

Chapter One

Introduction

1.1 Background of Study

Mental health, is defined by the WHO, as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community"¹.

Despite the holistic definition of health being a "state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity", mental health still remains a significantly neglected component of overall health, especially in low- and middle-income countries (LMICs) such as Nigeria². The persistent disregard for mental health challenges continues to exacerbate the burden of mental disorders, leading to widespread consequences across various populations including mothers.

Pregnancy, postpartum and motherhood represent critical phases in a woman's life that are accompanied by significant physiological, social as well as Psychological changes. In many Nigerian communities, motherhood is highly valued and often considered a key expectation following marriage^{3,4}. While motherhood can be a source of joy, it also brings substantial responsibilities and stressors that may overwhelm the mother's mental capacity especially when support systems for the mother are lacking or inadequate³.

Furthermore, the period surrounding pregnancy and childbirth is characterized by heightened vulnerability to mental health problems such as depression, anxiety, and other mood disorders⁵. More so, Maternal mental health disorders do not only affect the mother but have also been documented to have adverse effects on child growth and development⁶. This is because children are inherently dependent beings whose overall health and well-being rely heavily on their primary sources of care and support, especially their families and, most critically, their mothers. However, this essential foundation for good health can

be significantly compromised when the support systems available to the child are inadequate^{3,7}.

Factors such as physical health challenges, financial constraints, and maternal mental health issues have been reported to limit caregivers' ability to provide adequate care for children. Evidence from rural Rwanda shows that over half of mothers of children born preterm or with low birth weight had poor mental health, often linked to caring for a child with a disability or using harsh discipline, while food security and being married or cohabiting were protective⁸. In southern Ethiopia, one-third of mothers of children receiving treatment for severe acute malnutrition experienced common mental disorders associated with poor social support, low education, maternal or child chronic illness, and experiences of sexual violence⁹. In Latin America, maternal mental health has also been tied to obstetric and psychosocial challenges, reinforcing the importance of strong support systems and economic stability¹⁰. Reports across Rwanda, Ethiopia, Nigeria, and Latin America consistently identify poor physical health, financial hardship, limited social support, exposure to violence, and caring for medically vulnerable children as key factors affecting maternal mental health, with documented impacts on child growth and development^{8,9,10,11}.

In Nigeria and other Sub-Saharan African countries, maternal mental health remains a neglected public health issue, despite its profound implications^{12,13}. Research consistently report high prevalence rates that underscore the substantial burden faced by mothers during the perinatal period. For example, a study found that about 43.4% of mothers attending primary healthcare centers in Bauchi State exhibited symptoms of postpartum depression, highlighting the widespread nature of this condition in Nigerian communities¹². Other African studies have indicated that Postpartum depression prevalence rates ranged from between 17.6% to 51%^{5,7,14,15,16}. A systematic review

focusing on sub-Saharan Africa noted that the burden of perinatal mental health disorders ranges between 15% and 35%, with Nigeria representing one of the higher prevalence zones due to socio-economic and healthcare delivery challenges ⁵. Nationally, maternal mental health problems remain underdiagnosed, partly due to stigma and limited mental health integration within primary care settings ¹⁷. This gap results in many cases remaining untreated, which has severe implications for both mother and child health outcomes.

Furthermore, child physical growth in Nigeria is critically undermined by the persistent challenge of malnutrition, particularly stunting and wasting, which reflect chronic and acute nutrient deficiencies often rooted in inadequate feeding practices, poor maternal care, and socioeconomic constraints^{18,19}. These nutritional deficits, while most pronounced in the first 1,000 days from conception to two years of age, continue to significantly affect children throughout early childhood up to 59 months, a period when adequate nutrition and responsive caregiving remain essential for optimal physical, cognitive, and educational development, as well as for reducing the risk of future non-communicable diseases^{20,6,18}. In Nigeria's northern regions, nearly half of all children under five suffer from stunting, which alone accounts for over one-third of under-five mortality nationwide¹⁸. This burden is compounded by the high prevalence of maternal mental health (MMH) disorders, including depression, anxiety, somatic disorders during pregnancy and the perinatal period ^{5,21}.

Maternal depression, characterized by symptoms such as low energy, poor concentration, and diminished interest, severely impairs a mother's ability to provide adequate nutrition and emotional support, thereby limiting responsive caregiving that is critical for healthy child growth^{6,22}. The disruption of caregiving directly reduces children's access to sufficient nutrition and responsive care throughout early childhood up to 59 months, a

sensitive period when growth delays such as stunting, underweight, and impaired physical development can lead to lasting deficits in cognitive function, educational attainment, and long-term health outcomes^{6,19,20,23,24}

Maternal mental health issues have been connected to about 21-49% of malnutrition which are a huge cause of child mortality as well as failure to survive as neonates²⁵.

Maternal depression and related disorders have been linked with increased risks of child undernutrition, stunted growth, delayed cognitive development, and even higher child mortality rates^{6,26}. A study reported that maternal depression exacerbates the impact of food insecurity on early child development, with children of depressed mothers being at greater risk of undernutrition and developmental delays. Moreover, a study on maternal mental health and child stunting found a significant association between maternal depression and child stunting in several low- and middle-income countries²⁷. Various researches consistently show that a mother's mental health status during pregnancy and postpartum significantly impacts infant growth, cognitive development, nutrition, and overall health outcomes^{22,28}. However, some studies have revealed a troubling prevalence of maternal mental health disorders in Nigeria, including postpartum depression, anxiety, and other common mental disorders, with rates often higher than global averages^{7,17}.

Despite these alarming statistics, integration of mental health services into maternal and child health programs remains inadequate limiting early identification and intervention efforts^{16,17}. The World Health Organization's 2022 guidelines emphasize the critical need for mental health screening and support within routine maternal care to reduce both maternal morbidity and poor child health outcomes²⁹. The maternal mental health burden is particularly acute among marginalized populations including adolescent mothers and those in resource-limited settings¹⁹. In spite of mounting evidence of its importance, mental health support is rarely integrated within Nigeria's primary healthcare system or

maternal health services^{16,17}. This gap results in low detection rates and inadequate treatment, perpetuating negative outcomes for families and communities¹⁷. Yet, despite this clear evidence, mental health services remain insufficiently integrated into maternal and child healthcare programs in Nigeria, leading to missed opportunities for early detection, treatment, and support^{12,29}. Maternal mental health (MMH) remains a neglected aspect of healthcare in Nigeria, despite its significant impact on both maternal well-being and child development⁵. Many women experience mental health challenges such as depression, anxiety, somatic symptoms during pregnancy, after childbirth and during perinatal period, yet these issues are often overlooked due to stigma, poor health system support, and limited access to mental health services^{5,16,1}.

1.2 Problem Statement

Globally, it is estimated that about 10% of pregnant women and 13% of mothers suffer from mental health conditions such as depression and anxiety¹⁶. But in low- and middle-income countries (LMICs), this burden is significantly higher, up to 25% during pregnancy and 20% after childbirth³. In sub-Saharan Africa, prevalence rates of postpartum depression alone range from 7% to as high as 50%, depending on region and socioeconomic factors^{5,13,14,15,16,30}. In Nigeria specifically, depression rates vary widely; 14.6% in the South West, 22.9% to 34.6% in Enugu (South East), and 21.8% in Jos (North Central)¹⁷. These are not just numbers but they represent thousands of mothers silently suffering, and children at risk of compromised health and development³¹. Data from studies in LMICs such as Ethiopia, Vietnam, Bangladesh, India, Peru reported that up to 49% of malnutrition-caused child mortality are as a result of maternal mental health disorders²⁵. Additionally, untreated maternal mental health disorders can negatively affect child growth, nutrition, emotional bonding, and cognitive development. In a country

where child malnutrition and developmental delays are already prevalent, ignoring MMH further threatens child survival and long-term outcomes.

This study therefore seeks to explore common mental disorders such as depression, anxiety and somatic symptoms in mothers and their influence on child physical growth and development characterized by stunting and underweight, as well as studying the factors that are associated with maternal mental health emphasizing the need for integration of mental health into maternal and child healthcare services delivery.

1.3 Justification for the Study

In Nigeria and across many low- and middle-income countries, the conversation around maternal health often begins and ends with physical well-being. Yet, Maternal mental health is still a serious issue that continues to be overlooked due to stigma, cultural silence, and a lack of policy attention. Maternal mental health problems are not just about emotional distress^{6,16,22}. When left unaddressed, they directly affect a mother's ability to care for her child, potentially disrupting breastfeeding, mother-infant bonding, and routine care. Studies have shown that maternal depression and anxiety are linked to child malnutrition, stunting, poor cognitive development, and increased susceptibility to illness and early death^{6,25}. This is particularly troubling in Nigeria, where malnutrition accounts for over 33% of deaths in children under five, and where nearly 50% of children in northern regions are stunted¹⁸. This study focuses on children between 0-59 months as this period remains crucial for child growth and development. Evidence indicates that nutritional deficits, caregiving disruptions, and maternal mental health challenges during this stage continue to compromise physical growth, cognitive function, and long-term health outcomes^{6,20,23,24}. Studies have consistently shown that growth issues and undernutrition often begin during this time, due to the vulnerability of children to infections, inadequate feeding practices, and psychosocial stressors, including maternal

mental health issues^{19,32}. This stage is also when a mother's psychological well-being plays a crucial role in caregiving quality, feeding consistency, and responsive parenting, all of which directly influence child growth trajectories³. Selecting the 0–59 month age range enables the study to focus on a period that is both developmentally pivotal and highly susceptible to the impacts of maternal mental health.

Despite this high statistics, maternal mental health remains undervalued and poorly integrated into Nigeria's primary healthcare system, cases that lead to death directly or indirectly are unreported. There are almost no targeted intervention for mental health conditions during or after pregnancy. The focus of most child health interventions remains on nutrition and immunization, often ignoring the mother's psychological state despite evidence showing that her mental health can be just as critical to the child's survival and growth¹⁹. This silence, these gaps, and the very real impact on both mothers and their children are what inspired this study.

Moreover, if Nigeria hopes to significantly reduce child mortality and improve long-term developmental outcomes, maternal mental health can no longer be ignored. Strengthening this aspect of care has the potential to uplift mothers and ensure children not only survive but thrive. This research aims to bring more evidence to the forefront, contributing to a better understanding of what factors influence maternal mental health greatly, how maternal mental health affects child growth and development in Nigeria, and why prioritizing this issue could be a huge positive shift in achieving Sustainable Development Goals related to health, nutrition, and well-being.

1.4 Research Aim and Objectives

Aim

The primary aim of this study is to examine the risk factors associated with Common Maternal Mental Disorders and their Influence on Physical Growth of Children aged 0-59 months in Selected Hospitals, Ibadan, Nigeria.

The Specific Objectives are to:

- i. Determine the prevalence of common maternal mental disorders (Depression, Anxiety and Somatic Symptoms) among mothers of children aged 0-59 months in selected hospitals in Ibadan.
- ii. Assess the physical growth of the children between 0-59 months in the study area
- iii. Determine the association between common maternal mental health and child physical growth in the study area.
- iv. Identify the factors associated with common maternal mental disorders among mothers of children aged 0-59 months.

1.5 Research Questions

1. What is the prevalence of common maternal mental health disorders (depression, anxiety and somatic symptoms) among mothers in selected hospitals in Ibadan?
2. What is the nutritional status of children between age 0-59 months in the study area?
3. Is there an association between mothers mental health status and the child physical growth?
4. What are the factors associated with common maternal mental disorders among mothers of children aged 0-59 months in the study area?

1.6 Significance of the Study

This study is significant for several reasons. First, it highlights the often-overlooked maternal mental health problems in Nigeria, contributing important data to a limited evidence base^{5,12}. By assessing not only the influence of maternal mental health on child health outcomes but also the factors associated with poor maternal mental health, it will provide essential insights for health practitioners, policymakers, and researchers working to improve maternal and child welfare.

Again, this study supports Nigeria's commitment to global targets such as the SDG Goal 3 (Good Health and well-being) whose target is to reduce global maternal mortality ratio, and child mortality as well as SDG goal 2 which targets to end all forms of malnutrition and improving nutrition by addressing a root cause often ignored in policy and practice^{34,35,36}.

1.7 Scope of the Study

This study examines the factors associated with maternal mental health (MMH) and how maternal mental well-being influences the physical growth of children aged 0 to 59 months. The research focuses on children and their mothers attending selected hospitals in Ibadan, including both urban and semi-urban, as well as low-middle income settings, to capture a diverse population. Key maternal factors considered include psychological status, social support, socioeconomic status, food security and access to healthcare services. Child physical growth is assessed using anthropometric indicators such as height-for-age, weight-for-age, MUAC and HC. The study is limited to the selected hospitals and does not include children or mothers outside these facilities or children older than 59 months. The research also focuses on current and recent experiences, reflecting contemporary trends in maternal mental health and child growth in the study area.

1.8 Limitation of the Study

Recall and reporting bias: This study may have been affected by recall and reporting bias, particularly since data on maternal mental health were obtained through self-reports. Mothers may have struggled to accurately recall their emotional experiences or mental health symptoms. The sensitive nature of mental health could also have encouraged underreporting due to fear of stigma, judgment, or cultural expectations that mothers should remain strong and resilient. In other words, mothers' self-reports on mental health may have been affected by stigma, social desirability, or inaccurate recall.

Measurement Bias: Additionally, anthropometric measurements such as height-for-age, weight-for-age, mid-upper arm circumference and head circumference may be influenced by equipment precision, observer technique, or temporary factors like illness, potentially affecting data accuracy. Slight inconsistencies in measurement instruments, including scales or stadiometers, could have led to systematic errors despite careful calibration.

Cross-sectional Study design: The cross-sectional nature of this study poses a key limitation, as it allows only for the identification of associations rather than causal relationships between maternal mental health and child growth outcomes. Because data were collected at a single point in time, there is limit to the ability to infer directionality in the observed relationships. Being cross-sectional, the study can identify associations but cannot establish causality between maternal mental health and child growth.

Limited Generalizability: The findings of this study may have limited generalizability beyond the specific population and setting in which it was conducted. Since participants were drawn from a particular geographical area, their sociodemographic, cultural, and environmental contexts may differ significantly from those of mothers in other regions or populations. As such, while the study provides valuable insight into maternal mental

health and child growth within its context, caution should be exercised when applying these results to other populations or settings.

1.9 Operational Definition of Terms

Maternal Health: Maternal health refers to the overall physical and psychological well-being of women during pregnancy, childbirth, postpartum period, perinatal period and motherhood.

Maternal Mental Health: Maternal mental health specifically focuses on the psychological and emotional well-being of mothers of children between the 0 - 59 months of age.

Maternal Depression: Maternal depression refers to clinically significant depressive symptoms that occurs in motherhood. Its symptoms may include persistent sadness, low energy, sleep disturbances, feelings of worthlessness, and difficulty bonding with the infant^{17,25}.

Anxiety Disorder: Anxiety disorder in this research refers to excessive, uncontrollable worry or fear that interferes with daily functioning during pregnancy, postpartum period and motherhood. It includes symptoms such as restlessness, tension, irritability, and somatic complaints^{19,22}.

Somatic Symptoms: Somatic symptoms refer to physical symptoms that are not fully explained by a medical condition, and are often expressions of psychological distress. In this study, somatic symptoms is defined as the presence of three or more physical complaints (e.g., fatigue, headache, gastrointestinal issues, dizziness) in the absence of identifiable medical pathology.

Common Maternal Mental Disorders: The most prevalent maternal mental disorders include depression, anxiety and somatic disorders. These conditions often manifest as

persistent sadness, low energy, poor concentration, irritability, loss of interest in daily activities, and excessive worry.

Child Physical Growth

Child physical growth refers to the measurable changes in a child's body size and composition, including weight, height, mid-upper arm circumference (MUAC) and head circumference which indicate overall health and nutritional status³⁷.

Weight: Weight refers to the body mass of a child measured in kilograms (kg) using a calibrated weighing scale.

Height/Length: Height (for children over 2 years) or length (for children under 2 years) is the linear measurement of a child from head to foot, recorded in centimeters (cm) using a stadiometer or infantometer.

Mid-Upper Arm Circumference (MUAC): MUAC is the circumference of the child's upper arm measured at the midpoint between the shoulder and the elbow, recorded in centimeters (cm) using a non-stretchable tape.

Head Circumference (HC): Head circumference is the measurement around the largest part of the child's head, usually just above the eyebrows and ears and around the occipital prominence at the back, recorded in centimeters (cm). It serves as an indicator of brain growth and development, and deviations from standard growth curves can reflect malnutrition, developmental delays, or other health issues.

Nutritional Status: refers to the condition of a person's health as determined by the intake and utilization of nutrients in the body. It reflects the balance between the nutrients consumed (through food and supplements) and the nutrients required to maintain body functions, growth, and overall health. Nutritional status will be measured using Stunting and Underweight measurement.

Stunting

Stunting is a condition characterized by low height-for-age, reflecting chronic malnutrition and long-term nutrient deficiencies.

Underweight

Underweight describes a child whose weight-for-age is significantly below the WHO standard reference for healthy growth, signaling either acute or chronic malnutrition³⁸.

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Endnotes

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Chapter Two

Literature Review

2.1 Conceptual Review

2.1.1 Mental Health

Mental health is a crucial dimension of human well-being, yet it continues to be frequently overlooked and undervalued in both public discourse and healthcare systems¹. The World Health Organization defines mental health as a state of well-being in which an individual realizes their own abilities, can manage the normal stresses of life, works productively and fruitfully, and is capable of making meaningful contributions to their community². Just like physical health, any disturbance or deviation in mental well-being poses serious risks not only to the individual but also to those connected to them, including families, coworkers and society at large. The World Health Organization takes a comprehensive view of health by defining it as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity³. Yet, despite this inclusive definition, mental health remains widely stigmatized, frequently ignored, and grossly under-diagnosed and under-treated⁴.

Beyond the physical energy required to perform everyday activities, mental resilience and stability are also essential. Mental well-being supports our capacity to make thoughtful decisions, establish meaningful relationships and engage constructively with the environment around us supported by a WHO report which emphasizes mental health as a foundational element of both individual and collective human development³. Furthermore, the Centers for Disease Control and Prevention describes mental health as the emotional, psychological and social well-being of an individual⁵. Scholars further suggest that mental health strongly influences how we think, feel and behave, shaping our ability to cope with stress, relate to others and make healthy life choices⁶.

When mental health deteriorates, it becomes a significant barrier to daily functioning and productivity. Research indicates that poor mental health may even have adverse effects on physical health, underlining the interconnection of body and mind⁶. According to experts, there are currently more than 200 recognized mental health disorders⁶. However, in Nigeria, widespread misconceptions continue to limit understanding of mental illness, often reducing it to extreme or visible cases such as individuals roaming the streets. While such manifestations are indeed real, they represent only a small fraction of the mental health crisis. There are countless undiagnosed, unspoken and stigmatized conditions affecting people who may appear entirely functional on the surface. Mental health should not be equated simply with the absence of visible disorders⁶. Similarly, mental disorders are not always immediately obvious and should not be dismissed if they do not fit commonly held stereotypes in other words, mental health disorders is more than the obvious manifestations of mental health disorders.

Research continues to affirm that mental health challenges are not confined to any particular demographic. People of all ages, genders, socioeconomic backgrounds and ethnicities are susceptible to mental health difficulties⁶. Mental health can therefore be understood as the maturity and balance reflected in an individual's emotional state, behavioral responses and ability to engage in healthy social interactions⁶. Experts have categorized mental disorders calling them psychological disorders, psychiatric disorders and mental illnesses. They include:

Absence Seizure also called the Less Common Petit Mal Seizure which typically causes a short period of 'blinking out' or staring into space. Like other kinds of seizures, they are caused by abnormal activity in a person's brain⁷.

Abulia which is a pathological inability to make decisions or actions

Barbiturate Related Disorder: the use of barbiturates can lead to some of the following:
Addiction to stimulants like amphetamines or methamphetamines; antisocial personality disorder, anxiety, bipolar and conduct disorder, depression, insomnia and schizophrenia.

Bereavement: A period of mourning after a loss, especially after the death of a loved one. There is no special or right way to experience it.

Caffeine Addiction: this is a condition where a person develops dependence on caffeine leading to withdrawal symptoms when consumption is reduced or stopped.

Cannabis Addiction: Also known as Cannabis Use Disorder, involves a problematic pattern of using cannabis leading to negative effects on various aspects of life and difficulty controlling its use.

Depression: Also known as Major Depressive Disorder.

Developmental Coordination Disorder

Eating Disorder

Emotionally Unstable Personality Disorder

Female Sexual Disorders

Fregoli Delusion

Hallucinogen Addiction

Histrionic Personality Disorder

Impulse Control Disorder

Inhalant Addiction

Joubert Syndrome

Kleptomania: Stealing habit

Korsakoff's Syndrome

Lacunar Amnesia

Language Disorder

Learning Disorder

Male Sexual Disorders

Neglect of Child

Neurocognitive Disorder (formally known as Dementia)

O group: Obsessive – Compulsive Disorder, Oneirophrenia Orthorexia (ON)

P group: Pain Disorder, Panic attacks, Panic Disorders, Parkinson's Disease, Perfectionism, Pica e.t.c.⁶

This comprehensive list of recognized mental disorders highlights the vast scope of mental health challenges and reinforces the urgent need to address them. Mental health issues should not continue to be sidelined, as doing so contributes to increasing rates of morbidity and mortality. Although the precise causes of many mental illnesses remain unclear, recent research has begun to shed more light on their complex origins. It is now widely understood that mental health disorders often arise from an interplay of biological, psychological and environmental influences, rather than from a single factor.

Scientific investigations suggest that genetic predisposition may play a role in determining an individual's susceptibility to certain mental illnesses. Additionally, factors such as infections, prenatal injuries, and substance abuse can contribute to mental health deterioration. Neurological conditions, including traumatic brain injuries or chemical imbalances involving neurotransmitters in the brain, may also disrupt cognitive and emotional processes, ultimately affecting mood, perception and behavior. Furthermore, psychological stressors such as unresolved trauma, chronic stress, emotional loss, or significant life changes are recognized as powerful triggers that can initiate or exacerbate mental health issue⁸.

According to the American Psychiatric Association (2022), the signs and symptoms of mental illness can vary based on the specific condition, but there are several commonly observed indicators that have been reported to the development of mental health problems. One of the earliest signs is noticeable shifts in mood, including sudden emotional changes, persistent feelings of sadness, or a consistently low mood over time. Alterations in behavior may also emerge, such as withdrawal from social interactions, a lack of interest in previously enjoyed activities, or a decline in maintaining personal hygiene⁹.

Sleep and appetite patterns often undergo significant changes as well, with individuals either sleeping or eating much more or less than usual. Cognitive disruptions, including confused or disorganized thinking, poor concentration, or irrational thought processes, are also potential warning signs. Some people may experience physical symptoms without a clear medical cause, such as unexplained aches, stomach discomfort, headaches, or chronic fatigue⁹.

Substance misuse, including increased consumption of alcohol or recreational drugs, may develop as a coping mechanism. In more severe cases, individuals may express thoughts of self-harm or suicide, which should always be taken seriously. Other psychiatric symptoms such as hallucinations which is perceiving things that are not present or delusions, which are fixed false beliefs, may point to deeper psychological disturbances.

Heightened anxiety is another red flag, often expressed through constant worry, irrational fears, or physical manifestations like rapid heartbeat, trembling or shortness of breath. Eating disorders may develop, reflecting unhealthy obsessions with body image and weight, accompanied by dangerous eating behaviors and distorted beliefs about food. Risk-prone behaviors such as unsafe sexual activity, substance abuse, reckless driving or engaging in criminal acts can also be indicators of impaired mental health. Social

withdrawal, including spending less time with friends, family or avoiding communal activities, is another significant behavioral change often linked to mental illness⁹.

These signs have the ability to interfere with daily functioning, such as declining work or academic performance or difficulty managing everyday responsibilities as well as cope with life stressors. In Nigeria, limited awareness and deep-rooted stigma around mental health often lead to the neglect or misinterpretation of early warning signs.

2.1.2 Mental Health Statistics

Mental health disorders represent a significant public health challenge globally. As at the year 2017, WHO estimated that 450 million people have a mental disorder and 25% of the population will suffer from mental illness at some time in their lives¹⁰. In 2019, the Global Burden of Disease Study estimated that approximately 970 million individuals worldwide were already living with a mental disorder¹¹.

Among the most prevalent conditions are depressive disorders affecting 280 million people, anxiety disorders impacting 301 million, bipolar disorder afflicting 40 million, schizophrenia at 24 million, eating disorders at 14 million, and attention-deficit/hyperactivity disorder (ADHD) accounting for 84 million individuals globally. The collective burden of these disorders is substantial, contributing to 5% of global Disability-Adjusted Life Years (DALYs), positioning mental health conditions among the top ten causes of disease burden worldwide^{11,12}.

This challenge is not confined to adults only; mental health disorders also profoundly impact children and adolescents. According to the National Alliance on Mental Illness (NAMI), one in six youth aged 6 to 17 in the United States experience a mental health disorder annually. Mental illnesses now rank among the leading causes of disability in

young populations globally, adversely influencing academic performance, increasing vulnerability to substance abuse, and elevating suicide risk¹³.

Suicide is usually a tragic endpoint for many affected by mental illness and it remains a critical public health concern. WHO data from 2022 indicates a global suicide rate of 9 per 100,000 individuals, with suicide ranking as the fourth leading cause of death among 15 to 29-year-olds. Studies opine that males tend to have higher rates of completed suicide and females exhibit higher rates of suicide attempts and experience elevated levels of depression and anxiety, often precursors to suicidal ideation. Alarming, 77% of global suicides occur in low- and middle-income countries, highlighting the acute necessity for accessible, affordable mental health services in underserved regions¹².

On a global scale, the access to quality mental health care remains woefully inadequate worldwide. WHO reports that over 75% of people living with mental disorders in low-income countries receive no treatment whatsoever. Even in high-income settings, systemic barriers such as prohibitive costs, societal stigma, and critical shortages of mental health professionals restrict care delivery. For instance, in Canada, only 55% of individuals reporting mental health symptoms accessed professional services in the past year, with 22% noting unmet or partially met needs due to cost, long wait times, or perceptions minimizing their illness¹⁴. Globally, governmental health budgets allocate less than 2% to mental health, with many African nations dedicating under 0.5%. The disparity is further reflected in workforce availability: the median number of mental health workers is 13 per 100,000 people worldwide but falls below 1 per 100,000 in many low-income countries, underscoring severe capacity deficits¹⁵.

In the United States, for example, 64% of adults with serious mental illness did not receive treatment in the preceding year, often deterred by fear of discrimination or

misunderstanding¹³. The COVID-19 pandemic served as a profound disruptor to global mental health. WHO data documents a 25% surge in anxiety and depression worldwide during 2020 alone, attributable to social isolation, economic hardship, grief, and uncertainty. Vulnerable groups such as healthcare workers and individuals with pre-existing mental health conditions experienced disproportionate impacts, underscoring the necessity for resilient mental health infrastructure and responsive care models capable of addressing emergent crises¹².

Regionally, the mental health landscape exhibits pronounced disparities. Sub-Saharan Africa bears a disproportionate burden with minimal resources; many countries have fewer than one psychiatrist per 100,000 people. In Asia, nations like India and China face rising prevalence of anxiety and depression but similarly grapple with professional shortages. India reports approximately 0.3 psychiatrists per 100,000 population. Europe and North America possess relatively advanced service infrastructures but are witnessing concerning increases in burnout, suicide rates, and opioid-related disorders, revealing evolving challenges even within resource-rich settings¹¹.

In a study leveraging the Uganda Genome Resource comprising over 6,000 individuals, the prevalence of CMDs primarily depression and anxiety was found to range between 20 to 25 percent, with notable gender disparities. Women were found to be disproportionately affected, exhibiting a 1.5 times higher risk of CMDs compared to men, a trend consistent with broader global patterns but exacerbated by region-specific socio-cultural factors¹⁶.

The dynamic epidemiology of anxiety disorders in SSA aligns with global trajectories. Scholars identified a 14% increase in age-standardized anxiety prevalence globally from 1990 to 2021, with SSA countries such as Nigeria and South Africa exhibiting prevalence

rates between 8% and 10% pre-pandemic. Notably, the COVID-19 pandemic further intensified this burden, with anxiety symptoms increasing by up to 30% among vulnerable subpopulations¹⁷. These data reveal the compounding effects of socio-economic disruption and public health emergencies on mental health in the region.

The social determinants of mental health in SSA, especially among adolescent girls and young women (AGYW), elucidate the interaction of mental health with socio-economic inequities. A study on the burden and associated social determinants of mental health among adolescent girls and young women in Sub-Saharan Africa, reports CMD prevalence among AGYW ranging from 20% to 40%, closely linked to adverse experiences including intimate partner violence, poverty, food insecurity, and limited educational access. Food insecurity, in particular, doubles the odds of depressive symptoms in this demographic, illustrating the intricate link between basic needs and psychological well-being¹⁸.

Moreover, scholars articulate that while adolescent mental health issues in SSA have long been underestimated, the current prevalence affecting approximately 1 in 5 adolescents with moderate to severe symptoms directly impacts educational attainment and future economic participation¹⁹.

Worldwide statistics show that mental health disorders still afflict nearly one in eight people globally, with youth and low-resource populations bearing disproportionate burdens. Suicide remains a leading cause of death among young adults worldwide, and mental health conditions contribute substantially to the global disease burden. Yet, treatment gaps remain vast, especially in low-income settings, and mental health funding consistently lags behind the scale of the problem.

The WHO stipulated a Comprehensive Mental Health Action Plan of 2013–2030 representing a global commitment to advancing mental health through integrative, human rights-oriented, and community-based approaches. Nevertheless, implementation and funding gaps persist, demanding innovative financing mechanisms, cross-sector collaboration, and technology-driven solutions to bridge disparities and expand access¹².

Encouragingly on a global scale, mental health literacy is on an upward trajectory, supported by policy shifts: as of 2022, 72% of WHO member states reported standalone mental health policies or strategic plans, a notable increase from 60% in 2014. This signals progressive integration of mental health into broader health systems and community care models¹².

2.1.3 Mental Health issues in Nigeria

Current status of mental health issues in Nigeria still remains critical. These conditions (mental health issues including anxiety and depression) are highly prevalent in low- and middle-income countries (LMICs), such as Nigeria²⁰. Although the prevalence of mental health disorders in Nigeria is comparable to that in most developed countries, access to mental healthcare remains limited²¹. A study reported that up to 12.1% of Nigerian adults had experienced at least one Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) disorder in their lifetime²⁰. Additionally, it is estimated that 20–30% of the population suffers from mental health problems, that is a significant proportion given Nigeria's population of over 200 million²². Public awareness of mental health issues remains low, and long-standing myths continue to persist²³. The major endorser to this situation is the high rate of stigmatization, ignorance, low level of research and report thereby neglect of these issues¹². An Africa Polling Institute (API) and EpiAFRIC survey carried out in 2019 showed that the awareness of mental health is

low in Nigeria. The study stated that most respondents in the survey understand mental health disorder to be caused by drug abuse, possession by evil spirit or brain sickness. Majority of these patients are therefore taken to prayer houses for spiritual interventions²⁴. This doesn't address the burdens.

From a scoping review literature assessing the perception, attitude and cultural understanding of mental health in Nigeria, perceptions surrounding mental illness are deeply embedded in socio-cultural and religious paradigms. this considerable body of literature identifies supernatural causes as the most frequently cited reason for mental illness, reported in 38% of cases across studies^{20,25}. These beliefs often manifest as notions of spirit possession, divine punishment, or witchcraft. Psychological factors such as substance abuse and stress were cited in 26% and 15% of studies respectively, whereas medical or biological explanations were notably scarce, cited in just 2% and 5% of the literature for biological and genetic causes respectively²⁰.

These beliefs significantly shape the pathways to care. Out of 20 studies investigating initial treatment-seeking behavior addressed in the review, 17 found that individuals primarily sought help from traditional or spiritual healers, often in "spiritual homes" or faith-based institutions. The underlying rationale is grounded in the belief that mental disorders are spiritual in origin and therefore require spiritual intervention^{20,26}.

Regional variations further emphasize the culturally constructed nature of mental illness. In the South-West region, supernatural causes such as spiritual possession or divine retribution are commonly believed, alongside a rising acknowledgment of substance abuse and stress among urban populations with higher educational exposure²⁰. In contrast, beliefs in the North-Central and North-West regions remain predominantly spiritual, frequently attributing mental illness to witchcraft or God's wrath²⁰.

Treatment preferences reflect these causative beliefs. Traditional healing practices include herbal remedies, rituals, fasting, and deliverance ceremonies. These are often reinforced by trust in spiritual leaders and a perceived sense of belonging within faith-based communities²⁰. A generational divide was also observed: younger, urban, and Christian respondents often preferred faith-based spiritual healing, while older individuals inclined towards traditional healers.

Literature also states the existence of dichotomy even among healthcare providers. While trained medical professionals especially doctors and medical students tend to accept psychological and biological explanations for mental disorders, a significant portion of primary healthcare workers still adhere to spiritual causation theories^{20,27}. Notably, post-training evaluations of traditional healers indicate some improvement in the recognition of psychiatric symptoms and a decline in harmful practices like physical beating²⁰.

The clergy, another key stakeholder in mental health in Nigeria, largely lacks formal mental health training. Many continue to attribute mental illness to demonic influences and endorse prayer and deliverance as primary interventions^{20, 28,29}.

Among families and patients themselves, traditional and spiritual healers are often the first point of contact. In eight separate studies, it was found that medical help was typically sought only after alternative options had failed, often following delays of several years²⁰. This delay is attributed to factors like financial constraints, ignorance of mental health services, and entrenched beliefs that spiritual afflictions cannot be medically treated. University students and secondary school students increasingly recognize psychological causes such as stress and drug abuse, although beliefs in spiritual causation persist, particularly concerning conditions like schizophrenia^{30, 20, 31,27,32}.

The Nigerian media plays a substantial role in shaping public perceptions. Studies examining mental health portrayals in films and television show a prevalence of mystical narratives sorcery, enchantment, or karma as causes of mental disorders. The depiction of mental illness is often sensationalized as "madness," reinforcing stigma and misinformation²⁰. Perceptions of mental illness are strongly stigmatized in Nigeria. Across multiple studies, individuals with mental illness were frequently described as "mad," "violent," or "unpredictable," often portrayed with torn clothes or nudity symbols of social degeneration^{33,20}. Only a few studies challenged this narrative by equating mental illness to physical illness^{34,20}.

