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Research Article

Management and Treatment Modalities of Miscarriage in Nigeria: A Case Study of Abia State University Teaching Hospital, Aba.

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Abstract:

Background: Miscarriage remains a significant cause of maternal morbidity in Nigeria, yet variations exist in its management across healthcare settings. This study aimed to assess the management and treatment modalities of miscarriage at Abia State University Teaching Hospital (ABSUTH), Aba, and explore associated factors and provider experiences.

Materials and Methods: A descriptive cross-sectional study was conducted at ABSUTH from January 2023 to December 2024. The study reviewed 220 systematically sampled clinical records of women aged 15–49 years who received care for miscarriage. Additionally, 30 purposively selected healthcare providers participated in semi-structured interviews. Data were collected using structured extraction forms and interview guides. Quantitative data were analyzed using SPSS version 26, with descriptive statistics, chi-square tests, and Pearson's correlation. Thematic analysis was applied to qualitative data.

Results: Most patients were aged 25–34 years (44.55%) and married (78.64%). The commonest type of miscarriage was incomplete abortion (43.64%). Diagnosis was predominantly clinical combined with ultrasound (64.55%). Management modalities included surgical intervention (41.36%), medical treatment with misoprostol ± mifepristone (40.00%), and expectant management (18.64%). Age ($\chi^2 = 12.83$, $p = 0.045$) and educational level ($\chi^2 = 14.55$, $p = 0.024$) were significantly associated with the chosen management modality. Significant correlations existed between management type and age ($r = -0.21$, $p < 0.05$), parity ($r = -0.16$, $p < 0.05$), and gestational age ($r = 0.29$, $p < 0.05$). Providers reported partial adherence to guidelines, with challenges including resource limitations and training gaps. Patients expressed concerns about delays and lack of psychosocial support.

Conclusion: Management of miscarriage at ABSUTH reflects a balance of medical, surgical, and expectant modalities influenced by patient factors and institutional constraints. Strengthening adherence to guidelines, improving resource availability, and enhancing provider training and psychosocial support systems are recommended.

Keywords: miscarriage; management modalities; medical abortion; surgical evacuation; nigeria; abia state; maternal health

Introduction

Miscarriage, also referred to as spontaneous abortion, remains one of the most common complications of early pregnancy globally, with significant clinical, psychological, and social consequences for affected women. It is typically defined as the loss of a pregnancy before fetal viability, usually before 20 weeks of gestation [1]. In sub-Saharan Africa, including Nigeria, the burden of miscarriage is considerable, influenced by a range of socio-demographic, medical, and environmental factors [2]. The true incidence of miscarriage in Nigeria is difficult to estimate due to underreporting, inadequate vital registration systems, and socio-cultural stigmas that may prevent women from seeking care or disclosing pregnancy losses [3]. Nonetheless, hospital-based studies suggest that miscarriage accounts for a

substantial proportion of emergency gynecological admissions and maternal morbidity [4].

In Nigeria, the management and treatment modalities of miscarriage are influenced by a combination of medical protocols, resource availability, cultural norms, and health system factors. Standard treatment approaches include expectant management, medical management (commonly with misoprostol), and surgical management such as manual vacuum aspiration (MVA) or dilatation and curettage (D&C) [5]. Among these, MVA has been widely promoted due to its safety, cost-effectiveness, and suitability for low-resource settings [6]. However, disparities exist in the actual implementation of these modalities across various health institutions in Nigeria, often shaped by institutional protocols, healthcare provider training, patient preferences, and the availability of necessary medical supplies [7].

Abia State University Teaching Hospital, Aba, serves as a major referral center for obstetric and gynecological emergencies in southeastern Nigeria. It provides a unique setting to explore how miscarriage is managed within a tertiary care context, where both modern and traditional influences may shape patient care. Previous studies in similar settings have highlighted the challenges associated with miscarriage management, including late presentation, inadequate use of evidence-based medical regimens, and limited access to timely surgical intervention [8]. Furthermore, the psychological and emotional support offered to women following miscarriage remains inconsistent, despite growing evidence linking miscarriage to adverse mental health outcomes, including depression and anxiety [9].

