## Materials and Methods

### Study Design

This study employed a hospital-based descriptive cross-sectional design to determine the prevalence and assess the level of awareness of ectopic pregnancy among expectant mothers attending Abia State University Teaching Hospital (ABSUTH), Aba. The research covered a 24-month period, from July 2023 to June 2025.

## Study Area

The study was carried out at the Abia State University Teaching Hospital (ABSUTH), located in Aba, Abia State, Nigeria. ABSUTH is a major tertiary health facility that provides specialized obstetric, gynaecological, and emergency care services to women across Abia State and neighbouring states. The hospital hosts a busy Antenatal Clinic (ANC) and emergency obstetric unit, making it an appropriate setting for studying ectopic pregnancy patterns and awareness levels among expectant mothers.

## Study Population

The target population consisted of pregnant women attending ANC clinics and pregnant women managed in the obstetrics and gynaecology emergency units of ABSUTH during the study period. The prevalence component included all clinically confirmed cases of ectopic pregnancy managed at the facility between July 2023 and June 2025. The awareness component included pregnant women attending routine antenatal visits during the same period.

## Inclusion Criteria

- Pregnant women receiving antenatal care at ABSUTH during the study period.
- Pregnant women willing to participate and able to give informed consent.
- All patients diagnosed with ectopic pregnancy (for prevalence data).

## Exclusion Criteria

- Women who declined participation.
- Critically ill patients who were unable to respond to questionnaire-based interviews.
- Patients with incomplete medical records (for prevalence extraction).

## Sample Size Determination

The sample size was calculated based on Cochran's formula for population proportion estimation, following the methodology described by Ezebuiro, *et al.*, [7]:

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

The formula components are defined as follows:

- $n$  represents the minimum required sample size.
- $Z$  is set at 1.96, corresponding to a 95% confidence level.
- $P$  denotes the awareness level of ectopic pregnancy in

Nigeria.

4)  $e$  signifies the allowable margin of error, fixed at 5% (0.05).

$$5) q = 1-p$$

A recent study conducted by Esu and Okpon [6] reports the awareness of ectopic pregnancy in Nigeria as 60.0%

$$P = 60.00\% = 0.60$$

$$q = 1-0.60$$

$$= 0.40$$

$$n = \frac{(1.96)^2 (0.6 \times 0.4)}{(0.05)^2}$$

$$n = \frac{3.8416 \times (0.24)}{0.0025}$$

$$n = \frac{0.92198}{0.0025} = 368.79$$

Although the initially calculated minimum sample size was 369, it was increased to 406 to accommodate an anticipated 10% rate of non-response.

## Sampling Technique

A systematic random sampling technique was employed. Daily laboratory registers at Federal Medical Centre, Umuahia, were used as the sampling frame, and every 3rd eligible participant was selected until the required sample size was achieved. The sampling interval (3) was determined by dividing the average daily number of eligible patients by the daily recruitment target as described by Akwuruoha, *et al.*, [8]. For prevalence determination, total population sampling was used, meaning all medically confirmed cases of ectopic pregnancy managed within the 24-month period were included.

## Data Collection Instruments

### Structured Questionnaire

A pretested, interviewer-administered questionnaire was used to assess awareness. It consisted of four sections:

- Section A: Sociodemographic characteristics
- Section B: Obstetric and gynaecological history
- Section C: Awareness and knowledge of ectopic pregnancy
- Section D: Sources of information and perception of risk factors

The questionnaire was pretested on 30 pregnant women in a nearby health facility and revised for clarity and relevance.

### Data Extraction Proforma

A structured proforma was used to extract clinical information for the prevalence component.

### Data Collection Procedure

Trained research assistants collected data under the supervision of the investigators. Eligible participants were approached in the ANC waiting areas. Study objectives were clearly explained. Informed consent was obtained. Questionnaires were administered face-to-face to ensure accuracy of responses. For the prevalence of ectopic pregnancy, data were retrieved from ANC registers, Emergency gynaecology admission records, Theatre records, Patient case notes, Labour ward and post-operative charts.