Studies specific to depression show that while awareness is growing, its seriousness remains underappreciated. Depression was largely associated with drug use or stress, and sufferers were often seen as withdrawn or dangerous³³. For schizophrenia, common descriptors included supernatural attributions such as witchcraft, warranting social exclusion^{20,35}.

Across 28 studies examining public and professional attitudes towards mental illness in Nigeria, a predominant theme was the preference for social distance from individuals with mental health conditions. This was evident in 69% (n=20) of the studies, where respondents expressed a reluctance to interact closely with individuals living with mental disorders^{20,33}. The reluctance extended beyond mere interaction: 48% (n=14) of the studies documented avoidance behaviors, such as refusal to live near or work alongside someone with a mental illness²⁰. Marriage stigma emerged in 38% (n=11) of the studies. Respondents expressed fear and distrust in the idea of marrying someone with a mental disorder, commonly citing concerns over aggression, unpredictability, and potential harm²⁶. These fears are often rooted in culturally ingrained stereotypes that equate mental

illness with violent behavior²⁰. In terms of employment-related discrimination, 21% (n=6) of studies indicated that many Nigerians doubted the capacity of individuals with mental illness to hold a regular job²⁰. Furthermore, abuse and overt discrimination were reported in 10% (n=3) of the reviewed literature, with individuals facing verbal, emotional, and sometimes physical mistreatment due to their condition²⁰.

Despite these challenges, the review identified a modest presence of positive attitudes in 21% (n=6) of studies. These were mostly reported among medical professionals, particularly those with more experience and exposure to mental health education or service delivery²⁵. However, a concerning number of studies 24% (n=7) still documented negative attitudes among healthcare workers, even among those who had prior contact with people experiencing mental illness²⁰. In some cases, medical professionals expressed shame or embarrassment if a family member were diagnosed with a mental illness. Others were unwilling to accept individuals in recovery as competent in roles such as teaching children²⁰. Experience appeared to play a key role in shaping provider attitudes. More seasoned mental health practitioners exhibited significantly more accepting views and emphasized empathy and rehabilitation over exclusion²⁰.

Among religious leaders, mixed perceptions were observed. While one study documented highly stigmatizing views that labeled individuals with mental illness as dangerous and to be avoided. Two other studies reported notably positive and inclusive attitudes among clergy members who demonstrated support and compassion for affected individuals^{28,29}. Within the student population, similar fears and misconceptions were observed. Many students expressed discomfort with the idea of working with individuals with mental health disorders, frequently citing fears of erratic behavior³². These findings underscore the need for targeted mental health literacy programs within educational institutions²⁰.

Two studies focusing specifically on attitudes towards depression revealed that older adults were more likely to hold stigmatizing beliefs, including disapproval of marriage or job retention among individuals with depression^{33,20}. Depression was sometimes perceived as a sign of weakness rather than a legitimate mental health issue, perpetuating further marginalization²⁰. With regard to schizophrenia, studies reported overwhelmingly negative attitudes, often grounded in misinformation. The condition was frequently associated with spiritual affliction or possession, resulting in isolation and exclusion from social spaces²⁰. Interestingly, social support appeared more accessible for individuals diagnosed with schizophrenia or bipolar disorder than for those with depression or less overt psychiatric symptoms.

Finally, public perception of dementia also reflected deep stigma. In one study, participants expressed a desire to conceal any dementia diagnosis and reported reluctance to engage in marital relationships with individuals or families affected by the condition. The disorder was commonly referred to as "a disease of insanity," suggesting a lack of differentiation between neurodegenerative and psychiatric illnesses²⁰.

Despite the deep cultural beliefs, spiritual interpretations, and the widespread reliance on traditional healing practices, mental health issues in Nigeria continue to rise unabated. These preferred pathways often fail to address the clinical and psychological complexities of mental disorders, leaving the burden of illness not only unresolved but steadily growing. This persistent gap between belief and evidence-based care highlights the urgent need for culturally sensitive, accessible, and integrative mental health strategies that go beyond mere symptom management to dismantle stigma, promote understanding, awareness, and restore dignity to those affected.

Mental health situation in Nigeria is further worsened by the disparity in the health care service provision towards mental health. Literature states its state as palpable. There have been challenges with regards policy development, legislation and implementation, financing, research, training and integration of mental health care into primary health care¹. Taking a good look at the Nigerian health care sector is also key to provide insight as to the current state of poor level of mental health care.

Mental health care in Nigeria is struggling with a multifaceted crisis driven by workforce shortage, outdated legislation, and under-implemented policy frameworks. With fewer than 300 psychiatrists for over 200 million people (a staggering ratio of 1:700,000), mental health service delivery is both inaccessible and unaffordable for most Nigerians³⁶. This gap is exacerbated by weak primary healthcare integration, lack of funding, and the mass emigration of trained professionals. Though non-governmental organizations (NGOs) are filling some gaps through advocacy and grassroots interventions, the need for structural reforms remains urgent¹.

Scholars dictate that Nigeria's mental health workforce is alarmingly under-resourced. The country relies on a mere 300 psychiatrists, most of whom are clustered in urban areas. General practitioners, psychiatric nurses, community health workers, and even traditional and religious healers make up the bulk of informal care providers^{37,36}.

The scarcity of trained personnel has also led to inappropriate delegation of roles, nurses and non-specialist doctors often shoulder diagnostic and therapeutic responsibilities without adequate training and this compromises quality of care and contributes to treatment gaps, especially in rural areas where health access is already limited³⁸.

Another worrying trend is the mass exodus of healthcare professionals, with nine out of every ten doctors reportedly seeking to emigrate in search of better opportunities³⁶. This "brain drain" further weakens service delivery in an already struggling system.

Mental health services in Nigeria are centered around eight neuropsychiatric hospitals, which also double as training institutions. These are grossly insufficient to serve the needs of a population exceeding 200 million. Tertiary centers bear the bulk of treatment burden, especially for complex cases, leaving community-based and primary health services underdeveloped³⁹.

Though the National Primary Health Care Development Agency (NPHCDA) was mandated to integrate mental health into primary care, operationalization remains poor. Services, when available, are often stigmatized, underfunded, and mismanaged, as reported by stakeholders in the Mental Health Awareness: Breaking the Stigma study³⁷.

Nigeria's legal framework for mental health is still rooted in the Lunacy Ordinance of 1916, later renamed the Lunacy Act of 1958. This outdated law permits the detention of persons with mental illness based on the discretion of magistrates and medical officers, violating contemporary human rights standards⁴⁰.

Several legislative attempts have been made to modernize this framework. A Mental Health Bill was proposed in 2003 and reintroduced in 2013, but neither was passed into law. A more recent effort, the Mental and Substance Abuse Bill of 2019 aimed to address service delivery and budgetary constraints but also failed to pass^{41,1}.

This legislative inertia leaves Nigeria without a comprehensive, rights-based mental health law, making it difficult to enforce standards or protect patients against abuse and neglect. It also complicates integration into other national health strategies and emergency preparedness plans, such as those needed during the COVID-19 pandemic³⁷.

Furthermore, Nigeria's first national mental health policy, formulated in 1991, was a significant step forward but lacked mechanisms for enforcement, coordination, or funding. It also ignored emerging threats like pandemics or mass trauma events. Efforts to revise the policy have stalled repeatedly due to political instability, low prioritization, and poor

public awareness³⁶. The updated National Mental Health Policy includes objectives such as Decentralizing mental health care, Strengthening community-based services, Reducing stigma and Promoting psychosocial rehabilitation; Unfortunately, many of these goals remain largely aspirational, as implementation is affected by budgetary constraints, institutional inertia, and insufficient coordination³⁸.

Positively, there have been recent policy developments, including the National Mental Health Act of 2021 and the National Suicide Prevention Strategic Framework introduced in November 2023, suggest increasing engagement from national health authorities but despite these initiatives, mental health research in Nigeria, similar to other developing regions, remains limited and fragmented⁴².

Studies also highlight the fact that within the broader health budget, mental health receives a meager allocation of approximately 3.3% to 4%. Shockingly, over 90% of this allocation is funneled into just a few neuropsychiatric hospitals, primarily for institutional care^{36,37}. This centralized and highly medicalized spending pattern undermines the development of community-based services, leaves primary care and outpatient mental health services chronically underfunded and neglects psychosocial support, rehabilitation, and prevention efforts.

The World Health Organization (WHO) advocates for mental health system decentralization, including integrating care into primary healthcare (PHC) settings but with such poor budgetary priorities, Primary Health Care workers lack training, infrastructure, and incentives to provide even basic mental health support, whereas, the primary health centres are the usually the first point of care and contact within the healthcare system¹.

2.1.4 Maternal Health

Maternal health is a critical dimension of public health that directly influences the well-being of women, children, families, and communities. Literature explains that maternal health encompasses the health of women during pregnancy, childbirth, the postpartum period, including the continuum of care that ensures safe pregnancy outcomes and healthy motherhood⁴³. This perspective is echoed by contemporary literatures which advocates for a broader framework that extends maternal health care and monitoring up to years following child birth to fully capture the long-term health outcomes of both mother and child^{44,45,46,47}. This expanded timeframe is vital for addressing latent morbidities, including mental health disorders, which often emerge or persist beyond the immediate postpartum window.

The conceptualization of maternal health integrate a multi-dimensional understanding that includes physical, mental, and social health components. For example, scholars underscore that mental health problems during pregnancy and motherhood contribute significantly to maternal morbidity, yet remain under-recognized and insufficiently addressed, especially in low-resource settings such as Sub-Saharan Africa⁴⁸. Mental health is recognized as a pivotal element in maternal well-being, advocating for systemic changes in healthcare delivery that prioritize psychological support alongside physical care⁴⁹.

2.1.4.1 Maternal Health Stages

Maternal health can be examined through several stages. Initially, the preconception stage involves optimizing women's health before pregnancy, including nutritional status, chronic disease management, and psychosocial preparedness. This stage lays the groundwork for a healthy pregnancy trajectory. Following this, the antenatal period

focuses on monitoring fetal development, maternal physiological changes, and screening for potential complications. Furthermore, comprehensive antenatal care, as emphasized by scholars reduces risks of adverse outcomes by early detection and intervention⁵⁰. The intrapartum stage, referring to the time of labor and delivery, demands skilled attendance and access to emergency obstetric services to prevent mortality and severe morbidity. The perinatal period, which notably extends up to two years post-delivery, involves recovery, infant care, and surveillance for late-emerging conditions such as depression and chronic physical morbidities^{51,44,52}. Women with older children can be considered to be in the early childhood maternal stage or the early stages of motherhood, a period where ongoing maternal health monitoring remains important to support both the mother's well-being and optimal child growth and development⁵³. This holistic time-frame reflects the evolving nature of maternal health challenges and the necessity of continuous support beyond the conventional 42-day postpartum window.

2.1.4.2 Determinants of Maternal Health

The determinants of maternal health are multifaceted and include social, economic, cultural, and healthcare system factors. Poor maternal health is widely recognized as a reflection of broader societal inequities, including poverty, gender discrimination, limited education, and inadequate healthcare infrastructure⁴⁵. A contextually relevant study from India highlights how social determinants such as low socioeconomic status, restricted access to maternal health services, and prevailing cultural norms significantly influence maternal mortality and morbidity rates⁴⁹. These findings resonate globally, revealing that maternal health disparities persist across both high- and low-income settings due to systemic inequities and resource limitations.

Importantly, determinants of maternal mortality and morbidity extend beyond clinical factors to encompass social determinants such as education, income, social support networks, access to quality healthcare, transportation, and gender equity^{50,45}. In Nigeria, these challenges are further compounded by regional disparities, with northern states experiencing worse outcomes linked to poverty, lower female literacy, early marriage, and weaker healthcare systems⁵⁴. Additionally, conflict-affected zones like Borno State face heightened barriers, including disrupted health services and increased exposure to violence, which exacerbate maternal health risks.

2.1.4.3 Maternal Morbidity and Mortality Rate

According to the World Health Organization's most recent estimates, approximately 295,000 women died during and following pregnancy and childbirth in 2017 worldwide. The vast majority of these deaths (94%) occurred in low- and lower-middle-income countries, reflecting stark inequities in healthcare access and quality⁵⁵.

Globally, the maternal mortality ratio (MMR), the number of maternal deaths per 100,000 live births has shown a downward trend over the last two decades, decreasing from 342 in 2000 to 211 in 2017⁵⁵. Despite this progress, the global target under Sustainable Development Goal 3 (SDG 3) to reduce the global MMR to less than 70 per 100,000 live births by 2030 remains elusive for many countries, particularly in regions with deep systemic challenges.

The burden of maternal morbidity far exceeds mortality and is often a hidden epidemic. It encompasses a spectrum of physical and psychological complications resulting from pregnancy and childbirth, such as hemorrhage, hypertensive disorders, infections, anemia, and mental health disorders. Research highlights that for every maternal death, an estimated 20 to 30 women suffer from serious complications, including chronic

conditions that reduce quality of life and increase disability-adjusted life years (DALYs)⁴⁴. In 2023, more than 700 women died daily due to preventable complications related to pregnancy and childbirth, equating to nearly one maternal death every two minutes worldwide⁵⁵. Although the global maternal mortality ratio (MMR) has declined by approximately 40% since 2000, it remains at a concerning rate of 197 deaths per 100,000 live births, far from the Sustainable Development Goal target of reducing the MMR to less than 70 per 100,000 live births by 2030⁵⁵.

The burden of maternal mortality is disproportionately borne by low- and lower-middle-income countries, which accounted for over 90% of maternal deaths in 2023⁵⁵. Sub-Saharan Africa alone represented about 70% of these deaths, with an estimated 182,000 women dying from maternal causes, despite achieving a 40% reduction in MMR since 2000^{56,55}. Southern Asia accounted for around 17% of global maternal deaths and has shown a remarkable 71% decline in MMR during the same period⁵⁶. Regions such as Eastern Europe and Southern Asia recorded the most significant reductions, with MMR declining by 75% and 71%, respectively⁵⁵.

Socioeconomic disparities and instability exacerbate maternal mortality. Low-income countries had an MMR of 346 per 100,000 live births in 2023, compared to just 10 per 100,000 in high-income countries. Conflict-affected and fragile states bear a disproportionate burden, with 61% of global maternal deaths occurring in only 37 such countries. Maternal mortality in conflict zones reached 504 deaths per 100,000 live births, highlighting the devastating impact of instability on maternal health⁵⁵.

The COVID-19 pandemic briefly reversed the downward trend in maternal mortality, increasing the number of deaths from 282,000 in 2020 to 322,000 in 2021 due to

healthcare disruptions and the direct effects of the virus on pregnant women⁵⁷. However, data from 2022 suggest a return to the previous declining trajectory⁵⁵.

Therefore, Sub-Saharan Africa and South Asia together account for approximately 86% of global maternal deaths. The Sub-Saharan Africa which carries the highest burden, with an MMR of 542 deaths per 100,000 live births is nearly 25 times higher than that in high-income countries⁵⁵.

This regional disparity arises from a confluence of factors including weak health systems, inadequate skilled birth attendance, poor emergency obstetric care availability, and pervasive social determinants such as poverty, low female education, and gender inequality^{45,50}. Literature further describes how regional conflict, cultural practices, and infrastructural deficits exacerbate maternal health challenges⁴⁴.

South Asia, with an MMR of approximately 152 per 100,000 live births, has made significant strides in reducing maternal deaths through policy reforms and improved service delivery. However, large rural-urban and socioeconomic disparities persist⁵⁰.

Nigeria exemplifies the high maternal health burden seen across Sub-Saharan Africa. According to a study, Nigeria's MMR is among the highest globally, with estimates around 814 deaths per 100,000 live births⁵⁸. This range reflects data collection challenges but underscores a maternal health crisis. Nigeria accounts for roughly 20% of global maternal deaths, the highest for any single country⁵⁵.

Maternal morbidity in Nigeria extends beyond physical complications to include mental health disorders. It is reported that perinatal depression and anxiety affect a substantial proportion of Nigerian women but are often underdiagnosed and untreated due to stigma and limited mental health services. The mental health burden compounds physical

morbidity, adversely affecting maternal self-care, infant care practices, and overall family well-being⁴⁸.

In Nigeria, maternal mortality and morbidity remain alarmingly high, underscoring a critical public health crisis. The high maternal mortality ratio in Nigeria is further corroborated by a study in Borno State, illustrating that maternal health outcomes are exacerbated by ongoing conflict, poor healthcare access, and sociocultural barriers⁵⁶. The implications of such high MMR on socioeconomic development are profound, as maternal deaths directly reduce family income stability, increase orphanhood, and strain healthcare systems.

Maternal morbidity in Nigeria is similarly pervasive, with direct causes including hemorrhage, hypertensive disorders (such as preeclampsia), infections, and obstructed labor. Indirect causes, such as anemia, malaria, and HIV/AIDS, compound these risks⁵⁸. Importantly, mental health disorders represent an emerging but under-addressed contributor to maternal morbidity. Studies highlight that perinatal depression, anxiety, and post-traumatic stress disorder are prevalent among Nigerian women but frequently overlooked due to stigma, insufficient mental health services, and lack of trained personnel⁴⁸. This neglect exacerbates maternal morbidity and negatively influences child growth and development, creating intergenerational cycles of poor health outcomes.

Global data from literature emphasize that mental health conditions complicate at least 10–20% of pregnancies worldwide, yet only a fraction receive adequate care. The lack of integration of mental health services into routine maternal care represents a critical gap in both policy and practice⁴³. In Nigeria, this gap is amplified by infrastructural deficits and cultural perceptions that often minimize the seriousness of mental illnesses, particularly in perinatal contexts^{48,50}.

2.1.5 Mental Health, a key aspect of Maternal Health

Pregnancy, child health and the early motherhood period is known to be quite challenging as a result of significant changes to a woman's physical well-being, appearance and, financial situation. As a part of these changes, many women experience switch in their mental health which can have a negative impact on their general health and, as a result the well being of their infants and family⁵¹. Mothers with mental health problems may not be able to realise their capacities as mothers, to work productively and be able to handle stress, some mothers Globally, the World Health Organization (WHO) estimates that about 10% of pregnant women and 13% of women who have just given birth experience a mental disorder, primarily depression. The numbers are notably higher in low- and middle-income countries (LMICs), where roughly 15.6% of women experience antenatal depression and 19.8% experience postpartum depression⁵¹. These statistics, however, may underrepresent the reality in SSA, where cultural stigma, healthcare inaccessibility, and low mental health literacy impede recognition and reporting.

In SSA, the intersection of poverty, gender inequality, conflict, and inadequate healthcare infrastructure creates a unique matrix of vulnerability for pregnant and perinatal women. A systematic review on Maternal Mental health in SSA underscores the scarcity of effective, culturally adapted interventions for common perinatal mental health disorders across the region⁵⁹. Another systematic review states that the prevalence of depression in Africa during pregnancy and after delivery was at 11.3% and 18.3% respectively. Another review in the Sub Saharan Africa also reported that 18.6% of postpartum depression was discovered with existing range of 7% to as high as 50.3%^{60,61}. Despite the evident need, few interventions are integrated into routine maternal healthcare, and even fewer are led by trained professionals. Furthermore, studies highlight the heavy burden of untreated mental health conditions among pregnant and postpartum women in SSA,

emphasizing the risk of maternal suicide, poor infant outcomes, and compromised early child development⁶².

Nigeria, the most populous nation in Africa, epitomizes the SSA challenge in maternal mental health. With high maternal mortality, weak mental health systems, and wide disparities in access to care, the landscape is both complex and pressing. Scholars provide a historical and contemporary review of mental health challenges facing Nigerian women, detailing the evolution of cultural norms, patriarchal constraints, and the persistent invisibility of women's mental health in national policy dialogues⁶³. Several studies reinforce this information. A study which explored the prevalence of common mental disorders among breastfeeding mothers in Nigerian tertiary hospital nurseries, uncovered a troubling rate of depression, anxiety, and somatic complaints, especially among women with poor social support or financial strain⁶⁴. According to Nigerian Health Watch, it was dictated that women die during giving birth due to high rate of anxiety throughout their pregnancies, also often exacerbated by the lack of support; lack of proper information also worsened their fear⁵¹. Nigerian medical professionals believed that mental illnesses were rare and insignificant in women⁶⁵. Presently, however, epidemiological studies have shown that mental disorders are a global issue^{66,67}.

In Bauchi State, a 2025 study shows that perinatal depression is both prevalent and underestimated in primary care settings, where health workers lack the tools or training to screen for it effectively⁶⁰. Even within hospitals, where care is more structured, it was found that mothers of hospitalized neonates experience intense stress and high rates of postpartum depression, aggravated by fear, helplessness, and inadequate emotional support⁶⁸.

The socio-cultural landscape is a critical determinant of maternal mental health in Nigeria. Patriarchal norms, polygamy, domestic violence, low autonomy, and entrenched stigma surrounding mental illness make it difficult for many women to even name their distress, let alone seek help. In an interpretative phenomenological analysis on the mental health experiences of mothers in Jos, Nigeria, it was discovered that the women suffering from the condition had it covered in silence, shame, and isolation⁶⁹.

Psychosocial factors such as marital dissatisfaction, poverty, low educational attainment, and unintended pregnancy are repeatedly identified as predictors of poor maternal mental health outcomes. A 2024 study in Ibadan reveals a strong correlation between these psychosocial variables and psychological distress in pregnant women. The compounded stressors of daily life food insecurity, violence, societal expectations create fertile ground for mental distress to grow unchecked⁷⁰.

2.1.5.1 Common Maternal Mental Disorders

Within the broader spectrum of maternal mental health challenges, Common Mental Disorders (CMDs) particularly depression, anxiety, and somatic symptoms represent the most widespread conditions affecting women during pregnancy and motherhood. CMDs are non-psychotic yet highly disruptive disorders that impair emotional regulation, cognitive clarity, and physical wellbeing^{71,59}. Pregnancy and the transition into motherhood (matrescence) represent one of the most significant physiological, psychological, and social changes in a woman's life. This period is marked by a complex interplay of biochemical, physiological, and anatomical changes⁷². These changes, while natural, also make women particularly vulnerable to psychological problems such as depression, anxiety, and parental stress^{73,74, 75}.

In Nigeria, women are more likely to suffer from depression than men, with depression and anxiety occurring at twice the rate among women⁷⁶. Women experience various challenges during pregnancy, including increased stress, hormonal fluctuations, and physical strain. While some women successfully navigate these changes often through a combination of physical well-being, strong social support networks, and guidance from healthcare providers^{77,78}. Others may face heightened emotional, social, and mental health vulnerabilities. This is particularly dangerous as it could lead to occurrence of suicidal tendencies putting lives at risk⁶².

According to the World health Organization , risk factors for poor perinatal mental health include Adolescent Pregnancy, Difficult birth experience, Poverty, Gender discrimination, poor nutrition, low educational opportunities, physical health conditions, little or no social support, natural disasters, gender-based violence and other conflicts, unwanted pregnancy, fertility difficulties and substance use⁴⁶. A study conducted in Nigeria found that the prevalence rate of these common mental disorders in Nigeria is 24% ; one in four women were discovered to have CMDs⁶⁴.

Common Mental Disorders addressed in this study include Depression, Anxiety and Somatic Symptom.

2.1.5.2 Maternal Depression

Maternal depression is the most prevalent mental health disorder affecting mothers worldwide. It not only undermines a woman's ability to care for herself but also affects infant health, development, and long-term outcomes. Depression, according to the World Health Organization is not merely a temporary emotional disturbance, but a medical condition characterized by persistent sadness and a lack of interest or pleasure in previously rewarding or enjoyable activities. These symptoms must last for at least two

weeks to be clinically significant. Individuals may also experience fatigue, changes in appetite and sleep, difficulty concentrating, feelings of guilt or worthlessness, and suicidal ideation. These symptoms, especially when occurring in mothers, can significantly impair their ability to provide attentive care to their children and to maintain functional family roles¹².

According to the World Health Organization, an estimated 13% of women who have just given birth globally experience a mental disorder, most commonly depression. In low- and middle-income countries (LMICs), the prevalence can exceed 20%, with Sub-Saharan Africa (SSA) and Nigeria experiencing significantly higher rates due to structural inequities, sociocultural pressures, and weak health infrastructure⁵¹. As reported in a 2020 study, prevalence of postpartum depression globally ranged from 1.9% to 82.1% with varying ranges of 2.2 to 74% in industrialized and developing countries.

Perinatal depression is reported to lead to a cascade of negative outcomes including impaired maternal-infant bonding, poor child nutrition, increased risk of infant mortality, and long-term developmental delays. The condition is often invisible and misinterpreted as the "normal" stress of motherhood⁶⁴.

SSA is particularly burdened by high maternal depression rates, with several studies reporting figures that range between 18% and 48% depending on the population studied and assessment tools used. Depression can be classified into mild, moderate and severe depending on severity level. Mild depression is said to affect the ability to undertake daily activities that includes care and maintaining relationships. Moderate to severe level can render the mother less capable of being able to carry out care of themselves and their babies impacting the health of both⁶².

A systematic review of interventions for common perinatal mental disorders in SSA found significant treatment gaps across the region. Most women suffering from perinatal depression in SSA remain untreated due to stigma, limited mental health services, and a critical shortage of trained professionals⁵⁹. In India, factors such as poor living conditions, family disputes, financial crises, a higher number of children, and limited work opportunities contribute to PPD^{79,80}.

Another systematic review and meta-analysis study stresses the urgency of understanding the magnitude of maternal depression across SSA to inform policy. Their work underlines how the absence of reliable data further marginalizes women's mental health in the region⁶².

2.1.5.2.1. Depression among Mothers in Nigeria

In Nigeria, research states that perinatal depression affects 10 to 30 % of Nigerian women⁵¹. A study examining breastfeeding mothers in tertiary hospital nurseries found that common mental disorders including depression were alarmingly high, particularly among women lacking adequate emotional and social support. 24.0% of breastfeeding mothers in tertiary hospital nurseries across all six geopolitical zones of Nigeria screened positive for common mental disorders, with depression comprising a significant portion of these cases. The study identified several risk factors strongly associated with maternal depression, including receiving antenatal care at primary healthcare facilities (adjusted odds ratio [aOR] = 13), lower educational attainment (aOR = 3.26 for primary education), polygamous marital arrangements (aOR = 2.18), a previous history of mental illness (aOR = 4.68), and geographic region, with those in the South-South region significantly more likely to be depressed (aOR = 2.21)⁶⁴.

Similarly, a research conducted in Bauchi State revealed that many women in primary healthcare settings experienced postpartum depression but were neither screened nor diagnosed due to systemic gaps and the unavailability of mental health-trained staff. The study discovered that 43.4% of 262 women studied in Bauchi state was found to have postpartum depression⁶⁰.

Scholarly research found likewise that mothers of hospitalized neonates in Nigerian hospitals experienced extremely high levels of stress, grief, and depression. The unpredictable nature of neonatal care, combined with a lack of psychological support, was found to compound emotional distress⁶⁸.

2.1.5.2.2. Contributing Risk Factors

Several socio-demographic and psychosocial variables intensify the risk of depression in Nigerian mothers including Low income and food insecurity, Domestic violence and lack of partner support, Unwanted or unplanned pregnancies, Polygamy and family conflict as well as Social isolation and stigma⁸¹.

A 2024 study carried out at Adeoyo Hospital, Ibadan, confirmed that psychosocial stressors like family instability, economic strain, and perceived helplessness significantly predicted depressive symptoms among pregnant women⁷⁰. Scholars explored the lived experiences of mothers in Jos, Nigeria, and found that depression often goes unrecognized and unexpressed. Women reported experiences of "feeling empty," "losing strength," or "being alone," but rarely identify their suffering as depression due to cultural silence, fear of judgment, or spiritual interpretations of their pain⁶⁹.

Another study highlights that in Northern Nigeria, women reported that poor health conditions during pregnancy, as well as premature delivery, unplanned pregnancies, and

postnatal complication have increased risk for depression implying that maternal physical health care and support can aid mental health⁶⁰.

2.1.5.3. Maternal Anxiety

Anxiety disorders are similarly prevalent among mothers. The WHO defines anxiety disorders as conditions characterized by excessive fear, worry, and behavioral disturbances, often accompanied by physiological symptoms like restlessness, tension, and palpitations¹².

The symptoms are intense enough to cause considerable emotional distress or interfere with daily functioning. Anxiety disorders come in various forms, including generalized anxiety disorder (marked by persistent and excessive worry), panic disorder (defined by sudden episodes of intense fear), social anxiety disorder (involving overwhelming anxiety in social contexts), and separation anxiety disorder (characterized by extreme fear or anxiety related to separation from emotionally significant individuals), among others¹². Disorders such as generalized anxiety disorder, panic disorder, and social anxiety disorder frequently interfere with a mother's ability to rest, make decisions, or bond with her child, thereby complicating both maternal and child outcomes⁸².

Maternal anxiety can be explained as heightened and often chronic states of worry, nervousness, or fear experienced by women during the perinatal period encompassing both pregnancy (antenatal) and the postpartum phase. Although often overshadowed by the discourse on depression, maternal anxiety is a critical mental health issue with far-reaching consequences for both mother and child. Unlike general life anxiety, maternal anxiety is usually rooted in pregnancy-related fears: fear of miscarriage, delivery complications, baby health, breastfeeding, and perceived inadequacy as a mother. Left untreated, it can lead to debilitating panic attacks, obsessive-compulsive behaviors, and disruptions in mother-infant bonding.

According to the World Health Organization, maternal anxiety disorders affect approximately 8–13% of women globally, though this figure is believed to be underreported as well due to cultural masking, limited awareness, and lack of routine screening protocols in many countries⁸². Anxiety often coexists with depression, a phenomenon termed "comorbidity," which complicates diagnosis and treatment.

Research emphasizes that the neglect of maternal mental health in global health strategies has allowed disorders like anxiety to flourish undetected, especially in LMICs, where mental health literacy remains low⁷¹.

In Sub-Saharan Africa, maternal anxiety is commonly linked with structural determinants of health such as poverty, intimate partner violence, poor obstetric care, and societal pressures. Anxiety during the perinatal period is intensified by the lack of supportive health systems and minimal access to skilled mental health professionals.

In a systematic review of interventions across SSA, found that while depression was more frequently studied, anxiety was often left undiagnosed or lumped together with depression⁵⁹.

Literatures noted that the historical neglect of women's emotional needs, combined with current structural barriers, has created an ecosystem where anxiety is both widespread and invisible. A systematic review found that antenatal anxiety is often dismissed as emotional weakness or attributed to spiritual forces, leading women to seek informal or religious remedies rather than medical care⁶³.

Likewise, in the study examining breastfeeding mothers, it was also found that there was a high prevalence of generalized anxiety symptoms, particularly among first-time mothers and women with previous traumatic birth experiences. The lack of postpartum education and emotional preparedness was a recurring theme⁶⁴.

Meanwhile, from the Bauchi State reported above, it was also stated that anxiety symptoms such as insomnia, restlessness, and obsessive thoughts about the baby's health were widespread among new mothers but rarely identified in clinical settings due to lack of trained personnel and absence of diagnostic tools⁶⁰.

Anxiety among pregnant women in Oyo State was closely associated with family instability, marital discord, and economic dependence. Anxiety was most pronounced in women who lacked social networks or lived far from natal family support systems⁷⁰. Maternal anxiety in Nigeria often manifests somatically. Women report symptoms like headaches, tightness in the chest, or gastrointestinal distress rather than psychological symptoms, which complicates diagnosis. This is explained through an interpretive analysis in Jos that women's emotional distress is frequently coded in somatic or spiritual terms contributing to the underreporting of psychological symptoms and underutilization of formal mental health services⁶⁹.

In their feature for Nigeria Health Watch authors described the pressing need for integrating maternal mental health into maternal health care, noting that anxiety can compromise maternal behavior and decision-making impacting immunization schedules, breastfeeding, and even treatment adherence for physical ailments⁵¹.

2.1.5.4. Somatic Symptoms

Somatic Symptoms refer to physical complaints such as pain or bodily dysfunction that lack an identifiable medical cause. They are central features of functional somatic syndromes and somatoform disorders. Somatic Symptoms are directly linked with depression and anxiety such that individuals with these somatic symptoms have been shown repeatedly to have increased rate of depression and anxiety⁸³. Somatic symptom disorder, as detailed in the DSM-5 and supported by WHO's clinical observations,

involves one or more distressing physical symptoms that are accompanied by excessive thoughts, feelings, or behaviors related to those symptoms⁸⁴. These may include disproportionate worry about the seriousness of symptoms, repeated health-related behaviors (like frequent medical visits), or persistent anxiety about health. Unlike other conditions, these physical complaints may or may not have a verifiable medical explanation⁸³. In many maternal health settings, especially in lower-resource areas, somatic symptoms may be misinterpreted as purely physical in origin, causing mental health issues like depression and anxiety to remain undiagnosed.

Somatic symptoms are physical complaints that cannot be fully explained by any identifiable medical condition represent a significant but often overlooked dimension of maternal mental health. These include chronic fatigue, headaches, gastrointestinal distress, body aches, palpitations, and sleep disturbances. In maternal populations, especially in low- and middle-income countries like Nigeria, somatic expressions of psychological distress are more common than overt emotional disclosures such as sadness or anxiety. As a result, these symptoms frequently go unrecognized as part of underlying mental health conditions like depression or anxiety.

Globally, the prevalence of somatic symptoms in maternal mental health varies but tends to be particularly high in non-Western cultures, where mental illness may be stigmatized or not linguistically conceptualized.

In many high-income countries, perinatal care systems now routinely screen for somatic symptoms as potential red flags for depression or anxiety. However, scholars note that in global maternal health programming, somatic symptoms are still treated as peripheral rather than central to mental health screening protocols³⁵.

The expression of mental distress through physical symptoms is not only common but expected. Several studies highlight the challenge of accurately diagnosing maternal

mental illness due to this deeply rooted somatization. Many women may complain of bodily weakness, chest pain, or chronic fever rather than voice feelings of anxiety, despair, or hopelessness⁶².

It was also observed that in most SSA studies, physical complaints were treated independently from mental health concerns, even when they clearly overlapped with depressive or anxious states. This disconnect underscores the lack of integrated care models in the region and the urgent need for culturally sensitive mental health training for maternity care workers⁵⁹.

Across various ethnic groups in Nigeria, mental health symptoms are commonly somatized. Women frequently report symptoms such as “body burning,” “head pressure,” or “blood boiling” metaphors that reflect emotional pain but are interpreted as physical illness⁶³.

