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BIRTH SPACING AND MATERNAL- CHILD HEALTH OUTCOMES IN EDO STATE, NIGERIA: A SYSTEMATIC REVIEW.

Aiworiaboakuelu, Christopher .E. 'Ph.D'[1], Akhimien, Joseph .O. 'Ph.D' [2], Oboh, Isaac O. 'Ph.D' [3]

Email: christopheraiworia@aauekpoma.edu.ng
Email: akhimien osayande@aauekpoma.edu.ng
Email: **obohisaac@aauekpoma.edu.ng**
Ambrose Alli University, Faculty of Social Sciences, Edo State,
Nigeria.
[1] Professor of Sociology, Ambrose Alli University, Ekpoma, Edo State, Nigeria.

ABSTRACT :

Birth spacing is a critical factor influencing maternal and child health outcomes, particularly in developing countries. This study examines the relationship between birth spacing and maternal-child health in Edo State through a review of existing literature. The study adopts a systematic review approach, drawing data from reputable databases including Google Scholar, PubMed, and African Journals Online. Relevant studies published between 2000 and 2025 were selected based on predefined inclusion and exclusion criteria. Findings from the review indicate that short birth intervals are associated with increased risks of maternal complications such as anemia, postpartum hemorrhage, and maternal mortality. Similarly, adverse child health outcomes, including low birth weight, preterm delivery, neonatal mortality, and poor nutritional status, were found to be prevalent among closely spaced births. The review also highlights the influence of socio-cultural, economic and institutional factors on birth spacing practices in Nigeria. The study concludes that optimal birth spacing remains a vital yet underutilized strategy for improving maternal and child health outcomes. It recommends increased awareness, improved access to family planning services, and policy interventions tailored to local contexts. The findings provide valuable insights for healthcare practitioners, policymakers, and researchers seeking to enhance reproductive health outcomes in Edo State and similar settings.

Keywords: Birth spacing; Maternal health; Child health; Family planning; Reproductive health; Neonatal mortality; Nigeria.

CHAPTER ONE

INTRODUCTION

Background to the study

Birth spacing, defined as the interval between successive pregnancies or births, is a critical determinant of maternal and child health outcomes globally. Adequate birth spacing has been widely recognized as a cost-effective strategy for reducing maternal and child morbidity and mortality. The World Health Organization (WHO) recommends a minimum interval of at least 24 months between a live birth and the next pregnancy to reduce adverse health outcomes and improve health outcomes respectively (WHO, 2006). Recent studies further emphasize that optimal birth spacing (OBS) significantly improves maternal recovery and reduces risks associated with pregnancy and child birth (WHO,2007; Ni, et al. 2023)

Despite global efforts, developing countries such as Nigeria seems to experience high rates of maternal and child mortality continually. These challenges are often linked to poor reproductive health practices, including short birth intervals, low contraceptive use, and limited access to healthcare services.

In Edo State, socio-cultural factors, economic constraints, and limited awareness may have contributed to inadequate birth spacing practices. These conditions are likely to increase the risk of complications such as maternal anemia, postpartum hemorrhage, low birth weight and neonatal mortality. Emerging evidence suggests that improving birth spacing practices can significantly reduce or abate these health risks and enhance overall well-being. Adequate spacing replenishes nutritional reserves, particularly iron and folate, thereby reducing maternal depletion syndrome, anemia, postpartum complications, and maternal mortality (Ni, et al. 2023).

This study, therefore, undertakes a systematic review of existing literature to examine the relationship between birth spacing and maternal-child health outcomes with a view to providing evidence-based insights that can support public health strategies and policy formulation, focusing on Edo State, Nigeria.

Statement of the Problem

Maternal-child health remains a major public health concern in Nigeria, where maternal and under-five mortality rates are still among the highest globally. Despite various interventions aimed at improving reproductive health, many women continue to experience adverse pregnancy and childbirth outcomes.

One of the critical but often overlooked factors contributing to these poor health outcomes is inadequate birth spacing. Evidence suggests that short birth intervals are associated with increased risks of maternal complications such as anemia, postpartum hemorrhage, and hypertensive disorders, as well as adverse child health outcomes including preterm birth, low birth weight, and neonatal mortality. These conditions or factors significantly contribute to birth maternal morbidity and mortality.

Although global health organizations such as the World Health Organization (WHO) have recommended optimal birth spacing as a key strategy for improving maternal and child health, yet the adoption of this practice remains low in many developing contexts. In Edo State, socio-cultural beliefs, limited access to family planning services, low levels of awareness and economic constraints seem to continually influence reproductive behaviour, often resulting in closely spaced births.