The Nigerian government and international health organizations continue to advocate for improvements in post-abortion care, including comprehensive management of miscarriage as part of reproductive health services [6,10]. Despite these policy efforts, there remain critical gaps in understanding how miscarriage is managed on the ground, particularly in tertiary health facilities like Abia State University Teaching Hospital. Analyzing the patterns of care, treatment choices, and outcomes within this hospital will provide valuable insights for strengthening clinical practice, improving patient-centered care, and informing policy implementation in similar contexts.

This study is therefore vital in contributing to the limited body of research focusing on miscarriage management in southeastern Nigeria. It seeks to document the treatment modalities employed, assess their alignment with best practice guidelines, and identify potential areas for improvement in service delivery. By focusing on a case study of Abia State University Teaching Hospital, the research aims to generate evidence that can inform institutional protocols and health policy while ultimately improving maternal health outcomes in Nigeria.

Materials And Methods

Study Design

This study employed a descriptive cross-sectional design aimed at assessing the management and treatment modalities of miscarriage among women who presented at Abia State University Teaching Hospital (ABSUTH), Aba. The study covered a review of clinical records and primary data collection through structured questionnaires and interviews with healthcare providers and patients.

Study Area

The research was conducted at Abia State University Teaching Hospital (ABSUTH), a tertiary healthcare facility located in Aba, Abia State, Nigeria. ABSUTH serves as a referral center for surrounding primary and secondary health institutions in Abia State and neighboring states. The hospital has dedicated departments of obstetrics and gynecology, offering comprehensive maternal and reproductive health services, including miscarriage management.

Study Population

The study population comprised:

- Women of reproductive age (15–49 years) who received care for miscarriage at ABSUTH between January 2023 and December 2024.
- Healthcare providers (obstetricians, gynecologists, nurses, and midwives) directly involved in miscarriage management within the hospital.

Inclusion Criteria

- Women diagnosed with miscarriage (threatened, inevitable, incomplete, complete, or missed abortion) who consented to participate.
- Medical staff involved in the management of miscarriage willing to provide information through interviews.
- Availability of complete patient records during the study period.

Exclusion Criteria

- Women with miscarriage managed exclusively outside ABSUTH.
- Patients with incomplete or missing medical records.
- Women with ectopic or molar pregnancies (excluded to focus solely on intrauterine miscarriage).

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. [11]:

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

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 prevalence of miscarriage in Nigeria.
e signifies the allowable margin of error, fixed at 5% (0.05).
q = 1 - p

A recent study conducted by Eleje et al. [12] reports the prevalence of miscarriage in Nigeria as 15.34%

P = 15.34% = 0.1534

q = 1 – 0.1534

= 0.8466

$$n = \frac{(1.96)^2(0.1534 \times 0.8466)}{(0.05)^2}$$

$$n = \frac{3.8416 \times (0.1299)}{0.0025}$$

$$n = \frac{0.4989}{0.0025} = 199.56$$

This yielded a minimum sample size of 200. However, considering feasibility, hospital records, and potential non-responses, 220 patients' records were targeted. Additionally, 30 healthcare providers were purposively sampled for qualitative interviews.

Sampling Technique

For patient records: systematic random sampling was used. The list of miscarriage cases during the study period was obtained from the medical records department, and every kth case was selected after a random start.

For healthcare providers: purposive sampling was adopted to include all key cadres involved in miscarriage management (consultants, senior registrars, registrars, residents, midwives, and nurses).