Many mothers described overwhelming exhaustion, dizziness, or inability to eat, which were attributed to spiritual causes, marital problems, or poor nutrition rather than mental health concerns in a interpretative review work. The authors noted that these women rarely used language associated with mood disorders, instead emphasizing bodily discomforts⁶⁹.

Similarly, nursing mothers at tertiary hospitals were found to express their psychological stress through somatic channels such as chest tightness and body weakness. These symptoms were often dismissed by healthcare workers as “normal stress of motherhood” rather than explored for underlying mental health issues⁶⁴.

In Nigerian societies, it is described how fear of being labeled “mad” or “possessed” drives women to avoid speaking about their emotional pain. Instead, they channel these experiences into physical complaints that are more culturally acceptable and more likely to receive medical attention⁵¹.

A study observed likewise that even when postpartum depression was suspected in primary healthcare clinics in Bauchi State, symptoms were initially investigated from a purely physical standpoint blood tests, antimalarials, and analgesics were routinely administered before psychological referrals were considered⁶⁰.

Literature emphasizes that non-specialist health workers, who make up the bulk of Nigeria's maternal care providers, are not trained to link somatic presentations to potential mood or anxiety disorders. Without proper screening tools and contextual training, many cases of maternal mental illness are lost within the outpatient queues of Nigerian maternity wards⁸⁵.

Moreover, studies show that even when somatic symptoms were acknowledged as signs of psychological stress, there was no standardized referral pathway for mothers in distress. Health workers sympathized but lacked the resources or institutional support to act⁷⁰.

2.1.6 Child Growth and Development

2.1.6.1 Dimensions of Child Growth and Development

The development of a child begins in-utero in the womb of the mother. This development is referred to as the prenatal development where the baby begins development process as an embryo right from fertilization till Childbirth. The period of development usually takes about 9 months to 40 weeks before the stage of birth⁸⁶. The development of children in utero are classified into three stages of three months of which key developmental milestones occur. From the second month the child already begins to develop facial features, toes, eyes as well as the brain begins of which by the end of the 3rd trimester, all parts of the body have been formed⁸⁷. This growth and development continues from birth till death.

As part of the continuous development outside of the womb, the child is expected to grow and develop physically, cognitively, linguistically as well as socio-emotionally. The growth experienced in the early childhood stages of life is the basis for child success later in life⁸⁸. Child growth and development is key in indicating child health status. Scholars opine that diminished growth in childhood has irreversible effect on physical growth, educational performance, economic productivity, work capacity and increasing susceptibility to diseases. Literature has it that the rapid physical development and about 80% of the child cognitive development occurs during the first 2 years of life. In other words the first 2 years of human life starting from conception period to 2 years after, approximately 1000 days is a crucial foundation for physical and cognitive development which are crucial to the child. It is important that children are able to develop properly to ensure that health and life of these children are sustained⁴⁷. The subsequent years are equally important for consolidating physical growth, refining cognitive abilities, and building resilience against disease and developmental delays⁸⁹. Evidence from Ethiopia and Indonesia shows that nutritional status and developmental outcomes in children aged 12–59 months remain highly sensitive to dietary quality, feeding practices, and socio-economic conditions, underlining the need for interventions beyond infancy^{90,91}. Maternal mental health has also been identified as a significant determinant of nutritional and developmental outcomes for children well past the toddler stage, especially in contexts of poverty or when children were born small or sick^{92,93}. These findings reinforce that protecting and promoting health during the entire under-five period is essential to reducing stunting, wasting, and developmental delays, and to ensuring that the health and life of these children are sustained. The WHO has a standardized growth chart to measure child proper growth and development especially in proportion to their age. The WHO standardized growth charts, developed from global data

on children raised under optimal conditions, provide age- and sex-specific percentiles for indicators such as length/height-for-age, weight-for-age, weight-for-length/height, BMI-for-age, and head circumference-for-age, enabling early detection of growth faltering or excess from birth to 59 months and guiding timely interventions to support healthy physical and cognitive development⁹⁴.

The process of child growth is influenced by an interaction of genetic, biological, environmental, emotional, and social factors. As highlighted by literature, optimal growth and development are not merely markers of individual health but are foundational indicators of a society's socioeconomic well-being⁹⁵.

Physical Growth

The physical or biological dimension refers to the measurable and visible attributes of a child's body and physiological functions. These include anthropometric parameters such as height-for-age, weight-for-age, weight-for-height, and head circumference, mid-upper arm circumference all of which are internationally monitored by WHO Growth Standards⁹⁴. The World Health Organization emphasizes that physical growth is also heavily influenced by environmental determinants such as access to clean water, sanitation, and essential health services⁵².

Cognitive Development Dimension

Cognitive development pertains to the evolution of a child's brain-based abilities including learning, language acquisition, memory, attention, and problem-solving skills. It begins prenatally and accelerates rapidly in the early years of life^{47,96}. Inadequate nutrition during this phase can cause irreversible cognitive impairments, reducing IQ by up to 15 points, and lowering future academic performance and productivity⁹⁵.

The Nigerian review on the country's progress toward the Global Nutrition Targets 2025 stresses that limited maternal education, poor antenatal care utilization, and child

malnutrition collectively impede optimal brain development⁹⁷. Furthermore, a narrative review of malnutrition causatives in Nigeria, highlights a critical gap in maternal mental health services and it confirms it as a factor directly linked to cognitive and emotional delay in early childhood⁹⁸.

Socio-emotional Development

The emotional and social dimensions of development refer to a child's ability to regulate emotions, form secure attachments, and engage in meaningful social interactions. This aspect of development begins with early bonding experiences and continues through interactions with family, peers, and caregivers. Emotional competence and secure attachment are essential for resilience, empathy, and healthy interpersonal relationships⁸⁸. In Nigeria, emotional and social development in children is often hampered by poverty, food insecurity, and maternal mental health issues⁹⁸. The lack of early stimulation, combined with exposure to trauma and neglect, places children at risk of long-term behavioral disorders. According to studies, children of depressed mothers are more likely to display poor social responsiveness, heightened anxiety, and delayed language development⁴⁷. Addressing such issues calls for an integrated approach like IMCI, which promotes early childhood stimulation and parent-focused counseling at both health facility and community levels⁵².

Moral and Ethical Development Dimension

Moral development involves the internalization of societal norms, empathy, responsibility, and ethical reasoning. According to a scholar, a child's sense of right and wrong evolves with cognitive maturity and is largely influenced by parenting style, educational environment, and religious or cultural instruction. Early moral education, reinforced through structured environments and consistent caregiving, fosters pro-social behaviors, discipline, and civic awareness⁸⁸.

Moral development is rarely tracked using quantitative metrics, yet it forms an essential aspect of the psychosocial framework of a child. It is linked to early childhood education programs, school enrolment, and the broader socio-cultural milieu⁸⁶.

Environmental Dimensions

Environmental factors such as access to healthcare, sanitation, housing, and socioeconomic status are strongly linked to all aspects of child development. According to the United Nations, Sustainable Development Goals (SDGs) related to clean water, good health, education, and reduced inequality are intrinsically linked to child development indicators⁹⁹. For instance, Goal 3.2 targets a reduction of under-five mortality to ≤ 25 deaths per 1,000 live births by 2030, a target far from being achieved in Nigeria, where the figure remains at 102 deaths per 1,000 live births¹⁰⁰.

The dimensions of child growth and development are deeply interwoven. Physical maturation sets the foundation for cognitive and emotional progress, while environmental and social contexts either reinforce or undermine developmental outcomes. In Nigeria, where malnutrition, inadequate healthcare, and maternal mental health issues remain widespread, a multi-dimensional, data-driven approach is required. Although strategies like the IMCI strategy offers a valuable framework for addressing these challenges, but its success hinges on sustained political commitment, robust healthcare infrastructure, and community engagement¹⁰¹.

2.1.6.2 Determinants of Healthy Child and Development

Healthy child growth and development are determined by a synergy of biological, environmental, socioeconomic, cultural, and health system factors. In contexts like Nigeria, these determinants include structural inequalities and limited health system

capacity, contributing to persistent child malnutrition, high mortality rates, and developmental delays. Determinants of child growth and development include:

Disease Burden and Infections

Infections and diseases such as malaria, diarrhea, and respiratory illnesses deplete the body's nutrients and impair the absorption of food, leading to stunted growth and developmental lags and is amongst the major causes of under-five deaths in the world, in SSA and Southern Asia¹⁰².

Maternal Education and Health Services Utilization

Multiple studies underscore the importance of maternal factors, specifically education, mental health, and antenatal care utilization. Educated mothers are more likely to practice exclusive breastfeeding, use antenatal services, and adopt appropriate hygiene practices. Conversely, maternal depression is associated with inadequate caregiving behaviors, poor infant feeding practices, and limited healthcare-seeking^{98, 47}.

Similarly, the WHO's IMCI framework acknowledges that early access to preventive and curative health services is critical. Poor uptake of health interventions due to lack of awareness, cultural beliefs, or weak healthcare infrastructure continues to impede child development in many Nigerian communities⁵².

Water, Sanitation, and Hygiene (WASH)

Environmental sanitation is another core determinant. A study found that WASH deprivation is highly associated with stunting and wasting among Nigerian children. Unsafe drinking water and poor sanitation increase exposure to enteric pathogens, leading to diarrhea and environmental enteric dysfunction, which compromise nutrient absorption and immunity¹⁰³.

Moreover, the 2018 Nigeria Demographic and Health Survey (NDHS) reported that only 43% of households have access to improved drinking water and fewer than 33% have

access to basic sanitation, emphasizing the need for integrated WASH interventions within child health programs¹⁰⁴.

Socioeconomic Status and Food Security

Poverty remains a powerful determinant. Children in households with low income or low asset ownership are disproportionately affected by undernutrition and developmental delays. According to studies, economic inequality in Nigeria not only restricts access to nutritious food but also limits healthcare, education, and clean living environments which are key elements for healthy child development^{105,100}.

This was echoed by scholars, who described poverty as the “root enabler” of multidimensional deprivations affecting children in northern Nigeria⁹⁸. Similarly, the findings of another study emphasize that food insecurity and malnutrition are entrenched in rural areas due to poor agricultural yield, climate vulnerability, and limited government safety nets¹⁰⁶.

Parental and Psychosocial Support

Parenting practices and early childhood stimulation are also critical. As reported in literature, positive caregiver-child interactions especially in early childhood are crucial for emotional regulation, language development, and social skills acquisition¹⁰⁷.

Scholars highlight the need for early childhood education and parental support systems in achieving Nigeria’s child development goals as it improves emotional and academic outcomes⁹⁸.

Nutritional Status (Proper nutrition or Malnutrition)

Nutrition is a fundamental determinant of child growth. Both the quality and quantity of food available to children have significant implications for physical and brain development. According to scholars inadequate dietary intake, inappropriate complementary feeding practices, and food insecurity are among the most significant

contributors to childhood undernutrition in Nigeria. They emphasize that only about 30% of Nigerian children meet minimum dietary diversity requirements⁹⁸.

This aligns with the 2023 UNICEF–WHO–World Bank Joint Child Malnutrition Estimates, which place Nigeria among the top five countries with the highest burden of stunting globally¹⁰². As noted in a review article, there is slow progress of Nigeria in meeting the Global Nutrition Target 2025, it also states that this slow progress stems from weak policy implementation and a lack of intersectoral collaboration across food, education, and health sectors⁹⁷.

While healthy Childhood Growth and development should be the right of many children in the world, a huge number have not had all conditions for healthy growth checked, this leads to poor health conditions, morbidity and overall death (mortality). Usually, the first 5 years of life is a necessary stage for consistent efforts put in place to have the child healthy and strong for life success⁸⁸.

2.1.6.3 Child Morbidity and Mortality

In a UNICEF Level and Trends in Child Mortality report, it was reported that good progress had been made towards reduction of under-5 death. It was stated that in the year 2022, the annual number of under-five death had dropped to 4.9 million while the rate of the Under 5 Mortality (U5MR) had reduced by more than half yet the annual death rate of the among children remains unacceptably high. The report stated that of the 4.9 million death of the Under five children in 2022, 2.3 million occurred during the first month of life and 2.6 million children died between the ages of 1 and 59 months. The report highlighted likewise that Between 2000 and 2022, the world lost 221 million children, adolescents and youth which is almost the entire population of Nigeria which is recorded to be the sixth largest country by population¹⁰². It was found that Children younger than 5 were 162 million of these lives lost, which was reported to be equal to the population of

Bangladesh, the world's eighth-most-populous country. Neonatal deaths accounted for 72 million of those under five deaths, while 91 million deaths occurred among children aged 1–59 months¹⁰². Nearly 53 million stillbirths took place between 2000 and 2021 which are deaths that are often missed by policymakers and in programme actions and data collection¹⁰⁸. The report states that although the global rates of child mortality are declining, there are inequities among vulnerable populations of children. It reports that a child born in sub-Saharan Africa is on average 18 times more likely to die before turning 5 than one born in the region of Australia and New Zealand, while the risk of death among those younger than 5 in the highest-mortality country is 80 times that of the lowest-mortality country¹⁰⁹. The report added that unless urgent action is taken to end preventable newborn and child deaths, many low- and lower-middle-income countries will not meet the Sustainable Development Goal (SDG) targets for newborn and under-five mortality and 35 million children under age 5 will die before 2030. This is a horrific death toll that largely is portrayed towards the sub-Saharan Africa and Southern Asia or in low- and lower-middle-income countries. With 2030 approaching quickly, progress must be prioritized and accelerated¹⁰².

Child mortality remains a critical public health challenge in Nigeria¹⁰⁰. As of 2021, 27% of the global U5MR was from Nigeria¹¹⁰. Progress have been made towards reduction of mortality in Nigeria such that from 1990 to 2018 the rate reduced from 191 to 132 per 1,000 live births¹⁰⁴. From 2018 to 2021, U5MR reduced to 102 totaling a 47% reduction¹¹¹. Although the rate remains alarmingly high when compared to the global decline of 53%, it also far exceeds the Sustainable Development Goal (SDG) 3.2 target of 25 deaths per 1,000 live births by 2030¹⁰⁰.

2.1.6.4 Malnutrition

Malnutrition refers to lack, inadequate, improper or excessive intake of micro and macro nutrients required for proper growth. Scholars refer to malnutrition which includes undernutrition or over-nutrition as a dual burden which attracts a wide range of non-communicable diseases compromising health and economic stability⁹⁸.

Malnutrition has been reported one of the major causes of Under 5 Morbidity and Mortality. It accounted for 54% of child mortality amongst the U5M¹⁰¹. It is still a major cause of mortality. In Africa, it is reported to disproportionately affect women and children⁹⁸. Global reports states that in order to reduce the mortality rate, efforts to reduce malnutrition (a risk factor for mortality) needs to be put in place¹⁰².

Malnutrition encompassing both undernutrition and overnutrition, poses the greatest threat to child growth in Nigeria. Globally, undernutrition is still affecting many, 148 million under 5 children in 2022 were reported to be stunted. At the same time the rate of malnutrition was said to have doubled from 7.9% to 15.9% between 2000 and 2022¹¹². Malnutrition is a factor in over 33% of all under-five deaths annually⁹⁸. Nigeria accounts for 80% of global malnutrition cases of which protein-energy malnutrition (PEM) and micro-nutrient deficiencies are the most prevalent in Nigeria. This leads to morbid conditions such as kwashiorkor, marasmus (resulting conditions of PEM) as well as vitamin A, D and iron deficiencies (resulting from micronutrient deficiencies). These forms of malnutrition are widespread in Nigeria¹¹³. Malnutrition is characterized by stunting, wasting, micro-nutrient deficiencies and obesity of which the latter are common in an LMIC like Nigeria⁹⁸. Undernutrition is detrimental to the physical and cognitive health of the child, it is a crucial stage for proper brain development and linear growth¹¹⁴. Undernutrition projects short and long term consequences for the health of children and also the long-term productivity of the nation¹¹⁵.

2.1.6.5 Indicators of Child Physical Growth (Malnutrition)

Although, all aspects of child growth as mentioned above is very important, this study focuses on child physical growth which has to do with proper development of the child physically. Core of the literature mentioned above highlights the contribution of a lot of factors that can support or impede physical growth including presence or absence of a disease which can lead to morbidity and even mortality, environmental factors, maternal education and especially Nutrition. The Literature stated above highlighted mentioned that the inadequate or lack of proper diet contributes childhood undernutrition and in turn limits physical growth and development.

Proper diet and nutrition is key in proper growth and development of a child. Yet, Nigeria, remains at the center of a profound child nutrition crisis. Indicators used to measure malnutrition or growth rate include:

Height: Height, or length in children under two years, is a key anthropometric indicator of linear growth and long-term nutritional status. It reflects cumulative effects of nutrition, health, and environmental exposures over time. Low height-for-age, commonly referred to as stunting, signals chronic malnutrition and can have lasting implications for cognitive development, immune function, and future productivity¹¹⁶. Regular monitoring of height allows health practitioners to identify growth faltering early, evaluate interventions, and compare child growth against international standards⁹⁴.

Weight: Weight is a primary measure of body mass that reflects both current and past nutritional status. When interpreted in conjunction with height, weight differentiates between acute malnutrition (wasting) and chronic malnutrition (stunting). Weight-for-age identifies children who are underweight due to either recent weight loss or prolonged growth restriction, while weight-for-height specifically detects wasting¹¹⁷. Monitoring

weight is crucial for early detection of growth faltering, evaluating nutritional interventions, and preventing morbidity and mortality associated with undernutrition¹¹⁸.

Mid-Upper Arm Circumference (MUAC): MUAC is a practical, rapid assessment tool used to identify acute malnutrition in children. It reflects both muscle mass and subcutaneous fat, which are sensitive to short-term changes in nutritional intake¹¹⁸. MUAC is widely used in field settings because it requires minimal equipment, is non-invasive, and has strong predictive value for mortality risk in malnourished children¹¹⁷. Thresholds for MUAC can identify moderate and severe acute malnutrition, guiding urgent nutritional rehabilitation and therapeutic feeding interventions. It complements height and weight measurements by capturing acute deficits that may not yet manifest in stunting or underweight indices.

Head Circumference: Head circumference is a proxy measure for brain growth and neurodevelopment, particularly in infants and children. Deviations from WHO growth standards can indicate intrauterine growth restriction, microcephaly, or other developmental abnormalities, including those linked to malnutrition¹¹⁹. Regular HC measurement provides early signals of potential cognitive or neurological deficits, enabling timely interventions that may prevent long-term developmental delays. HC, when tracked alongside height and weight, helps create a holistic picture of physical and neurodevelopmental progress in early childhood.

Stunting is an indicator of chronic malnutrition which refers to low height for age⁹⁸. Nationally, the stunting rate a key indicator of chronic undernutrition and impaired linear growth is estimated at 37%, with rates surpassing 50% in Northern geopolitical zones such as the North West^{97,98}. In comparison, the South East of Nigeria reports significantly lower rates (usually under 10-20%) reflecting profound regional disparities. The impact of stunting is profound with long term effects in cognitive development, educational

performance and economic productivity¹²⁰. The percentage of children with low height for age (stunting) reflects the cumulative effects of undernutrition and infection before and from birth. According to the WHO growth standards, <-2 SD of the height-for-age of the WHO child growth standard median indicates stunting. It is as a result of long time nutritional deprivation¹²¹.

Wasting is indicative of acute malnutrition and weight loss due to insufficient food intake or disease; it affects approximately 7% of children under five nationwide, with rates rising as high as 10% in some Northern states such as Borno and Sokoto⁹⁷. It measures and refers to low weight for height⁹⁸. It usually is a symptom of acute undernutrition usually as a result of insufficient food intake or high incidence of infectious diseases which could further result in impaired immune system functioning and susceptibility to morbidity and mortality. According to the WHO growth standards, <-2 SD of the weight-for-height of the WHO child growth standard median indicates wasting¹²¹.

Underweight: Underweight children represent a composite measure of both stunting and wasting, constitute 22% of the child population, further evidencing the burden⁹⁵. Over 50 million children globally was affected by acute malnutrition (wasting) in 2017⁹⁸. According to the WHO growth standards, <-2 SD of the weight-for-age of the WHO child growth standard median indicates underweight¹²¹

Overweight: Another indicator for child growth is Overweight or obesity, literature states that an obese child is most likely to be obese into adulthood, this paves way for disabilities and diseases including Non-communicable diseases such as diabetes & cardiovascular disease, cancers, osteoarthritis etc. According to the WHO growth standards, $<+2$ SD of the weight-for-height of the WHO child growth standard median may indicates overweight¹²¹.

These statistics underscore Nigeria's alarming distance from the World Health Organization (WHO) Global Nutrition Targets 2025, which include a 40% reduction in stunting, <5% prevalence of wasting, and $\geq 50\%$ exclusive breastfeeding in the first six months of life. The last DHS survey found that exclusive breastfeeding stood at a mere 29%, and low birth weight prevalence hovered around 20%, suggesting systemic gaps in maternal and child health services⁹⁷.

2.1.7 Links between Maternal Health and Child Health

The relationship between maternal mental health and child development is now widely recognized as a critical determinant of lifelong physical, cognitive, and emotional outcomes. Maternal depression, anxiety, and stress especially during pregnancy and the postpartum period can negatively impact the trajectory of a child's health and development⁹⁸. These effects are transmitted through several pathways, including biological mechanisms during gestation, behavioral interactions after birth, and emotional responsiveness during infancy and early childhood.

Maternal mental health affects child development through three main pathways: biological, behavioral, and emotional.

Biologically, maternal stress and depression during pregnancy can influence fetal development through neuroendocrine pathways. High levels of cortisol, the stress hormone, can cross the placenta and disrupt fetal growth and brain development. Literature notes that prenatal anxiety and depression were strongly associated with lower birth weight and developmental vulnerability in early childhood¹²². Similar conclusions were drawn in a systematic review which emphasized how maternal mental health interventions during pregnancy had long-term benefits on a child's neurological and psychological growth¹²³.

Behaviorally, mothers experiencing mental health issues often struggle to maintain consistent feeding schedules, hygiene practices, and healthcare routines for their children. Scholars found that depressive symptoms in mothers correlated with reduced breastfeeding frequency, inadequate weaning practices, and decreased medical follow-up for sick children. These behaviors are crucial during the first 1,000 days of a child's life, a period critical to nutritional and cognitive development¹²⁴.

Emotionally, maternal depression can severely impair the mother-infant bond. Lack of eye contact, unresponsive caregiving, and emotional unavailability may affect a child's attachment security and social development. Maternal mental health disorders can delay emotional regulation in children and contribute to behavioral issues later in life. These emotional disruptions can also set the stage for long-term mental health issues in the child⁴⁷.

Impact on Physical Growth

Maternal mental health has direct consequences on a child's physical growth, particularly in the areas of birth weight, malnutrition, and recurrent illness. Depression during pregnancy is a significant predictor of low birth weight, a condition associated with elevated risks of neonatal complications and stunting later in childhood⁹⁴.

Multiple studies confirm this link. For instance, a meta-analysis of low- and middle-income countries found that children of mothers with depression face an 80–90% higher risk of being underweight or stunted¹²⁵. Similarly, observed that Brazilian infants whose mothers had poor mental health exhibited significant growth deficits by six months of age¹²⁶. These findings are consistent with results from Bangladesh, Vietnam, and Ethiopia, which documented strong correlations between maternal mental health and childhood undernutrition, irrespective of socioeconomic status¹²⁴.

According to the World Health Organization's Integrated Management of Childhood Illness (IMCI) strategy, maternal mental health must be considered alongside infections and poor feeding as part of a comprehensive approach to preventing growth faltering and early mortality⁵².

Impact on Cognitive and Emotional Development

The cognitive and emotional development of a child is highly sensitive to the mental health status of the mother, especially during the early years. Poor maternal mental health can impair a child's learning, emotional regulation, and social competence. This effect is often mediated through chronic stress exposure, poor stimulation, and lack of consistent caregiving routines.

A meta-analysis showing that children born to mothers with depression, particularly those with low birth weight was found to face a higher risk of developing attention deficits, language delays, and difficulties in school readiness¹²⁷. Likewise, it was found that maternal depression was associated with increased levels of aggression and social withdrawal among children in South India¹²⁸.

Certain groups are disproportionately affected by the dual burden of maternal mental illness and child developmental deficits. Among them, teenage mothers face elevated risks due to their biological immaturity, social stigma, and limited parenting experience. Studies note that young mothers are less likely to access mental health services and are more vulnerable to postpartum depression, which in turn adversely affects child care practices^{47,98}.

Low-income households also bear a heavier burden. Families living in poverty often face compounding stressors, including food insecurity, lack of education, and poor access to healthcare, which can worsen maternal depression and its effects on children. Research

highlights that Nigeria, despite policy commitments, has yet to achieve meaningful progress toward global nutrition targets, especially in impoverished communities⁹⁷.

Rural populations, where health infrastructure is weak and cultural stigma around mental illness persists, are particularly vulnerable. Researchers observed that rural children in Nigeria had higher mortality and stunting rates, largely due to untreated maternal mental health issues and lack of access to supportive services¹⁰⁰.

2.1.8 Factors Influencing Maternal Mental Health

A broad body of literature informs that there are various factors associated with MMH, including sociodemographic characteristics, obstetric history, psychosocial elements, and broader societal determinants. Understanding these factors is crucial for developing effective interventions to support maternal well-being.

1. Sociodemographic Factors

Studies report that variables such as maternal age, education level, and unemployment increase vulnerability to depression and anxiety during pregnancy and postpartum^{92,129}. Low household income and financial insecurity are consistently associated with higher maternal stress and psychological distress⁹³. Scholars highlight that socioeconomic insecurity amplifies maternal susceptibility to mental health disorders, creating a compounding effect on overall well-being. Younger mothers and those lacking partner support are more vulnerable to depressive and anxious symptoms^{96,92}. Low educational attainment limits health literacy and access to psychosocial resources, increasing the risk of poor mental health⁹³. Employment status also affects maternal well-being, with unemployed mothers reporting higher psychological distress due to financial insecurity¹²⁹.

2. Obstetric and Health-Related Factors

Research indicates that complications during pregnancy and childbirth such as preterm birth, low birth weight, and difficult labor elevate the risk of maternal depression and

anxiety⁹⁶. Prior history of mental illness, insufficient antenatal care, and discontinuation of necessary medications further exacerbate maternal psychological distress¹³⁰. The literature underscores that obstetric and health-related factors are significant predictors of MMH outcomes. Mothers of children with severe malnutrition or health challenges report elevated emotional burden and chronic stress⁹³.

3. Psychosocial and Relational Factors

Social support is a protective factor against MMH problems. Mothers with strong family or partner support exhibit lower rates of depression and anxiety, while social isolation correlates with higher psychological distress^{92,93}. Exposure to stressors such as poverty, food insecurity, domestic violence, and caregiving for children with health challenges significantly predicts maternal depressive symptoms^{96,93}. Marital satisfaction and co-parental involvement also play critical roles, influencing both maternal emotional well-being and caregiving quality¹²⁹. Evidence highlights that strong social support from partners, family, and community reduces maternal stress and depression, while social isolation, domestic violence, and marital conflicts increase vulnerability^{92,93}. Scholars emphasize that psychosocial support is a critical determinant of maternal mental health, not merely a mitigating factor.

4. Socioeconomic and Structural Determinants

Maternal mental health is adversely affected by poverty, food insecurity, and limited access to healthcare services¹²⁹. Structural barriers, including insufficient maternity leave policies, inadequate mental health services, and societal neglect, further contribute to poor maternal psychological outcomes¹³¹. Studies claim that addressing these systemic issues is necessary for improving maternal mental well-being.

5. Cultural and Societal Influences

Research indicates that cultural norms, stigma, and societal expectations influence maternal mental health. Seeking psychological help is often discouraged, creating barriers to early identification and treatment¹³². Societal pressures to fulfill idealized motherhood roles can intensify maternal stress and feelings of inadequacy¹³³.

Literature posits that maternal mental health is shaped by a dynamic interplay of individual, relational, and structural factors. Improving maternal mental health directly benefits child development, making it a critical public health priority.

2.2 Theoretical Review

This study is anchored in the Social Ecological Model (SEM), which conceptualises child health and developmental outcomes as products of interacting influences that accumulate and intersect across multiple layers of the environment individual, interpersonal, organisational/health-system, community, and policy¹³⁴.

SEM posits that no single factor is sufficient to explain complex outcomes such as child physical growth; instead, risk and protection are distributed across nested contexts and transmitted through everyday practices, resource access, social meanings, and structural constraints that shape mothers' capacities to care, cope, and seek support^{135,136}.

In this study, SEM provides the theoretical scaffolding to link maternal mental health with caregiving behaviours, household dynamics, service accessibility, community norms, and policy arrangements, thereby clarifying why narrowly targeted, individual-level approaches are often inadequate in the face of structural stressors and social expectations that constrain maternal choices¹³⁷.

The SEM further assumes reciprocity between the individual and environment: mothers' psychological states both influence and are influenced by interpersonal relationships, organisational practices, and broader social structures. Thus, maternal distress can depress

energy, reduce sensitivity, and disrupt routine caregiving, while unsupportive family dynamics, fragmented services, stigmatising community narratives, and policy gaps can generate, sustain, or amplify that distress^{138,139}.

This multilevel perspective is particularly salient for children aged 0–59 months, when rapid growth and neurodevelopment make them acutely sensitive to caregiving quality, nutrition, and timely care-seeking¹³⁴. SEM therefore orients this study to examine how and where influences accumulate, and which combinations of supports might most effectively protect growth during this sensitive window¹⁴⁰.

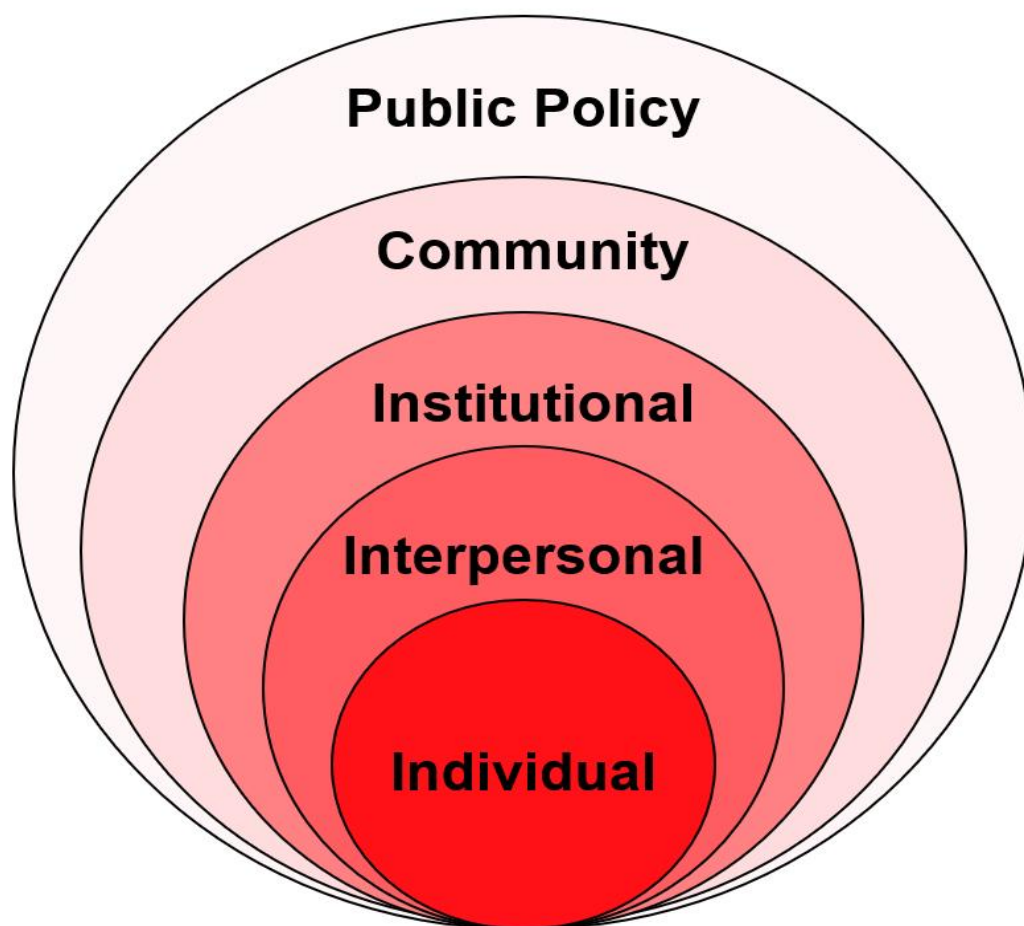


Fig 2.1 : The Socio-ecological Model¹⁴¹

2.2.1 Core Components of the Social Ecological Model

(a) Individual level: Maternal and child characteristics

At the individual level, SEM draws attention to maternal psychological wellbeing (e.g., depressive and anxiety symptoms), self-efficacy for caregiving, health and nutrition knowledge, problem-solving skills, and emotion regulation, alongside child factors including temperament, illness episodes, and birth characteristics. Maternal distress can reduce attentional bandwidth and consistency in caregiving routines (feeding on cue, hygiene, stimulation, timely illness recognition), producing micro-disruptions that cumulatively erode growth potential¹³⁶. In contrast, accurate knowledge, realistic expectations, and self-efficacy may buffer the impact of stressors by sustaining responsive feeding, affectionate engagement, and timely uptake of services even when resources are constrained¹⁴². The child's own characteristics reciprocally shape maternal experience: a difficult-to-soothe infant or repeated minor illnesses may heighten maternal worry and fatigue, increasing vulnerability to symptoms and momentary lapses in caregiving¹³⁶.

(b) Interpersonal level: Family relations and close social ties

The interpersonal layer encompasses partner relationships, extended family, peers, and other close ties. Supportive partnerships, cooperative division of care, and empathic validation from kin or friends can moderate the impact of maternal symptoms on daily caregiving and on decisions about feeding and clinic attendance¹³⁴. Meanwhile, relationship conflict, critical or dismissive responses to distress, and unrealistic expectations of “maternal endurance” elevate stress and undermine self-efficacy, thereby weakening the quality, consistency, and responsiveness of caregiving¹³⁵. Empirical work further shows that immunization uptake and maternal–child wellbeing are strongly shaped by relational and household dynamics¹³⁷.