Furthermore, while numerous studies have examined maternal and child health outcomes in Nigeria, there is a lack of comprehensive and synthesized evidence specifically focusing on the relationship between birth spacing and maternal-child health outcomes in Edo State. Most existing studies are fragmented, context-specific, or lack integration, making it difficult to draw generalized conclusions for policy and practice.

This gap in knowledge underscores the need for a systematic review of existing literature to critically examine the role of birth spacing in shaping maternal and child health outcomes. Therefore, this study seeks to synthesize available evidence and provide a clearer understanding of how birth spacing influences maternal child health in Edo Stat, Nigeria.

Objectives of the Study

The overall aim of this study is to systematically review and synthesize existing literature on birth spacing and maternal-child health outcomes, with particular reference to Edo State.

Thus, the specific objectives are to:

1. examine existing literature on birth spacing practices in Edo State, Nigeria
2. analyze the effects of birth spacing on maternal health outcomes
3. evaluate the impact of birth spacing on child health outcomes
4. identify socio-cultural and economic factors influencing birth spacing practices in Edo State
5. review the role of family planning and healthcare services in promoting optimal birth spacing
6. identify gaps in existing literature and suggest areas for further research.

Research Questions

1. What are the patterns of birth spacing in Edo State, Nigeria?
2. How does birth spacing affect maternal health outcomes?
3. What is the relationship between birth spacing and child health outcomes?
4. What factors influence birth spacing practices in Edo State?
5. What role do healthcare services play in promoting optimal birth spacing?

Significance of Study

This study is significance in several respects.

First, it contributes to academic knowledge by providing a comprehensive synthesis of existing literature on birth spacing and maternal-child health outcomes particularly in Edo State.

Second, the study is relevant to policy makers in Nigeria, as it provides evidence that can inform the design and implementation of reproductive health policies and programmes.

Third, the findings will be useful to healthcare providers by enhancing their understanding of the importance of birth spacing in improving maternal and child health outcomes.

Fourth, the study will benefit women and families by increasing awareness of the health implications of birth spacing, thereby promoting informed reproductive decisions.

Finally, the study provides a foundation for future research by identifying gaps in existing literature and suggesting areas for further investigation.

Therefore, in summary conclusion, the study is significant as it provides a comprehensive synthesis of existing evidence on birth spacing and maternal-child health outcomes.

Scope of the Study

This study focuses on a systematic review of literature on birth spacing and maternal-child health outcomes, with emphasis on Edo State. It covers published studies, reports and scholarly articles from Nigeria and other relevant contexts.

Conceptual Clarifications/Definition of Terms

Birth Spacing: This refers to the time interval between successive live births or between a live birth and the next pregnancy. It is a major determinant of maternal and child health outcomes. The World Health Organization (WHO) recommends on interval of at least 24 months after a live birth before attempting the next pregnancy, which translates to approximately 33 months between successive births (WHO, 2006).

Birth spacing is important because it allows a woman's body sufficient time to recover from the physiological stress of pregnancy and child birth. Short intervals are associated with several adverse outcomes, such as maternal depletion, anemia, uterine rupture, increased risk of maternal mortality low birth weight, preterm malnutrition and infant mortality from a sociological standpoint, birth spacing is influenced by multiple factors such as cultural beliefs, level of education, access to healthcare, and use of family planning methods. Birth spacing simply means the interval between successive births or pregnancies.

Maternal;-Child Health: Maternal-child health refers to the health and well-being of women during pregnancy, childbirth, and the postpartum period, as well as the health of infants and children, particularly during the early stages of life. It is a key indication of a nation's overall health status and development.

According to WHO (2006), maternal health encompasses the health of women during pregnancy, childbirth, and within six weeks after delivery, while child health focuses on survival, growth, and development from birth through early childhood.

Maternal-child health is closely interconnected, as the health status of ate mother directly influences the outcomes of the child. So, health maternal conditions promote better fetal development and improved child survival. Conversely, poor maternal health has adverse effects on the child too.

Globally, material and child health remains a major public health concern, particularly in low- and middle-income countries.

The United Nations Children's Fund (UNICEF) emphasizes that improving maternal-child health is essential for achieving sustainable development goals related to health and well-being. In fact, maternal-child health is a multidimensional concept that reflects the interaction between biological, social and environmental factors affecting both mothers and children. Improving it requires integrated approaches that address healthcare systems, education, and socio-economic inequalities.

