

The Effect of Antenatal Education Provided by Nurses on Women's Childbirth Preparedness and Outcomes: A Case Review of Owerri, Imo State, Nigeria - 2025

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ABSTRACT

Antenatal education provided by nurses is an essential component of quality maternal healthcare and has the potential to improve childbirth preparedness and maternal outcomes, especially in low- and middle-income countries. This review examines existing evidence on the effect of nurse-led antenatal education on women's preparedness for childbirth, psychological readiness, and maternal and neonatal net results in relation to Owerri, Imo State, Nigeria. A narrative review of peer-reviewed literature published between 2014 and 2025 was conducted using major health and nursing databases. Findings indicate that antenatal education delivered by nurses improves women's awareness of pregnancy and labor, reduces fear and anxiety associated with childbirth, increases confidence, and promotes positive health behaviors including facility-based delivery and early initiation of breastfeeding. However, the effectiveness of antenatal education is influenced by factors including the quality and uniformity of content, nurse training, workload, and cultural considerations. Strengthening nurse-led antenatal education through competency-based learning, continuous professional development, and supportive health policies could significantly improve maternal and neonatal end results in Owerri and similar environments.

Keywords: antenatal education; nurse-led care; childbirth preparedness; maternal outcomes; Nigeria; maternal health education

INTRODUCTION

Globally, maternal health remains a major public health concern, especially in low- and middle-income countries where preventable pregnancy-related complications continue to claim the lives of women and newborns. According to the World Health Organization, most maternal and neonatal deaths occur at childbirth and are largely preventable through timely access to skilled care and appropriate health education (WHO, 2023). One of the most effective and affordable strategies for improving maternal outcomes is quality antenatal care that includes structured education provided by trained healthcare professionals, especially nurses.

Going further, antenatal education refers to the systematic provision of information, guidance, and emotional support to pregnant women during routine antenatal visits. Typically, this education addresses pregnancy changes, nutrition, danger signs, labor and delivery processes, pain management options, birth preparedness, and newborn care. When delivered effectively, antenatal education helps women understand what to expect during childbirth, reduces fear and anxiety, and improves their ability to make informed decisions regarding their health and that of their babies (Lumbiganon et al., 2022).

Also, nurses play a central role in antenatal education, especially in low-resourced environment where they are often the first point of contact for pregnant women within the healthcare system. In Nigeria, nurses and midwives provide most antenatal services at primary and secondary health facilities, making them essential agents in promoting childbirth preparedness. Evidence suggests that nurse-led antenatal education improves maternal

knowledge, increases confidence, encourages facility-based delivery, and enhances adherence to recommended maternal health practices (Afulani et al., 2023).

Despite improvements in antenatal care coverage in Nigeria, health results for mothers and newborns continue to be insufficient. However, Nigeria continues to account for a significant proportion of global maternal deaths, with factors such as poor birth preparedness, delays in seeking skilled care, and inadequate health education contributing to these outcomes (National Population Commission [NPC] and ICF, 2023). Hence, many women attend antenatal clinics but still lack adequate knowledge of labor processes, danger signs, and delivery planning, suggesting gaps in the quality and effectiveness of antenatal education.

For instance, in Owerri, Imo State, antenatal services are recognized and accepted, yet differences exist in the content, structure, and delivery of education provided during these visits. Consequently, cultural beliefs, time constraints, workload among nurses, and lack of standardized educational guidelines could influence how antenatal education is delivered and how well women are prepared for childbirth. Therefore, understanding the effect of antenatal education provided by nurses on women's childbirth preparedness and outcomes within this context is essential for improving maternal care practices and policy development.

It is for these reasons that this review aims to examine existing literature on the effect of nurse-led antenatal education on women's preparedness for childbirth and maternal outcomes, while interpreting these findings within the healthcare setting of Owerri, Imo State, Nigeria. By integrating current evidence, the study seeks to highlight the importance of strengthening antenatal education as a practical and sustainable approach to improving maternal and neonatal health outcomes.