(c) Organisational / Health-system level: Service design and delivery

Organisational factors refer to the availability, accessibility, and responsiveness of frontline services such as antenatal and postnatal care, immunisation, growth monitoring, nutrition support, and mental health screening/referral. Practical barriers fees, transport costs, long queues, stock-outs, fragmented records or affective barriers such as stigma, dismissive encounters, and limited privacy can discourage care-seeking and interrupt continuity, with direct consequences for both maternal wellbeing and child growth¹³⁸. Meanwhile, integrated child-health platforms that routinely include maternal mental health screening, brief counselling, and structured referral pathways create points of interception where distress can be identified and addressed in time to protect feeding practices, stimulation, and illness management¹³⁴.

(d) Community level: Social cohesion, local resources, and normative climates

Community-level influences include neighbourhood safety, social cohesion, women's groups, faith and civic organisations, and local narratives about mental health, breastfeeding, and help-seeking. Where stigma prevails, mothers may silence symptoms and avoid supportive services; where practical mutual aid and accurate information circulate, families can mobilise shared childcare, peer support, and collective problem-solving during shocks¹³⁴. Community resources such as nearby healthcare posts, mother-to-mother groups, and trusted health workers can also translate intention into action when household resources are thin¹³⁷.

(e) Policy Level: Structural enablers and constraints

At the policy level, labour protections, maternity leave and workplace flexibility, social protection and nutrition support, coverage for mental healthcare, and primary healthcare financing shape what families can realistically do. Policies that reduce catastrophic costs, guarantee time for care, or bring services closer to households lower the activation energy

for healthy behaviours and care-seeking, while policy gaps place a heavier burden on individual coping and interpersonal support¹⁴⁰ Broader policy and gender norms also structure breastfeeding and maternal roles, with national and global frameworks highlighting how supportive environments can reduce maternal strain¹³⁴.

Linking Maternal Mental Health to Child Physical Growth within SEM

SEM clarifies specific, testable pathways through which maternal psychological distress affects growth:

Affective-behavioural pathway (individual-child)

Symptoms reduce energy, patience, and attentional control, undermining responsive feeding, stimulation, and timely recognition of illness. Micro-level lapses compound to depress weight and linear growth¹³⁶.

Relational buffering/exacerbation (interpersonal)

Partner involvement, cooperative caregiving, and validation buffer distress; conflict, criticism, or social isolation exacerbate it, amplifying negative effects on routines and clinic attendance^{134,135}.

Access–uptake pathway (organisational)

Screening, empathetic communication, and integrated nutrition–mental health support increase detection and adherence; fragmented services and negative encounters reduce retention and timely utilisation^{138,139}.

Normative-informational pathway (community)

Stigma and misinformation suppress help-seeking and peer learning; supportive norms and credible information channels accelerate problem recognition and solution adoption¹³⁷.

Structural feasibility pathway (policy)

Financial protection, maternity leave, and service coverage make healthy practices feasible under stress; policy absence converts best intentions into implementation gaps^{140,134}.

These pathways do not operate in isolation; rather, they interlock. For example, an empathetic, low-cost clinic (organisational) situated in a cohesive community (community) may realise the benefits of a motivated mother (individual) supported by her partner (interpersonal), whereas the absence of any one layer can break the chain that links intention to action^{134,136}.

This study is anchored in the Socio-Ecological Model (SEM), which conceptualises maternal and child health outcomes as products of interacting influences that accumulate and intersect across multiple levels of the environment individual, interpersonal, organisational/health-system, community, and policy. The SEM asserts that no single level sufficiently explains health disparities; instead, outcomes emerge from dynamic interactions across layers¹³⁴. Applying this framework makes it possible to interpret maternal mental health and child growth not only as personal concerns but also as reflections of social, structural, and policy environments.

At the individual level, the SEM emphasises the role of maternal characteristics such as psychological well-being, education, and coping strategies. Empirical evidence shows that maternal depression is strongly associated with impaired mother–child interaction and developmental difficulties¹⁴³. Educational attainment buffers these risks, as higher maternal education predicts better nutritional and developmental outcomes^{144,145}. Moreover, both maternal and paternal pre- and postnatal mental health influence child socio-emotional development, underscoring the reciprocal vulnerability captured within the SEM’s individual layer¹⁴⁶.

At the interpersonal level, the SEM foregrounds relationships within the household and family. Decision-making autonomy and spousal or household support are critical to maternal well-being. Nigerian evidence demonstrates that women with greater household autonomy experience lower levels of psychological distress and their children achieve better nutritional outcomes, while constrained autonomy increases the risk of depression and anxiety^{147,64}. These findings reinforce SEM's recognition that interpersonal power dynamics shape the daily capacity to nurture children.

At the organisational/health-system level, SEM highlights the mediating role of access to health services. Evidence from systematic reviews of maternal and child health services in Nigeria indicates that fragmented antenatal care, poor service coordination, and weak referral systems exacerbate maternal psychological strain and compromise early child development¹⁴⁹. Consistent with SEM, the availability and integration of maternal mental health services within health systems directly influence outcomes for both mother and child.

At the community level, the SEM draws attention to broader cultural and environmental structures. Food insecurity is a salient community determinant that predicts early child developmental delays, with maternal mental health serving as a key effect modifier in this pathway¹⁴⁸. Similarly, breastfeeding often misframed as an individual choice is heavily shaped by community norms and local support networks that either buffer or intensify maternal strain. These dynamics highlight SEM's insistence that community practices and resources profoundly influence individual behaviours and health outcomes.

Finally, at the policy level, SEM underscores how structural arrangements such as maternity leave, workplace flexibility, social protection, and healthcare financing shape what families can realistically do. Where labour protections and coverage for mental health are strong, healthy practices become feasible; policy gaps, however, shift the

burden back onto individuals and households¹⁴⁰. In Nigeria, stigma around maternal mental health and the lack of institutionalised support services reflect broader cultural norms that reinforce women's silence and endurance¹⁴⁹. These findings affirm SEM's claim that policy environments structure the enabling or constraining conditions under which maternal and child health can thrive.

Taken together, these empirical studies demonstrate that maternal mental health and child development cannot be understood in isolation. Instead, they reflect an interplay of individual vulnerabilities, interpersonal supports, organisational capacities, community structures, and policy environments, as articulated by the SEM. By grounding this study in the SEM, the analysis will capture both proximal and distal influences, situating maternal health outcomes within a holistic ecological framework.

Guided by the Social Ecological Model, this study conceptualises maternal mental health as part of a system of influences rather than a singular predictor¹³⁴. Variables are therefore selected to represent multiple layers:

Individual: maternal symptoms, caregiving self-efficacy, caregiving knowledge, and infant illness episodes¹³⁶.

Interpersonal: partner support, conflict, shared caregiving, and perceived social support¹³⁴.

Organisational: access to ANC/PNC, immunisation, growth monitoring, mental health screening/referral, quality of provider interaction, and continuity of care^{138,140}.

Community: participation in women's or faith groups, perceived stigma, and exposure to practical peer support and local information flows¹³⁷.

Policy/structural proxies: financial barriers to care, employment protections affecting time for care, and proximity/coverage of services^{139,135}.

Within this frame, caregiving practices exclusive breastfeeding when intended, appropriate complementary feeding, hygiene routines, early illness recognition, and stimulation are theorised as proximal mediators connecting maternal symptoms to child anthropometric outcomes¹³⁴. By measuring distal (policy/structural), intermediate (organisational/community), and proximal (interpersonal/individual) factors, the study can assess whether stacked constraints are associated with larger decrements in growth, and whether stacked supports correspond to resilience in the face of stress.

There are anticipated patterns and hypothesised interactions through the SEM lens, some of which are: Higher maternal symptoms will be associated with lower caregiving consistency and responsiveness, and thus poorer growth, especially where interpersonal support is weak¹³⁶; The negative association between symptoms and growth will be attenuated in settings where services are integrated, respectful, and proximate; brief counselling and referral at child-health contacts should mitigate risk¹³⁸; Community environments characterised by stigma and low social cohesion will magnify the effect of symptoms on caregiving and reduce service uptake¹³⁷; Policy/structural constraints (costs, time scarcity from inflexible employment, distance) will moderate the association between symptoms and growth by reducing the feasibility of good practices and timely care¹³⁹; Maternal education will function as a cross-cutting buffer, improving decision-making, problem-solving, and uptake of information¹³⁵; The duration of unbuffered distress will matter: persistent symptoms across the early months will have larger effects on growth than transient distress.

Framing the study with the Social Ecological Model yields several advantages. It prevents reductionism, ensuring that findings are not over-attributed to individual psychology while ignoring social and structural constraints¹³⁴. It also integrates intervention logic with measurement: the very layers that are measured are also the layers where policy and

practice can intervene counselling and referral pathways in clinics, partner engagement and family support, community groups and information channels, and financial/time protections^{138,137}. Also, SEM accommodates reciprocity and feedback, recognising that improved services and supportive norms can reduce distress, which in turn improves caregiving and service utilisation, setting up virtuous cycles that support growth¹³⁴.

The breadth of the SEM can also make causal attribution challenging: multiple layers shift simultaneously, and distal policies may work through long, branching pathways before reaching home routines¹³⁹. Without careful measurement and sensitivity analyses, there is a risk of mis-specifying which layer is doing the explanatory work. Additionally, operationalising community and policy constructs can be difficult when data systems are limited or when proxies (e.g., distance to facility) imperfectly capture lived access¹⁴⁰. Finally, attention to temporality is essential: cross-sectional snapshots may overlook the timing and duration of exposures that SEM treats as central¹³⁶. The study therefore emphasises clear definitions, triangulation where feasible, and interpretation that respects the layered, cumulative nature of risk and protection.

The Social Ecological Model suggests that single-layer interventions are unlikely to be sufficient. Instead, stacked strategies are needed:

Individual: brief, scalable psychosocial support embedded in routine contacts; tailored coaching on responsive feeding, stimulation, and early illness recognition¹³⁶.

Interpersonal: partner engagement, family problem-solving around time and role-sharing, and structured opportunities for fathers/caregivers to learn practical care¹³⁴.

Organisational: systematic screening for maternal distress within child-health, nutrition, and immunisation services; empathetic communication; reliable referral; reduced waits and costs¹³⁸.

Community: mother-to-mother groups, credible information channels, and norm-shifting dialogues that reduce stigma and normalise help-seeking¹³⁷.

Policy: maternity protections, targeted social and nutrition support for vulnerable households, and financing that enables accessible, respectful primary care with mental health components¹³⁹.

In practice, the most robust gains are expected when interventions align across layers for example, when counselling in clinics is reinforced by supportive family routines, community peer groups, and policies that protect time and reduce costs. Such alignment is especially consequential during 0–59 months, when growth velocity and developmental plasticity make consistency and timeliness particularly influential.

2.3 Empirical Review

2.3.1. Factors associated with MMH and its Impact on Child Growth and Development

In a study conducted in the Gedio Zone of Southern Ethiopia, It examined the prevalence of common mental disorders (CMD) and their associated factors among mothers of children aged 6–59 months receiving outpatient treatment for severe acute malnutrition (SAM). Addressing a crucial but underexplored link in maternal and child health, this research highlights the psychological burden experienced by mothers in contexts where child undernutrition is severe and prolonged. Using a facility-based cross-sectional design, the study recruited 405 mother–child pairs through systematic random sampling. Maternal CMD was assessed with the Self-Reporting Questionnaire (SRQ-20), a tool validated for the Ethiopian setting, enabling the authors to capture a broad spectrum of non-psychotic mental health symptoms.

The findings revealed that 33.16% of participating mothers met the criteria for CMD, a figure consistent with other reports from similar low-income settings but significantly

higher than the prevalence observed in the general population. Multivariate analysis identified several factors that were strongly associated with CMD: poor social support emerged as the most potent predictor, followed by maternal illiteracy, cigarette smoking, chronic maternal illness, having a child with an additional chronic condition, and a history of sexual violence. These associations point to a multidimensional risk environment in which educational disadvantage, health burdens, behavioral factors, and gender-based violence intersect to shape maternal mental health outcomes.

Notably, the authors place their results within a broader regional and global context, comparing them to studies from Nigeria, Mali, Uganda, and Sudan, where CMD prevalence among mothers of malnourished children ranges from approximately 36% to over 70%. The 33% prevalence observed in this Ethiopian study suggests both shared vulnerabilities and potential mitigating factors that may operate within specific cultural and social frameworks. The study underscores the need for SAM treatment programs to integrate mental health screening and interventions alongside nutritional rehabilitation, ensuring that mothers receive psychosocial support, education, and protection from violence as part of a comprehensive approach to improving child health and development outcomes⁹³.

Early childhood and perinatal mental health are shaped not only by biological factors but also by a complex interplay of psychosocial and environmental conditions. In a cross-national study across 64 countries during the COVID-19 pandemic, scholars investigated the factors influencing maternal mental health and well-being in pregnant and postpartum women. The study highlighted the prevalence of anxiety, depression, loneliness, and post-traumatic stress symptoms among mothers, with risk closely linked to modifiable factors such as exposure to distressing information, levels of social isolation, and access to supportive networks. Additionally, socioeconomic factors, including employment status,

financial strain, and household composition, were significant predictors of maternal psychological outcomes. The study highlights that especially during periods of widespread crisis, there is need to protect both maternal mental well-being and child developmental trajectories in the critical early years¹⁵⁰.

In another study which examined mothers of children aged 24–47 months who were born small or sick in rural Rwanda, a high prevalence of poor maternal mental health within this population was discovered. The study revealed that risk factors extended across multiple domains, including food insecurity, single parenthood, the child's ongoing health challenges, and household-level stressors. Importantly, mothers facing these compounded challenges were more likely to engage in harsher parenting practices, suggesting behavioral pathways through which maternal distress could negatively influence child development. This research highlights the interdependence of maternal and child health in resource-limited contexts⁹².

Another study on Positive maternal mental health during pregnancy and its association with obstetrics and psychosocial factors found that MMH is shaped by a constellation of obstetric, psychosocial, and environmental factors. The study involved investigation of pregnant women, exploring how factors such as planned versus unplanned pregnancies, levels of social support, relationship satisfaction, and exposure to stressors influenced maternal well-being. The study found that women with higher perceived social support, stable partnerships, and favorable obstetric conditions reported better mental health outcomes, highlighting the protective role of relational and contextual resources. Conversely, lower support networks, unwanted pregnancies, and psychosocial stressors were associated with diminished maternal mental health, demonstrating how the quality of the maternal environment can shape psychological well-being even before birth¹²⁹.

In a 2023 study titled *Maternal mental health mediates links between socioeconomic status and child development*, the scholars examined how maternal mental health explains the pathway from socioeconomic disadvantage to child developmental outcomes. Drawing data from the Avon Longitudinal Study of Parents and Children (ALSPAC), a large and reputable UK birth cohort, the authors decided to explore a critical public health issue: why children from lower socioeconomic status (SES) backgrounds tend to exhibit poorer emotional and behavioral development.

The study sample comprised over 6,000 mother-child pairs tracked from pregnancy through the child's early school years. Socioeconomic indicators included household income, maternal education, and housing tenure. Maternal mental health was assessed using the Crown-Crisp Experiential Index, which captures symptoms of depression and anxiety, while children's developmental outcomes were measured at age 7 using the Development and Well-Being Assessment (DAWBA), a standardized tool for identifying emotional and behavioral disorders in children.

Using structural equation modeling (SEM), the authors found compelling evidence that maternal mental health acts as a partial mediator in the relationship between SES and child outcomes. In particular, mothers with lower SES were more likely to experience poor mental health, which in turn was linked to increased emotional and behavioral problems in their children. Notably, the mediating effect was stronger for emotional difficulties (e.g., anxiety, sadness) than behavioral issues (e.g., aggression, conduct problems). This differentiation is important, as it suggests emotional development may be more sensitive to environmental stressors such as maternal mental health¹⁴⁵.

Another study carried out in 2013 explored how maternal education can function as a foundational "double prevention" mechanism protecting both mothers' mental health and children's developmental outcomes. Using nationally representative longitudinal data

from the Young Lives study in Peru and India, the authors investigated whether educational attainment among mothers is linked not only to better child health and cognitive development, but also to improved maternal mental wellbeing.

The research integrates multiple strands of developmental theory, most notably those that position maternal education as a central structural determinant of intergenerational outcomes. By applying multivariate regression analysis and structural models, the authors evaluate the influence of maternal schooling levels on three domains: (1) maternal mental health, (2) child health outcomes, and (3) early cognitive development in children. Maternal mental health was measured using self-reported psychological distress indicators; child health was assessed by anthropometric measures (stunting, underweight), and cognitive development was captured using child test scores on mathematics and literacy.

The findings support the understanding that mothers with higher levels of education were significantly less likely to report mental distress, and their children were healthier and performed better on cognitive tests. This suggests a triple-layered benefit to maternal education, underscoring its long-term value for both generations. In particular, education equips women with better knowledge about health and nutrition, stronger agency in household decision-making, and greater emotional resilience all of which cascade positively into child outcomes.

One of the most noteworthy contributions of the study is its emphasis on the mediating role of maternal mental health. That is, maternal education improves mental health, which in turn enhances parenting behaviors, contributing to better developmental conditions for the child. This pathway is comparable to stress-buffering hypotheses in other psychological models. Importantly, the findings were consistent across two distinct

national contexts (India and Peru), giving the conclusions a degree of cross-cultural robustness¹⁴⁴.

Furthermore, another study contributes to understanding of how both maternal and paternal mental health during the perinatal period influence a child's later developmental trajectory. Notably, it responds to a significant gap in the literature which is the underrepresentation of fathers in early mental health and child development research. The authors explore how mental health symptoms before and after childbirth, separately and jointly for both parents, affect children's emotional and cognitive outcomes by age 7–8.

The research was conducted on a Finnish cohort of 763 couples, half of whom conceived through assisted reproductive treatments (ART). Parental mental health data were collected during pregnancy, and at two months and twelve months postpartum. Measures included symptoms of depression and general psychological distress. When the children reached school age, follow-up data (from 485 families) were collected on child outcomes, including internalizing and externalizing behaviors and difficulties with cognitive and social development.

A key strength of this study is its sophisticated analytic framework. The authors tested several models of parental influence which included Separate parent models (examining mothers' and fathers' symptoms independently), Additive models (combining both parents' symptom scores) and Hierarchical and buffering models (examining how one parent's mental health may compensate or amplify the other's)

Maternal mental health during the perinatal period significantly predicted children's internalizing problems (e.g., anxiety, sadness). Meanwhile, when both parents had elevated distress, this joint distress (additive model) predicted deficits in children's executive functioning, an essential domain of cognitive development related to planning, attention, and emotion regulation. Interestingly, signs of intrafamilial compensation were

also detected meaning one parent's stable mental health might mitigate the impact of the other's difficulties.

The findings suggest that child development is better understood in the context of the full family unit, rather than viewing mothers and fathers in isolation. The study concludes with an urgent recommendation for screening both parents for psychological distress during pregnancy and infancy, and offering accessible mental health interventions across this critical transition period ¹⁴⁶.

A multi-country study was carried out in 2015, it explored the role of maternal mental health in shaping early childhood growth and developmental outcomes across four low- and middle-income countries (LMICs) including Ethiopia, India (Andhra Pradesh), Peru, and Vietnam. drawing from the longitudinal Young Lives cohort, the researchers examined how symptoms of maternal common mental disorders (CMDs) were associated with children's physical growth and cognitive development over time.

The analysis included over 7,000 mother-child dyads followed from infancy to age 8. Maternal mental health was measured using a culturally adapted version of the Self-Reporting Questionnaire (SRQ-20) a widely validated tool for detecting psychological distress in LMICs. Child outcomes were assessed through height-for-age z-scores (HAZ) as a marker of chronic undernutrition (stunting), and standardized cognitive test scores capturing memory, vocabulary, and numeracy.

The findings present a consistent picture across all countries: poor maternal mental health was associated with both increased risk of stunting and lower cognitive performance in children. The associations remained significant even after adjusting for a wide array of sociodemographic and household covariates, such as maternal education, income, and household size. Importantly, the strength of associations varied slightly by country,

suggesting that contextual factors such as healthcare infrastructure and gender norms may modulate the impact of maternal mental distress¹⁵¹.

A foundational study of 2007 also explored how maternal social capital, the network of social relationships and supports available to a mother affects child nutritional status in four low- and middle-income countries: Ethiopia, India (Andhra Pradesh), Peru, and Vietnam. Using data from the Young Lives project, a large-scale longitudinal study focused on childhood poverty and development, the authors offer one of the earliest empirical examinations of how non-material resources like trust, reciprocity, and community involvement influence child health.

The concept of social capital is divided into two major domains including Structural social capital, referring to a mother's participation in social groups or organizations and Cognitive social capital, which encompasses perceived trust, support, and reciprocity in the community

The outcome variable child nutritional status was measured through height-for-age z-scores (HAZ), a widely used indicator of chronic malnutrition and stunting.

Key findings reveal that maternal social capital is significantly associated with better child nutritional outcomes, particularly in India and Peru. In these contexts, high levels of cognitive social capital (e.g., mothers reporting high trust in neighbors or strong reciprocal networks) were linked to reduced rates of child stunting. However, results varied by country. For example, no significant associations were observed in Ethiopia, possibly due to weaker formal and informal community structures or differing cultural norms around help-seeking behavior.

The study controlled for key confounders such as household wealth, maternal education, and child age and sex, strengthening the case that social capital operates independently of economic resources. The authors theorized that social capital may influence child

nutrition through improved maternal mental health, knowledge diffusion, and access to informal safety nets during times of need¹⁵².

An empirical cross-sectional study carried out in 2005 was done to examine the association between maternal common mental disorders (CMDs) and child nutritional outcomes in low- and middle-income settings. Using data from the Young Lives study, the research analyzes whether maternal psychological distress measured by the Self Reporting Questionnaire-20 (SRQ-20) is linked with child stunting and underweight in Ethiopia, India, Peru, and Vietnam.

The sample includes 2,000 mother-child pairs per country, totaling around 8,000 dyads across 20 urban and rural sites. Children were aged between 6 and 18 months, an age considered highly sensitive for nutritional vulnerability and cognitive development. Anthropometric measures were used to assess two key child health outcomes: height-for-age z-scores (to indicate stunting) and weight-for-age z-scores (for underweight). The analysis controls for a comprehensive set of confounding variables including maternal age and education, household poverty, household composition, and child-level factors such as age, sex, and birth weight.

Findings show significant country-level variation. In India and Vietnam, higher maternal CMD scores were significantly associated with increased odds of stunting (India OR = 1.4; Vietnam OR = 1.3), even after controlling for confounders. Vietnam also showed a strong relationship between maternal CMDs and child underweight (OR = 1.4). However, no clear associations were found in Ethiopia or Peru, highlighting that the relationship between maternal mental health and child nutrition may be context-dependent.

The study tested for effect modification by child sex or age but found no significant interactions, suggesting that the impact of maternal CMDs on nutritional outcomes is relatively stable across these subgroups. Notably, potential mediators such as child

physical health and breastfeeding did not explain the observed relationships, leaving the exact causal mechanisms open to further investigation.

The authors concluded that maternal CMDs do pose a significant nutritional risk in some developing country settings, especially in Asia, and therefore should be addressed in the design of child nutrition programs¹⁵³.

In another influential article, a synthesis of evidence was used to investigate that maternal postnatal depression is significantly associated with impaired infant growth in low-income South Asian settings. The paper draws on three large community cohort studies from India and Pakistan. For example, in Goa (India), it was found that 23% of postpartum mothers met diagnostic criteria for depression. Similar prevalence rates were found in Tamil Nadu (19.8%) and Pakistan (28%). These studies, using structured clinical interviews and the Edinburgh Postnatal Depression Scale (EPDS), revealed that depressed mothers were more likely to have infants with growth retardation, even after controlling for socioeconomic factors and birthweight.

The link between maternal depression and poor infant growth persisted up to six months postpartum, with many mothers remaining clinically depressed throughout this period. The authors suggest multiple mechanisms: depressed mothers may be less likely to breastfeed, may struggle to engage in responsive caregiving, and may lack motivation to follow nutritional or hygiene guidelines. These behaviors in turn compromise infant feeding, immunity, and emotional security.

Risk factors for postnatal depression in this population include economic deprivation, low maternal education, marital conflict, and antenatal psychiatric disorders all prevalent and often overlapping in the study regions. The paper further noted that extended family support, maternal employment, and education served as protective factors.

This work is notable for being among the first to explicitly connect treatable maternal mental health conditions with early child development failures in South Asia¹⁵⁴.

A 2021 systematic review presents a comprehensive work of the available empirical literature examining maternal mental health and its influence on child well-being in Nigeria. Given the paucity of structured data in sub-Saharan Africa, this review provided critical insights into how maternal depression, anxiety, and stress affect child outcomes, especially in a low-resource, culturally diverse setting like Nigeria.

The review synthesizes findings from over 30 peer-reviewed studies, covering a range of maternal mental health disorders including postnatal depression, anxiety, postpartum psychosis, and stress disorders and their relationships with child health, growth, behavior, cognitive development, and emotional well-being. It analysed both quantitative and qualitative research published between 2000 and 2020 and spans diverse regions and healthcare contexts across Nigeria.

One key conclusion is that postnatal depression is common among Nigerian mothers, with prevalence rates ranging from 10% to over 30%, depending on population and screening tools used (e.g., Edinburgh Postnatal Depression Scale - EPDS). Importantly, studies consistently found that children of depressed mothers exhibited poorer growth parameters, more frequent illnesses, lower cognitive performance, and higher rates of emotional and behavioral difficulties.

Several studies highlighted risk factors for maternal mental illness, such as Low socioeconomic status, Marital conflict or polygamy, Lack of social support, Negative gender preference (e.g., giving birth to a girl) as well as History of mental illness.

The review also discovered cultural nuances in how depression and distress are experienced and expressed. In some studies, maternal depression was interpreted through spiritual or sociomoral lenses, complicating detection and intervention. Additionally,

maternal mental health was shown to affect parenting practices, with depressed mothers demonstrating reduced responsiveness, emotional engagement, and breastfeeding rates.

On the intervention side, the review found limited high-quality trials addressing maternal mental health in Nigeria. One notable exception was a comparison between low- and high-intensity psychological interventions, which showed promising outcomes but suggested no superiority for the more resource-intensive models highlighting the importance of scalable, community-based support structures.

In sum, the review argues that maternal mental health is a public health priority in Nigeria, and its neglect poses both immediate and long-term risks for child development¹⁴⁹.

A 2023 study investigating the interrelationship between maternal autonomy in household decision-making, maternal mental health, and child nutritional outcomes among families living in suburban Nigeria. The study examines whether a mother's ability to participate in decisions about household finance, healthcare, and mobility correlates with both her mental health status and the nutritional well-being of her children under age six.

Using a cross-sectional design, the study collected data from 847 mother-child dyads across multiple urban and semi-urban local government areas in Osun State, Nigeria. Key variables included: Maternal mental health, assessed using the Generalized Anxiety Disorder-7 (GAD-7) scale; Decision-making autonomy, measured via standardized questionnaires assessing involvement in family health, expenditures, and social decisions; Child nutritional status, evaluated by weight-for-height z-scores, based on WHO growth standards.

The findings revealed several critical associations. First, mothers with higher levels of autonomy were significantly less likely to report moderate to severe anxiety symptoms, indicating that participation in household decision-making serves as a protective factor for maternal mental well-being. Second, children of mothers with low decision-making

power were more likely to be underweight or malnourished. This connection remained significant even after adjusting for maternal age, education, marital status, and household income, suggesting a direct link between maternal empowerment and child health outcomes.

An important contribution of this study is its integration of gendered power dynamics with maternal mental health elements often studied in isolation. It highlights that women's lack of agency may exacerbate psychological distress, which then affects caregiving capacity, feeding practices, and ultimately, children's growth and development¹⁴⁷.

In 2016, researchers carried out another cross-sectional study which explored the association between maternal mental health specifically depression and general psychological distress and the quality of maternal-child interaction during the critical postpartum period. Conducted at a child welfare clinic in Lagos, Nigeria, the study addresses an important but under-researched aspect in sub-Saharan Africa: how maternal emotional well-being impacts attachment, expectation, and overall interaction with infants aged 6 weeks to 12 months.

A total of 98 mother-infant dyads were recruited from a community health clinic. Mental health was assessed using the Zung Depression Scale (ZDS) and the General Health Questionnaire-12 (GHQ-12), both validated in Nigerian populations. To evaluate maternal-child interaction, the researchers used the Mother and Infant Attachment Scale (MIAS), which includes three clusters: Cluster I (attachment), and Clusters II and III (expectations from the child).

The Key findings include 14.3% of mothers had ZDS scores indicative of probable depression, 10.2% showed signs of general psychological distress (GHQ-positive), 15.3%

had below-average attachment to their infants (Cluster I), and 21.4% and 11.2% scored below average in Clusters II and III, respectively.

Statistical analyses revealed a significant association between depressive symptoms and lower scores in maternal attachment (Cluster I). Mothers experiencing depression tended to have lower expectations and less positive interaction patterns with their infants. Furthermore, these depressive symptoms correlated with negative perceptions of the child, consistent with findings in global literature that highlight how depression shapes parenting styles and emotional attunement.

The study emphasizes the importance of maternal-infant bonding as a predictor of child development and highlights that mental illness in the mother may compromise critical early interactions, leading to long-term developmental challenges for the child. The paper also underscores the urgency of incorporating mental health screening into postnatal care in Nigerian health systems ¹⁴³.

In another research, the scholars investigated the interplay between maternal mental health, child dental anxiety, and oral health outcomes among Nigerian children aged 6–12 years. The research fills a notable gap in literature, especially within the Nigerian context, where oral health has rarely been studied alongside maternal psychological well-being.

It was conducted in Ife Central, Osun State, the study employed a cross-sectional household survey design with a robust sample of 1,411 mother-child dyads. Maternal mental health was evaluated using two validated instruments: the GHQ-12 for general mental distress, and the PHQ-9 for depression. Child dental anxiety was measured via the Corah Dental Anxiety Scale, while clinical dental assessments included caries (dmft/DMFT), oral hygiene (plaque index), and gingival health (gingival index), following WHO criteria.

The key findings of the study showed that 88.4% of mothers had low mental health risk; 63.5% had mild depression, 3.8% of children presented with dental caries, 63.0% had gingivitis and 52.8% experienced moderate to high dental anxiety.

Despite this, maternal mental health and depression were not significantly associated with any of the children's oral health outcomes (caries, oral hygiene, or gingivitis). Dental anxiety was significantly linked to caries experience but not to gingivitis or oral hygiene.

These results challenge prior studies that found strong associations between maternal mental health and poor child oral outcomes. The authors propose contextual moderators including cultural norms, the agrarian diet (with reduced sugar consumption), and strong extended family support systems which may buffer the effects of maternal psychological distress on children's oral health in this Nigerian setting¹⁵⁵.

A 2020 study investigated how maternal mental health (depression and anxiety) interacts with household food insecurity (HFI) to influence early childhood development (ECD) outcomes in Brazil. Unlike prior studies that treated maternal mental health or food insecurity as independent risk factors, this research focused on how mental health moderates the relationship between HFI and child development, providing one of the first analyses of this kind in a low-income Latin American setting.

The study included 468 mother–infant dyads from 20 urban primary health centers in Brazil. ECD was measured using the PIPAS instrument, a validated population-level tool tailored for children under five in Brazil. Maternal depression was assessed via the Beck Depression Inventory II, while anxiety was measured using the State-Trait Anxiety Inventory. HFI was evaluated using the Brazilian Food Insecurity Measurement Scale (EBIA), classifying households into food secure, mildly food insecure, or moderately/severely food insecure.

Key findings of the study was that Nearly half (48.3%) of the mothers showed signs of anxiety, and 32.3% screened positive for depression; HFI alone was significantly associated with early developmental delays: children from households with moderate/severe HFI had 2.5 times higher odds of developmental delay; Most notably, maternal depression and anxiety intensified the negative effects of HFI. Among mothers with depression, children living in moderate/severe HFI households had over 10 times the odds of ECD delays. For mothers with both depression and anxiety, the odds increased to over 16 times.

This moderation effect supports the idea of compound vulnerability, where co-existing psychosocial and economic stressors exponentially heighten risks to child development. Children of mentally distressed mothers in food-insecure households experienced the highest prevalence of delays in motor, language, cognitive, and socioemotional domains¹⁴⁸.

Empirical Studies Analysis

A critical synthesis of these studies reveals a strong and consistent body of empirical evidence underscoring the central role of maternal mental health in shaping child developmental outcomes across a diverse range of global contexts. Although the specific developmental domains and cultural settings varied, a shared conclusion emerged that maternal psychological well-being particularly in relation to depression and anxiety profoundly influences the physical, cognitive, emotional, and social development of children.

One of the most frequently observed relationships across the studies is that maternal depression and anxiety are significantly associated with poor child outcomes, including stunting, underweight, delayed cognitive skills, and behavioral issues. A study by Smith et al, found that maternal mental health partially mediates the relationship between

socioeconomic status and child emotional development in the UK, a conclusion echoed by Bennett et al. in low- and middle-income countries (LMICs) such as Peru, India, and Vietnam^{145,151}. Likewise, Oyelohunnu et al. and Harpham et al. reported that maternal psychological distress in Nigeria and Ethiopia is associated with diminished child growth and lower quality of maternal-child interaction. These consistent associations confirm that maternal mental health is not only a personal health issue but also a key determinant of child health and human capital formation^{143,153}.

Extending this evidence, Basu et al. demonstrated in a cross-national study of 64 countries during the COVID-19 pandemic that maternal anxiety, depression, and loneliness were strongly patterned by modifiable psychosocial factors, including exposure to distressing information, social isolation, and access to supportive networks, as well as socioeconomic determinants such as employment and household composition. The findings highlight that interventions targeting maternal well-being, even during crises, can have downstream benefits for child developmental outcomes¹⁵⁰. Similarly, Monterrosa-Castro et al. emphasized that positive maternal mental health in pregnancy is influenced by planned pregnancies, social support, stable partnerships, and favorable obstetric conditions, suggesting that relational and environmental resources are critical protective factors¹²⁹. Focusing on the early childhood period, Abimana et al. studied mothers of children aged 24–47 months born small or sick in rural Rwanda. The study revealed high rates of poor maternal mental health, particularly in households facing food insecurity, single parenthood, or a child's ongoing health challenges. Moreover, mothers experiencing these compounded stressors were more likely to engage in harsher parenting practices, suggesting behavioral pathways through which maternal distress may negatively influence child development. This aligns with other findings highlighting the

cumulative impact of household adversity and social support deficits on maternal well-being and child outcomes⁹².