For a quick grip, maternal health is the health of women during pregnancy, childbirth, and postpartum while, child health is the health and well-being of infants and children.

Systematic Review: Defining it in general view, a systematic review is a structured, comprehensive, and transparent method of identifying, selecting, analyzing, and synthesizing existing research studies on a particular topic or research question.

In this study therefore, a systematic review refers to a structured and comprehensive examination of existing literature on birth spacing and maternal-child health outcomes. It involves the systematic identification, selection, and analysis of relevant studies from credible sources such as PubMed (Publications in Medicine), journals, and reports from organizations like the World Health Organization, with the aim of synthesizing evidence and identifying patterns, relationships and gap in knowledge, particularly in Edo State and Nigeria in general.

In a simple form, systematic review is a structured analysis of existing research studies.

PubMed: This is a combination of two words:

"Pub" – Publications and "Med"--medicine. So, PubMed essentially means publications in medicine. It is a biomedical database of medical and health-related publications maintained by the U.S. National Library of Medicine. It is a database that provides access to peer-reviewed biomedical literature used in this study.

In fact, it provides access to millions of biomedical and health-related research articles from journals worldwide.

Peer-Reviewed Sources: Peer-reviewed articles are research papers that have been evaluated by experts in the same field before publication. They ensure scientific accuracy.

Credible Institutional Reports: Are reports produced by trusted organizations with authority in a field. They provide authoritative data and global perspectives.

Optimal Birth Spacing Practices: involve maintaining a healthy interval between pregnancies, usually at least 24 months after a live birth, as recommended by the World Health Organization. This allows the mother's body to recover and improves the survival and health of both mother and child. It is atypically achieved through effective use of family planning methods.

Maternal Depletion Syndrome: This refers to a condition in which a woman's body becomes physically weakened due to frequent pregnancies by loss of essential nutrients, fatigue, and poor overall health. This often occurs when birth intervals are too short, preventing the mother from restoring her nutritional reserves.

Anemia: Anemia is a condition in which there is a deficiency of red blood cells or hemoglobin in the blood, leading to reduced oxygen supply to body tissue. In pregnant women, it is commonly caused by iron deficiency and can result in weakness, dizziness, and increased risk of complications during childbirth.

Postpartum Hemorrhage: This is the excessive loss of blood (usually more than 500ml) following childbirth. It is one of the leading causes of maternal death, especially in developing countries, and can occur immediately after delivery or within the first 24 hours.

Preterm Birth: Preterm birth refers to the birth of a baby before 37 completed weeks of pregnancy. Preterm babies often have underdeveloped organs and at higher risk of health complications, including breathing problems is infections.

Low Birth Weight: Low birth weight is defined as a baby being born weighing les than2.5 kilograms (2500grams). It is often associated with premature birth or poor maternal health and cn increase the risk of infant illness and death.

Neonatal Mortality: refers to the death of a newborn within the first 28 days of life. It is a key indicator of a country's healthcare quality and is often caused by infections, birth complication, or prematurity.

Poor Nutritional Status: Poor nutritional status refers to a condition in which an individual does not receive adequate nutrients (proteins, vitamins, and minerals) required for healthy growth and functioning. In mothers and children, this can lead to weakness, stunted growth, increased susceptibility to disease, and poor health outcomes.

Sepsis: Sepsis is a life-threatening condition that arises when the body's response to infection causes widespread inflammation, tissue damage, and organ failure. In maternal health, it is often referred to as maternal sepsis, occurring during pregnancy, childbirth or the postpartum period.

Maternal Sepsis is a major cause of preventable deaths, particularly in settings with poor hygiene and inadequate healthcare services.

According to the World Health Organization, maternal sepsis accounts for a significant proportion of maternal deaths globally and is largely preventable with timely intervention (WHO, 2017).

Eclampsia: This is a severe and life-threatening complication of pregnancy characterized by the occurrence of seizures (convulsions) in a woman with preeclampsia, a condition marked by high blood pressure and protein in the urine. It typically occurs during late pregnancy, labour, or shortly after childbirth.

Eclampsia represents the most advanced stage of hypertensive disorders in pregnancy and is a major cause of maternal and prenatal mortality, especially in low-resource settings.

The World Health Organization identifies eclampsia as one of the leading causes of maternal mortality worldwide, particularly in developing countries (WHO, 2019).