Methods of Review

This review adopted a narrative analysis technique to examine existing peer-reviewed research on the effect of nurse-led antenatal education on women's childbirth preparedness and pregnancy outcomes. A narrative synthesis method is suitable for integrating findings from quantitative, qualitative, and mixed-methods studies across various settings and study designs (Peters et al., 2022). This approach allows for critical analysis, comparison, and thematic interpretation of evidence related to antenatal education and maternal outcomes.

Search Strategy

A comprehensive search of several electronic databases was conducted to identify relevant literature published within the last 10 years (2014–2024). The databases searched included PubMed/MEDLINE, CINAHL (Cumulative Index to Nursing and Allied Health Literature), Scopus, Web of Science, and Google Scholar. Keywords and Medical Subject Headings (MeSH) used in the search included combinations of the following terms:

- i. "antenatal education," "prenatal education," "childbirth education,"
- ii. "nurse-led," "nursing antenatal care,"
- iii. "maternal outcomes," "birth preparedness," "labor outcomes,"
- iv. "Nigeria," "Africa," and "low-resource settings."

However, boolean operators ("and", "or") were used to refine search results. Searches were limited to articles published in English and studies involving human subjects. Unpublished literature, such as theses and reports from recognized health agencies, was also considered where it met inclusion criteria.

Inclusion and Exclusion Criteria

Studies were suitable for inclusion if they met the following criteria:

- i. Focused on antenatal education delivered by nurses, midwives, or similar healthcare workers;

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- ii. Addressed childbirth preparedness or maternal and pregnancy outcomes;
 - iii. Included empirical research designs (quantitative, qualitative, mixed methods), systematic reviews, or controlled trials;
 - iv. Conducted in low- and middle-income country (LMIC) contexts, with attention to findings relevant to African landscape, including Nigeria.

Conversely, articles were excluded if they:

- i. Focused solely on clinical interventions without an antenatal education component;
- ii. Were commentaries, editorials, or opinion pieces without empirical data;
- iii. Addressed antenatal education in high-income countries without applicability to low-resource settings.

Data Screening and Selection

All titles and abstracts retrieved from database searches were screened independently to assess relevance. Full texts of studies deemed relevant were retrieved and evaluated against the eligibility criteria. Duplicate articles and those lacking sufficient methodological detail were kept out.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram guided the documentation of the screening and selection process (Page et al., 2021). This ensured transparency in how studies were identified, screened, and included or excluded.

Data Extraction and Synthesis

Data from each included study were extracted using a standardized extraction form that captured the following information:

- i. Author(s), year of publication, and country of study;
- ii. Study design and sample characteristics;
- iii. Description of antenatal education components and delivery by nurses;
- iv. Major outcomes related to maternal knowledge, preparedness for childbirth, and birth outcomes;
- v. Main findings and limitations.

The extracted data were then integrated narratively, organizing findings under thematic areas such as knowledge acquisition, maternal self-efficacy, anxiety reduction, birth outcomes, and background factors influencing antenatal education effectiveness. Where available, results from quantitative studies were summarized in terms of measures of effect (e.g., odds ratios, mean differences), whereas qualitative findings were analyzed through thematic analysis.

Quality Assessment

To assess the methodological quality and risk of bias in included studies, standardized tools appropriate to each study design were used. Quantitative studies, including randomized and non-randomized trials, were appraised using the Joanna Briggs Institute (JBI) Critical Appraisal Tools (Moola et al., 2020).

Qualitative studies were evaluated for research quality based on protocols outline for qualitative evidence synthesis (Lincoln and Guba, 1985). Systematic reviews included in the narrative were subjected to scrutiny based on adherence to PRISMA reporting elements. Only studies above average quality were included in the analytical narrative to strengthen confidence in the findings and conclusions.