In a 2025 scoping review analysing maternal and child health (MCH) trends in Nigeria by comparing data from the 2018 and 2023–24 Nigeria Demographic and Health Surveys (NDHS). Employing a mixed-methods approach, the study integrated quantitative analysis of NDHS indicators with thematic qualitative insights drawn from NVivo-assisted coding of policy and narrative sections. Five priority domains were examined: maternal and under-five mortality, immunization coverage, exclusive breastfeeding and malnutrition, antenatal care (ANC), skilled birth attendance, and treatment-seeking behavior for childhood illnesses. Quantitative findings point to modest improvements, such as a reduction in under-five mortality from 132 to 102 per 1,000 live births, a rise in exclusive breastfeeding rates from 29% to 34%, and increases in ANC attendance (from 57% to 68%) and skilled birth attendance (to 52%). However, maternal mortality data for 2023 were unavailable at the time of review. The authors underscore that gains remain uneven, particularly in rural and northern regions. The qualitative analysis identifies recurring themes of geographic inaccessibility, mistrust in health services, inconsistent policy implementation, and weak data governance. While measurable progress is acknowledged, the study concludes that structural inequities, governance deficits, and regional disparities continue to obstruct national targets. It advocates for integrated strategies combining social protection, equity-driven policy reforms, and localized service delivery enhancements. Although this study does not center specifically on maternal mental health, its emphasis on systemic barriers such as weak antenatal infrastructure and community mistrust¹⁵⁶.

Several studies extended this evidence base by analyzing how maternal mental health acts as a mediator or moderator between other risk factors and child outcomes. For instance,

Pedroso et al. demonstrated that maternal depression and anxiety significantly exacerbate the effects of household food insecurity on early child development, suggesting a compound risk effect¹⁴⁸. The emphasis on mediation mechanisms enriches the theoretical understanding of how maternal psychological states interact with environmental stressors to produce developmental inequalities¹⁴⁴. Studies reinforce this, showing that access to social support, stable partnerships, and a positive maternal environment can buffer the adverse effects of economic or environmental stressors^{150,129}.

Although the evidence base is broadly aligned, a few contrasts and divergences emerged. Some studies, such as Harpham et al., found no significant association between maternal mental health and child growth in Ethiopia and Peru, highlighting the potential moderating role of cultural and contextual variables¹³⁰. In a related divergence, Adeniyi et al. found no significant link between maternal mental health and children's oral health outcomes, suggesting that the effect of maternal distress may vary across developmental domains or be moderated by contextual health behaviors, such as dietary norms or communal caregiving¹³².

Moreover, there is variation in the strength and domain-specificity of associations. While Smith et al. reported stronger effects on emotional development than behavioral problems, Bennett et al. and Pedroso et al. emphasized the physical and cognitive dimensions. These differences point to a need for multi-domain models of child development that integrate emotional, behavioral, cognitive, and physical health more holistically^{124, 128, 126}. In terms of methodology, most studies were cross-sectional, limiting causal inference. Only a few, like Smith et al. and Di Cesare et al., relied on longitudinal datasets^{124,123}. Additionally, there was considerable variation in the tools used to measure maternal mental health (e.g., GHQ-12, PHQ-9, EPDS, SRQ-20), which complicates direct comparison across studies. Despite this, the convergence in results enhances the credibility of the overall findings.

An important dimension addressed by a subset of studies is maternal empowerment and social capital. Folayan et al. found that women with greater decision-making autonomy had better mental health and healthier children¹²⁵. De Silva and Harpham demonstrated that high levels of cognitive social capital trust, reciprocity, and community support were associated with reduced child stunting in India and Peru. These studies broaden the conversation from individual psychological factors to include structural and relational determinants of maternal health¹²⁹. Basu et al., Abimana et al., and Monterrosa-Castro et al. similarly underscore the protective role of social networks and community support in maintaining maternal psychological well-being and fostering positive child outcomes.^{150,92,129} The study by Oweibia et al, resonates with findings from Folayan et al. and Patel et al., both of whom identified similar upstream factors influencing maternal psychological vulnerability^{156,147,154}. The analysis also aligns closely with the structural critiques presented by Rahayu et al. and Jidong et al., reinforcing the argument that maternal well-being must be examined through a system-oriented lens^{157,149}.

In sum, the synthesized empirical evidence from cross-national analyses to localized studies in LMICs establishes that maternal mental health is foundational to child development. It acts not only as a direct influence on physical, cognitive, emotional, and social outcomes but also as a moderator of socioeconomic and environmental risks. Protective factors such as maternal education, social support, empowerment, and household stability, along with systemic interventions, emerge as critical levers to safeguard both maternal well-being and child developmental trajectories.

2.4 Conceptual Model

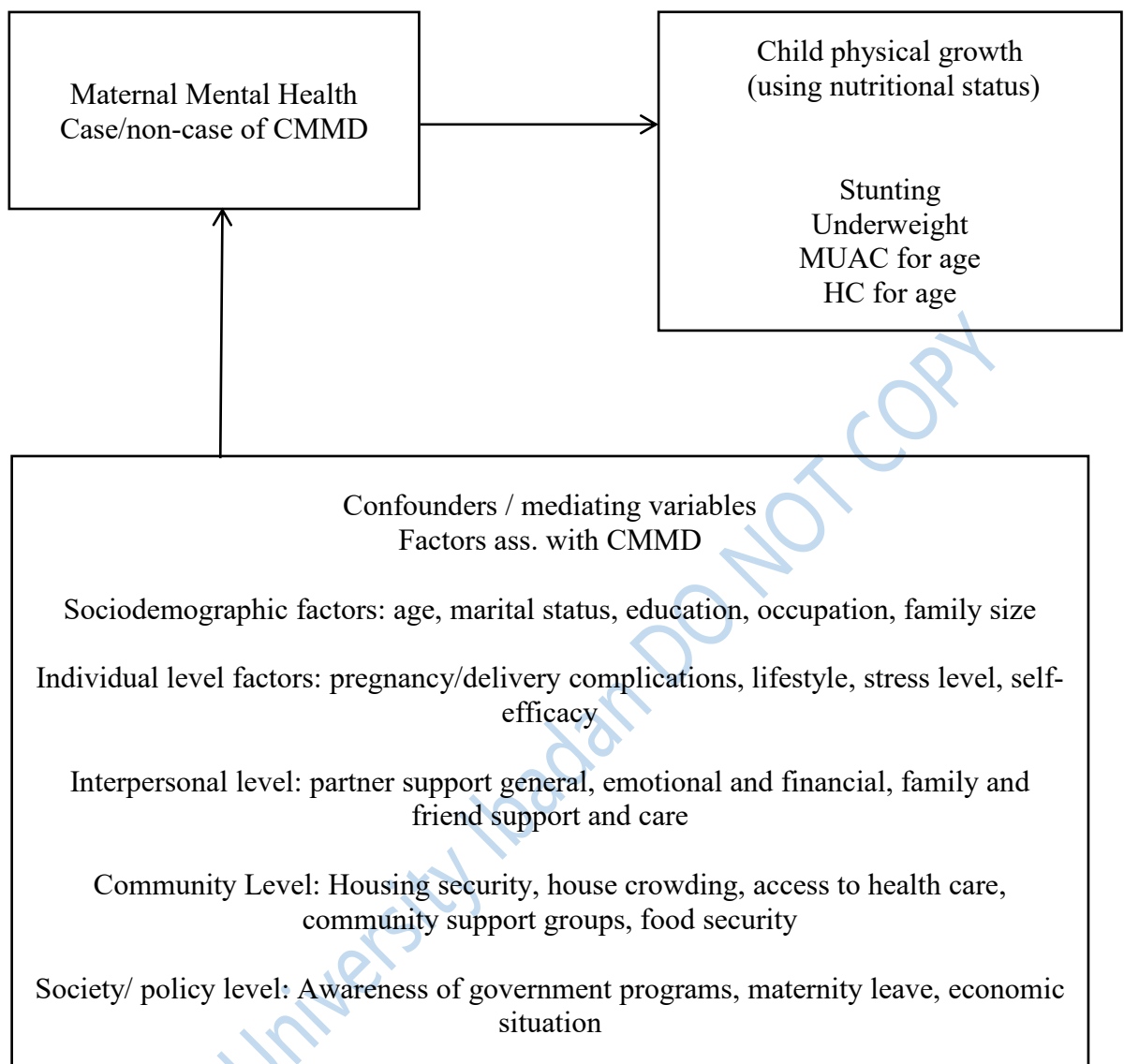


Figure 2.2: Conceptual Framework

Source: Researchers' Fieldwork, 2025

2.5 Summary and Gaps in Literature

Over the past two decades, the global health community has increasingly recognized maternal mental health (MMH) as a crucial determinant of child health outcomes. Scholarly attention has expanded from broad discussions on maternal and child health to the psychological experiences of mothers during pregnancy and the postpartum period. Research has linked maternal depression, anxiety, and stress to adverse child outcomes, including stunted growth, poor nutrition, cognitive delay, and weakened immunity. Systematic reviews and empirical studies have provided robust evidence of these associations^{69,48,47}.

In Sub-Saharan Africa, studies have documented the psychosocial burdens faced by perinatal women, while Nigerian-focused literature has examined postpartum depression, mental health screening in PHCs, and psychosocial factors in urban maternity care^{59,60,85,70}. However, these studies often focus on isolated elements of maternal or child health without adequately exploring the dynamic interplay between maternal psychological states, specific determinants of maternal mental health, and measurable child growth outcomes. Maternal mental health is frequently treated as a secondary concern to physical and nutritional health, despite evidence that psychological distress in mothers can directly impair breastfeeding, child feeding practices, and care-seeking behaviors.

Despite growing recognition of MMH as a critical determinant of child development, there remains a pronounced lack of empirical studies that systematically examine the specific factors influencing MMH and their downstream effects on the physical growth of children aged 0–59 months. Most existing research establishes general links between maternal depression, anxiety, or stress and adverse child outcomes such as stunting, underweight, and delayed growth. However, the majority focus on broad associations rather than identifying the social, environmental, household, and relational determinants

including household stressors (e.g., poverty, food insecurity, caregiving burden), social support deficits, marital instability, maternal education, and community-level stressors that exacerbate or buffer maternal psychological distress⁹³.

A critical limitation in the literature is the paucity of studies that directly connect maternal psychological wellbeing to anthropometric indicators such as weight-for-age, height-for-age, and stunting, particularly within the 0–59 months age range, a period recognized as sensitive to nutritional and psychosocial influences. While frameworks conceptually link MMH to child health, empirical validation in Nigerian urban contexts remains limited. Studies in Northern Nigeria (e.g., Jos, Bauchi, Dikwa) provide partial evidence, but there is a glaring research gap in Southwestern Nigeria, particularly in Ibadan, a major urban hub that encapsulates both rural–urban dynamics and high maternal-child health burdens. Another notable gap lies in the tendency to approach MMH and malnutrition as parallel but disconnected domains. Few studies have conceptualized MMH as a mediator between poverty, food insecurity, and child malnutrition. There is a lack of studies that integrate multidimensional measures of MMH with standardized anthropometric assessments (weight-for-age, height-for-age, weight-for-height) for children aged 0–59 months in urban Nigerian contexts.

Consequently, a critical gap persists in understanding not only how maternal mental health affects child physical growth, but also which factors most strongly influence MMH, and how these factors interact to produce growth inequalities during early childhood. Addressing this gap is essential to inform evidence-based interventions targeting both maternal psychological well-being and child nutritional status, especially in densely populated urban areas where vulnerabilities are compounded by informal settlements, limited healthcare access, and social inequities.

Therefore, this study addresses a timely research gap by focusing on the underexplored intersection between maternal mental health determinants and child physical growth within a densely populated Nigerian city. By systematically identifying and analyzing factors affecting MMH and examining their link to anthropometric outcomes in children aged 0–59 months, the study integrates psychological, nutritional, and social dimensions, providing original, policy-relevant, and locally grounded evidence to support better screening, intervention, and integrated maternal-child health programming in Nigeria and similar urban contexts across Sub-Saharan Africa.

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Chapter Three

Methodology

3.1 Research Design

This study employed a cross-sectional descriptive survey design, which was considered the most appropriate for examining maternal mental health and its association with child growth outcomes at a single point in time providing a snapshot of the prevalence of common mental disorders, factors influencing it among mothers and the nutritional status of their children aged 0–59 months. This approach was particularly useful because it enabled the identification of risk factors and correlates within the population without the challenges of long-term follow-up inherent in longitudinal designs.

Study Area

The research was conducted in Ibadan, the capital of Oyo State, located in the South-Western geopolitical zone of Nigeria. Ibadan is one of the largest cities in West Africa, with an estimated population of over three million people, representing diverse socio-economic, cultural, and occupational groups. The city is subdivided into 11 local government areas (LGAs), comprising both urban and semi-urban settlements.

Study Sites

Data were collected from three purposively selected health facilities in Ibadan: Adeoyo Maternity Teaching Hospital, University College Hospital and Jericho Specialist Hospital. These hospitals were strategically chosen because they represent major referral centers for maternal and child healthcare within the metropolis. Adeoyo Maternity Teaching Hospital serves as a key child health facility, with specialized clinics for under-five children. University College Hospital, Ibadan, is a premier tertiary health institution and the foremost teaching hospital in Nigeria, providing comprehensive maternal, neonatal, and pediatric services as well as serving as a referral center for complex cases across the

country. Jericho Specialist Hospital, located in Jericho, Ibadan, is a healthcare facility renowned for its maternal and pediatric services. Together, these hospitals provided access to a large pool of mothers and children from varied socio-economic backgrounds, thereby increasing the representativeness of the study sample.

The facilities had established child welfare and immunization clinics, which provided a natural gathering point for mothers with children under the age of five years. This enhanced the feasibility of sampling and data collection while ensuring that the study population reflected real-world clinical and community contexts.

3.2 Population of the Study

The study population comprised mothers with children aged 0–59 months who attended maternal and child health or immunization clinics at Adeoyo Maternity Teaching Hospital, University College Hospital and Jericho Specialist Hospital in Ibadan, Oyo State, during the study period. These mothers were the primary caregivers of the children and therefore the most appropriate respondents for assessing maternal mental health and its relationship with child growth and nutritional outcomes.

The study also acknowledged the community-level diversity of Ibadan. University College Hospital; Jericho Specialist Hospital attracted women from both urban and peri-urban settlements; while Adeoyo Maternity teaching Hospital catered to a wide catchment area that included mothers from low- middle income neighborhoods. Thus, the study population was representative of mothers living in both urban and semi-urban contexts, making the findings more generalizable within Ibadan. For mothers with more than one child present during data collection, one child was randomly chosen for inclusion in the questionnaire process.

3.3 Sample and Sampling Techniques

The determination of sample size was guided by statistical principles to ensure representativeness and reliability of findings.

Sample Size

Using the Cochran's Formula - $N = \frac{(Z^2 P)(Q)}{D^2}$

Where; N= minimum sample size

Z = 1.96 is the standard normal deviation corresponding to a 95% confidence interval on the normal distribution curve obtained from the Z-table.

P = prevalence from a previous study conducted in Nigeria¹

= 24% = 0.24

Q = complementary probability. q = 1-p = 1- 0.24 = 0.76

d = degree of precision of 5%, i.e. 0.05

Thus, by substituting these values into the formula:

$$N = \frac{(1.96^2 \times 0.24 \times 0.76)}{0.05^2}$$

$$\text{Therefore, } N = \frac{(3.8416 \times 0.24 \times 0.76)}{0.0025}$$

$$N = 280$$

$$10\% \text{ non-response risk} = \frac{1}{1-f}$$

Where f = 10%

$$\text{non-response risk} = \frac{1}{1-0.1}$$

$$10\% \text{ non-response risk} = 1.11$$

$$N = 280 \times 1.11 = 311$$

The sample size for the study was calculated to be 311 mother and child pair participants.

Sampling Technique

A multi-stage sampling technique was employed, combining purposive selection of healthcare facilities with systematic random sampling of eligible mother-child pairs attending child health clinics. This ensured representative and unbiased participant selection. The three hospitals were purposively selected for this study and the sample size was proportionately distributed across the three locations based on their immunization and clinic days and attendance. This ensured that mothers from all facilities were represented fairly relative to their patient load.

Inclusion Criteria/ Exclusion Criteria

Inclusion:

Mothers aged 18 years and above with children aged 0-59 months attending the selected hospitals.

Mothers who are apparently healthy and mentally stable.

Exclusion:

Mothers who are unwilling to participate or unable to provide informed consent or had children older than five years.

Response Rate

Out of the 311 determined sample size, a total of 291 responses were recorded, yielding a response rate of 93.5%.

- ◆ Adeoyo Maternity Teaching Hospital: 173 respondents
- ◆ University College Hospital: 73 respondents
- ◆ Jericho Specialist Hospital: 45 respondents

3.4 Description of the Research Instrument

Data for this study were collected using a structured, interviewer-administered questionnaire designed to obtain comprehensive information on the socio-demographic characteristics of the respondents, maternal mental health status, factors associated with it and child-related outcomes. The instrument was developed after a careful review of existing literature and standardized tools used in similar studies on maternal mental health and child health.

Structure of the Instrument

The questionnaire was divided into four main sections:

Section A: Socio-Demographic Characteristics

This section elicited information on the background of the respondents, including age, marital status, educational attainment, occupation and family size. These variables provided context for understanding the distribution of maternal mental health status within the study population.

Section B: Maternal Mental Health Assessment

Maternal mental health was measured using the Self-Reporting Questionnaire (SRQ-20) developed by the World Health Organization (WHO)². The SRQ-20 is a standardized screening tool designed for detecting probable cases of maternal mental disorders including symptoms of anxiety, depression, and somatic symptoms. The instrument consists of 20 dichotomous items (Yes/No) that assess experiences such as headaches, poor appetite, sleep disturbances, and feelings of unhappiness. A cut-off point of ≥ 8 “Yes” responses was used to categorize respondents as probable cases of maternal mental health disorder, while those scoring < 8 were classified as non-cases³.

Section C: Child Physical Growth and Nutritional Status

This section focused on the health and nutritional outcomes of the respondents' children. Questions were asked on birth order, immunization status, place of birth and birth experiences and child health status. In addition, anthropometric measurements (weight, height/length, Head Circumference and MUAC) of the children were obtained using standard procedures to compute indices such as weight-for-age, height-for-age in line with WHO Child Growth Standards as well as Head Circumference-for-age and MUAC-for-age^{4,5}.

Section D: Factors associated with Maternal Mental Health

This section was structured according to the socio-ecological model, capturing multiple layers of possible influence on maternal mental health:

Individual-Level Factors: Respondents provided information on reproductive history, age at marriage, parity, pregnancy intentions, health behaviors (e.g., smoking, alcohol use), previous pregnancy complications, and history of emotional, physical, or sexual abuse. These variables addressed personal biological, psychological, and behavioral influences.

Interpersonal-Level Factors: Questions assessed partner/spousal support, family support in childcare and household tasks, experiences of intimate partner violence, and availability of social support networks. This level emphasized the role of close relationships in shaping maternal wellbeing.

Community-Level Factors: Items captured housing conditions, neighborhood safety, access to health services, community support groups, cultural acceptance of seeking mental health help, and household food security. These factors reflected how the broader community context affects maternal mental health.

Societal/Policy-Level Factors: Respondents were asked about awareness of government maternal mental health programs, access to maternity leave or flexible work arrangements, and the effect of the economic situation on family needs. This level captured structural and policy-related influences that extend beyond the individual and immediate community.

3.5 Validity of Research Instrument

To ensure validity, the instrument was pre-tested on 28 mothers of under-five children. The pre-test helped to identify ambiguous questions, assess the clarity of wording, and test the flow of administration. Adjustments were made based on the feedback obtained, particularly in simplifying some questions for better understanding.

3.6 Reliability of the Research Instrument

Table 3.1 Reliability Coefficient of Research Instruments

Section	No. of items	Cronbach Alpha
Prevalence of CMMD	20	0.85
Nutritional Status of Child	6	0.70
Factors associated with CMMD	37	0.76

Source: Researcher's Fieldwork, 2025

3.7 Method of Data Collection

Following ethical approval and administrative clearance from the relevant health authorities, data collection began. A well-coordinated process was adopted to ensure that the data obtained were accurate, reliable, and representative of the study population. Two research assistants were recruited to assist with data collection. Prior to fieldwork, training was conducted. The training covered the objectives of the study, ethical considerations, interviewing techniques, the content of the questionnaire, translation protocols, and the standard procedures for anthropometric measurements. The training

also included practical role-plays and mock interviews to enhance consistency among the research team. The actual fieldwork took place in the three selected hospitals: Adeoyo Maternity Teaching Hospital (Immunization Unit and Child Out-Patient Unit); University College Hospital Child Welfare Unit and the Jericho Specialist Hospital, Ibadan.

3.7.1 Survey Questionnaire

Mothers of children aged 0–59 months who attended the clinics during the study period were approached, informed about the purpose of the study, and invited to participate. After obtaining written informed consent, face-to-face administration were conducted using the structured questionnaire in either English or Yoruba, depending on the respondent's preference. Interviewer- assisted approach was used and anthropometric measurements of the children were taken using standardized procedures.

3.7.2 Anthropometric Measurements

In order to collect the data to assess child nutritional status, 4 variables were measured including the Weight, Height, MUAC and HC.

Weight

This was measured with a digital weighing scale, calibrated daily before use; Weight of the mother alone and with the child was taken and the subtracted weight was recorded as that of the child.

Height/Length

This was measured with the child at a stretched position, using a tape measure.

Mid-Upper Arm Circumference

The tape measure was wrapped around the midpoint between the shoulder tip and the elbow of the child.

Head Circumference

The tape measure was placed around the largest part of the head, positioned above the eyebrows, ears and around the back of the head. The resulting measurement was recorded. Measurements were recorded to the nearest 0.1 kg and 0.1 cm respectively.

Variables (Independent/Dependent Variables)

Independent Variable(s):

Common Maternal Mental Disorders (CMMDs), such as maternal depression, anxiety, and somatic symptoms assessed using validated tools like the SRQ-20.

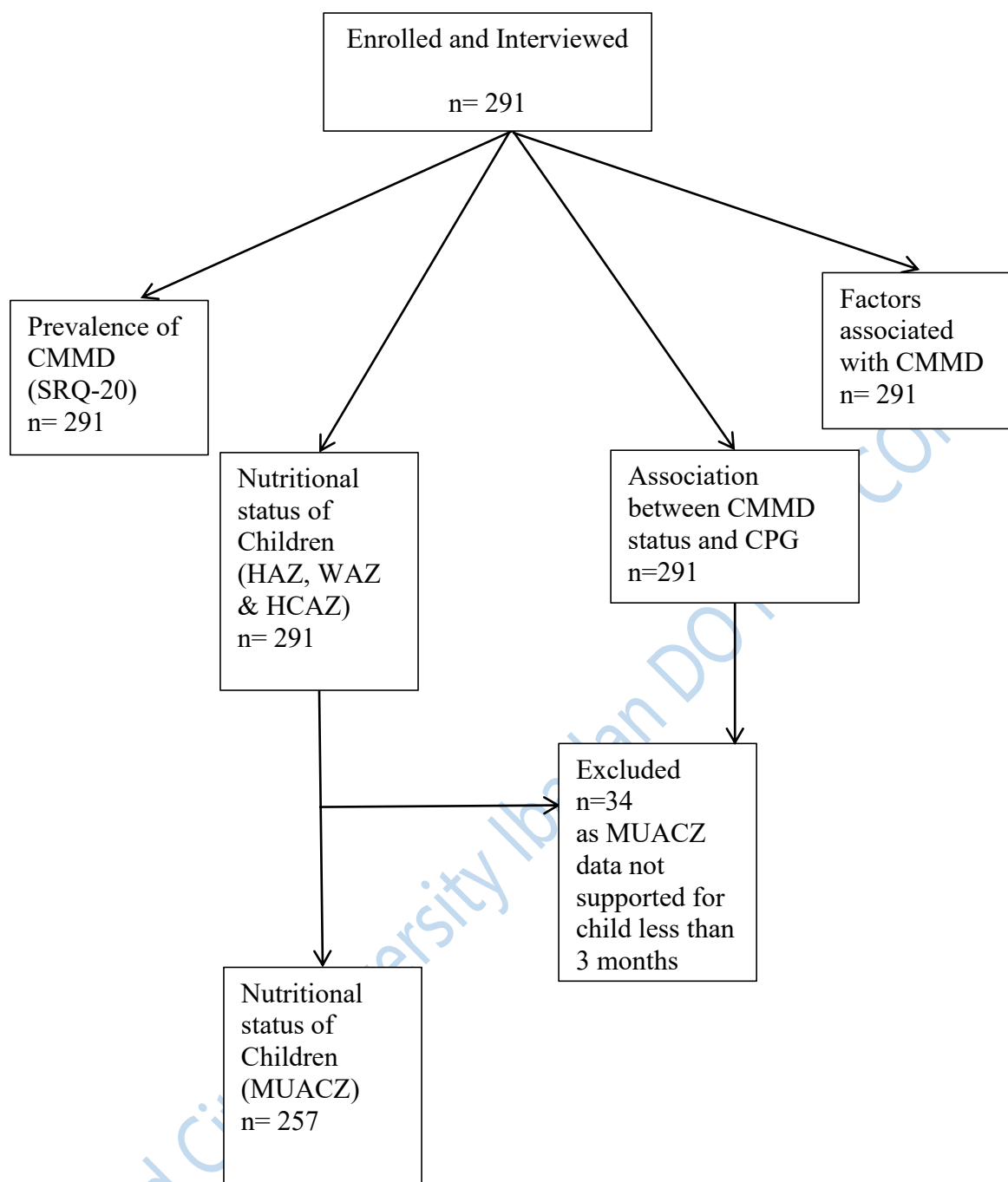
Dependent Variable(s):

Physical growth indicators in children aged 0–59 months, including:

- a) Height
- b) Weight
- c) Mid-upper arm circumference (MUAC)
- d) Head Circumference

3.8 Data Analysis and Management

The data collected during the fieldwork were processed and analyzed systematically to generate valid and meaningful findings. At the end of each day of data collection, all completed questionnaires were reviewed manually for consistency, completeness, and accuracy. Data cleaning was performed to identify and correct possible entry errors, missing values, or outliers. Any ambiguous or incomplete responses were cross-checked against the original questionnaires to maintain data integrity. The data collected were coded, entered, and analyzed using the Statistical Package for Social Sciences, WHO Anthro software, and the zscorer package in R. Both descriptive and inferential statistical methods were employed. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize the data, while inferential statistics (chi-square test, and binary logistic regression) were employed to test associations and predictors in line with the stated research questions.



Source: Researcher's Fieldwork, 2025

Fig 3.1: Consort diagram showing sample size for each study objectives

Measurement of Variables (Analysis)

Common Maternal Mental Disorder (CMMD)

CMMD status of mothers was sought using the SRQ-20 WHO standardized questionnaire which was in turn used to determine the prevalence of CMMD among mothers in the selected hospitals. The SRQ-20 is made of 20 Yes or No questions, where Yes (coded as 1) indicated the presence of a symptoms and No (coded as 0) represents the absence of the symptom. Responses were summed to generate a total score (SRQ_SUM). Based on established cut-offs, scores between 0 and 7 were classified as “No CMMD,” while scores between ≥ 8 were classified as “CMMD^{3,4}.” The prevalence of CMMD was then estimated using descriptive analysis in SPSS, specifically through frequencies and percentages to determine the proportion of mothers with CMMD.

Nutritional Status of Children aged 0 to 59 months

Examining the nutritional status of children aged 0–59 months, anthropometric indices were analyzed using four main variables such as height, weight, MUAC and HC. Height and Weight were analyzed using the WHO-Anthro Software to get the Z-scores for each respondents while the R Statistical Software was used for the Head Circumference and MUAC.

Table 3.2 : Measurement of Variables for Child Nutritional Status Data

Variable	Z-scores Indicator	Meaning for Classification
Height-for-age (HAZ)	<-3 SD	Severely Stunted (very low height-for -age)
	-3 SD to -2 SD	Moderately stunted (less severe but still restricted linear growth)
	-2 SD to +2 SD	Normal (expected height for age)
	> +2 SD	Tall-for-age (height more than expected for age)
Weight-for-age	<-3 SD	Severe underweight (markedly low body weight for age)
	-3 SD to -2 SD	Moderately underweight (reduced body weight)
	-2 SD to +2 SD	Normal (expected body weight for age)
	> +2 SD	Overweight (body weight higher than expected for age)
MUAC-for-age	<-3 SD	Severely malnourished (low arm circumference relative to age)
	Between -3 SD and -2 SD	Moderately malnourished
	Between -2 SD and +2 SD	Normal (indicating adequate MUAC for age)
	> +2 SD	Higher than normal or expected MUAC for age
Head Circumference for age	<-2 SD	Microcephaly (low head circumference for age)
	-2 SD to +2 SD	Normal Head Circumference (expected cranial growth)
	+ 2 SD	Macrocephaly (larger HC circumference than expected for age)

Source: WHO Child Growth Standard z-score classification Table^{6,7}

These categorizations were implemented in SPSS using the “Recode into Different Variables” function, after which the newly derived categorical variables were used in descriptive and inferential analyses.

Association between CMMD and CPG

For association between maternal CMMD status and the physical growth of their children, both continuous and categorical analyses were carried out. Mothers were grouped according to CMMD status (present vs. absent), and their children's anthropometric indices (HAZ, WAZ, MUACZ, HCZ) were compared. Cross-tabulations with chi-square tests of independence was performed to examine the association between CMMD status and categorical nutritional outcomes such as stunting, underweight, and wasting.

Factors associated with CMMD

Exploration of factors associated with common maternal mental health disorders (CMMD) was carried out using binary and multivariate logistic regression at the 5% significance level. CMMD (present vs. absent) was treated as the dependent variable, while socio-demographic and psychosocial characteristics served as independent variables. Binary regression first produced crude odds ratios (CORs), 95% confidence intervals, and p-values for each predictor, identifying potential associations without controlling for confounders. Variables of interest and those significant in the crude analysis were then entered into a multivariate logistic regression model to generate adjusted odds ratios (AORs), accounting for the influence of other covariates. Results were presented in tables showing frequencies, significance levels, CORs, and AORs with 95% confidence intervals. This two-stage approach ensured that only independent predictors were identified, with current stress level emerging as the most robust factor.

3.9 Ethical Approval

Ethical approval was sought from the Oyo State Ministry of Health Ethical Review Committee. Internal approval at the clinics were also obtained. The study strictly adhered

to ethical research standards involving human subjects. During the course of the fieldwork, ethical considerations involved were:

- Informed Consent: Participants received detailed information about the study, including its purpose, procedures, risks, and benefits. Written informed consent was obtained prior to participation.
- Voluntariness: Participation was voluntary, with the option to withdraw at any time without consequences.
- Confidentiality of Data: All data collected was treated with confidentiality. Unique identification codes were used instead of names with access limited to the research team.
- Beneficence: The study aimed to produce evidence that may influence public health policy and interventions targeting maternal mental health and child development. The use of validated tools ensures accuracy in identifying at-risk mothers, enabling potential referral for psychological support where necessary.
- Non-Maleficence: To minimize potential emotional distress during the assessment, all research staff was trained in mental health sensitivity and cultural competence.
- Right to Decline/Withdraw: Participants also reserved the right to decline participation at any stage of the study or to withdraw entirely without them facing any form of discrimination and penalty. This will be emphasized both at the beginning and during the study.

Endnotes

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Chapter Four

Results and Discussion

4.1 Demographic Data Analysis

From Table 4.1, it is observed that a higher percentage of respondents, 59.5% were recruited from AMTH, UCH 25.1%, and 15.5% from JSH. The highest proportion of respondents; 35.1% fell within 24–28 years with 19.2% of respondents between the ages of 34-39%. 92.1% of respondents were married while others were either never married, or separated, divorced or widowed. About two-fifths 39.9% had attained university education, 37.5% completed secondary education. 17.9% also have had either A-levels certificates, National diploma or other post-secondary degrees. Only 4.8% were reported to have only primary education. Nearly half of the respondents' partners 48.1% had university education while only 4.5% were reported to have no more than the primary school education.

Most respondents were in lower-income or semi-skilled jobs. 28.9% were petty traders, labourers, or messengers, 27.8% in higher-level occupations (senior public servants, professionals, or businesswomen) and 2.7% reported being unemployed, housewives, or farmers. This suggests a diverse occupational spread, though many are in informal or low-income roles. 37.8% of respondent's partner occupations were senior public servants, professionals, or business owners, 24.1% petty traders or labourers and 13.7% were artisans or drivers. A small proportion were unemployed (3.8%) or had no partner (4.8%). Compared with the women, partners tend to be more represented in higher socioeconomic occupations.

85.9% lived with a partner/spouse, 10.0% with extended family, and 4.1% lived alone. The most common family size was 3 members (34.4%), followed by 4 members (28.2%).

Families with 5 and 6 or 7 members accounted for the remaining percentage suggesting a smaller to medium-sized families norm among participants.