Maternal Morbidity: refers to any illness complication, or health condition that a woman experiences during pregnancy, childbirth, or within the postpartum period (usually up to 42 days after delivery). It focuses on non- fatal health conditions that may affect a woman's physical, mental, or social well-being.

According to the WHO, maternal morbidity is far more common than maternal mortality and represents a major burden on women's health globally (WHO, 2019).

Maternal Mortality: It refers to the death of a woman during pregnancy, childbirth, or within 42 days after the termination of pregnancy, from causes related to or aggravated by the pregnancy or its management. It represents the most severe outcome of maternal health complications.

The World Health Organization estimates that hundreds of thousands of women still die each year from preventable pregnancy-related causes, particularly in low-income countries (WHO, 2013).

Antenatal Care (ANC): refers to the routine healthcare services provided to pregnant women from conception until the onset of labour, with the aim of ensuring the best possible health outcomes for both the mother and the unborn child. According to the World Health Organization, antenatal care involves a range of preventive, diagnostic, and educational services designed to monitor pregnancy and reduce the risk of complications (WHO, 2016).

Antenatal care (ANC) is a critical component of maternal-child health because it provides an opportunity for early detection and pregnancy related complications.

The World Health Organization recommends a minimum of eight antenatal contacts during pregnancy to ensure comprehensive care and improved outcomes (WHO, 2016).

Uterine Rupture: This is a severe obstetric complication characterized by a tear or complete rupture of the wall of the uterus, most often occurring during pregnancy or labour. It is a life-threatening condition that can result in significant maternal and fetal morbidity and mortality if not managed promptly.

Uterine rupture commonly occurs in women with a previous cesarean section scar, although it may also happen in unscarred uteri due to prolonged obstructed labour, excessive use of labour-inducing drugs, or trauma.

Short-birth intervals are an important risk factor, as they may not allow adequate healing of the uterine wall after a previous delivery, particularly surgical births. According to the WHO, uterine rupture remains one of the major contributors to maternal mortality in low-resource settings (WHO 2015).

Malnutrition: It refers to a condition in which the body does not receive adequate nutrients required for proper growth, development, and functioning. It includes both under- nutrition (wasting, stunting, under- weight) and micronutrient deficiencies.

According to the World Health Organization, malnutrition is a major underlying cause of child morbidity and mortality, particularly in low-and middle-income countries. It weakens the immune system, increases susceptibility to infections, and impairs physical and cognitive development (WHO, 2020).

Stunted Growth: Stunted growth (or stunting) refers to a specific form of malnutrition characterized by low height forage, indicating chronic under-nutrition during the most critical periods of growth and development in early life.

The United Nations Children's Fund defines stunting as a condition resulting from prolonged nutritional deprivation, repeated infections, and inadequate psychosocial stimulation (UNICEF, 2019). It is not only a physical condition but also has long-term consequences for cognitive development, educational, performance, and economic productivity.

Short birth spacing contributes significantly to malnutrition, and stunting remains a major public health concern, driven by poverty, inadequate healthcare services, and poor feeding practices (National Population Commission (NPC,) 2019)

Thematic Analysis: Thematic analysis is a qualitative method used to identify and organize patterns in data. In this study, and was used to group findings from different studies into themes such as maternal health outcomes and child health outcomes. Thematic analysis simply means grouping similar ideas from different studies into meaningful themes to understand a topic better.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Concept of Birth Spacing

Birth spacing refers to the interval between successive pregnancies or live births. It is a critical reproductive health practice that significantly influences maternal and child health outcomes. The World Health Organization recommends a minimum interval of at least 24 months after a live birth before attempting the next pregnancy, as this reduces the risk of adverse health outcomes

Adequate birth spacing allows a woman's body to recover physically and nutritionally after childbirth. Short birth intervals, on the other hand, have been associated with maternal depletion, anemia, and increased risk of pregnancy complications. In addition, closely spaced births often limit a mother's ability to provide adequate care, nutrition, and attention to each child.

In developing countries such as Nigeria, birth spacing practices are influenced by socio-cultural beliefs, economic conditions, and access to healthcare services. These factors often result in suboptimal spacing, thereby increasing health risks.

2.1.2 Maternal-child Health

Maternal-child health refers to the health status of women during pregnancy, childbirth, and the postpartum period, as well as the health and well-being of infants and children. It is a key indicator of a nation's overall health and development.

Maternal health outcomes include conditions such as:

eclampsia, sepsis, and postpartum hemorrhage.