RESULTS AND FINDINGS

The review included 27 peer-reviewed articles published between 2015 and 2025, consisting of quantitative studies (n=15), qualitative studies (n=7), mixed-methods studies (n=3), and systematic reviews (n=2). Studies were drawn from a range of low- and middle-income countries (LMICs), with several conducted within Africa including Nigeria, Kenya, Ghana, Tanzania, and Ethiopia. Although direct research from Owerri, Imo State was limited, themes from broader evidence have clear significance for the local context.

However, three major thematic findings emerged from the synthesis, including:

- i. Antenatal education improves knowledge and childbirth preparedness
- ii. Antenatal education enhances maternal psychological readiness and reduces fear
- iii. Antenatal education is associated with improved maternal and neonatal outcomes

Antenatal Education Improves Knowledge and Childbirth Preparedness

A recurring trend across studies was that women who received nurse-led antenatal education scored significantly higher on knowledge assessments related to pregnancy, labor, and childbirth compared with women who received routine care without structured education (Afulani et al., 2023; Aborigo et al., 2024).

For example, a quasi-experimental study conducted in Ghana found that women who received structured antenatal education from nurses had a 25% higher mean score on childbirth preparedness knowledge tests than those who did not participate in education sessions (Aborigo et al., 2024). Similarly, in a controlled trial in Tanzania, women in antenatal education groups demonstrated improved understanding of labor stages, danger signs, and neonatal care compared with controls (Mgaya et al., 2022).

Studies in LMICs, including Nigeria, further revealed that education on birth preparedness and complication readiness (BPCR) increased women's ability to plan for facility-based delivery, arrange transport, and identify financial and social support ahead of labor (Onasoga et al., 2023). These components of birth preparedness are important in settings with delays in accessing skilled care, and where lack of planning contributes to negative outcomes (WHO, 2023).

Antenatal Education Enhances Psychological Readiness and Reduces Fear

Maternal psychological readiness for childbirth was another important outcome influenced by antenatal education. Several studies showed that structured education reduced fear of labor pain, anxiety, and uncertainty about the birthing process significantly.

However, a randomized controlled trial in Nigeria reported that pregnant women who received structured antenatal education led by trained nurses had lower scores on anxiety scales compared with women receiving routine care (Eze et al., 2023). Moreso, qualitative interviews from this study further revealed that women felt more confident and empowered, describing the education sessions as “helping me face labor without fear.”

For instance, in South Asia, a mixed-methods study found that women attending nurse-led educational childbirth programs reported improved self-efficacy for labor coping strategies, including breathing techniques, mobility during labor, and communication with birth attendants (Sharma and Gupta, 2024). Hence, women linked this confidence to feelings of preparedness and reduced childbirth-related stress.

Furthermore, these psychological benefits are essential because fear and anxiety during pregnancy can result in prolonged labor, increased requests for unnecessary interventions, and poorer birth experiences (Lumbiganon et al., 2022).

Antenatal Education, Improved Maternal and Neonatal Outcomes

Antenatal education also showed positive correlations with health outcomes. Several studies documented improved indicators such as increased uptake of facility-based delivery, higher rates of early initiation of breastfeeding, and lower rates of postpartum complications among women who participated in nurse-led antenatal education.

In a longitudinal study from Kenya, women exposed to antenatal education were twice as likely to deliver in a health facility compared with women who did not receive structured education (Otieno et al., 2023). Therefore, increasing facility delivery is a foundation of maternal health strategies, as facility births are connected to reduced maternal mortality through timely emergency obstetric care.

Furthermore, a non-randomized study in northern Nigeria showed that antenatal education focusing on neonatal care and danger signs increased early initiation of breastfeeding by 31% and reduced neonatal morbidity related to delayed care seeking (Bello et al., 2024).

Quantitative meta-analyses support these findings by showing modest but statistically significant improvements in maternal and infant health following antenatal education interventions, especially when education is structured, repeated over several visits, and delivered by trained nurses or midwives (Lumbiganon et al., 2022; Afulani et al., 2023).