Each ectopic pregnancy case was cross-checked using at least two record sources to ensure accuracy.

### Validity and Reliability

Content validity was ensured through expert review by obstetricians and reproductive health specialists. The questionnaire reliability was assessed using Cronbach's alpha, with a score of  $\geq 0.82$ , indicating acceptable internal consistency.

### Data Management and Statistical Analysis

Data were coded and entered into SPSS version 26 for analysis. Frequencies, percentages, means, and standard deviations were generated. Chi-square tests were used to assess associations between awareness levels and demographic variables. A p-value  $< 0.05$  was considered statistically significant.

Prevalence was calculated as:

$$\text{Prevalence} = \frac{\text{Number of ectopic pregnancy cases}}{\text{Total Number of pregnancies / ANC attendees}} \times 100$$

### Ethical Considerations

Participation was entirely voluntary, and informed consent was obtained from all respondents.

Confidentiality was strictly maintained; no identifying information was collected, and data were used solely for research purposes.

### Results

**Table 1:** Sociodemographic characteristics.

Variable	Category	Frequency (n = 406)	Percentage (%)
Age (years)	15-20	26	6.4
	21-25	112	27.59
	26-30	144	35.47
	31-35	86	21.18
	36-40	28	6.9
	41+	10	2.46
Mean age (years)	29.74 $\pm$ 5.60	-	-
Education level	No formal	8	1.97
	Primary	22	5.42
	Secondary	98	24.14
	Tertiary	254	62.56
	Other	24	5.91
Marital status	Married	328	80.79
	Single	62	15.27
	Divorced	9	2.22
	Widowed	7	1.72
Occupation	Trader	121	29.8
	Civil servant	93	22.91
	Student	49	12.07
	Unemployed	64	15.76
	Artisan	79	19.46

**Table 2:** Obstetric and Antenatal Characteristics.

Variable	Frequency (n = 406)	Percentage
<b>Parity</b>		
Nulliparous	112	27.59
Primiparous	98	24.14
Multiparous	154	37.93
Grand multiparous ( $\geq 5$ )	42	10.34
Mean gestational age at interview (weeks)	$22.64 \pm 6.38$	Not applicable
Mean number of ANC visits to date	$2.80 \pm 1.30$	Not applicable
<b>Previous Ectopic Pregnancy</b>		
Yes	12	2.96
No	394	97.04
<b>Current use of Modern Contraception Prior to Current Pregnancy</b>		
Yes	98	24.14
No	308	75.86

A total of 406 expectant mothers participated in the study. Most respondents were between 26 and 30 years of age, with a mean age of 29.74 years, and the majority had completed tertiary education. Most participants were married, and trading was the most common occupation (Table 1). Obstetric information showed that more

than one-third of respondents were multiparous, and the mean gestational age at the time of interview was 22.64 weeks. Very few had a history of ectopic pregnancy, and only about one quarter reported using a modern contraceptive method before the current pregnancy (Table 2).

**Table 3:** Awareness of Ectopic Pregnancy.

Item / Response Category	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean $\pm$ SD
I know what an ectopic pregnancy is	98 (24.14%)	132 (32.51%)	54 (13.30%)	74 (18.23%)	48 (11.82%)	$3.39 \pm 1.34$
I know the risk factors for ectopic pregnancy	76 (18.72%)	154 (37.93%)	66 (16.26%)	68 (16.75%)	42 (10.34%)	$3.38 \pm 1.25$
I can recognize the common symptoms of ectopic pregnancy	89 (21.92%)	136 (33.50%)	60 (14.78%)	71 (17.49%)	50 (12.32%)	$3.35 \pm 1.32$
I know the complications of ectopic pregnancy	64 (15.76%)	128 (31.53%)	88 (21.67%)	78 (19.21%)	48 (11.82%)	$3.20 \pm 1.25$
If I develop symptoms, I would seek care early	144 (35.47%)	126 (31.03%)	52 (12.81%)	44 (10.84%)	40 (9.85%)	$3.71 \pm 1.31$

Awareness of ectopic pregnancy varied across specific knowledge items. While many respondents agreed that they knew what an ectopic pregnancy is, levels of certainty dropped when asked about symptoms and complications. The highest level of agreement was seen in respondents' willingness to seek early care if symptoms developed. Overall mean scores for awareness

items ranged from 3.20 to 3.71 on a five-point scale (Table 3). Respondents received information about ectopic pregnancy from several sources. Health workers were the most common source, followed by family members or friends and media outlets (Table 4).