Data Collection Instruments

1. **Structured Data Extraction Form:** Designed to collect information from patient medical records, including:
    - Socio-demographic data (age, parity, marital status, education).
    - Type of miscarriage.
    - Diagnostic approach (clinical, ultrasound, laboratory).
    - Management modality (expectant, medical, surgical).
    - Medications used (e.g., misoprostol, mifepristone).
    - Surgical procedures (manual vacuum aspiration, dilatation and curettage, evacuation).
    - Complications and outcomes.
2. **Semi-structured Interview Guide:** For healthcare providers to explore:
    - Their experiences with miscarriage management.
    - Challenges faced in adopting specific treatment modalities.
    - Adherence to national and international guidelines.
    - Availability of equipment and medications.

Ethical Considerations

Permission to access medical records was secured from hospital authorities. Informed consent was obtained from all healthcare providers interviewed. Confidentiality and anonymity were assured by de-identifying all data before analysis and publication.

Data Collection Procedure

Patient records review: Trained research assistants retrieved relevant case files from the records department. Data were extracted systematically using the pre-tested form.

Healthcare provider interviews: Conducted face-to-face in a private setting within the hospital, ensuring confidentiality. Interviews were audio-recorded with consent and supplemented by field notes.

Data Analysis

Quantitative data: Entered into IBM SPSS version 26 for analysis. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize data. Cross-tabulations and chi-square tests were applied to examine associations between socio-demographic factors and the choice of management modality.

Qualitative data: Audio recordings were transcribed verbatim. Data were analyzed using thematic analysis, with coding done manually and recurring themes identified regarding practices and challenges in miscarriage management.

Results

A total of 220 respondents participated in the study. The majority were aged 25–34 years (44.55%), followed by those aged 35–44 years (25.45%) and 15–24 years (19.09%). Most were married (78.64%) and had at least secondary education (41.36%), while 33.64% attained tertiary education. Regarding parity, 37.27% had 1–2 children, while 30.91% were nulliparous (Table 1).

In terms of miscarriage types, incomplete abortion was most common (43.64%), followed by inevitable (15.00%) and missed abortions (15.00%). Threatened and complete abortions accounted for 12.27% and 14.09%, respectively (Figure 1). The predominant diagnostic method combined clinical evaluation with ultrasound (64.55%), while 26.36% were diagnosed clinically alone (Figure 2). Surgical management was the most utilized modality (41.36%), closely followed by medical management (40.00%), and expectant management accounted for 18.64% (Figure 3).

Correlation analysis revealed significant associations between age and parity ($r = 0.41$, $p < 0.05$), age and management modality ($r = -0.21$, $p < 0.05$), parity and management modality ($r = -0.16$, $p < 0.05$), and gestational age with management modality ($r = 0.29$, $p < 0.05$) (Table 2). Chi-square analysis showed significant associations between age group and management modality ($\chi^2 = 12.83$, $df = 6$, $p = 0.045$) and between educational level and management modality ($\chi^2 = 14.55$, $df = 6$, $p = 0.024$) (Table 3).

Qualitative data from healthcare providers highlighted partial adherence to national guidelines, challenges such as limited misoprostol availability, and the emotional toll of managing miscarriages (Table 4). Patient interviews revealed mixed perceptions of care, with long waiting times being a common concern. Some patients expressed preference for surgical intervention for quicker resolution and reported inadequate counseling (Table 5).

Variable	Frequency (n = 220)	Percentage (%)
Age Group (years)		
15–24	42	19.09
25–34	98	44.55
35–44	56	25.45
45–49	24	10.91
Marital Status		
Married	173	78.64
Single	33	15.00
Divorced	9	4.09
Widowed	5	2.27
Educational Level		

No formal education	18	8.18
Primary	37	16.82
Secondary	91	41.36
Tertiary	74	33.64
Parity		
0	68	30.91
1–2	82	37.27
3–4	53	24.09
≥5	17	7.73