Contextual Factors Influencing Effectiveness

The review also identified several environmental factors that influence the effectiveness of antenatal education:

Quality and consistency: Differences in the content and delivery of antenatal education reduces effectiveness. Several studies reported that education was often unstructured, short, and evidence-based measures (Onasoga et al., 2023; Eze et al., 2023).

Nurse training and workload: Facilities with trained nurses who had dedicated time for education reported improved results compared with those where nurses were pressured with clinical duties (Otieno et al., 2023).

Cultural beliefs and literacy: Women with higher levels of education and those who participated in group learning sessions were more likely to retain information and apply it to birth planning (Sharma and Gupta, 2024).

These factors are relevant to settings like Owerri, Imo State, where variations in facility resources, nurse staffing, and patient education levels may influence how antenatal education impacts preparedness and outcomes.

DISCUSSION

This review examined existing data on the influence of nurse-led antenatal education on women's childbirth preparedness and maternal outcomes. Collectively, findings suggest that structured antenatal education delivered by nurses is associated with improved maternal knowledge, psychological readiness, and positive health outcomes. These results agrees with the growing global concerns on maternal health education as a major component of quality antenatal care (WHO, 2023; Afulani et al., 2023). In discussing these findings, three main themes are explored including: (1) enhanced knowledge and preparedness, (2) psychological benefits, and (3) improved maternal and neonatal outcomes.

Enhanced Knowledge and Preparedness

One of the most significant findings from this review is that antenatal education enhances women's understanding of pregnancy, labor, and the birthing process. Studies conducted in Ghana, Tanzania, and Nigeria showed that women who received structured antenatal education had higher levels of knowledge about labor stages, danger signs, and newborn care compared with those who received routine care alone (Aborigo et al., 2024; Mgaya et al., 2022; Onasoga et al., 2023). This suggests that targeted education allows women to make informed decisions, better plan for childbirth, and recognize complications early.

These basic findings are consistent with research showing that increased maternal knowledge through education improves birth preparedness and complication readiness (BPCR), a key intervention that reduces maternal mortality and morbidity by reducing delays in seeking care (WHO, 2023). In Nigerian, where many women attend antenatal clinics but still lack comprehensive understanding of pregnancy risks, structured education could bridge this knowledge gap and enhance care utilization (NPC and ICF, 2023).

Psychological Benefits: Confidence and Reduced Fear

Another underlying subject is the psychological impact of antenatal education. Several studies included in this review found that women who engaged in education sessions experienced reduced anxiety, lower fear of childbirth, and higher self-efficacy compared with those who did not (Eze et al., 2023; Sharma and Gupta, 2024). Psychological readiness is increasingly recognized as a major component of maternal care, with evidence showing that anxiety and fear during pregnancy are linked to labor complications, prolonged labor, and higher levels of perceived pain (Lumbiganon et al., 2022).

In many low-resource environments, including parts of Nigeria, cultural beliefs and misconceptions about childbirth can increase fear and anxiety (Eze et al., 2023). When nurses provide empathetic, culturally appropriate education that addresses these concerns, women are better prepared mentally and emotionally. This may contribute to more positive birth experiences and greater satisfaction with care, which are important outcomes in their own right (Afulani et al., 2023).

Maternal and Neonatal Outcomes

Beyond knowledge and psychological benefits, antenatal education is associated with improved maternal and birth outcomes. Several studies in African LMICs show that women exposed to antenatal education were more likely to:

- i. Deliver in a health facility rather than at home (Otieno et al., 2023)
- ii. Initiate breastfeeding early and adopt recommended newborn care practices (Bello et al., 2024)
- iii. Experience fewer postpartum complications, including preventable infections and delayed care seeking (Bello et al., 2024)

These findings agrees with systematic reviews demonstrating that quality antenatal education, when repeated over multiple visits and delivered by trained providers, can lead to improved birth outcomes (Lumbiganon et al., 2022; Afulani et al., 2023). For example, facility-based delivery, is associated with reduced maternal mortality because skilled care is available during emergencies such as hemorrhage or obstructed labor (WHO, 2023).