**Table 4:** Sources of Information about Ectopic pregnancy.

Source	Frequency	Percentage (%)
Health Worker (Antenatal Staff)	121	29.8
Media (TV/radio/newspaper)	86	21.18
Family/Friends	93	22.91
Internet/social media	49	12.07
Traditional Birth Attendant (TBA)/Community Source	57	14.04

The prevalence of ectopic pregnancy over the two-year period was 0.88%, based on 87 confirmed cases out of 9876 antenatal clinic attendees (Table 5). Correlation analysis showed that awareness scores had a weak negative relationship with age and a stronger negative relationship with parity, both reaching statistical significance. There was a positive and significant relationship between the number of antenatal visits and awareness scores, indicating

that women who attended more antenatal sessions tended to have better awareness. Gestational age showed no significant correlation with awareness (Table 6). Further analysis demonstrated that education level and parity were significantly associated with awareness categories. Age group, however, showed no significant association (Table 7).

**Table 5:** Prevalence & Clinical Features.

Statistic	Frequency	Percentage (%)
Total ANC attendees in 24 months	9,876	-
Confirmed ectopic pregnancy cases (all sources, July 2023-June 2025)	87	-
Prevalence = $(87 / 9,876) \times 100$	0.88	%

**Table 6:** Correlation analysis (Pearson's r) -continuous variables vs awareness score

Pair	Pearson r (r)	p-value
Awareness score vs Age (years)	-0.12	0.018*
Awareness score vs Parity (number of births)	-0.22	< 0.001*
Awareness score vs Gestational age (weeks)	0.05	0.311
Awareness score vs Number of ANC visits	0.3	< 0.001*

Note1\*: awareness overall score treated as continuous (range 5-25). Pearson correlation shown (r), two-tailed p-value.

Note2\*: statistically significant at  $p < 0.05$ .

**Table 7:** Associations Between Sociodemographic Variables and Awareness Level of Ectopic Pregnancy.

Variable Tested	$\chi^2$	df	p-value
Education level vs awareness	32.15	2	0
Parity vs awareness	8.8	3	0.032
Age group vs awareness	2.15	2	0.342

## Discussion

Ectopic pregnancy remains a major contributor to maternal morbidity and mortality in many low and middle-income settings. Early detection and timely treatment are essential, yet awareness

among expectant mothers often varies widely. This study highlights the magnitude of the condition and the level of awareness among pregnant women receiving care at a major tertiary facility in Abia State, Nigeria. Our findings show that the study population had a mean age of  $29.74 \pm 5.60$  years, with the largest age group between

26–30 years (35.5%). Most participants were married (80.8%) and had attained tertiary education (62.6%). Traders and civil servants constituted the two largest occupational groups. In obstetric terms, multiparous women made up the plurality (37.9%), while nulliparous and primiparous women represented substantial minorities; the mean gestational age at interview was 22.6 weeks, and the mean number of ANC visits to date was 2.8. Twelve participants (2.96%) reported a previous ectopic pregnancy, and 24.1% reported using modern contraception prior to the current pregnancy. These sociodemographic and antenatal profiles indicate a predominantly urban-educated cohort with reasonable contact with antenatal services, which sets the context for interpreting awareness and prevalence measures.