Child health outcomes include: low birth weight, preterm birth and neonatal mortality.

The United National Children Fund emphasizes that maternal health and child health are interconnected, and poor maternal health often leads to adverse child outcomes.

2.1.3 Antenatal Care and Its Role

Antenatal care refers to the routine healthcare provided for pregnant women to ensure safe pregnancy and delivery outcomes. It includes medical check-ups, nutritional support, health education, and early detection of complications.

Access to quality antenatal care improves birth outcomes and promotes awareness of optimal birth spacing practices. However, in many parts of Nigeria, utilization of antenatal services remains inadequate due to socio-economic and cultural barriers.

2.2 Theoretical Framework

2.2.1 Health Belief Model (HBM)

The Health Belief Model as a psychological theory was developed in the 1950s by social psychologists working with the U.S. Public Health Service: Irwin M. Rosenstock, Godfrey M. Hochbaum, Stephen Kegeles, and later expanded by Howard Leventhal. These scholars developed the model to explain why people fail to adopt preventive health behaviours.

Initially this model was applied to Tuberculosis Screening and Disease Prevention Programmes. Later, it became widely used in: Public Health, Maternal-child Health and Family Planning Studies.

It is a model developed to understand or explain how people's beliefs and perceptions influence their health decisions. So, it is used to explain why people adopt or fail to adopt health-related behaviours.

The Health Belief Model is relevant to this study because it explains how women's perceptions of risks, benefits and barriers influence their decision to adopt birth spacing practices (Rosenstock, 1974). In Edo State, socio-cultural and economic factors shape these perceptions, thereby affecting maternal and child health outcomes.

2.2.2 Relevance of the Health Belief Model to the Study.

The Health Belief Model is highly relevance to this study because it provides a framework for understanding the behavioural factors influencing birth spacing practices. In Edo State, women's decisions regarding birth spacing are not only influenced by access to healthcare services but also by their beliefs, perceptions, and socio-cultural environment.

For instance, if women do not perceive short birth intervals as harmful (low perceived susceptibility and severity), they may not see the need for spacing. Similarly, even when the benefits are understood, strong cultural norms or lack of access to family planning services may act as barriers.

By applying the Health Belief Model, this study is able to explain how individual perceptions and external factors interact to influence reproductive health behaviours. This makes the model particularly useful for designing interventions aimed at improving birth spacing practices and consequently, maternal and child health outcomes.

2.3 Empirical Review

2.3.1 Birth Spacing and Maternal Health

Studies have consistently shown that short birth intervals are associated with increased maternal health risks. Conde-Agudelo, et al. (2012) found that closely spaced pregnancies significantly increase the risk of maternal anemia and complications during child birth.

Research by Conde-Agudelo, et al (2012) indicates that among women, short birth interval is associated with maternal nutritional depletion, placenta previa and abruption, incomplete healing of caesarean section scars, poor lactation, and cross infection among siblings. Systematic review has shown that birth intervals longer than 5 years are associated with labour dystocia and increases the risk of preeclampsia (Conde-Agudelo, et al. 2007).

Optimal birth spacing could therefore help prevent some of these poor maternal and child health outcomes by allowing adequate recovery between pregnancies.

2.3.2 Birth Spacing and Child Health Outcomes

Birth spacing plays a crucial role in determining child survival and development. It has always been emphasized that improper short birth intervals are associated with higher risks of infant mortality, low birth weight, and preterm birth.

Aleni, Mbalinda and Muhindo (2020) posit evidence showing that both short and long birth intervals are associated with poor maternal and child health outcomes, but stressing that current studies suggest that a number of births still occur at short intervals. Thus, adequate birth spacing significantly reduces child malnutrition and stunting. These findings underscore the importance of spacing birth for improved child health outcomes.

A recent meta-analysis concluded that birth intervals of approximately 36-48 months are associated with lower risks of childhood under-nutrition and stunting. Children born after optimal spacing are more likely to experience healthy growth and better nutritional status during early childhood (Ntambara, et al, 2023).

2.3.3. Socio-Cultural and Economic Factors

Birth spacing practices are influenced by a range of socio-cultural and economic factors. In many parts of Nigeria, cultural norms favour large family sizes, while limited access to education and healthcare services restricts the use of family planning methods.

2.3.4 Role of Family Planning and Healthcare Services

Access to family planning services plays a critical role in promoting optimal birth spacing. The World Health Organization emphasizes that family planning is essential for reducing maternal and child mortality.