Table 4.1: Sociodemographic Information

VARIABLE	CATEGORY n = 291	FREQUENCY	PERCENT(%)
Facility	AMTH	173	59.5
	UCH	73	25.1
	JSH	45	15.5
Age at Last Birthday (Years)	18–24	33	11.3
	25–34	197	67.7
	35-49	60	20.6
	≥ 50	1	0.3
Marital Status	Single	23	7.8
	Married	268	92.1
Highest Educational Qualification	University or equivalent	116	39.9
	Post-secondary (college, polytechnic, NCE, A-levels)	52	17.9
	Secondary School (completed)	109	37.5
	Primary School (completed)	14	4.8
	No formal education	0	0.0
Partner's Highest Educational Qualification	University or equivalent	140	48.1
	Post-secondary (college, polytechnic, NCE, A-levels)	49	16.8
	Secondary School (completed)	70	24.1
	Primary School (completed)	13	4.5
	No formal education	0	0.0
	No Partner	19	6.5
Occupation	Senior public servant/professional/business	81	27.8
	Intermediate public servant/nurse/teacher/small business	55	18.9
	Junior teacher/driver/artisan	63	21.6
	Petty trader/labourer/messenger	84	28.9
	Unemployed/housewife/farmer	8	2.7

Partner's Occupation	Senior public servant/professional/business	110	37.8
	Intermediate public servant/nurse/teacher/small business	46	15.8
	Junior teacher/driver/artisan	40	13.7
	Petty trader/labourer/messenger	70	24.1
	Unemployed/housewife/farmer	11	3.8
	No Partner	14	4.8
Living With	Alone	12	4.1
	Partner/Spouse	250	85.9
	Extended Family	29	10.0
Family Size	2	15	5.2
	3	100	34.4
	4	82	28.2
	5	46	15.8
	6	41	14.0
	7	6	2.1
	8	1	0.3

Source: Researcher's Fieldwork, 2025

Table 4.2 shows the responses from 291 participants on the SRQ 20, majority of respondents denied experiencing the listed difficulties. 33.3% of respondents reported frequent headaches and 13.4% poor appetite. Sleep-related problems were also reported, with 19.9% experiencing poor sleep. Feelings of nervousness, tension, or worry were reported by 23.7%, while 25.4% admitted being easily frightened, and 11.7% noted hand tremors. Poor digestion was endorsed by 10.7% and 21.3% having trouble thinking clearly. 16.5% of respondents indicated decision-making difficulty. Feelings of unhappiness were expressed by 16.2%, 12.0% reported crying more than usual, and 14.8% found it difficult to enjoy their daily activities. 15.1% admitted their daily work was suffering. Additionally, 11.0% reported to be unable to play a useful part in life. 24.1% reported loss of interest in previously enjoyed activities and 6.9% described themselves as worthless. Of particular concern, 8.6% of respondents reported having suicidal thoughts. Fatigue-related symptoms were also prominent. 19.6% of participants reported feeling tired all the time, 14.8% reported uncomfortable feeling in their stomachs, while 20.6% indicated being easily tired. Most participants did not report frequent psychological distress, yet a notable proportion experienced symptoms, the presence of suicidal thoughts, coupled with relatively high rates of nervousness, fatigue, headaches, and loss of interest.

Table 4.2: Symptoms of Maternal Mental Disorder (SRQ-20)

VARIABLE	CATEGORY n=291	FREQUENCY	PERCENT(%)
Often have headaches	No	194	66.7
	Yes	97	33.3
Poor appetite	No	252	86.6
	Yes	39	13.4
Sleeping badly	No	233	80.1
	Yes	58	19.9
Easily frightened	No	217	74.6
	Yes	74	25.4
Hands shaking	No	257	88.3
	Yes	34	11.7
Feeling nervous, tense, or worried?	No	222	76.3
	Yes	69	23.7
Poor digestion	No	260	89.3
	Yes	31	10.7
Trouble thinking clearly	No	229	78.7
	Yes	62	21.3
Feeling unhappy	No	244	83.8
	Yes	47	16.2
Crying more than usual	No	256	88.0
	Yes	35	12.0
Difficulty enjoying your daily activities	No	248	85.2
	Yes	43	14.8
Difficulty in making decisions	No	243	83.5
	Yes	48	16.5
Daily work suffering	No	247	84.9
	Yes	44	15.1
Inability to play a useful part in life	No	259	89.0
	Yes	32	11.0

Lost interest in things	No	221	75.9
	Yes	70	24.1
Feeling worthless	No	271	93.1
	Yes	20	6.9
Thought of ending your life	No	266	91.4
	Yes	25	8.6
Feeling tired all the time	No	234	80.4
	Yes	57	19.6
Uncomfortable feelings in your stomach	No	248	85.2
	Yes	43	14.8
Easily tired	No	231	79.4
	Yes	60	20.6

Source: Researcher's Fieldwork, 2025

Table 4.3 provide insights into the nutritional and health-related characteristics of the children included in the study. Birth order distribution revealed that first-born children constituted the largest proportion, accounting for 41.9%. Higher-order births were progressively fewer, with only 0.3% recorded as sixth- or seventh-born suggesting that most of the children were early-order births, which may have implications for maternal attention and child care. Of the 291 respondents children, 15.5% were reported to not have completed their immunization schedules leaving this significant minority susceptible to preventable illnesses. 78.4% of these child delivery were at Health Facilities while 7.9% reported to have had a birth at home experience. The report on birth outcomes showed that 13.1% of the children were born preterm, while 11.0% had low birth weight (less than 2.5 kg). These groups were important as they are at increased risk for poor growth and adverse health outcomes. 6.2% of accessed children were reported to have disabilities or health problems. Similarly, 92.4% of the children had no excessive crying or sleep problems, compared to 7.6% who did. The age distribution of the children shows that the majority were between 6 and 10 months (40.9%), followed by those aged 1 to 5 months (24.7%). Older age groups were progressively reducing as the age increased, with only 0.3% in the 56–60 month category. 52.6% of the children assessed in this study were Females. Anthropometric data further reflect the nutritional and developmental status of the children. In terms of height, the majority fell within 61.0–70.0 cm (29.2%), which corresponds to expected ranges for infants. Similarly, most children weighed between 5.0–8.9 kg (54.3%), consistent with the age composition of the sample. Mid-upper arm circumference (MUAC) results showed that a large proportion of children measured between 13.0 and 15.9 cm (51.2%), suggesting adequate nutrition for many of them. However, a smaller group (27.4%) measured below

13.0 cm, indicating possible risk of malnutrition depending on age-specific cut-offs. Head circumference measurements demonstrated that most children were within the 40.0–49.9 cm range (70.5%), reflecting normal growth patterns for their age group. A small proportion recorded very low values (30.0–34.9 cm at 3.1%) or very high values (50.0–54.0 cm at 12.4%).

In summary, the nutritional and health profile of the children in this study appears generally adequate, with strong indicators such as high immunization coverage, predominance of facility-based deliveries, and anthropometric values within expected ranges. Nonetheless, important vulnerabilities were identified, including the presence of preterm births (13.1%), low birth weight (11.0%), incomplete immunization (15.5%), and a minority of children at risk of malnutrition as suggested by MUAC values.

Table 4.3: Nutritional Status of Child Section

VARIABLE	CATEGORY n=291	FREQUENCY	PERCENT(%)
Birth Order	1	122	41.9
	2	77	26.5
	3	57	19.6
	4	26	8.9
	5	7	2.4
	6	1	0.3
	7	1	0.3
Immunization Status	Complete	246	84.5
	Incomplete	45	15.5
Place of Birth	Health Facility	228	78.4
	Home	23	7.9
	Maternity Home	40	13.7
Preterm Baby (before 37 weeks)	No	253	86.9
	Yes	38	13.1
Baby Low birth weight (less than 2.5 kg?)	No	259	89.0
	Yes	32	11.0
Baby have any health problems or disability	No	273	93.8
	Yes	18	6.2
Baby cries excessively or have sleep problems	No	269	92.4
	Yes	22	7.6
Age (months)	1–5	72	24.7
	6–10	119	40.9
	11–15	23	7.9
	16–20	15	5.2
	21–25	10	3.4

	26–30	2	0.6
	31–35	6	2.0
	36–40	11	3.8
	41–45	8	2.8
	46–50	11	3.8
	51–55	4	1.3
	56–60	1	0.3
Gender	Male	138	47.4
	Female	153	52.6
Height (cm)	41.0–45.0	9	3.1
	46.0–50.0	13	4.5
	51.0–55.0	13	4.5
	56.0–60.0	28	9.6
	61.0–65.0	33	11.3
	66.0–70.0	52	17.9
	71.0–75.0	21	7.2
	76.0–80.0	14	4.8
	81.0–85.0	8	2.7
	86.0–90.0	9	3.1
	91.0–95.0	7	2.4
	96.0–100.0	3	1.0
	101.0–105.0	7	2.4
	106.0–110.0	5	1.7
Weight (kg)	3.0–4.9	40	13.7
	5.0–6.9	76	26.1
	7.0–8.9	82	28.2
	9.0–10.9	41	14.1
	11.0–12.9	15	5.2
	13.0–14.9	17	5.8
	15.0–16.9	7	2.4
	17.0–18.9	5	1.7
	19.0–20.9	3	1.0
	37.0+	1	0.3

Mid-Upper Arm Circumference (MUAC)	10.0–10.9	1	0.3
	11.0–11.9	40	13.7
	12.0–12.9	39	13.4
	13.0–13.9	51	17.5
	14.0–14.9	54	18.6
	15.0–15.9	44	15.1
	16.0–16.9	24	8.2
	17.0–17.9	17	5.8
	18.0–18.9	8	2.7
Head Circumference (cm)	30.0 – 34.9	9	3.1
	35.0 – 39.9	41	14.1
	40.0 – 44.9	96	33.0
	45.0 – 49.9	109	37.5
	50.0 – 54.0	36	12.4

Source: Researcher Fieldwork, 2025

Table 4.4 shows that majority of mothers married between the ages of 23–27 years (54.6%), followed by those in the 18–22 age group (17.2%) and 28–32 years (16.5%), others respondents were above 30 or were never married. Respondent's age at First Pregnancy further supports this, with most mothers having their first child between 25–29 years (44.0%) and 20–24 years (35.7%). Very few had their first pregnancy at 40 years or above (1.3%). This pattern suggests that childbearing is concentrated in the mid-twenties, aligning with common reproductive practices in the setting. 29.9% of the respondents reported their last pregnancies as unplanned. Unplanned pregnancies may increase vulnerability to maternal stress and depressive symptoms. Over one-third of women (36.8%) were in their first pregnancy, 31.3% had been pregnant twice. Higher-order pregnancies beyond the fourth were relatively uncommon (5.5% combined for 5–6 pregnancies). Similarly, parity revealed that most women had one living child (43.0%) or two (29.2%), indicating a young reproductive population with relatively small family sizes. Pregnancy and delivery complications were reported by 14.4%, and 24.1% had experienced a miscarriage, stillbirth, or infant loss. These experiences are known risk factors for emotional distress and may heighten susceptibility to maternal mental health challenges. 26.5% reported having more than three years interval between pregnancies while 21.0% had shorter intervals of less than two years. Notably, 29.9% of women marked this as not applicable reflecting first-time mothers. Short birth intervals may contribute to physical and psychological strain. 7.2% have had experience of denied paternity which can significantly impact maternal well-being through stress, stigma, and reduced social support. 8.2% reported smoking, while 17.9% consumed alcohol. These behaviors, though not widespread, remain relevant risk factors for maternal mental health. 18.6% of the respondents indicated previous diagnosis of depression,

anxiety or any other mental health condition highlighting a subgroup with pre-existing vulnerability to perinatal or postpartum psychological distress. 3.8% of respondents have been exposed to childhood abuse; with 8.9% admitting the presence of chronic illnesses such as hypertension or diabetes and 10.7% reporting pregnancy-related complications like pre-eclampsia, excessive bleeding or tear. Both chronic and obstetric health conditions are established contributors to psychological burden in mothers. A lot, 57.0% of women considered their stress levels to run at a moderate level and 16.8% reporting undergoing high stress which is strongly correlated with maternal depression and anxiety. Self-efficacy in infant care was generally high, with 77.3% of mothers reporting being very confident and 4.5% not confident. Maternal confidence can serve as a protective factor, buffering against mental distress. Findings highlight that maternal mental health outcomes are influenced by a combination of reproductive history, life experiences, and health-related factors. The majority of women married and began childbearing in their twenties, a substantial proportion experienced stress, pregnancy complications, or adverse reproductive outcomes such as miscarriage. The presence of chronic illness, prior mental health diagnoses, childhood abuse, and lifestyle behaviors (alcohol and smoking) further underscore the complexity of maternal mental health risk profiles.

Table 4.4: Proportion of Participants by Factors Previously Documented to Be Associated with Common Maternal Mental Disorders - Individual Level Factors

VARIABLE	CATEGORY n=291	FREQUENCY	PERCENT(%)
Age at Marriage	18–22	50	17.2
	23–27	159	54.6
	28–32	48	16.5
	33–37	12	4.1
	38–42	5	1.7
	99	17	5.8
Age at First Pregnancy	15 – 19	12	4.1
	20 – 24	104	35.7
	25 – 29	128	44.0
	30 – 34	38	13.1
	35 – 39	5	1.7
	40 – 44	1	0.3
	45 – 49	1	0.3
	50 – 54	2	0.7
Planned Pregnancy	No	87	29.9
	Yes	204	70.1
Number of times Pregnant (Gravidity)	1	107	36.8
	2	91	31.3
	3	39	13.4
	4	38	13.1
	5	13	4.5
	6	3	1.0
Number of Living Children (Parity)	1	125	43.0
	2	85	29.2
	3	50	17.2
	4	25	8.6
	5	6	2.1
Any complications during pregnancy or delivery	No	249	85.6
	Yes	42	14.4
Experienced of miscarriage, stillbirth, or infant loss?	No	221	75.9
	Yes	70	24.1
Interval between last two pregnancies	<2 years	61	21.0

	2–3 years	66	22.7
	>3 years	77	26.5
	N/A	87	29.9
Any experience of Denied Paternity	No	270	92.8
	Yes	21	7.2
Smoking	No	267	91.8
	Yes	24	8.2
Alcohol Consumption	No	239	82.1
	Yes	52	17.9
Previous diagnosis with depression, anxiety or a mental health condition	No	237	81.4
	Yes	54	18.6
Experiences of emotional, physical, or sexual abuse as a child	No	280	96.2
	Yes	11	3.8
Any chronic illness (e.g., hypertension, diabetes)	No	265	91.1
	Yes	26	8.9
Any pregnancy-related complications during pregnancy or post-partum (e.g., excessive bleeding, pre-eclampsia)	No	260	89.3
	Yes	31	10.7
Current stress level	Low	76	26.1
	Moderate	166	57.0
	High	49	16.8
Confidence in child care ability	Very confident	225	77.3
	Somewhat confident	53	18.2
	Not confident	13	4.5

Source: Researchers Fieldwork, 2025

Table 4.5 shows that majority of the women declared having strong spousal support system generally in care for the child and them, also emotionally and financially accounting for 73.5%, 70.1% and 74.2% respectively, suggesting that partner involvement plays a key protective role for maternal wellbeing. However, a small proportion experienced inadequate partner support, with 8.9% never receiving emotional support and 6.2% never receiving financial support. 6.9% of respondents reported to have experienced domestic violence or abuse and 5.2 specifically reported sexual abuse in the past 12 months. 52.2% reported consistent help from family members in childcare and household tasks. Data showed strong social support systems as 72.5% had family members they could talk to when sad or stressed; with 7.6% of the population having no avenue like such. Social connectedness appeared strong, as 72.5% could always talk to family or friends when stressed, but 7.6% lacked this avenue entirely. Feelings of loneliness and isolation affected some mothers: 16.5% often felt isolated, while 27.8% sometimes experienced loneliness, pointing to gaps in social networks despite overall high reported support.

Table 4.5: Proportion of Participants by Factors Previously Documented to Be Associated with Common Maternal Mental Disorders- Interpersonal Level Factors

VARIABLE	CATEGORY n=291	FREQUENCY	PERCENT(%)
Partner/spouse support (overall)	Very supportive	214	73.5
	Somewhat supportive	55	18.9
	Not supportive	7	2.4
	No partner	15	5.2
Partner emotional support	Always	204	70.1
	Sometimes	61	21.0
	Never	26	8.9
Partner financial support	Always	216	74.2
	Sometimes	57	19.6
	Never	18	6.2
Recent physical, emotional, or sexual abuse (in the last 12 months)	No	271	93.1
	Yes	20	6.9
Experienced of recent sexual abuse (in the last 12 months)	No	276	94.8
	Yes	15	5.2
Family members help with childcare or household tasks	Always	152	52.2
	Sometimes	106	36.4
	Never	33	11.3
Family or Friend support system	Always	211	72.5
	Sometimes	58	19.9
	Never	22	7.6
Feel lonely or socially isolated	Often	48	16.5
	Sometimes	81	27.8
	Rarely/Never	162	55.7

Source: Researcher's Fieldwork, 2025

From Table 4.6; 93.1% reported having a relative secure housing, with more than half (54.0%) living in flats and 9.3% residents of self-contained. Household crowding was common, as 50.5% lived with 4–6 people, and 13.1% lived in households of more than 6, which may influence stress levels and resource sharing. Perceptions of safety were generally high, with 76.3% feeling very safe and 3.4% feeling unsafe in their neighborhoods. Access to health services was favorable for most mothers (78.4% had easy access), but 21.6% faced barriers, which may delay maternal or child health interventions. 13.1% of the population spend over an hour in reaching health facilities suggesting inequities in accessibility. Community social resources were moderately available: 68.4% reported the presence of support groups for mothers, yet 31.6% lacked such resources. Attitudes toward seeking help for emotional distress were mixed; while 48.8% said it was acceptable, 32.6% felt it was not, reflecting persisting stigma toward maternal mental health issues. Furthermore, 25.8% of families experienced food shortages in the last 3 months, highlighting economic vulnerability within the community.

Table 4.6: Proportion of Participants by Factors Previously Documented to Be Associated with Common Maternal Mental Disorders- Community Level Factors

VARIABLE	CATEGORY n=291	FREQUENCY	PERCENT(%)
Secure place to Live	No	20	6.9
	Yes	271	93.1
Housing Type	Tenement	53	18.2
	Flat	157	54.0
	Bungalow	43	14.8
	Self-contained	27	9.3
	Other	11	3.8
People sharing living space	1–3	106	36.4
	4–6	147	50.5
	>6	38	13.1
Neighborhood Safety	Very safe	222	76.3
	Somewhat safe	59	20.3
	Not safe	10	3.4
Easy access to health services when needed	No	63	21.6
	Yes	228	78.4
Distance to nearest maternal health facility	<30 min	141	48.5
	30–60 min	112	38.5
	>1 hour	38	13.1
Mother's community support groups	No	92	31.6
	Yes	199	68.4
Ability to seek help in emotional distress	Yes	142	48.8
	Sometimes	54	18.6
	No	95	32.6
Food shortage in the past 3 months	No	216	74.2
	Yes	75	25.8

Source: Researcher's Fieldwork, 2025

Table 4.7 shows that at the broader societal and policy level, there were notable gaps in maternal mental health support. A majority of mothers (76.3%) were unaware of any government programs addressing maternal mental health, indicating limited outreach or visibility of such initiatives. On a positive note, 77.7% had access to maternity leave or flexible work arrangements, suggesting some workplace-level support for mothers. Economic instability, however, emerged as a major concern, with 57.4% reporting that the prevailing economic situation negatively affected their ability to meet family needs in the past six months as needed. This economic strain may exacerbate maternal stress and mental health challenges, even when interpersonal and community supports are present.

Overall, Strong partner support (emotional, financial, and practical) is evident, but a small proportion remain vulnerable to neglect or abuse. Family and social networks are generally available, yet loneliness and isolation affect a significant minority. Communities provide relatively safe environments and access to health facilities, though geographic and resource inequities persist. At the societal level, gaps remain in government program awareness, and economic hardship significantly impacts maternal well-being despite supportive workplace policies.

Table 4.7: Proportion of Participants by Factors Previously Documented to Be Associated with Common Maternal Mental Disorders - Societal/Policy Level Factors

VARIABLE	CATEGORY n=291	FREQUENCY	PERCENT(%)
Awareness of any government programs supporting maternal mental health	No	222	76.3
	Yes	69	23.7
Access to maternity leave or flexible work arrangements	No	65	22.3
	Yes	226	77.7
Economic situation affecting ability to meet family's needs in the last 6 months	No	124	42.6
	Yes	167	57.4

Source: Researcher's Fieldwork, 2025

4.2 Presentation of Data

4.2.1 Research Questions

Research Question One: What is the prevalence of common maternal mental health disorders among mothers in selected hospitals in Ibadan?

From the Table 4.8, out of the 291 mothers that took part in the study, 40 had common maternal mental disorders. This means that 13.7% of the mothers were experiencing CMMDs. Approximately, one out of every seven mothers had CMMDs. Even though the majority of the mothers appeared apparently healthy, CMMDs is still prevalent in the community studied.

Table 4:8: Prevalence of Common Maternal Mental Disorders

n=291		
SRQ Score	Frequency	Percent
< 8	251	86.3
≥ 8	40	13.7

Source: Researchers Fieldwork, 2025

Research Question Two: What is the nutritional status of children between age 0-59 months in the study area?

The nutritional status of children aged 0–59 months in the study area was assessed using standard anthropometric indicators as shown in the table 4.9. In terms of height-for-age (HAZ), approximately one-fifth of the children (21.6%) were classified as severely stunted, while an additional 9.3% were moderately stunted. This indicates that nearly one-third of the sample exhibited undernutrition. Conversely, 65.3% were within the normal range, and a small proportion (3.8%) were classified as tall.

The weight-for-age (WAZ) indicator showed that 8.2% of the children were severely underweight, and 8.9% moderately underweight, together accounting for 17.1% of the sample. This points to a substantive burden of undernutrition at the acute level. However, the majority (77%) fell within the normal range, while 5.8% were overweight, reflecting a small but notable dual burden of malnutrition. The mean WAZ of -0.43 ($SD \pm 0.9$) aligns with a general trend of mild underweight status in the population.

Mid-upper arm circumference-for-age (MUACZ) data highlighted acute malnutrition, with 3.8% presenting with severe acute malnutrition (SAM) and 13.1% with moderate acute malnutrition (MAM). In contrast, 64.9% were within the normal category, while 6.5% were above normal.

For head circumference-for-age (HCZ), 12% of the children were found to have microcephaly, while 15.1% presented with macrocephaly, suggesting variations in cranial growth patterns. The majority, however, were within the normal range (72.9%).

Overall, these findings show a mixed picture of child nutrition in the study area. While a fair number of children fell within the normal growth range, a considerable proportion were

affected by stunting and underweight, pointing towards chronic malnutrition. At the same time, the presence of overweight and obesity suggests a double burden of malnutrition in the community.

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Table 4:9: Nutritional Status of Children aged 0-59 months.

Indicator	Group	Percentage (%)
Height-for-Age (HAZ)	Severely stunted	21.6
	Moderately stunted	9.3
	Normal	65.3
	Tall	3.8
	Mean $\pm$ SD	-0.64 $\pm$ 0.9
Weight-for-age (WAZ)	Severely underweight	8.2
	Moderately underweight	8.9
	Normal	77
	Overweight	5.8
	Mean $\pm$ SD	-0.43 $\pm$ 0.9
MUAC-for-age (MUACZ)	Severe Acute Malnutrition	3.80
	Moderate Acute Malnutrition	13.10
	Healthy/Normal	64.90
	Above normal	6.50
	N/A	11.70
	Mean $\pm$ SD	14.08 $\pm$ 30.9
Hc-for-age (HCZ)	Microcephaly	12.00
	Normal	72.90
	Macrocephaly	15.10
	Mean $\pm$ SD	2.03 $\pm$ 0.52

Source: Researchers Fieldwork, 2025

Research Question Three: Is there an association between mothers mental health status and the child physical growth?

Table 10 shows the Chi-square test result which was used to compare the distribution of children across growth categories based on their mothers' mental health status. Overall, majority (65.3%) of the children had normal weight, but about one in five children were severely stunted (63 (21.6%) and nearly ten percent (9.3%) had stunted height. Comparing the mothers Mental health status and the child's physical growth; majority of the mothers with no common mental disorder (65.7%) had children with normal height but over 20% in (53) of children of these mothers had severe stunting. For mothers with CMMD, while majority of the children 25 (62.5%) had normal height and up to one quarter had severe stunting (25%). Although there was no significant difference between the mother's mental health status and the physical growth of the children ($\chi^2=0.64$, Sig= 0.85).

For children weight for age, over three quarters, 224 (74%) of the children had normal weights regardless of the mother's mental health status. Notably, 10% of the children who were overweight had mothers with common maternal mental disorders, while nearly 10%, which was 23 (92%) of children who were moderately underweight, had mothers with no mental health disorder. However, the difference between the mother's mental health status and child's weight was not significant.

Assessment of children's nutritional status using MUAC z-scores revealed a significant relationship with maternal mental health. Overall, nearly three-quarters (73.5%) of children were healthy regardless of mother's mental health status. Among children of mothers without common mental disorders (SRQ < 8), 75.9% were found healthy and notably, 1 in 3 (32.4%) of children who experienced moderate acute malnutrition had mothers experiencing CMMD. The association between maternal mental health and child MUAC therefore was statistically

significant ($\chi^2 = 14.493$; $p = 0.002$), indicating that maternal psychological well-being is a critical determinant of acute malnutrition in children.

For Head circumference, most of the children 212 (72.9%) had normal head size regardless of their mother's mental health status. However, about 10% of the children of the mothers without common maternal mental disorders had microcephaly and nearly one quarter of the children of women with common mental disorder had microcephaly. The difference between maternal mental health status and child health circumference was significant ($\chi^2 = 6.06$; Sig= 0.048).

In summary, the categorical analysis shows that maternal mental health is not associated with children's stunting or underweight, but it is significantly associated with MUAC and head circumference categories. These findings indicate that maternal mental health has a selective impact on child physical growth, primarily affecting nutritional status and head growth rather than general height or weight.

Table 4. 10: Chi-Square Test Association Between Mothers' Mental Health Status and Child Growth Indicators

z-score of height							
SRQ Categories	Normal n=190 (65.3%)	Moderately Stunted n=27 (9.3%)	Severe Stunted n=63(21.6%)	Tall n=11 (3.8%)	χ^2	Sig	Total n=291
< 8	165 (65.7%)	24 (9.6%)	53 (21.1%)	9 (3.6%)	0.636	0.888	251
≥8	25 (62.5%)	3 (7.5%)	10 (25.0%)	2 (5.0%)			40
z-score of weight							
SRQ Categories	Normal n= 224 (77.0%)	Moderate Underweight n= 26 (8.9%)	Severe Underweight n=24 (8.2%)	Overweight n=17 (5.8%)	χ^2	Sig	Total n=291
< 8	194 (77.3%)	23 (9.2%)	21 (8.4%)	13 (5.2%)	1.534	0.674	251
≥8	30 (75.0%)	3 (7.5%)	3 (7.5%)	4 (10.0%)			40
z-score of MUAC							
SRQ Categories	Above Normal n= 19 (7.4%)	Healthy/Normal n= 189 (73.5%)	Moderate Acute Malnutrition n= 38 (14.8%)	Several Acute Malnutrition n= 11(4.3%)	χ^2	Sig	Total n= 257
< 8	19 (8.6%)	167 (75.9%)	26 (11.8%)	8 (3.6%)	14.493	0.002*	220
≥8	0 (0.0%)	22 (59.5%)	12 (32.4%)	3 (8.1%)			37
z-score of Head Circumference (HC)							
SRQ Categories	Microcephaly n= 35 (12.0%)	Normal n=212 (72.9%)	Macrocephaly n= 44 (15.1%)	χ^2	Sig	Total n=291	
< 8	26 (10.4%)	184 (73.3%)	41 (16.3%)	6.061	0.048*	251	
≥8	9 (22.5%)	28 (70.0%)	3 (7.5%)			40	

*= P value= < 0.05= Significant

Source: Researchers Fieldwork, 2025

Research Questions Four: What are the Factors associated with Common Maternal Mental Disorders among Mothers of Children aged 0-59 months in the study area?

Socio-Demographic Risk Factors for Common Maternal Mental Disorders (CMMD)

Table 4.11 explains that Marital status was strongly associated with maternal mental health both at the crude and adjusted levels. Single mothers were nearly five times more likely than their married counterparts to experience maternal mental health disorders at the crude level (OR = 4.92, 95% CI: 1.96–12.30, $p = 0.001$). Importantly, this relationship not only persisted but became even stronger after adjusting for covariates, with single mothers showing almost a tenfold increase in odds compared to married women (AOR = 9.75, 95% CI: 1.42–66.57, $p = 0.020$).

Mother's own highest educational qualification was not significantly associated with maternal mental health in either crude or adjusted models (all $p > 0.05$).

Partner's education, however, was a significant predictor. Mothers whose partners had only completed primary school were more than six times more likely to report maternal mental health problems compared to those whose partners had university-level education (OR = 6.20, 95% CI: 1.86–20.64, $p = 0.003$). This relationship remained significant and even strengthened after adjustment, with the odds rising to nearly eightfold (AOR = 7.69, 95% CI: 1.57–37.56, $p = 0.012$).

Mother's occupation did not emerge as a significant predictor after adjustment, although petty traders showed a trend towards reduced risk (AOR = 0.28, 95% CI: 0.068–1.18, $p = 0.083$).

Partner's occupation showed an important effect. Women whose partners were intermediate grade public servants had over three times the odds of maternal mental health problems compared to those with partners in senior public service (AOR = 3.48, 95% CI: 1.06–11.45,

$p = 0.040$). Interestingly, mothers who reported having no partner had a significantly reduced likelihood of experiencing maternal mental health problems compared to those whose partners were senior public servants (AOR = 0.015, 95% CI: 0.000–0.612, $p = 0.026$).

Living arrangements were significant at the crude level: mothers living with extended family were more than three times more likely to experience maternal mental health problems compared to those living with a partner or spouse (OR = 3.57, 95% CI: 1.48–8.59, $p = 0.005$). However, this association was attenuated and lost significance after adjustment (AOR = 3.29, 95% CI: 0.85–12.84, $p = 0.086$).

In summary, single marital status, low partner education level, and partner's occupation (intermediate grade public servants) were independent predictors of poor maternal mental health. Notably, single mothers remained at particularly high risk, even after accounting for other socio-demographic factors.

Table 4.11: Binary and Multivariate Logistic Regression Analysis of Socio-Demographic Factors Associated With CMMD at 5% Significance Level

Predictor Variable	Freq	Crude OR	95% CI	p-Value	Adjusted OR	95% CI	p-Value
Marital Status							
Married (Ref)	268	1			1		
Single	23	4.915	1.96–12.3	0.0011*	9.75	1.42–66.57	0.020*
Highest Educational Qualification							
University or Equivalent (Ref)	116	1			1		0.607
Post Secondary	52	1.033	0.370–2.889	0.95	1.566	0.448–5.471	0.482
Secondary (Completed)	109	1.464	0.675–3.178	0.335	1.916	0.667–5.498	0.227
Primary School	14	0.169	0.868–11.57	0.081	2.33	0.386–14.067	0.357
Partner's Educational Qualification							
University or Equivalent (Ref)	140	1		0.015	1		0.040
Post Secondary	49	0.472	0.132–1.68	0.248	0.427	0.107–1.705	0.228
Secondary (Completed)	70	1.206	0.521–2.79	0.662	0.998	0.301–3.301	0.997
Primary School	13	6.202	1.863–20.64	0.003	7.688	1.574–37.562	0.012
No Partner	19	1.929	0.573–6.49	0.29	5.78	0.397–84.105	0.199
Occupation							
Senior Public Servants (Ref)	81	1		0.089	1		0.835
Intermediate Grade Public Servants	55	1.78	0.743–4.26	0.196	0.885	0.280–2.794	0.835
Junior School Teachers	63	1.085	0.436–2.70	0.861	0.756	0.224–2.553	0.652
Petty Traders	84	0.364	0.122–1.09	0.07	0.282	0.068–1.177	0.083
Partner's Occupation							
Senior Public Servants (Ref)	110	1		0.357	1		0.459
Intermediate Grade Public Servants	46	2.189	0.840–5.70	0.109	3.483	1.059–11.452	0.040*
Junior School Teachers	40	2.613	0.992–6.89	0.052	1.74	0.471–6.426	0.406
Petty Traders	70	1.161	0.443–3.05	0.761	0.939	0.204–4.326	0.936
Unemployed	11	0.9	0.105–7.71	0.923	0.168	0.002–13.188	0.423
No Partner	14	1.5	0.296–7.59	0.624	0.015	0.000–0.612	0.026*
Who Do You Live With?							
Partner/Spouse (Ref)	250	1		0.01*	1		0.216
Alone	12	2.643	0.675–10.34	0.163	2.289	0.256–20.491	0.459
Extended Family	29	3.568	1.481–8.59	0.005*	3.294	0.845–12.837	0.086

Source: Researcher's Fieldwork, 2025; *- P value= <0.05

Individual Level Risk Factors for Common Maternal Mental Disorders (CMMD)

In table 4.12, Individual level risk factors are shown, the table explains that pregnancy planning was not significantly associated with maternal mental health. Although mothers with unplanned pregnancies showed more than twice the odds of mental health problems compared to those with planned pregnancies (AOR = 2.32, 95% CI: 0.82–6.57), this association did not reach statistical significance ($p = 0.114$).

Pregnancy or delivery complications were strongly linked to maternal mental health at the crude level. Women who experienced complications were nearly five times more likely to report mental health problems compared to those without complications (OR = 4.98, 95% CI: 2.34–10.59, $p < 0.001$). However, after adjustment, the association weakened and was no longer significant (AOR = 2.29, 95% CI: 0.73–7.17, $p = 0.155$).

History of miscarriage, stillbirth, or infant loss showed no significant relationship with maternal mental health ($p > 0.05$ in both crude and adjusted models).

Birth interval did not significantly predict maternal mental health. Mothers with a 2–3 year interval between pregnancies showed higher odds in both crude (OR = 2.27, $p = 0.100$) and adjusted models (AOR = 2.67, $p = 0.133$), but these were not statistically significant.

Denied paternity experience was a strong risk factor in the crude analysis, with affected women almost six times more likely to experience maternal mental health disorders (OR = 5.78, 95% CI: 2.26–14.83, $p < 0.001$). However, the association was attenuated after adjustment and lost significance (AOR = 3.02, $p = 0.090$).

Lifestyle factors (smoking and alcohol use) were not significantly associated with maternal mental health.

History of depression, anxiety, or other mental illness did not significantly predict current maternal mental health problems ($p > 0.05$).

Childhood abuse (emotional, physical, or sexual) was significantly associated with maternal mental health at the crude level, with survivors nearly six times more likely to report mental health problems (OR = 5.83, 95% CI: 1.69–20.13, $p = 0.005$). However, this association lost significance after adjustment (AOR = 2.33, $p = 0.310$).

Current chronic illness such as hypertension or diabetes was not significantly related to maternal mental health.

Pregnancy or postpartum complications (e.g., bleeding, preeclampsia) were also strongly associated at the crude level (OR = 3.65, 95% CI: 1.57–8.49, $p = 0.003$), but significance was lost after adjustment (AOR = 1.56, $p = 0.473$).

Current stress level emerged as one of the strongest predictors. Mothers with high stress were over ten times more likely to report maternal mental health disorders in the crude model (OR = 10.65, 95% CI: 3.66–31.01, $p < 0.001$). Even after adjustment, the association remained robust and highly significant, with stressed mothers being more than eight times more likely to experience mental health problems compared to those with low stress (AOR = 8.28, 95% CI: 2.36–29.06, $p = 0.001$).