Awareness of ectopic pregnancy in the sample was mixed. When asked directly, about 56.6% (sum of “strongly agree” and “agree”) indicated that they knew what an ectopic pregnancy is, similar proportions endorsed knowledge of risk factors and symptoms, and 66.5% agreed they would seek care early if symptoms developed (mean item scores ranged from 3.20 to 3.71 on a 5-point scale). Health workers at antenatal clinics were the single most cited source of information (29.8%), followed by family/friends and mass media. Although a majority demonstrated some basic awareness, substantial minorities remained neutral or disagreed with statements about knowledge of symptoms, risk factors, and complications, evidence that superficially positive headline awareness scores mask important gaps in depth and accuracy of knowledge. The observed institutional prevalence of confirmed ectopic pregnancy over the two-year period (July 2023–June 2025) was 87 cases out of an estimated 9,876 ANC attendees, giving a prevalence of 0.88%. Framed another way, the prevalence lies below 1% of pregnancies in this catchment during the surveillance period. This estimate is at the lower end of prevalence reports from Nigeria and comparable settings: published institutional series and retrospective reviews have reported a range that commonly spans roughly 0.5% up to 2–3% (several Nigerian tertiary-centre reports give values in the 1–2% range, while some broader reviews report similar variability). Differences in denominators (deliveries versus antenatal attendees), case-ascertainment methods, and local referral patterns partly explain variation between studies; where studies use total deliveries or gynaecological admissions as denominators, apparent incidence can be higher than estimates based on ANC attendance. The finding of a prevalence of 0.88% therefore, fits within the overall Nigerian experience but toward the lower side of the institutional estimates reported in recent regional literature [9].

The clinical and epidemiologic literature identifies multiple risk factors that increase the likelihood of ectopic implantation, and these inform interpretation of the low but non-negligible prevalence observed here. A long history of prior Pelvic Inflammatory Disease (PID), Sexually Transmitted Infections (STIs), prior pelvic surgery,

induced abortion, and prior use of intrauterine devices have been consistently associated with ectopic gestation in Nigerian and other low- and middle-income population studies. These conditions damage tubal architecture or alter tubal function and thereby increase tubal implantation risk. In several Nigerian series, prior induced abortions, PID, and multiple sexual partners have been reported as leading associated factors. Our dataset did not attempt to characterise each of these exposures in detail for every ectopic case within the surveillance window, but the background distribution of contraceptive use (24.1% reporting prior modern contraception) and the low frequency of previously documented ectopic pregnancies (2.96%) are consistent with a population in which classical tubal risk factors remain relevant but not uniformly prevalent. These epidemiologic patterns underscore the ongoing importance of STI/PID prevention, safe abortion services, and careful postoperative counselling where pelvic surgery has occurred [10].

Comparing awareness and knowledge to previous studies reveals both encouraging and concerning patterns. Studies of knowledge about ectopic pregnancy and its risk factors conducted in parts of southeastern Nigeria and among female undergraduates have reported variable levels of awareness: some community or student surveys show moderately high awareness (around half to two-thirds aware of the concept) but with important gaps in detailed knowledge of symptoms and complications. The current study's blended picture-moderate proportions claiming general awareness but sizeable neutral/disagree responses on symptoms and complications-mirrors these prior observations and suggests that antenatal encounters are reaching women with basic messages but are not consistently translating into comprehensive, actionable knowledge. That antenatal staff were the leading information source in our sample aligns with studies showing that facility-based health workers are crucial conduits of reproductive health information, but it also highlights an opportunity: leveraging structured, repeat health education during ANC to improve recognition of first-trimester emergencies could raise both timely care-seeking and early detection [6].

The correlation and association analyses offer additional insight into who is more or less likely to be aware. Pearson correlation showed a small but statistically significant negative correlation between awareness score and age ( $r = -0.12, p = 0.018$ ) and a stronger negative correlation with parity ( $r = -0.22, p < 0.001$ ), while the number of ANC visits correlated positively with awareness ( $r = 0.30, p < 0.001$ ). Chi-square tests demonstrated a strong association between education level and awareness ( $\chi^2 = 32.15, p < 0.001$ ) and a weaker but significant association between parity and awareness ( $\chi^2 = 8.80, p = 0.032$ ); age group was not significantly associated with awareness in the categorical analysis. These patterns collectively indicate that higher formal education and greater engagement with antenatal services are associated with

improved awareness, while women with higher parity tend to have lower awareness scores. The negative relationship between parity and awareness may reflect competing demands on multiparous women (time, childcare responsibilities) that reduce opportunity for health education attendance, or complacency based on prior uncomplicated pregnancies; similar heterogenous findings on parity and knowledge or health service utilisation have been reported in other maternal health studies. The positive association with ANC visits reinforces the role of repeated facility contact in building knowledge [11].