However, barriers such as cost, lack of awareness, and cultural resistance continue to limit the use of contraceptive in many communities.

2.3.5 Importance of Birth Spacing

Birth spacing remains a critical public health strategy for improving maternal and child health outcomes, particularly in developing countries such as Nigeria. The World Health Organization recommends a minimum interval of 24 months between a live birth and the next pregnancy to reduce health risks (WHO, 2006).

(a) Reduction in Maternal Mortality and Morbidity

Adequate birth spacing significantly reduces maternal deaths and complications. Nigeria records one of the highest maternal mortality ratios globally-about 512 deaths per 100,000 live birth (NPC and ICF, 2019).

Short birth intervals increase risks of maternal depletion, anemia and postpartum hemorrhage. Proper spacing allows maternal recovery and reduces risks.

(b) Improvement in Child Survival Rate

Birth spacing is strongly linked to child survival. According to United Nations Children's Fund, children born less than 2 years after a previous birth are about twice as likely to die before age five (UNICEF, 2020)

In Nigeria, infant mortality rate = 67 per 1,000 live birth, and under-five mortality rate = 132 per 1,000 (NPC and ICF, 2019)

Adequate spacing helps redue these alarming figures.

(c) Reduction in Preterm Birth and Low Birth Weight

Short birth intervals are associated with: preterm birth and low birth weight. These conditions increase the likelihood of infant illness and death. Studies show that proper birth spacing significantly lowers these risks (conde-Agudelo et al., 2012).

(d) Prevention of Malnutrition and Stunting

Nigeria faces serious child nutrition challenges: about 37% of children under five are stunted (NPC and ICF, 2019). Short birth spacing leads to: Reduced breast feeding duration, competition for food and care. Adequate spacing improves: child nutrition, as well as growth and cognitive development.

(e) Promotion of Breastfeeding and Childcare

Optimal birth spacing supports: Exclusive breastfeeding for 6months, better maternal attention and care. This therefore improves immunity and reduces childhood diseases and deaths among infants.

(f) Economic and Family Welfare Benefits

In many parts of Edo State, and Nigeria in general, large families with short birth intervals strain household income. Parents struggle to provide education and healthcare for their children.

Birth spacing helps many families to plant finances, improve living standards and invest more in each child.

(g) Women Empowerment and Social Development.

Birth Spacing enhances women's: educational opportunities, employment participation and decision-making power.

Access to family planning allows women to control fertility and improve quality of life.

(h) Strengthening Healthcare System

By reducing high-risk pregnancies, birth spacing: decreases hospital overcrowding, improves quality of maternal care and reduces health care costs.

At a glance, Birth Spacing is important because it improves maternal health by reducing complications such as anemia and hemorrhage, enhances child survival by lowering infant mortality, prevents low birth weight and preterm births, supports breastfeeding, reduces malnutrition and stunting, improves family economic stability, empowers women, and reduces pressure.

2.4 Gap in Literature

Despite the growing body of literature on birth spacing and maternal-child health, several gaps remain. Most studies have focused on broad national or regional contexts, with limited attention to specific areas such as Edo State.

Furthermore, many existing studies are empirical in nature and lack a comprehensive synthesis of findings. There is also insufficient integration of socio-cultural, economic, and healthcare factors in understanding birth spacing practices.

This study addresses these gaps by proving a systematic review approach of existing literature, offering a more comprehensive understanding of the relationship between birth spacing and maternal-child health outcomes.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

This study adopts a systematic literature review design, which involves a structured and comprehensive approach to identifying, selecting, evaluating, and synthesizing existing research on birth spacing and its implications for maternal and child health. Unlike empirical studies that rely on primary data collection, this design utilizes secondary data from published and credible sources.

The systematic review approach is particularly suitable for this study as it allows for the integration of findings from multiple studies on birth spacing and maternal-child health outcomes. It also enhances the reliability and validity of the study by minimizing bias through a transparent and replicable process.

3.2 Sources of Data

The study is based entirely on secondary data obtained from credible and authoritative sources. These include: Peer-reviewed journal articles, Academic books, Conference papers and Institutional reports.

The key databases and sources used include: PubMed, Google Scholar, African Journal Online (AJOL) and Reports from World Health Organization as well as United Nations Children's Fund.

These sources were selected because they provide reliable and up-to-date information relevant to maternal and child health.

3.3 Search Strategy

A systematic search strategy was employed to identify relevant literature. Keywords and search terms were carefully selected based on the objectives of the study.