Confidence in ability to care for the baby was significant at the crude level. Mothers who were “somewhat confident” (OR = 3.84, $p < 0.001$) or “not confident” (OR = 4.32, $p = 0.023$) were more likely to report maternal mental health problems compared to those who were very confident. However, after adjustment, these associations lost significance.

Table 4.12: Binary and Multivariate Logistic Regression Analyses of Individual Factors Associated with Common Maternal Mental Health at 5% Significance Level

Predictor Variable	Freq	Sig.	Crude OR	95% C.I. for Exp(B)	Sig.	Adjusted OR	95% C.I. (Adjusted)
Last Pregnancy Planned							
No	87	0.146	1.837	0.810-4.168	0.114	2.317	0.817 – 6.570
Yes	204	1					
Pregnancy/Delivery Complications							
No	249	1					
Yes	42	<0.001	4.978	2.341 – 10.585	0.155	2.29	0.731 – 7.173
Miscarriage, Stillbirth, or Infant Loss							
No	221	1					
Yes	70	0.88	1.061	0.490 – 2.297	0.648	0.794	0.294 – 2.144
Interval Between Last 2 Pregnancies							
< 2 years	61	1					
2–3 years	66	0.1	2.269	0.856 – 6.017	0.133	2.667	0.741 – 9.601
> 3 years	77	0.969	1.021	0.357 – 2.919	0.366	1.847	0.489 – 6.970
N/A	87	0.827	0.89	0.312 – 2.536	0.877	1.112	0.292 – 4.233
Denied Paternity Experience							
No	270	1					
Yes	21	<0.001	5.782	2.255 – 14.829	0.09	3.018	0.841 – 10.829
Smoking							
No	267	1					
Yes	24	0.853	0.888	0.252 – 3.126	0.205	0.321	0.056 – 1.858
Alcohol Use							
No	239	1					
Yes	52	0.611	0.786	0.312 – 1.983	0.696	1.288	0.362 – 4.591
Ever Diagnosed with Depression/Anxiety/Mental Illness							
No	237	1					
Yes	54	0.853	0.921	0.384 – 2.209	0.739	1.242	0.347 – 4.449
Childhood Abuse (Emotional/Physical/Sexual)							
No	280	1					
Yes	11	0.005*	5.833	1.691 – 20.128	0.31	2.325	0.456 – 11.850
Current Chronic Illness (e.g.,							

**hypertension,
diabetes)**

No	265	1					
Yes	26	0.155	2.038	0.764 – 5.435	0.569	1.445	0.407 – 5.126

Pregnancy/Postpartum Complications (e.g., bleeding, preeclampsia)

No	260	1					
Yes	31	0.003*	3.651	1.570 – 8.488	0.473	1.557	0.465 – 5.209

Current Stress Level

Low	76	1					
Moderate	166	0.619	1.308	0.453 – 3.772	0.847	1.117	0.364 – 3.425
High	49	0.001*	10.65	3.657 – 31.014	0.001*	8.277	2.358 – 29.061

**Confidence in Ability to
Care for Baby**

Very Confident	225	1					
Somewhat Confident	53	<0.001	3.835	1.816 – 8.099	0.062	2.517	0.956 – 6.630
Not Confident	13	0.023*	4.317	1.224 – 15.229	0.861	1.158	0.224 – 5.992

Source: Researcher's Fieldwork, 2025; *- P value= <0.05

Interpersonal Level Risk Factors for Common Maternal Mental Disorders (CMMD)

Table 4.13 explains the relationship between interpersonal level risk factors and CMMD. Women's experiences of partner and social support showed mixed associations with the outcome. In the unadjusted analysis, women who reported their partner as only "somewhat supportive" were significantly less likely to experience the outcome compared to those with very supportive partners (OR = 0.206, 95% CI: 0.064–0.663, $p = 0.008$). However, this relationship did not persist after adjustment (AOR = 1.994, 95% CI: 0.478–8.307, $p = 0.343$). Similarly, those who reported that their partner was "sometimes" emotionally supportive (OR = 0.127, 95% CI: 0.052–0.311, $p = 0.001$) or "never" supportive (OR = 0.176, 95% CI: 0.060–0.514, $p = 0.001$) appeared significantly less likely to report the outcome at the crude level, yet these associations were no longer significant after adjusting for confounders. The same trend was observed for financial support: women whose partners "sometimes" provided financial support had markedly lower odds of the outcome at the crude level (OR = 0.128, 95% CI: 0.045–0.360, $p = 0.001$), but the effect disappeared after adjustment (AOR = 1.952, 95% CI: 0.566–6.725, $p = 0.289$).

By contrast, experience of abuse emerged as a powerful and consistent predictor. Women who had been physically, emotionally, or sexually abused in the last 12 months had more than eightfold increased odds of the outcome compared to those with no history of abuse (OR = 8.033, 95% CI: 3.091–20.879, $p < 0.001$). This relationship remained robust and statistically significant in the adjusted model (AOR = 8.711, 95% CI: 2.105–36.042, $p = 0.003$), underscoring abuse as an independent risk factor. However, when sexual abuse was examined as a separate category, no significant association was found.

Social support outside the partner relationship also showed some crude associations but did not remain significant after adjustment. Women who only “sometimes” had family or friends to talk to when stressed were more than twice as likely to report the outcome at the crude level (OR = 2.251, 95% CI: 1.064–4.762, $p = 0.034$), but this relationship weakened after controlling for other variables (AOR = 1.017, 95% CI: 0.365–2.834, $p = 0.974$). Similarly, family involvement in childcare or household tasks and feelings of loneliness or social isolation were not independently associated with the outcome in either crude or adjusted analyses.

In summary, although various forms of partner and social support appeared protective in the unadjusted analysis, their effects did not hold after adjustment. The only factor that consistently and independently predicted the outcome was recent experience of abuse, which dramatically increased risk.

Table 4.13: Binary and Multivariate Logistic Regression Analysis of Interpersonal Factors Associated with Common Maternal Mental Health at 5% Significance Level

Predictor Variable	Freq	Crude OR	95% CI	p-Value	Adjusted OR	95% CI	p-Value
Partner/Spouse Support (Overall)							
Very supportive (Ref)	214	1			1		
Somewhat supportive	55	0.206	0.064–0.663	0.008	1.994	0.478–8.307	0.343
Not supportive	7	0.444	0.124–1.588	0.212	5.415	0.460–63.751	0.179
No partner	15	5	0.704–35.495	0.108	0.978	0.052–18.344	0.988
Partner Emotional Support							
Always (Ref)	204	1			1		
Sometimes	61	0.127	0.052–0.311	0.001*	0.524	0.128–2.150	0.369
Never	26	0.176	0.060–0.514	0.001*	1.544	0.104–22.819	0.752
Partner Financial Support							
Always (Ref)	216	1			1		
Sometimes	57	0.128	0.045–0.360	0.001*	1.952	0.566–6.725	0.289
Never	18	0.333	0.108–1.029	0.056	5.154	0.798–33.310	0.085
Experienced Abuse (Physical/Emotional/Sexual, Last 12 months)							
No (Ref)	271	1			1		
Yes	20	8.033	3.091–20.879	0.001*	8.711	2.105–36.042	0.003*
Experienced Sexual Abuse (Last 12 months)							
No (Ref)	276	1			1		
Yes	15	1.615	0.435–5.995	0.474	0.304	0.038–2.462	0.265
Family Helps with Childcare/Household							
Always (Ref)	152	1			1		
Sometimes	106	0.457	0.161–1.294	0.14	1.814	0.742–4.435	0.192
Never	33	1.047	0.381–2.820	0.93	1.664	0.328–8.452	0.539
Have Family/Friends to Talk to When Stressed							
Always (Ref)	211	1			1		
Sometimes	58	2.251	1.064–4.762	0.034*	1.017	0.365–2.834	0.974
Never	22	1.23	0.339–4.468	0.753	0.098	0.005–1.836	0.12
How Often Feel Lonely / Socially Isolated							
Rarely/Never (Ref)	162	1			1		
Sometimes	81	1.529	0.709–3.301	0.279	1.586	0.490–5.138	0.442
Often	48	1.846	0.770–4.428	0.17	0.882	0.343–2.263	0.793

Source: Researcher's Fieldwork, 2025; *- P value= <0.05

Community Level Risk Factors for Common Maternal Mental Disorders (CMMD)

Table 4.14 shows environmental and community-level factors which showed varying relationships with maternal mental health outcomes. Women without a secure place to live had nearly fourfold increased odds of the outcome in the crude model (OR = 3.883, 95% CI: 1.445–10.434, $p = 0.007$), but this effect disappeared after adjustment (AOR = 1.104, 95% CI: 0.252–4.837, $p = 0.895$). Housing type was not significantly associated with risk in either the crude or adjusted analyses. Similarly, the number of people sharing a living space showed no significant association, although women living in households with more than six occupants had lower, but statistically non-significant, odds of the outcome (AOR = 0.324, 95% CI: 0.072–1.454, $p = 0.141$).

By contrast, perceived neighborhood safety emerged as a strong and consistent predictor. Compared to women who felt “very safe,” those who described their neighborhood as “somewhat safe” had significantly higher odds of the outcome (AOR = 4.218, 95% CI: 1.778–10.009, $p = 0.001$). The association was even stronger among women who reported feeling “not safe,” with odds more than 45 times higher than the reference group (AOR = 45.089, 95% CI: 5.551–366.242, $p < 0.001$).

Access-related variables showed no independent associations. Women without easy access to health services had lower crude odds of the outcome (OR = 0.362, 95% CI: 0.124–1.058, $p = 0.063$), but this relationship was attenuated and non-significant after adjustment (AOR = 0.301, 95% CI: 0.083–1.097, $p = 0.069$). Distance to the nearest maternal health facility also showed no meaningful associations.

Community-level support factors were not significant predictors in the adjusted analysis. Membership in community support groups for mothers was not associated with mental health outcomes (AOR = 2.596, 95% CI: 0.794–8.487, $p = 0.114$). Similarly, community acceptance of help-seeking for distress only approached statistical significance for women who reported “no” acceptance (AOR = 3.093, 95% CI: 0.980–9.757, $p = 0.054$). Finally, food shortage in the past three months was associated with lower crude odds of the outcome (OR = 0.524, 95% CI: 0.259–1.057, $p = 0.071$), but this did not persist in the adjusted model (AOR = 0.724, 95% CI: 0.291–1.804, $p = 0.489$).

In sum, while most housing, access, and community support indicators were not independently associated with maternal mental health, feeling unsafe in the neighborhood emerged as a strong and consistent risk factor.

Table 4.14: Binary and Multivariate Logistic Regression Analyses of Community-Level Factors Associated with Common Maternal Mental Health at 5% Significance Level

Predictor Variable	Freq	Crude OR	95% CI	p-Value	Adjusted OR	95% CI	p-Value
Secure Place to Live							
No	20	3.883	1.445-10.434	0.007	1.104	0.252-4.837	0.895
Yes (Ref)	271	1					
Housing Type							
Flat	157	1		0.541	1		0.867
Tenement	53	1.401	0.595-3.301	0.440	1.450	0.548-3.841	0.454
Bungalow	43	1.813	0.758-4.336	0.181	1.375	0.501-3.773	0.536
Self-con	27	0.548	0.120-2.492	0.436	0.646	0.129-3.244	0.596
Other	11	<0.001	<0.001	0.999	0.000	0.000-	0.999
Number of People Sharing Living Space							
1-3	106	1		0.781	1		
4-6	147	0.886	0.435-1.803	0.738	0.799	0.360-1.773	0.581
>6	38	0.662	0.207-2.121	0.487	0.324	0.072-1.454	0.141
Feeling of Safety in the Neighborhood							
Very Safe	222	1		<0.001*	1		<0.001*
Somewhat Safe	59	3.324	1.551-7.123	0.002*	4.218	1.778-10.009	0.001*
Not Safe	10	24.930	5.955-104.374	<0.001*	45.089	5.551-366.242	<0.001*
Easy Access to Health Services							
No	63	0.362	0.124-1.058	0.063	0.301	0.083-1.097	0.069
Yes	228	1			1		
Distance to Nearest Maternal Health Facility							
< 30 min	141	1		0.855	1		0.904
30-60 min	112	0.816	0.395-1.689	0.584	0.866	0.362-2.073	0.747
> 1 hour	38	0.866	0.303-2.471	0.788	0.753	0.187-3.032	0.690
Community Support Groups for Mothers							
No	92	1			1		
Yes	199	1.456	0.679-3.121	0.335	2.596	0.794-8.487	0.114
Community acceptance of Seeking Help for distress							
Yes	142	1		0.281	1		0.096
Sometimes	54	1.924	0.806-4.595	0.141	2.120	0.771-5.833	0.146
No	95	1.587	0.736-3.423	0.238	3.093	0.980-9.757	0.054
Food Shortage in Past 3 months							
No	216	1			1		
Yes	75	0.524	0.259-1.057	0.071	0.724	0.291-1.804	0.489

Source: Researcher's Fieldwork, 2025; *- P value= <0.05

Societal/Policy Level Risk Factors for Common Maternal Mental Disorders (CMMD)

Table 4.15 shows that societal and policy related variables showed no statistically significant associations with maternal mental health outcomes. Awareness of government programs on maternal mental health was not a significant predictor, although women who were aware had higher but non-significant odds of the outcome compared to those who were not (AOR = 1.724, 95% CI: 0.826–3.599, $p = 0.147$).

Similarly, access to maternity leave or flexible work arrangements did not demonstrate a protective effect. Women without such access had lower odds of the outcome (AOR = 0.460, 95% CI: 0.172–1.230, $p = 0.122$), but this relationship did not reach statistical significance.

Finally, experiencing financial strain, as indicated by an economic situation that affected the ability to meet family needs, was also not significantly associated with maternal mental health. Although affected women had slightly higher odds of the outcome compared to those without such economic strain (AOR = 1.357, 95% CI: 0.675–2.729, $p = 0.392$), the confidence interval crossed unity and the association was not significant.

Table 4.14: Binary and Multivariate Logistic Regression Analyses of Societal-Level Factors Associated with Common Maternal Mental Health at 5% Significance Level

Predictor Variable	Freq	Crude OR	95% CI	p-Value	Adjusted OR	95% CI	p-Value
Awareness of Government Programs on Maternal Mental Health							
No (Ref)	222	1			1		
Yes	69	1.677	0.812–3.463	0.163	1.724	0.826–3.599	0.147
Access to Maternity Leave / Flexible Work							
Yes (Ref)	226	1			1		
No	65	0.455	0.171–1.213	0.115	0.46	0.172–1.230	0.122
Economic Situation Affected Ability to Meet Family Needs							
No (Ref)	124	1			1		
Yes	167	1.279	0.644–2.543	0.482	1.357	0.675–2.729	0.392

Source: Researcher's Fieldwork, 2025

4.3 Discussion of Findings

This study examined the prevalence of common maternal mental disorders (CMMD) among mothers in Ibadan and explored their relationship with child growth and associated determinants.

The study found that 13.7% of mothers met the threshold for CMMD, meaning that approximately one in seven mothers in the study population experienced significant common maternal mental disorders. This prevalence, while lower than some Nigerian studies which have reported maternal depression rates between 17% and 28% and within the reported range of between 10-13% among pregnant or new mothers, it still represents a considerable public health concern^{1,2,3}. This rate reflects a hidden burden among mothers that can directly and indirectly influence both maternal functioning and child well-being. Comparatively, studies in Ethiopia and Uganda have reported similar ranges, with prevalence estimates between 11% and 19%, suggesting that the finding in this study is consistent with regional patterns^{4,5}. Global reviews estimate the prevalence of perinatal depression and anxiety in low- and middle-income countries at 15–25%^{6,7}. Thus, the 13.7% rate found represent a relatively moderate, but still worrisome, burden in Ibadan.

Although the overall prevalence was 13.7%, individual symptoms such as frequent headaches (33.3%), nervousness (23.7%), loss of interest in daily activities (24.1%), and suicidal ideation (8.6%) were notable. These findings underscore that many mothers experience psychological distress even if they do not cross the diagnostic threshold for CMMD. In African contexts, somatic symptoms such as headaches, fatigue, and poor sleep often serve as culturally acceptable expressions of psychological distress⁸. The presence of suicidal thoughts in nearly one in ten mothers is particularly concerning, highlighting the

need for early detection and psychosocial support even among mothers who may not meet full CMMD criteria.

The study also assessed child nutrition and growth. About one-fifth of children were stunted (21.6%), while 17.1% were underweight, 3.8% had severe acute malnutrition and 12% experiencing microcephaly. These figures align with the national estimates reported in the Nigeria Demographic and Health Survey, which suggest that about 37% of children under five are stunted and 22% underweight nationally⁹. Although the rates in this study are slightly lower than national averages, the persistence of undernutrition among one in five children remains alarming. Interestingly, a dual burden was observed, as 5.8% of children were overweight, reflecting a shift in nutritional challenges consistent with recent urbanizing trends in Nigeria¹⁰. The anthropometric findings suggest that while many children are growing normally, structural vulnerabilities such as low birth weight (11.0%) and preterm delivery (13.1%) place a significant minority at risk of adverse growth outcomes.

One of the most important findings of this study was the significant association between maternal mental health and selective indicators of child growth. Specifically, maternal mental health was significantly linked to MUAC ($p = 0.002$) and head circumference ($p = 0.048$). Children of mothers with CMMD were more likely to experience moderate acute malnutrition and microcephaly, even though maternal mental health was not significantly associated with stunting or underweight status. This selective effect mirrors the nuanced findings from international research, where maternal depression has been shown to reduce caregiving quality, breastfeeding practices, and attentiveness to child feeding, which may disproportionately affect acute nutritional status rather than linear growth^{11,7}. The association

with head circumference is particularly concerning, as abnormal cranial growth can have implications for cognitive and neurological development.

The lack of significant association with stunting or underweight in this study does not negate maternal influence but may reflect the multifactorial etiology of chronic malnutrition, where maternal mental health interacts with other determinants such as food security and healthcare access. Nonetheless, the significant link with MUAC and head circumference strengthens the argument that maternal psychological well-being is a determinant of child growth outcomes.

The study identified several determinants of common maternal mental disorders (CMMD) across socio-demographic, individual, interpersonal, community, and societal levels. At the socio-demographic level, being single and having a partner with only primary school education were strong predictors, with single mothers nearly ten times more likely to experience CMMD (AOR = 9.75, $p = 0.020$) and partners' low education increasing odds almost eight-fold (AOR = 7.69, $p = 0.012$). At the individual level, high stress emerged as the strongest predictor, with mothers experiencing high stress being over eight times more likely to report CMMD (AOR = 8.28, $p = 0.001$). Interpersonal factors were also significant, as recent experiences of abuse were associated with nearly nine-fold higher odds of CMMD (AOR = 8.71, $p = 0.003$), underscoring the role of violence and partner dynamics. This finding aligns with evidence from both African and Global Studies linking intimate partner violence and maternal depression^{12,6}. At the community level, perceived neighborhood safety was a critical determinant, with mothers who felt unsafe being up to 45 times more likely to experience CMMD (AOR = 45.09, $p < 0.001$), pointing to the powerful influence of environmental insecurity. At the societal level, awareness of maternal mental health programs, access to maternity leave, and economic constraints showed no significant

independent effects. Yet, gaps in awareness of maternal mental health programs were striking, with more than three-quarters of mothers unaware of any government initiatives addressing maternal mental health. This reflects systemic neglect and underscores the urgent need for policy integration.

Taken together, these findings validate the socio-ecological framework guiding this study. Maternal mental health is influenced by individual vulnerabilities, relational dynamics, community safety, and broader socio-economic and policy environments¹³. The 13.7% prevalence of CMMD, alongside significant associations with acute malnutrition and cranial growth, demonstrates that maternal psychological well-being is integral to child health. The findings highlight the need for integrated maternal and child health services that include mental health screening and intervention. Without addressing maternal psychological needs, Nigeria's progress toward Sustainable Development Goals 2 (Zero Hunger) and 3 (Good Health and Well-being) will remain constrained¹⁴.

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Chapter Five

Conclusion

5.1 Summary of Findings

This study examined the prevalence and determinants of common maternal mental disorders (CMMD) and their influence on child growth among mothers of children under five years in Selected Hospitals, Ibadan. Using a descriptive cross-sectional design and the SRQ-20 screening tool, the study generated evidence that advances understanding of maternal mental health within the Nigerian context.

The prevalence of CMMD was found to be 13.7%, indicating that about one in seven mothers experienced significant psychological distress. It remains a clinically important burden. Beyond the overall prevalence, common symptoms included headaches (33.3%), nervousness (23.7%), loss of interest (24.1%), and suicidal ideation (8.6%), reflecting the hidden psychosocial challenges that mothers face.

Child growth assessments revealed notable vulnerabilities. Approximately one-fifth (21.6%) of children were stunted, 17.1% were underweight, 3.8% had severe acute malnutrition and 12% presenting low head circumference for age. A dual burden of malnutrition was observed, as 5.8% of children were overweight. In addition, 11.0% had low birth weight and 13.1% were preterm. These findings are consistent with the national and global challenge of child undernutrition but also reflect emerging urban nutritional transitions.

The study demonstrated significant associations between maternal mental health and selected child growth indicators. Maternal CMMD was significantly related to MUAC ($p = 0.002$) and head circumference ($p = 0.048$), but not with stunting or underweight. This suggests that

maternal psychological distress may exert a more immediate influence on acute malnutrition and cognitive development indicators than on chronic growth outcomes.

Determinants of maternal mental health emerged across multiple levels. Marital status was a critical factor, as single mothers were almost ten times more likely to experience CMMD compared to married counterparts (AOR = 9.87, $p < 0.001$), as well as low partner education level (AOR=7.69, $p=0.012$). At the individual level, high stress was the strongest predictor, with mothers experiencing high stress being more than eight times more likely to report CMMD (AOR = 8.28, $p = 0.001$). At the interpersonal level, recent abuse was the most powerful determinant, increasing the odds of CMMD nearly ninefold (AOR = 8.71, $p = 0.003$). At the community level, perceived neighborhood safety stood out strongly: mothers who felt “somewhat safe” were over four times more likely (AOR = 4.22, $p = 0.001$), while those who felt “not safe” had forty-five times greater odds of CMMD (AOR = 45.09, $p < 0.001$). At the societal level, limited awareness of government programs on maternal mental health persisted, with more than three-quarters of mothers reporting no knowledge of such initiatives underscoring gaps in policy awareness and service integration.

These findings collectively affirm the socio-ecological framework: maternal mental health is shaped by interlocking influences from personal vulnerabilities to structural and policy environments, and in turn, has implications for child health and survival.

5.2 Conclusion

The study concludes that maternal mental health is a critical yet under-recognized component of maternal and child health in Nigeria. With a prevalence of 13.7%, CMMD represents a significant but often hidden burden. The presence of psychological symptoms such as

persistent headaches, nervousness, loss of interest, and suicidal ideation highlights the extent of suffering among mothers, even within facility-based care settings.

Most importantly, the findings establish that maternal mental health is not an isolated personal issue but one with direct consequences for child growth and development. The significant associations with MUAC and head circumference suggest that maternal psychological well-being plays a role in shaping both nutritional and neurodevelopmental outcomes. The determinants identified including; single motherhood, low partner education level, high stress, interpersonal abuse, unsafe communities, and weak policy awareness highlight the multifaceted nature of maternal mental health challenges. These findings affirm the socio-ecological model by demonstrating that maternal well-being is not shaped by individual circumstances alone but by relational, environmental, and societal contexts.

In Nigeria, where undernutrition contributes significantly to under-five mortality and where maternal mental health services remain poorly integrated, these findings carry urgent policy implications. Without addressing maternal psychological needs, national progress toward Sustainable Development Goal (SDG) 2 (Zero Hunger) and SDG 3 (Good Health and Well-being) will remain constrained. The study therefore concludes that maternal mental health must be wholesomely and holistically recognized and treated as a central determinant of child survival and national development.

5.3 Recommendations

Based on the findings and conclusion, the following recommendations are proposed:

1. Policy Integration:

Maternal mental health should be mainstreamed into Nigeria's primary health care system. Screening for CMMD should become a routine part of antenatal, delivery, and

postnatal care, using validated tools such as the SRQ-20. National health policies should explicitly recognize maternal mental health as a priority area within reproductive, maternal, newborn, and child health (RMNCH) programs.

2. **Capacity Building:**

Healthcare workers at primary and secondary facilities should be trained to identify and manage CMMD. This includes not only screening and basic counselling but also establishing clear referral pathways for severe cases. Task-shifting approaches, where community health workers are empowered to provide psychosocial support, can be particularly effective in resource-limited contexts.

3. **Strengthening Support Systems:**

Community-based interventions such as peer support groups, mother-to-mother networks, and counselling services should be expanded. Particular attention should be given to mothers at risk due to unplanned pregnancies, histories of loss, or exposure to abuse. Male involvement initiatives should be strengthened to enhance spousal support and reduce interpersonal conflicts.

4. **Community Awareness and Advocacy:**

Public health campaigns are needed to reduce stigma associated with maternal mental health, encourage help-seeking, and raise awareness of available services. Collaboration with religious and community leaders may help overcome cultural barriers to acknowledging and addressing mental health challenges.

5. **Socio-economic Interventions:**

Since financial hardship and unsafe neighborhoods were found to exacerbate CMMD, interventions should include economic empowerment programs and nutritional support

for vulnerable households. Multi-sectoral collaboration between health, social welfare, and education sectors will be necessary to address the broader determinants of maternal mental health.

5.4 Contribution to Knowledge

This study contributes to knowledge in several ways. First, it provides updated empirical evidence on the prevalence of CMMD among mothers of under-five children in an urban Nigerian setting, showing a prevalence rate of 13.7%. Second, it establishes significant associations between maternal mental health and selected child growth outcomes, particularly MUAC and head circumference, thereby reinforcing the argument for integrated maternal and child health interventions.

Third, the study applies the socio-ecological model to maternal mental health in Nigeria, demonstrating how single motherhood, individual high stress, interpersonal abuse, community safety, and policy awareness collectively shape maternal psychological outcomes. This expands theoretical understanding of maternal mental health within low- and middle-income contexts. Fourth, by documenting that more than three-quarters of mothers were unaware of government mental health initiatives, the study exposes systemic gaps that need urgent redress. Finally, it highlights the dual burden of malnutrition among children of affected mothers, adding nuance to Nigeria's child health discourse.

5.5 Suggested Areas for Further Research

While this study provides important insights, it also raises questions that warrant further investigation. Future research should employ longitudinal designs to establish causal pathways between maternal mental health and child growth outcomes. Such studies would

help clarify whether maternal distress precedes or results from child health vulnerabilities, or whether the relationship is bidirectional.

Intervention studies are also needed to evaluate the effectiveness of integrating maternal mental health screening and care into existing maternal and child health services. This could include testing community-based psychosocial interventions, task-shifting approaches, or combined nutrition and mental health programs.

In addition, qualitative research exploring cultural perceptions of maternal mental health, coping strategies, and barriers to help-seeking would provide richer contextual insights. Comparative studies across rural and urban settings could help identify geographical differences in prevalence, determinants, and service access. Finally, there is a need to explore paternal mental health and its interaction with maternal well-being, since family-level dynamics profoundly shape child outcomes.

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Appendix

Appendix I: Informed Consent Form and Questionnaire

Serial Number: _____

Department of Public Health
Lead City University, Ibadan, Oyo State
Questionnaire

Consent Form

Good day, my name is **Emma-Jimo Saint-Perfect Oluwajomiloju**, an MSc student of Public Health at Lead City University, Ibadan. I am working on the topic “**Risk Factors associated with Common Maternal Mental Disorders (CMMD) and its Influence on Physical Growth of Under-5 Children in Selected Hospitals in Ibadan**” for the completion of my Msc. program. I would like to ask you some questions about common maternal mental disorders and also take anthropometric measurement of your child. I would be very grateful if you could spend some time to answer these questions honestly. I will not write down your name and everything you tell me will be kept strictly confidential and used for research purposes only.
Thank you.

Do you agree to participate in this research? Yes..... No.....

Signature of Respondent: **Thumb Print:**

Date:

Name of Facility: _____

Section A: Sociodemographic Information

Please complete the following information. Tick the option that best applies to you.

1. **Age as at last birthday (Years):** _____
2. **Marital Status:**
a. ☐ Single b. ☐ Married c. ☐ Divorced d. ☐ Widowed e. ☐ Separated
3. **Your Highest Educational Qualification:**
a. ☐ Ci- University or equivalent b. ☐ Cii-Post-secondary (college, polytechnic, NCE, A-levels) c. ☐ C iii- Secondary School (completed) d. ☐ Civ - Primary School(completed)
e. ☐ Cv- No formal education
4. **Partner's Highest Educational Qualification:**
a. ☐ Ci- University or equivalent b. ☐ Cii-Post-secondary (college, polytechnic, NCE, A-levels) c. ☐ C iii- Secondary School (completed) d. ☐ Civ - Primary School(completed)
e. ☐ cv- No formal education f. ☐ No partner
5. **Your Occupation:**
a. ☐ ci- senior public servant, professionals, large-scale traders, business people, contractors
b. ☐ cii- Intermediate grade public servants, senior school teachers, nurses, smaller business owners
c. ☐ cii- Junior school teachers, drivers, artisans
d. ☐ civ- petty traders, laborers, messengers
e. ☐ cv- unemployed, full-time housewives, subsistence farmers
6. **Partner's Occupation:**
a. ☐ ci- senior public servant, professionals, large-scale traders, business people, contractors
b. ☐ cii- Intermediate grade public servants, senior school teachers, nurses, smaller business owners
c. ☐ ciii- Junior school teachers, drivers, artisans
d. ☐ civ- petty traders, laborers, messengers
e. ☐ cv- unemployed, full-time housewives, subsistence farmers
f. ☐ No Partner
7. **Who do you live with?:**
a. ☐ Alone b. ☐ Partner/Spouse c. ☐ Extended Family
d. ☐ Friends/ Others
8. **What is your family size:** _____

Section B: Prevalence of Maternal Mental Disorder (SRQ-20)

Please answer the following questions based on how you have been feeling in the past 30 days. For each question, mark either Yes or No.

S/N	Question	Yes [✓]	No [✓]
1	Do you often have headaches?		
2	Is your appetite poor?		
3	Do you sleep badly?		
4	Are you easily frightened?		
5	Do your hands shake?		
6	Do you feel nervous, tense or worried?		

7	Is your digestion poor?		
8	Do you have trouble thinking clearly?		
9	Do you feel unhappy?		
10	Do you cry more than usual?		
11	Do you find it difficult to enjoy your daily activities?		
12	Do you find it difficult to make decisions?		
13	Is your daily work suffering?		
14	Are you unable to play a useful part in life?		
15	Have you lost interest in things?		
16	Do you feel that you are a worthless person?		
17	Has the thought of ending your life been on your mind?		
18	Do you feel tired all the time?		
19	Do you have uncomfortable feelings in your stomach?		
20	Are you easily tired?		

Section C: Nutritional Status of Child Section

Please fill in the following information about the child:

9. **Birth Order:** _____
10. **Immunization Status:** a. ☐ Complete b. ☐ Incomplete
11. **Place of Birth**
a. ☐ Health Facility b. ☐ Home c. ☐ Maternity home
Others: _____
12. **Was your baby born preterm (before 37 weeks)?**
a. ☐ Yes b. ☐ No
13. **Was your baby's birth weight less than 2.5 kg?**
a. ☐ Yes b. ☐ No
14. **Does your baby have any health problems or disability?**
a. ☐ Yes b. ☐ No
15. **Does your baby cry excessively or have sleep problems?**
a. ☐ Yes b. ☐ No

S/ N	Variable	Response
18	Date of Birth	(DD / MM / YYYY) _____ / _____ / _____
19	Age (in months)	
20	Gender	a) ☐ Male b) ☐ Female
21	Height	_____ cm
22	Weight	_____ kg
23	MUAC	_____ cm
24	Head circumference	_____ cm

Section D: Factors Associated with Common Maternal Mental Disorders

Individual-Level Factors

25. Age at Marriage a.) _____ b) ☐ N/A
26. Age at First Pregnancy _____

27. Was your last pregnancy planned?
a. ☐ Yes b. ☐ No
28. How many times have you been pregnant (Gravidity)? _____
29. How many living children do you have? (Parity) _____
30. Did you have any complications during pregnancy or delivery?
a. ☐ Yes (specify: _____)
b. ☐ No
31. Have you ever experienced a miscarriage, stillbirth, or infant loss?
a. ☐ Yes b. ☐ No
32. How long was the interval between your last two pregnancies?
a. ☐ Less than 2 years b. ☐ 2–3 years c. ☐ More than 3 years
d. ☐ NA
33. Do you have an experience of Denied Paternity?
a. ☐ Yes b. ☐ No
34. Do you smoke?
a. ☐ Yes b. ☐ No
35. Do you take alcohol?
a. ☐ Yes b. ☐ No
36. Have you ever been diagnosed with depression, anxiety or a mental health condition?
a. ☐ Yes b. ☐ No
37. Did you experience emotional, physical, or sexual abuse as a child?
a. ☐ Yes b. ☐ No
38. Do you currently have any chronic illness (e.g., hypertension, diabetes)?
a. ☐ Yes b. ☐ No
39. During your last pregnancy/postpartum, did you experience any pregnancy-related complications (e.g., excessive bleeding, pre-eclampsia)?
a. ☐ Yes b. ☐ No
40. How would you rate your current stress level?
a. ☐ Low b. ☐ Moderate c. ☐ High
41. Do you feel confident in your ability to care for your baby?
a. ☐ Yes, very confident b. ☐ Somewhat confident c. ☐ Not confident

Interpersonal - Level Factors

42. How supportive is your partner/spouse in caring for you and your baby?
a. ☐ Very supportive b. ☐ Somewhat supportive c. ☐ Not supportive
d. ☐ No partner
43. Is your partner supportive emotionally?
a. ☐ Always b. ☐ Sometimes c. ☐ Never
44. Is your partner supportive financially?
a. ☐ Always b. ☐ Sometimes c. ☐ Never
45. Have you experienced any form of physical, emotional, or sexual abuse in the last 12 months?
a. ☐ Yes b. ☐ No
46. Have you experienced any form of sexual abuse in the last 12 months?
a. ☐ Yes b. ☐ No
47. Do your family members help with childcare or household tasks?
a. ☐ Always b. ☐ Sometimes c. ☐ Never

48. Do you have family or friends you can talk to when you feel sad or stressed?
a. ☐ Yes, Always b. ☐ Sometimes c. ☐ No
49. How often do you feel lonely or socially isolated?
a. ☐ Often b. ☐ Sometimes c. ☐ Rarely/Never

Community-Level Factors

50. Do you have a secure place to live?
a. ☐ Yes b. ☐ No
51. Housing Type
a. ☐ Tenement b. ☐ Flat c. ☐ Bungalow d. ☐ Terraced/row e. ☐ Self-con
f. ☐ Others: _____
52. How many people share your living space (including you)?
a. ☐ 1–3 b. ☐ 4–6 c. ☐ More than 6
53. How safe do you feel in your neighborhood?
a. ☐ Very safe b. ☐ Somewhat safe c. ☐ Not safe
54. Do you have easy access to health services when needed?
a. ☐ Yes b. ☐ No
55. How far is the nearest maternal health facility from your home?
a. ☐ Less than 30 minutes b. ☐ 30–60 minutes c. ☐ More than 1 hour
56. Are there any community support groups for mothers around you?
a. ☐ Yes b. ☐ No
57. In your community, is it acceptable for mothers to seek help for emotional distress?
a. ☐ Yes b. ☐ Sometimes c. ☐ No
58. In the past 3 months, have you or your family experienced food shortages?
a. ☐ Yes b. ☐ No

Societal/Policy-Level Factors

59. Are you aware of any government programs that support maternal mental health?
a. ☐ Yes b. ☐ No
60. Do you have access to maternity leave or flexible work arrangements?
a. ☐ Yes b. ☐ No
61. Has the economic situation affected your ability to meet your family's needs in the last 6 months?
a. ☐ Yes b. ☐ No

Thank you and God Bless You!