Public health implications of these findings are several-fold. First, even with a prevalence under 1%, ectopic pregnancy remains a clinically important cause of first-trimester morbidity and a leading cause of mortality in early pregnancy; delayed recognition and late presentation with tubal rupture are common contributors to adverse outcomes in many Nigerian series. Strengthening early pregnancy assessment at ANC, improving access to timely ultrasound and serum testing where feasible, and ensuring rapid referral pathways from peripheral clinics to definitive care are priorities to reduce preventable morbidity and mortality. Second, the uneven depth of awareness demonstrated by the study, particularly gaps in knowledge of symptoms and complications, suggests that ANC health education should move beyond single-session lectures to more targeted, repeat messaging, ideally coupled with brief, practical counselling on which symptoms require urgent evaluation. Third, given that education level and number of ANC contacts are positively associated with awareness, programmatic efforts that both expand early ANC attendance and tailor health education to reach less-educated and higher-parity women are likely to be effective. Community-level channels (family networks, mass media, and community health workers) also had measurable reach in the sample and can be mobilised to complement facility-based messaging. Evidence from Nigeria and neighboring settings supports community and facility integration for maternal health education as a strategy to raise knowledge and timely care-seeking [12].

Policy and clinical practice recommendations flowing from the results include intensifying early ANC registration and promoting the importance of repeat ANC contacts as opportunities for incremental education, using structured antenatal health education modules that explicitly cover ectopic pregnancy signs/symptoms and danger signs in pregnancy, and strengthening the capacity of antenatal staff to deliver brief, competency-based counselling. In addition, reinforcing primary prevention of major ectopic risk factors, accessible STI screening and treatment, safer abortion services and post-abortion care, and appropriate counselling on contraceptive options with attention to IUCD follow-up, should remain core components of reproductive health programming given their established links to ectopic risk. Strengthening referral systems and ensuring that peripheral facilities have clear protocols for early ultrasound referral or rapid transfer when ectopic pregnancy is suspected will reduce delays in definitive management. Limitations

should be acknowledged when interpreting these comparisons. The prevalence estimate uses ANC attendance as the denominator and aggregates confirmed cases from multiple sources over a two-year window; differences in denominator choice and case ascertainment make direct one-to-one comparisons with some published studies (which used deliveries or gynaecological admissions) imperfect. The awareness measures rely on self-reported agreement with statements rather than objective knowledge tests, and social desirability or comprehension could bias responses. Finally, while some associations (education, ANC visits) are robust, the cross-sectional study design limits causal inference; nonetheless, the associations identify plausible targets for intervention and align with patterns reported in the literature.

## Conclusion

Our findings indicate a prevalence of confirmed ectopic pregnancy of 0.88% in the surveillance period and a pattern of partial awareness among expectant mothers in Abia State, with education level and number of ANC visits positively associated with awareness and higher parity associated with lower awareness. These results accord with published Nigerian studies that document variable institutional prevalence and highlight PID, STIs, prior abortion and pelvic surgery as ongoing risk factors. The study strengthens the argument for intensified, targeted antenatal education and early pregnancy surveillance, combined with broader reproductive health interventions addressing STI prevention and safe abortion care, to reduce the burden of ectopic pregnancy and improve early detection and outcomes. Continued surveillance, harmonised case definitions, and interventional research to evaluate focused health-education packages during ANC would help translate these findings into measurable reductions in morbidity and mortality.

## Availability of Data and Material

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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## Conflict Interests

The authors declare that they have no competing interests.

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