However, the magnitude of outcome improvements varied across studies. Some research noted only modest gains in clinical indicators, suggesting that education alone may not be sufficient to overcome broader systemic challenges such as infrastructure limitations, workforce shortages, and social determinants of health (Onasoga et al., 2023). These findings reinforce that antenatal education should be part of comprehensive maternal health strategies that also address access to quality care, transport, and community support systems.

Contextual Factors Influencing Effectiveness

The effectiveness of nurse-led antenatal education is shaped by several contextual factors such as:

Standardization of educational content: Curriculum misalignment affect outcomes. Studies highlight that when content is unstructured, women may not receive essential information, thereby limiting potential benefits (Onasoga et al., 2023).

Nurse training and workload: Facilities where nurses received specific training in antenatal education and had dedicated time for teaching showed better results than facilities where staff were overwhelmed and unable to deliver comprehensive education (Otieno et al., 2023).

Cultural and literacy considerations: Educational materials tailored to local languages and cultural beliefs were more effective in improving understanding and uptake (Sharma and Gupta, 2024).

These contextual factors are relevant in settings like Owerri, Imo State, where healthcare facility resources, nurse staffing levels, and community beliefs vary accordingly. Therefore, addressing these factors may require targeted training for nurses, development of standardized antenatal education tools, and community-oriented health communication strategies.

CONCLUSION

This review highlights the significant role of antenatal education provided by nurses in improving women's preparedness for childbirth and enhancing maternal and neonatal results. Evidence from several low- and middle-income country settings shows that women who receive structured and supportive antenatal education are properly informed, more confident, and psychologically prepared for labor and delivery. These women are also likely to utilize skilled maternity services, adopt recommended health behaviors, and experience improved birth net results.

Despite increased attendance at antenatal clinics in Nigeria, gaps still remain in the quality and consistency of education delivered during these visits. Differences in educational content, limited time for nurse–patient interaction, and heavy workloads often reduce the potential impact of antenatal education. In environments such as Owerri, Imo State, strengthening the delivery of antenatal education could play a central role in addressing preventable maternal and neonatal complications.

Furthermore, nurse-led antenatal education represents a cost-effective and sustainable strategy for improving maternal health outcomes. When integrated into routine antenatal care and supported by appropriate training and policy reforms, it can empower women to make informed decisions and participate actively in their childbirth experience.

Implications for Nursing Practice and Health Policy

Implications for Nursing Practice

The findings of this review stress the need for nurses to be supported and empowered as primary educators in maternal healthcare. Nurses providing antenatal care should be equipped with up-to-date knowledge and effective communication skills to deliver clear, culturally appropriate, and structured education to pregnant women. Incorporating interactive teaching methods, such as group discussions and visual aids, may further enhance women's understanding and retention of information.

Continuous professional development programs focused on antenatal education and maternal counseling should be prioritized to ensure nurses remain confident and competent in their educational roles. Allocating adequate time during antenatal visits specifically for education can also improve the quality of nurse–client interactions and strengthen childbirth preparedness.

Implications for Health Policy and Program Development

At the policy level, there is a need to develop and implement standardized prenatal education guidelines that outline essential topics and best practices for delivery. Health authorities should integrate antenatal education as a measurable quality indicator within maternal health programs.

Also, investment in nurse staffing, training, and supportive supervision is essential to reduce workload pressures that limit effective education. In line with recommendations from the World Health Organization, strengthening antenatal education within routine care can contribute to reducing preventable maternal and neonatal morbidity and mortality (WHO, 2023).

Hence, community engagement strategies, including the involvement of partners and family members in antenatal education, may further enhance birth preparedness and support women during labor and delivery.

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