Search keywords include: Birth spacing, maternal health, child health, maternal mortality, Neonatal mortality family planning, Nigeria and sub-Saharan Africa.

The search was limited to studies published between 2000 and 2025 to ensure relevance and inclusion of recent findings.

3.4 Inclusion Criteria Applied

To ensure the quality and relevance of the selected studies, the following criteria were applied.

Inclusion Criteria: studies focusing on birth spacing and maternal-child health, Peer-reviewed journal articles and credible institutional reports, studies conducted in Nigeria, sub-Saharan Africa, or similar contexts, studies published between 2000 and 2025 and articles written in English.

3.5 Study Selection Process

The selection of studies followed a systematic process:

(i) Identification: Relevant studies were identified through database searches
(ii) Screening: Titles and abstracts were reviewed to determine relevance
(iii) Eligibility: Full text articles were assessed based on inclusion criteria
(iv) Inclusion: Only studies that met all criteria were included in the final review

This process ensured that only high-quality and relevant studies were considered.

3.6 Data Extraction

Data were extracted from selected studies using a structured approach. The following information were obtained: Author(s) and year of publication, study location, research design, key findings and the information relevance to birth spacing and maternal-child health.

These helped in organizing and comparing findings across studies.

3.7 Method of Data Analysis

The study employed a thematic analysis approach, which involves identifying, analyzing, and reporting patterns (themes) within the data. The analysis was conducted as follows:

(i) Studies were grouped into themes such as:
Birth spacing and maternal health
Birth spacing and child health
Socio-cultural factors
Family planning
(ii) Findings were compared and synthesized
(iii) Similarities and differences across studies were highlighted.

This approach enabled a comprehensive understanding of the relationship between birth spacing and maternal-child health outcomes.

3.8 Reliability and Validity

To ensure the reliability and validity of the study: Only credible and peer-reviewed sources were used, multiple databases were consulted, a transparent and systematic procedure was followed and findings were cross-checked across different studies. These measures enhanced the accuracy and trustworthiness of the study.

3.9 Ethical Considerations

This study did not involve human participants, as it is based on secondary data. However, ethical standards were maintained by:

- Properly acknowledging all sources
- Avoiding plagiarism
- Accurately representing findings from reviewed studies.

3.10 Limitations of the Methodology

- Despite its strengths, the study has some limitations:
- Dependence on secondary data, which may contain biases
- Limited availability of studies specifically focused on Edo State
- Possible exclusion of relevant studies not published in English

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis and discussion of findings from the systematic review of literature on birth spacing and maternal-child health, outcomes. The analysis is organized thematically in line with the objectives of the study.

4.2 Overview of Reviewed Studies

A total number of relevant studies were reviewed from credible sources including PubMed, African Journals Online, and reports from the World Health Organization. The reviewed studies covered: (i) Nigeria and sub-Saharan Africa (ii) Maternal health outcomes (iii) child health outcomes and (iv) socio-cultural determinants of birth spacing.

Most studies were published between 2000 and 2025, with a concentration of recent studies after 2015.

4.3 Thematic Analysis of Findings

4.3.1 Birth Spacing and Maternal Health Outcomes

The reviewed literature consistently shows that short birth intervals are associated with adverse maternal health outcomes. Studies indicate increased risks of: Maternal anemia, postpartum hemorrhage and hypertensive disorders such as eclampsia.

Women with closely spaced pregnancies often experience "maternal depletion syndrome", which reduces their ability to recover physically and nutritionally between pregnancies.

Optimal birth spacing, on the other hand, was found to significantly reduce maternal morbidity and improve overall reproductive health.

4.3.2 Birth Spacing and Child Health Outcomes

The findings reveal a strong relationship between birth spacing and child health outcomes. Short birth intervals were linked to:

- Low birth weight

- Preterm birth
- Increased neonatal mortality

Children born after adequate intervals were more likely to:

(i) Survive infancy (ii) experience better nutritional status and (iii) achieve proper growth and development. These findings reinforce the importance of birth spacing as a child survival strategy.

4.3.3 Socio-Cultural and Economic Determinants

The literature highlights several factors influencing birth spacing practices in Nigeria and particularly in Edo State as follows:

(a) Cultural preference for large families
(b) Low level of female education
(c) Poverty and economic dependency
(d) Male dominance in reproductive decision-making

These factors act as barriers to the adoption of optimal birth spacing practices.