Table 1: Socio-demographic Characteristics of Respondents

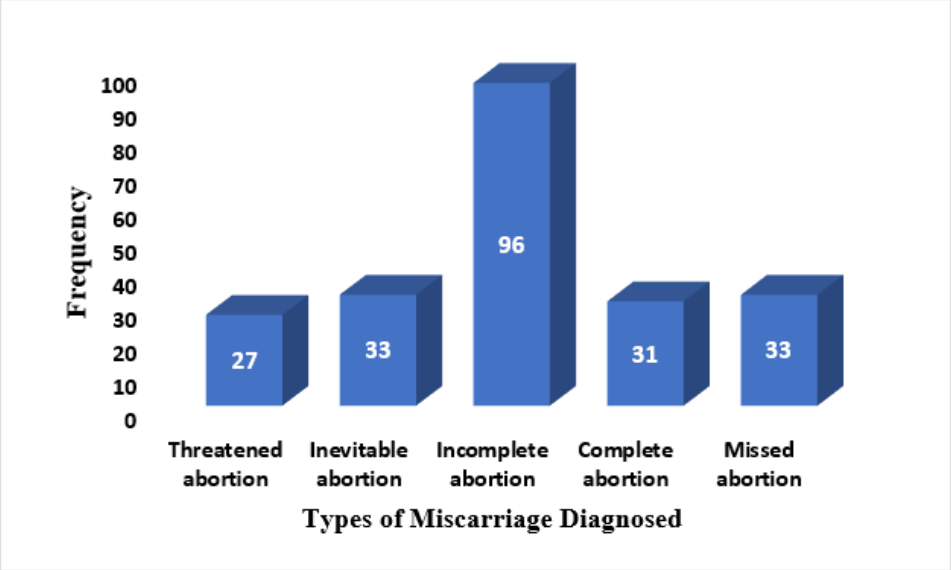

Figure 1: Type of Miscarriage Diagnosed

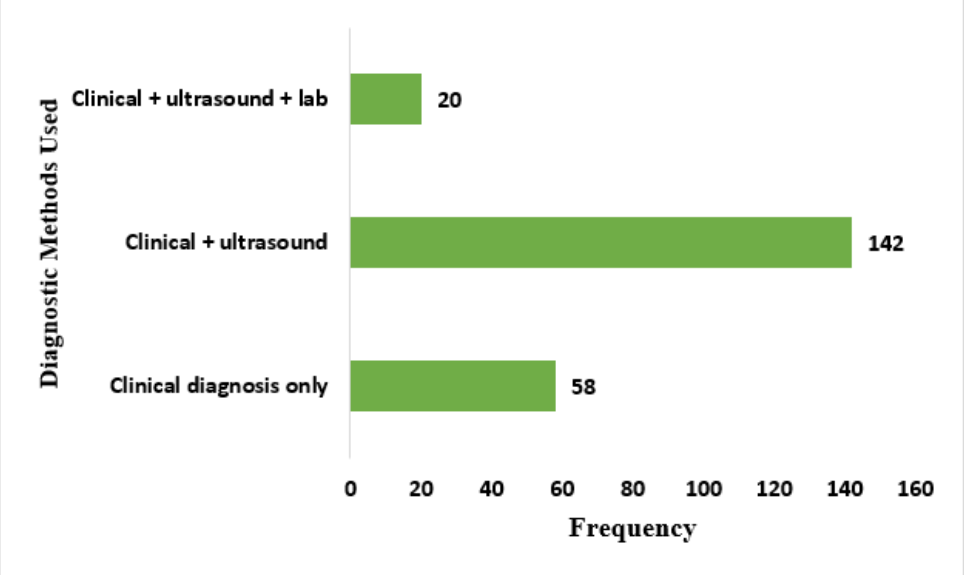

Figure 2: Diagnostic Methods Used

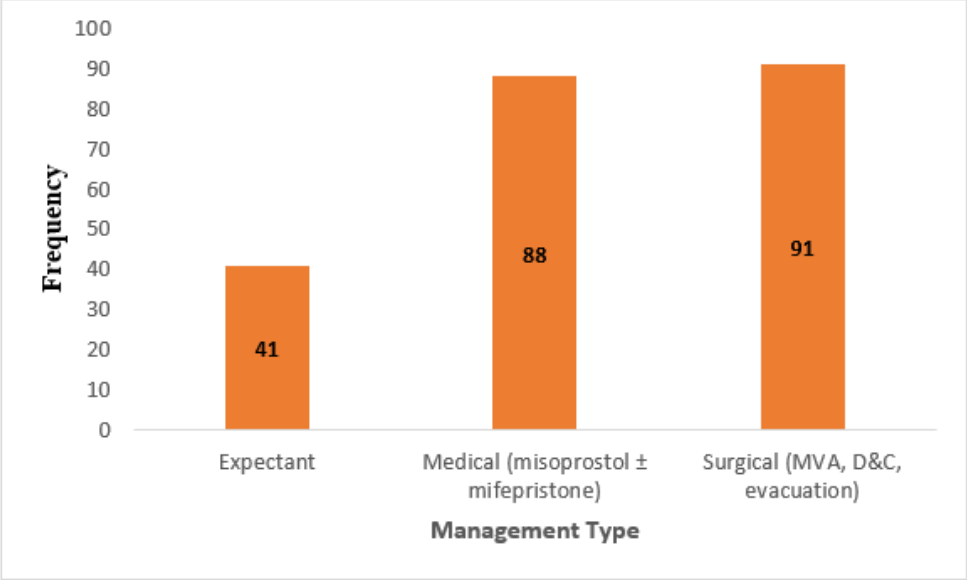

Figure 3: Management Modalities

Variable	Age	Parity	Gestational Age	Management Modality (coded)
Age	1	0.41*	0.05	-0.21*
Parity	0.41*	1	0.11	-0.16*
Gestational Age	0.05	0.11	1	0.29*
Management Modality (coded: 1=Expectant, 2=Medical, 3=Surgical)	-0.21*	-0.16*	0.29*	1

Table 2: Correlation Matrix (Pearson's r)

*Correlation is significant at $p < 0.05$.

Variable vs Management Modality	χ^2	df	p-value
Age group	12.83	6	0.045*
Parity	10.14	6	0.118
Marital status	8.72	6	0.190
Educational level	14.55	6	0.024*

Table 3: Chi-square Tests of Association

*Significant at $p < 0.05$

Theme	Key Findings
Adherence to guidelines	Most reported partial adherence to national protocols due to resource constraints.
Challenges in management	Limited availability of misoprostol; occasional lack of functional MVA kits; patient late presentation.
Decision drivers for modality	Severity of bleeding, patient preference, and availability of theatre space.
Training and competence	Some midwives reported need for more hands-on training in MVA.
Emotional impact on providers	Providers noted emotional toll of frequent miscarriage cases and need for better psychosocial support systems.

Table 4: Themes from Healthcare Provider Interviews (n = 30)

Theme	Response
Perception of care	"The doctors were kind, but I waited many hours before treatment."
Preference for management	"I preferred surgery so it would be over quickly."
Understanding of miscarriage cause	"I don't know why it happened. Maybe stress or work."
Support received	"My husband was supportive, but no counseling was offered at hospital."

Table 5: Summary of Patient Interview Insights (n = 20)

Discussion

The present study investigated the management and treatment modalities of miscarriage at Abia State University Teaching Hospital, Aba, providing valuable insights into patterns of diagnosis, intervention, and influencing factors within this setting. The findings align in several respects with existing literature while also highlighting unique local challenges and practices that warrant attention.

The socio-demographic profile of respondents in this study revealed that the majority were women aged 25–34 years (44.55%) and 35–44 years (25.45%), with a significant proportion being married (78.64%) and having

secondary or tertiary education (41.36% and 33.64%, respectively). These patterns are consistent with the demographic most affected by miscarriage globally, as reproductive-age women within these brackets represent the population at highest risk for pregnancy loss [13,14]. Similar trends were reported by Ikechebelu et al. [15] in Southeast Nigeria, where the majority of miscarriage cases occurred among married women aged 25–34 years. The association between educational level and management modality observed in this study ($\chi^2 = 14.55$, $p = 0.024$) further suggests that educational status may influence health-seeking behavior and possibly preferences for care, corroborating findings from earlier Nigerian studies [16].