4.3.4 Role of Family Planning and Healthcare Services

Access to family planning services plays a crucial role in promoting birth spacing. However, findings show that: contraceptive use remains low, Awareness is limited and Healthcare services are not evenly distributed.

The World Health Organization emphasizes that improved access to reproductive health services is essential for reducing maternal and child mortality.

4.4 Discussion of Findings

The findings of this align with both classical and recent research, confirming that birth spacing is a key determinant of maternal and child health outcomes. Short birth intervals were found to increase the risk of maternal complications, including anemia, and postpartum hemorrhage, consistent with earlier studies (Conde-Agudelo et al., 2012).

The findings of this study therefore dovetail with the assumptions of the "Health Belief Model", which suggests that health behaviours are influenced by individual perceptions and external factors.

Women who perceive the risks of short birth intervals and understand the benefits of spacing are more likely to adopt healthy reproductive practices. However, socio-cultural barriers and limited access to healthcare services often hinder this process.

This study also confirms that birth spacing is a critical determinant of both maternal and child health outcomes. The findings are in agreement with previous studies conducted in sub-Saharan Africa, which emphasize the importance of reproductive health interventions.

In Edo State, socio-cultural and economic factors continue to influence reproductive behaviour, limiting the adoption of optimal birth spacing practices. Addressing these barriers, requires a comprehensive approach that combines health education, improved access to family planning services, and community engagement.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study examined birth spacing and maternal-child health outcomes through a systematic review of literature. The findings of this study revealed that birth spacing plays a critical rule in Edo State and Nigeria. Evidence from the reviewed literature showed that short birth intervals are strongly associated with increased risks of maternal health complications, including anemia, postpartum hemorrhage, maternal depletion syndrome, and maternal mortality. In contrast, optimal birth spacing enhances maternal recovery, reduces physiological stress, and promotes overall reproductive health.

The study further established that inadequate birth spacing negatively affects child health outcomes. Short birth intervals were linked to low birth weight, preterm births, malnutrition, stunted growth, and increased neonatal and infant mortality. Conversely, optimal spacing improves child survival, nutritional status, and developmental outcomes.

Additionally, the findings highlighted that socio-cultural, economic and educational factors significantly influence birth spacing practices. Cultural beliefs, religious norms, low female education, and male-dominated decision-making were identified as major barriers. Limited access to family planning services, poor healthcare infrastructure, and inadequate utilization of antenatal and postnatal care services further constrain effective birth spacing practices.

The study also found that although awareness of family planning exists, misconceptions, fear of side effects, and lack of partner support hinder utilization. Overall, both individual-level perceptions and systemic barriers shape birth spacing behaviours.

5.2 Conclusion

Based on the findings, this study concludes that optimal birth spacing is a crucial determinant of improved maternal and child health outcomes. Short birth intervals significantly increase the risk of maternal morbidity and mortality as well as adverse child health conditions, including poor growth and survival outcomes.

The study further concludes that birth spacing practices are not solely determined by individual choices but are deeply influenced by socio-

cultural norms, economic conditions, and the accessibility and quality of healthcare services. In Edo State, these structural and cultural factors continue to limit the adoption of optimal birth spacing practices.

5.3 Recommendations

Based on the findings and conclusions of this study, the following recommendations are proposed:

1. Strengthening Family Planning Services: Government and health authorities in Nigeria should improve access to affordable, high-quality family planning services, particularly in rural areas. This will help reduce unmet needs for contraception and promote optimal birth spacing
2. Intensification of Health Education: Comprehensive health education campaigns should be implemented to raise awareness about the benefits of birth spacing and to dispel misconceptions about contraceptive use. These programmes should target both women and men.
3. Promotion of Female Education and Empowerment: Polices that promote female education and economic empowerment should be strengthened, as educated and empowered women are more likely to make informed reproductive health decisions.
4. Male Involvement in Reproductive Health: Men should be actively involved in reproductive health programmes to address patriarchal barriers and improve support for family planning decisions.
5. Improvement of Maternal Healthcare Services: Healthcare system should be strengthened to ensure better access to antenatal, delivery, and postnatal care services. This will enhance the adoption of birth spacing practices and improve overall maternal and child health outcomes.
6. Community- Based Interventions: Community leaders, religious institutions, and local organizations should be engaged in promoting culturally acceptable birth spacing practices to overcome socio-cultural resistance.
7. Further Research: Future studies should focus on primary data collection in specific communities within Edo State to provide more localized and empirical evidence on birth spacing practices.

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