Regarding types of miscarriage, incomplete abortion was most common (43.64%), followed by inevitable and missed abortions (each 15%). This predominance of incomplete miscarriage mirrors reports from other Nigerian tertiary hospitals, where incomplete abortion often results from late presentation or delayed care-seeking [17]. Globally, incomplete miscarriages remain the most frequently managed type in low-resource settings, where patients may delay seeking medical attention [18].

Diagnostic methods relied heavily on clinical examination combined with ultrasound (64.55%), with only a minority receiving adjunct laboratory testing. This diagnostic pattern aligns with World Health Organization (WHO) recommendations advocating ultrasound as the gold standard where available [19]. However, the reliance on clinical diagnosis alone in about a quarter of cases (26.36%) reflects the ongoing limitations in diagnostic infrastructure, as similarly reported in studies from other sub-Saharan African settings [20].

In terms of management, surgical intervention (41.36%) and medical management with misoprostol (40.00%) were nearly equally utilized, while expectant management accounted for 18.64% of cases. This distribution reflects a shift from exclusive surgical management, as noted in older Nigerian studies [17], toward greater incorporation of medical management, in line with global trends and national protocols [21]. However, the interviews with healthcare providers revealed gaps in implementation, with reports of inconsistent access to misoprostol and functional manual vacuum aspiration (MVA) kits. These findings echo challenges reported by Adeniran et al. [22], who found that stock-outs and equipment shortages significantly hinder miscarriage care in Nigerian hospitals.

The statistically significant association between age group and management modality ($\chi^2 = 12.83$, $p = 0.045$) and between educational level and management modality suggests that both biological and social determinants influence care pathways. Younger women and those with higher education may be more likely to opt for or be offered medical rather than surgical management, as similarly observed in studies from Kenya and Ghana [23,24].

Correlation analysis revealed that gestational age was positively associated with the choice of management modality ($r = 0.29$, $p < 0.05$), with later gestational ages tending toward surgical intervention. This is consistent with evidence that larger retained products of conception at later gestations often necessitate more active management [25]. The negative correlation between age and management modality ($r = -0.21$, $p < 0.05$) also suggests that older women were more likely to undergo surgical evacuation, potentially due to a higher likelihood of complications or provider preference, as documented in previous studies [26].

The qualitative findings add important context. Providers reported partial adherence to national guidelines, primarily due to resource constraints and late presentation by patients. Similar challenges were identified in the work of Banke-Thomas et al. [27], which underscored the impact of health system limitations on miscarriage care in Nigerian urban centers. The emotional toll on providers noted in this study is also consistent with international findings emphasizing the need for structured psychosocial support for both staff and patients [28].

Patient perspectives highlighted mixed experiences: while many appreciated provider kindnesses, they were dissatisfied with long waiting times and the lack of counseling services. These insights resonate with studies by Akinlusi et al. [16] and Geller et al. [29], which emphasized the critical role of timely care and emotional support in shaping patient satisfaction and recovery after miscarriage. That most women did not understand the cause of their miscarriage reflects the widespread gaps in patient education, as similarly reported in previous Nigerian and global studies [18,30].

Conclusion

While the management of miscarriage at Abia State University Teaching Hospital demonstrates commendable integration of medical and surgical modalities in line with contemporary standards, significant challenges persist. These include infrastructural deficiencies, inconsistent guideline adherence, inadequate patient education, and insufficient emotional support mechanisms. Addressing these gaps will require concerted efforts to strengthen health systems, ensure consistent supply chains for essential medications and equipment, and embed psychosocial support within routine miscarriage care.

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