Yoruba Translation: Fọmụ Ifọwọsowópọ (Consent Form)

Ẹ káàárọ̀/ẹ káàsán, orúkọ mi ni Emma-Jimo Saint-Perfect Oluwajomiloju, akẹ̀kọ̀ tó ń ẹ M.Sc. ní Ìlera Àwùjọ (Public Health) ní Lead City University, Ìbàdàn. Mo ń ẹ iwádíí lórí “Àwọn Ifosiwewe ewu tó ní ibásepọ̀ pẹ̀lú Àìlera Ọkàn tí wọpọ̀ láàrín àwọn iyá (Common Maternal Mental Disorders, CMMD) àti ipa rẹ̀ lórí idàgbàsókè ara àwọn ọmọ kékeré labẹ̀ ọdún márùn-ún (Under-5) ní àwọn iléewòsàn kan ní Ìbàdàn”.

Mo fẹ̀ bẹ̀ yin pé kí e dá mi lóhùn sí àwọn ibéèrè diẹ̀ nípa ìlera ọkàn àwọn iyá, àti pé mo tún fẹ̀ ẹ̀ àyèwò diẹ̀ lórí idàgbàsókè ara ọmọ rẹ̀ (àwọn iwọn bí ìgùn, ìga, àti iwọn àyà).

Ìbá mi yóò dá mi lórí jù ló tí o bá dá mi lóhùn ní ọ̀tótó.

Orúkọ rẹ̀ kò ní kó sínú iwé kankan, gbogbo ohun tí o bá sọ yóò sì wà ní ìkọ̀kọ̀ pátápátá, a ò ní ló ó bí kò ẹ̀ fún iwádíí yí nìkan.

Ẹ ẹ̀un gan-an.

Ẹ o fẹ̀ kópa nínú iwádíí yí?

Béni..... Rára.....

Ìbuwọ̀lu Olùdáhùn: _____

Ìtẹ̀ka: _____

Ọjọ: _____

Èka A: Àlàyé Nípa Èdà èniyàn àti Ìgbéayé (Sociodemographic Information)

Jòwó, dáhùn sí àwọn ibeèrè wònyí. Sàýewò (✓) ojútùú tó bá ọ mu jù lọ.

1. **Ojọ-ori rẹ ní ojọ ibí tó kẹyìn (ní ọdún):** _____
2. **Ìpò ìgbéyàwó rẹ:**
 - a. ☐ Àiyàwó / Àikọkọ
 - b. ☐ Tííyàwó / Tííkọkọ
 - c. ☐ Tííyàwó tí wọn tí yà
 - d. ☐ Ìyàwó tó tí di opó
 - e. ☐ Tí wọn tí yà sílẹ̀ (yàtò)
3. **Ìpele èkọ́ tó ga jù lọ tí o ti kó:**
 - a. ☐ i - Yunifásitì tàbí èkọ́ tó dájú síbẹ̀
 - b. ☐ ii - Èkọ́ lẹyìn ilé-ẹkọ́ gíga (kálẹ̀jì, pàlítẹkníkì, NCE, A-levels)
 - c. ☐ iii - Ilé-ẹkọ́ girama (tí o parí)
 - d. ☐ iv - Ilé-ẹkọ́ alakòbẹ̀rẹ̀ (tí o parí)
 - e. ☐ v - Kò ní èkọ́ ilé-ẹkọ́ kankan
4. **Ìpele èkọ́ tó ga jù lọ tí aláààsíṣẹ̀ rẹ̀ (tàbí ọkọ) ti kó:**
 - a. ☐ i - Yunifásitì tàbí èkọ́ tó dájú síbẹ̀
 - b. ☐ ii - Èkọ́ lẹyìn ilé-ẹkọ́ gíga (kálẹ̀jì, pàlítẹkníkì, NCE, A-levels)
 - c. ☐ iii - Ilé-ẹkọ́ girama (tí o parí)
 - d. ☐ iv - Ilé-ẹkọ́ alakòbẹ̀rẹ̀ (tí o parí)
 - e. ☐ v - Kò ní èkọ́ ilé-ẹkọ́ kankan
 - f. ☐ Kò ní aláààsíṣẹ̀ / ọkọ
5. **Ìṣẹ̀ tí o ń ṣe:**
 - a. ☐ i - Olùṣẹ̀ ìjọba àgbà, akẹ̀kọ̀ọ̀ amòfin, onísòwò ńlá, onísòwò àtàwọn olùdókòwò
 - b. ☐ ii - Ọmọṣẹ̀ ìjọba àárín, olùkọ́ ilé-ẹkọ́ girama àgbà, ọ̀ṣiṣẹ̀, onísòwò kékeré
 - c. ☐ iii - Olùkọ́ alakòbẹ̀rẹ̀, awakọ́, onísẹ̀ ọwọ́ (artisan)
 - d. ☐ iv - Onísòwò kékeré, ọ̀ṣiṣẹ̀ ọwọ́, olùrànlọ́wọ́, ọ̀ṣiṣẹ̀ ojó
 - e. ☐ v - Aláìṣẹ̀, aya ile ní kikun, agbẹ̀ idílẹ̀
6. **Ìṣẹ̀ tí ọkọ/aláààsíṣẹ̀ rẹ̀ ń ṣe:**
 - a. ☐ i - Olùṣẹ̀ ìjọba àgbà, akẹ̀kọ̀ọ̀ amòfin, onísòwò ńlá, onísòwò àtàwọn olùdókòwò
 - b. ☐ ii - Ọmọṣẹ̀ ìjọba àárín, olùkọ́ ilé-ẹkọ́ girama àgbà, ọ̀ṣiṣẹ̀, onísòwò kékeré
 - c. ☐ iii - Olùkọ́ alakòbẹ̀rẹ̀, awakọ́, onísẹ̀ ọwọ́
 - d. ☐ iv - Onísòwò kékeré, ọ̀ṣiṣẹ̀ ọwọ́, olùrànlọ́wọ́
 - e. ☐ v - Aláìṣẹ̀, aya ile ní kikun, agbẹ̀ idílẹ̀
 - f. ☐ Kò ní aláààsíṣẹ̀ / ọkọ
7. **Tá ni o ń gbé pẹ̀lú?**
 - a. ☐ Nígbà tikára rẹ̀
 - b. ☐ Pẹ̀lú ọkọ / aya
 - c. ☒ Pẹ̀lú ẹbí gbooro
 - d. ☐ Pẹ̀lú ọ̀rẹ̀ tàbí ẹlòmíràn
8. **Ìwọn ẹbí rẹ̀ (ẹyà àwọn tó ń gbé pẹ̀lú rẹ̀):** _____

Èka B: Ìfarahàn Àìlera Ọkàn Àwọn Aboyún (SRQ-20)

Jòwó, dáhùn bóyá o ní irírí àwọn ìṣòro wònyí ní ọ̀sẹ̀ mẹ́ta sí mẹ́rin tó kojá.

Sàýewò ojútùú tó bá ọ mu jù lọ.

Bẹ̀ni = Yes, Rára = No

Ìbèèrè	Bẹ̀ni	Rára
1. Ẹ̀e o máa ń ní irònú pé o kò lè dá ohun tí o ń ṣe pọ̀?	☐	☐
2. Ẹ̀e o máa ń ní ibànújẹ̀ tàbí imọ̀lára pé ìgbésí ayé rẹ̀ kò dára?	☐	☐
3. Ẹ̀e o máa ń ní ibànújẹ̀ tó faáyá, tó fí jẹ̀ pé o fẹ̀ sunkún?	☐	☐

4. Ẹ o máa n rí i pé o kò lè sun dáadáa (àìsun, tàbí jí ní alẹ)?	☐	☐
5. Ẹ o máa n ní ìrònú púpò tò n mú ọ ní ìbànújẹ?	☐	☐
6. Ẹ o máa n ní ìrònú pé o jẹ ẹni tí kò wúlò mọ?	☐	☐
7. Ẹ o máa n ní ìrònú pé o fẹ kú tàbí pé ìgbésí ayé rẹ kò ẹẹ fí síra mọ?	☐	☐
8. Ẹ o máa n ní ìrònú pé o n jẹ àìlera tàbí pé ara rẹ kò lágbára?	☐	☐
9. Ẹ o máa n ní ìrònú pé ara rẹ n rẹ láìsí ìdí tò dájú?	☐	☐
10. Ẹ o máa n ní ìrònú pé o máa n dáhùn pẹlú ìbínú sí àwọn èniyàn?	☐	☐
11. Ẹ o máa n ní ìrònú pé o ní ìṣòro láti fara balẹ sí ohun tí o n ẹ?	☐	☐
12. Ẹ o máa n ní ìrònú pé ohun gbogbo n rìn pọ ju fún ọ?	☐	☐
13. Ẹ o máa n rí i pé o n dáhùn kíákíá, tàbí pé o ní ìbínú rọrùn?	☐	☐
14. Ẹ o máa n ní ìrònú pé o gbà pé àwọn mún n sọrọ rẹ lẹyìn?	☐	☐
15. Ẹ o máa n ní ìrònú pé àwọn èniyàn n gbímọ sí ọ?	☐	☐
16. Ẹ o máa n ní ìrònú pé ohun tò n yí ká rẹ kí í dájú, tàbí o máa n rí ohun tí kò sí?	☐	☐
17. Ẹ o máa n ní ìrònú pé o máa n ní àìlera ara tò n tún bò lórí ara rẹ?	☐	☐
18. Ẹ o máa n ní ìrònú pé o n sọrọ láti jeun dáadáa?	☐	☐
19. Ẹ o máa n ní ìrònú pé o máa n rẹ gidigidi láìsí ìṣẹ tò pọ?	☐	☐
20. Ẹ o máa n ní ìrònú pé o kò ní ayọ tàbí pé ohun tí o máa n dùn mọ o kò tún fẹ ẹ e mọ?	☐	☐

Ẹka C: Ìlera Oúnjẹ àti Ìdagbasoke Ọmọ (Nutritional Status of Child Section)

Jòwọ, dáhùn sí àwọn ibeèrè yí nípa ọmọ rẹ. Sàyèwò (✓) ojútúú tò bá yẹ fún ọ.

9. Ọpọ ibímọ ọmọ (Birth Order): _____

10. Ọpọ àbójútó àrùn ọmọ (Immunization Status):

a. ☐ Pípẹ (tí péye, gbogbo abẹ ní ẹ)

b. ☐ Àipẹ (kò tii péye)

11. Ọbí tí ọmọ náà tí bí (Place of Birth):

a. ☐ Ilé iwòsàn / ilé itọjú àbílémọ

b. ☐ Ilé

c. ☐ Ilé iyá àbílémọ (maternity home)

d. ☐ Míì (sàlàyé): _____

12. Ẹ ọmọ rẹ bí sáájú ọsẹ mètálélógórín (preterm)?

a. ☐ Bẹ̀ni

b. ☐ Rára

13. Ẹ iwọn ibí ọmọ rẹ kéré ju 2.5 kg lọ nígbà ibí rẹ?

a. ☐ Bẹ̀ni

b. ☐ Rára

14. Ẹ ọmọ rẹ ní ìṣòro ìlera tàbí àìlera (disability) kankan?

a. ☐ Bẹ̀ni

b. ☐ Rára

15. Ẹ ọmọ rẹ n sunkún jù lọ tàbí ní ìṣòro sùn (sleep problems)?

a. ☐ Bẹ̀ni

b. ☐ Rára

S/N	Àwọn Àyípadà (Variables)	Ìdáhùn (Response)
18	Ọjọ ibí (Date of Birth)	____ / ____ / ____ (Ọjọ / Oṣù / Ọdún)
19	Ọjọ-ori (Age)	____ (ní oṣù)
20	Ìbálòpọ (Gender/Sex)	a) ☐ Ọkúnrin b) ☐ Ọbínrín

21	Gíga (Height)	cm
22	Ìwọ̀n (Weight)	kg
23	Ìwọ̀n àgbéléwò apa (MUAC)	cm
24	Ìwọ̀n orí (Head circumference)	cm

Èka D: Àwọn Nùkan Tó Ní Ìbáṣepọ̀ Pẹ̀lú Àìlera Ọ̀kàn Àwọn Ọ̀mọ̀bínrín (Factors Associated with Common Maternal Mental Disorders)

Jòwọ̀, dáhùn sí gbogbo ìbèèrè yìí. Sà'yèwò (✓) ojútúú tó bá yẹ fún ọ, tàbí fọwọ́ sá àyè tí o bá yẹ.

Àwọn Nùkan Tí Ó Jọmọ̀ Ìdí Ènì Kọ̀ọ̀kan (Individual-Level Factors)

25. Ojọ-ori nígbà ìgbéyàwó rẹ:

a.) _____ b.) ☐ Kò ṣeé lo (N/A)

26. Ojọ-ori nígbà tí o lóyún àkókó (Age at First Pregnancy): _____

27. Ẹe iyáyó (pregnancy) tó kojá jẹ àfowóṣe (planned)?

a. ☐ Bèèni b. ☐ Rára

28. Mèlòò ní ìgbà tí o ti lóyún títí di bá'yí (Gravidity)? _____

29. Mèlòò ní àwọn ọmọ rẹ tó wà láàyè (Parity)? _____

30. Ẹe o ní ìṣòro kankan nígbà iyáyó tàbí ìbímọ?

a. ☐ Bèèni (sàlàyè: _____)

b. ☐ Rára

31. Ẹe o ti ní ìrírí iyáyó tí kò dá sí rere bíi: iyáyó tó yá, ìbímọ ọmọ tí kò yé, tàbí ikú ọmọ kékeré?

a. ☐ Bèèni b. ☐ Rára

32. Mèlòò ní ààrín iyáyó mẹta rẹ tó gbéyìn?

a. ☐ Kéré ju ọdún méjì lọ

b. ☐ Ọdún méjì sí mẹta

c. ☐ Ju ọdún mẹta lọ

d. ☐ Kò ṣeé lo (N/A)

33. Ẹe o ti ní ìrírí “Ìkòsílẹ̀ ìtẹ̀wọ̀gbà ọmọ” (Denied Paternity)?

a. ☐ Bèèni b. ☐ Rára

34. Ẹe o máa ń mú siga (smoke)?

a. ☐ Bèèni b. ☐ Rára

35. Ẹe o máa ń mu ọtí (alcohol)?

a. ☐ Bèèni b. ☐ Rára

36. Ẹe dókítà tàbí nọsì ti sọ fún ọ pé o ní àìlera ọ̀kàn bíi depression, anxiety tàbí àrùn ọ̀kàn m̀íràn?

a. ☐ Bèèni b. ☐ Rára

37. Nígbà tí o wà lómọ̀dé, ẹe o ní ìrírí ifarapa ẹ̀mí, ifarapa ara tàbí ifipá bá ẹ ẹe ìbálòpọ?

a. ☐ Bèèni b. ☐ Rára

38. Ẹe o ní àrùn tó ń bá ọ lówó bá'yí bíi àtọgbẹ̀ tàbí ìbànújẹ ẹ̀jẹ̀ (hypertension, diabetes)?

a. ☐ Bèèni b. ☐ Rára

39. Nígbà iyáyó rẹ tó gbéyìn tàbí lẹyìn ìbímọ, ẹe o ní ìṣòro àtọ̀mọ̀mọ̀ bíi ijẹ̀jẹ̀ tó pọ̀, tàbí pre-eclampsia?

a. ☐ Bèèni b. ☐ Rára

40. Báwo ni iwọ ẹe máa ẹe àyèwò ifarapa tàbí ifọ̀kànsìn rẹ bá'yí (stress level)?

a. ☐ Kéré b. ☐ Àárín c. ☐ Gíga

41. Ẹe o ní ìgbọyà pé o lè tójú ọmọ rẹ dáadáa?

a. ☐ Bèèni, mo ní ìgbọyà pátápátá

b. ☐ Díẹ̀ ní

c. ☐ Rára, mi ò ní ìgboyà

Àwọn Nṁkan Tó Ní Ìbáṣepọ̀ Pẹ̀lú Ìbátan (Interpersonal-Level Factors)

42. Báwo ni ọkọ rẹ̀ tàbí alábàáṣepọ̀ ẹ̀ ń ràn ọ̀ lówọ̀ nípa itọ́jú ẹ̀ àti ọmọ ẹ̀?

a. ☐ Gígá ló ń ràn mí lówọ̀

b. ☐ Díẹ̀ ló ń ràn mí lówọ̀

c. ☐ Kò ràn mí lówọ̀ rára

d. ☐ Kò sí ọkọ/alábàáṣepọ̀

43. Ẹ̀ ọkọ/alábàáṣepọ̀ ẹ̀ ń fún ọ̀ ní itùnú ọkàn (emotional support)?

a. ☐ Nígba gbogbo

b. ☐ Nígba míi

c. ☐ Rára

44. Ẹ̀ ọkọ/alábàáṣepọ̀ ẹ̀ ń ràn ọ̀ lówọ̀ nípa owó (financial support)?

a. ☐ Nígba gbogbo

b. ☐ Nígba míi

c. ☐ Rára

45. Ẹ̀ o ti ní ìrírí ifarapa ara, ifarapa ọkàn tàbí ifipá bá ẹ̀ ẹ̀ ẹ̀ ibálòpọ̀ ní ọdún kan tó kojá?

a. ☐ Bẹ̀ni b. ☐ Rára

46. Ẹ̀ o ti ní ìrírí ifipá bá ẹ̀ ẹ̀ ẹ̀ ibálòpọ̀ ní ọdún kan tó kojá?

a. ☐ Bẹ̀ni b. ☐ Rára

47. Ẹ̀ àwọn ọmọ ẹgbẹ̀ ẹbí ẹ̀ ń ràn ọ̀ lówọ̀ nípa itọ́jú ọmọ tàbí isẹ̀ ilé?

a. ☐ Nígba gbogbo

b. ☐ Nígba míi

c. ☐ Rára

48. Ẹ̀ o ní ẹbí tàbí ọrẹ̀ tí o lè bá sọrọ̀ nígbà tí o bá ń ní ibànújẹ̀ tàbí itẹ̀numọ̀?

a. ☐ Bẹ̀ni, nígbà gbogbo

b. ☐ Nígba míi

c. ☐ Rára

49. Báwo ni iwọ̀ ẹ̀ máa ní imọ́lára idákẹ́jẹ̀ tàbí itọ̀nà ní àwùjọ̀?

a. ☐ Nígba púpọ̀

b. ☐ Nígba míi

c. ☐ Rára tàbí díẹ̀ gan-an

Àwọn Nṁkan Tó Ní Ìbáṣepọ̀ Pẹ̀lú Àwùjọ̀ (Community-Level Factors)

50. Ẹ̀ o ní ibi ààbò láti gbé (secure place to live)?

a. ☐ Bẹ̀ni b. ☐ Rára

51. Ìrísí ilé tí ẹ̀ ń gbé:

a. ☐ Ilé onírògbọ̀n ọ̀pọ̀ (tenement)

b. ☐ Flat

c. ☐ Bungalow

d. ☐ Ilé tó sọkan mọ́ra (terraced/row)

e. ☐ Ilé tí ẹ̀ kọ̀ fúnra yín (self-contained)

f. ☐ Míi (sàlàyé): _____

52. Mèlòó ni ẹ̀dà èniyàn tí ń pín àyè igbé pẹ̀lú ẹ̀ (tó bá ọ̀ wà)?

a. ☐ 1–3

b. ☐ 4–6

c. ☐ Ju 6 lọ

53. Báwo ni iwọ̀ ẹ̀ ní imọ́lára ààbò ní àdúgbò ẹ̀?

a. ☐ Gígá ló dára

- b. ☐ Díẹ ló dǎa
c. ☐ Kò dǎa rǎrá

54. Ẹe o lẹ rí ìtójú ìlera rọ̀rùn nígbà tó bá yẹ?

- a. ☐ Bẹ̀ẹ̀ni b. ☐ Rǎrá

55. Báwo ni ìjìnnà ilé ìtójú ìlera aboyún tó súnmọ́ ilé rẹ?

- a. ☐ Kéré ju ìṣẹ́jú 30 lọ
b. ☐ Láàrin ìṣẹ́jú 30 sí 60
c. ☐ Ju wákàtí kan lọ

56. Ẹe àwọn ẹgbẹ́ àwùjọ tó ń dáàbò bo àwọn iyá wà ní agbègbè yín?

- a. ☐ Bẹ̀ẹ̀ni b. ☐ Rǎrá

57. Ní agbègbè yín, ẹe ó jẹ́ ohun tí wọn gbà láàyè fún àwọn iyá láti wá ìrànlowọ́ nígbà ìbànújẹ ọkàn?

- a. ☐ Bẹ̀ẹ̀ni b. ☐ Nígbà míi c. ☐ Rǎrá

58. Ní oṣù mẹ́ta tó kojá, ẹe iwọ́ tàbí ẹbí rẹ tí ní ìṣòro ìjẹun (food shortage)?

- a. ☐ Bẹ̀ẹ̀ni b. ☐ Rǎrá

Àwọn Nnkan Tó Ní Ìbáṣepọ́ Pẹ̀lú Ìlànà Orílẹ̀-èdè (Societal/Policy-Level Factors)

59. Ẹe o mọ́ nípa àwọn ètò ìjọba tó ń ràn àwọn iyá lowọ́ nípa ìlera ọkàn?

- a. ☐ Bẹ̀ẹ̀ni b. ☐ Rǎrá

60. Ẹe o ní ànfààní ìsinmi ìbímọ́ tàbí ìṣẹ́ tó rọ̀rùn fún ìtójú ọmọ rẹ?

- a. ☐ Bẹ̀ẹ̀ni b. ☐ Rǎrá

61. Ẹe ipò ọ̀rọ̀-aje orílẹ̀-èdè tí ní ipa lórí bí o ẹe ń pèsè fún ìdílẹ́ rẹ ní oṣù mẹ́fà tó kojá?

- a. ☐ Bẹ̀ẹ̀ni b. ☐ Rǎrá

Appendix II: Code Book for Data Analysis

SPSS Code book – Section A

S/N	Variable Name	Variable Label	Question Type	Variable Type	Values
A	FACILITY	Facility	Close-ended	Scale (Numeric)	1= AMTH , 2=UCH, 3=JSH
1	AGE	Age at last birthday (Years)	Open-ended	Scale (Numeric)	Actual age in years
2	MARITAL	Marital Status	Close-ended	Categorical (Nominal)	1 = Single, 2 = Married, 3 = Divorced, 4 = Widowed, 5 = Separated
3	EDU_SELF	Highest Educational Qualification	Close-ended	Categorical (Ordinal)	1 = University, 2 = Post-secondary, 3 = Secondary, 4 = Primary, 5 = None
4	EDU_PARTNER	Partner's Highest Educational Qualification	Close-ended	Categorical (Ordinal)	1 = University, 2 = Post-secondary, 3 = Secondary, 4 = Primary, 5 = None, 6 = No Partner
5	OCC_SELF	Occupation	Close-ended	Categorical (Ordinal)	1 = Senior public servant/professional/business, 2 = Intermediate public servant/nurse/teacher/s mall business, 3 = Junior teacher/driver/artisan, 4 = Petty trader/laborer/messenger, 5 = Unemployed/housewife/farmer
6	OCC_PARTNER	Partner's Occupation	Close-ended	Categorical (Ordinal)	1 = Senior public servant/professional/business, 2 = Intermediate public servant/nurse/teacher/s mall business, 3 = Junior teacher/driver/artisan, 4 = Petty trader/laborer/messenger, 5 = Unemployed/housewife/farmer, 6 = No Partner
7	LIV_WITH	Who do you live with?	Close-ended	Categorical (Nominal)	1 = Alone, 2 = Partner/Spouse, 3 = Extended Family, 4 = Friends/Others
8	FAM_SIZE	Family size	Open-ended	Scale (Numeric)	Actual number of family members

SPSS Codebook – Section B (SRQ-20)

S/N	Variable Name	Variable Label	Question Type	Variable Type	Values
9	SRQ1	Do you often have headaches?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
10	SRQ2	Is your appetite poor?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
11	SRQ3	Do you sleep badly?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
12	SRQ4	Are you easily frightened?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
13	SRQ5	Do your hands shake?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No

14	SRQ6	Do you feel nervous, tense or worried?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
15	SRQ7	Is your digestion poor?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
16	SRQ8	Do you have trouble thinking clearly?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
17	SRQ9	Do you feel unhappy?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
18	SRQ10	Do you cry more than usual?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
19	SRQ11	Do you find it difficult to enjoy daily activities?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
20	SRQ12	Do you find it difficult to make decisions?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
21	SRQ13	Is your daily work suffering?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
22	SRQ14	Are you unable to play a useful part in life?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
23	SRQ15	Have you lost interest in things?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
24	SRQ16	Do you feel that you are a worthless person?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
25	SRQ17	Has the thought of ending your life been on your mind?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
26	SRQ18	Do you feel tired all the time?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
27	SRQ19	Do you have uncomfortable feelings in your stomach?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
28	SRQ20	Are you easily tired?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No

SPSS Codebook – Section C (Child's Nutritional Status)

S/N	Variable Name	Variable Label	Question Type	Variable Type	Values
29	BIRTH_ORDER	Child's Birth Order	Open-ended	Scale (Numeric)	Actual number
30	IMMUNIZATION	Immunization Status	Close-ended	Categorical (Nominal)	1 = Complete, 2 = Incomplete
31	PLACE_BIRTH	Place of Birth	Close-ended	Categorical (Nominal)	1 = Health Facility, 2 = Home, 3 = Maternity Home, 4 = Other
32	PRETERM	Was baby born preterm (<37 weeks)?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
33	LBW	Was birth weight <2.5kg?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
34	DISABILITY	Does baby have health problems/disability?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
35	CRY_SLEEP	Does baby cry excessively or have sleep issues?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
36	DOB	Child's Date of Birth	Open-ended	Scale (Date)	Format: DD/MM/YY YY
37	AGE_MONTHS	Age in months	Open-ended	Scale (Numeric)	Actual number
38	GENDER	Child's Gender	Close-ended	Categorical (Nominal)	1 = Male, 2 = Female
39	HEIGHT	Child's Height	Open-ended	Scale (Numeric)	Value in cm
40	WEIGHT	Child's Weight	Open-ended	Scale (Numeric)	Value in kg
41	MUAC	Mid-Upper Arm Circumference (MUAC)	Open-ended	Scale (Numeric)	Value in cm
42	HC	Head Circumference	Open-ended	Scale (Numeric)	Value in cm

SPSS Codebook- Section D

Individual Level Factors

S/N	Variable Name	Variable Label	Question Type	Variable Type	Values
43	AGE_MARRIAGE	Age at Marriage	Open-ended	Scale (Numeric)	Actual years; 99 = N/A
44	AGE_1STPREG	Age at First Pregnancy	Open-ended	Scale (Numeric)	Actual years
45	PLAN_PREG	Was your last pregnancy planned?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
46	GRAVIDITY	Number of times pregnant (Gravidity)	Open-ended	Scale (Numeric)	Actual number
47	PARITY	Number of living children (Parity)	Open-ended	Scale (Numeric)	Actual number
48	COMPL_PREG	Pregnancy/delivery complications	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
49	PREG_LOSS	Miscarriage, stillbirth, or infant loss	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
50	BIRTH_INTERVAL	Interval between last 2 pregnancies	Close-ended	Categorical (Ordinal)	1 = <2 years, 2 = 2-3 years, 3 = >3 years, 4 = N/A
51	DENIED_PAT	Denied paternity experience	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
52	SMOKE	Do you smoke?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
53	ALCOHOL	Do you take alcohol?	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
54	MMH_DIAG	Ever diagnosed with depression/anxiety/mental illness	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
55	ABUSE_CHILD	Experienced emotional/physical/sexual abuse as child	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
56	CHRONIC_ILL	Current chronic illness (e.g., hypertension, diabetes)	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
57	COMPL_PPREG	Pregnancy/postpartum complications (bleeding, preeclampsia)	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
58	STRESS_LEVEL	Current stress level	Close-ended	Categorical (Ordinal)	1 = Low, 2 = Moderate, 3 = High
59	CARE_CONFIDENCE	Confidence in ability to care for baby	Close-ended	Categorical (Ordinal)	1 = Very confident, 2 = Somewhat confident, 3 = Not confident

Interpersonal Level Factors

S/N	Variable Name	Variable Label	Question Type	Variable Type	Values
60	PART_SUPPORT	Partner/spouse support (overall)	Close-ended	Categorical (Ordinal)	1 = Very supportive, 2 = Somewhat supportive, 3 = Not supportive, 4 = No partner
61	PART_EMO	Partner emotional support	Close-ended	Categorical (Ordinal)	1 = Always, 2 = Sometimes, 3 = Never
62	PART_FIN	Partner financial support	Close-ended	Categorical (Ordinal)	1 = Always, 2 = Sometimes, 3 =

					Never
63	ABUSE_12M	Experienced abuse (physical/emotional/sexual) last 12 months	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
64	SEX_ABUSE_12M	Experienced sexual abuse last 12 months	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
65	FAMILY_HELP	Family helps with childcare/household	Close-ended	Categorical (Ordinal)	1 = Always, 2 = Sometimes, 3 = Never
66	SOCIAL_SUPPORT	Have family/friends to talk to when stressed	Close-ended	Categorical (Ordinal)	1 = Always, 2 = Sometimes, 3 = No
67	LONELY	How often feel lonely/socially isolated	Close-ended	Categorical (Ordinal)	1 = Often, 2 = Sometimes, 3 = Rarely/Never

Community-Level Factors

S/N	Variable Name	Variable Label	Question Type	Variable Type	Values
68	HOUSING_SECURE	Secure place to live	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
69	HOUSING_TYPE	Housing type	Close-ended	Categorical (Nominal)	1 = Tenement, 2 = Flat, 3 = Bungalow, 4 = Terraced/Row, 5 = Self-con, 6 = Other
70	HOUSE_SIZE	Number of people sharing living space	Close-ended	Categorical (Ordinal)	1 = 1-3, 2 = 4-6, 3 = >6
71	SAFE_NEIGH	Feeling of safety in neighborhood	Close-ended	Categorical (Ordinal)	1 = Very safe, 2 = Somewhat safe, 3 = Not safe
72	HEALTH_ACCESS	Easy access to health services	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
73	DIST_HEALTH_F	Distance to nearest maternal health facility	Close-ended	Categorical (Ordinal)	1 = <30 min, 2 = 30-60 min, 3 = >1 hour
74	COMM_SUPPORT	Community support groups for mothers	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
75	COMM_ACCEPT	Community acceptance of seeking help for distress	Close-ended	Categorical (Ordinal)	1 = Yes, 2 = Sometimes, 3 = No
76	FOOD_SHORT	Food shortage in past 3 months	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No

Societal/Policy Level Factors

S/N	Variable Name	Variable Label	Question Type	Variable Type	Values
77	GOVT_PROG	Awareness of government programs on maternal mental health	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
78	MAT_LEAVE	Access to maternity leave/flexible work	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No
79	ECON_EFFECT	Economic situation affected ability to meet family needs	Close-ended	Categorical (Nominal)	1 = Yes, 0 = No

APPENDIX III: Ethical Approval Obtained

A. OYO STATE MOH ETHICAL APPROVAL


MINISTRY OF HEALTH
DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION
PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No.
All communications should be addressed to
the Honourable Commissioner quoting
Our Ref. No. AD 13/479/410^A

Date st 21 July, 2025

NAME OF PRINCIPAL INVESTIGATOR: EMMA-JIMO SAINT-PERFECT
TITLE OF STUDY: INFLUENCE OF COMMON MATERNAL MENTAL DISORDERS ON THE
PHYSICAL GROWTH OF CHILDREN BETWEEN AGES 6-18 MONTHS IN SELECTED
HOSPITALS, IBADAN, NIGERIA.
RESEARCH INSTITUTION: LEAD CITY UNIVERSITY, IBADAN.
NREC ASSIGNED NUMBER: NHREC/OYOSHREC/10/11/22
DATE OF RECEIPT OF VALID APPLICATION: 07/07/2025

NOTIFICATION OF EXECUTIVE APPROVAL OF PROTOCOL

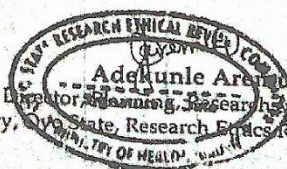
This is to notify you that the Oyo State Ministry of Health Research Ethics Committee (HREC) has concluded to give executive approval to your research proposal after necessary reviews and corrections under the regulations guiding experiment in human subjects.

2. This approval is for a period of (1) one year from 14th July, 2025 to 13th June, 2026. If there is hindrance in starting this research, please inform the Oyo State HREC so that dates of approval can be adjusted accordingly. Note that no activity related to this research may be conducted outside these dates. No changes are permitted in the research without prior approval by Oyo State HREC.

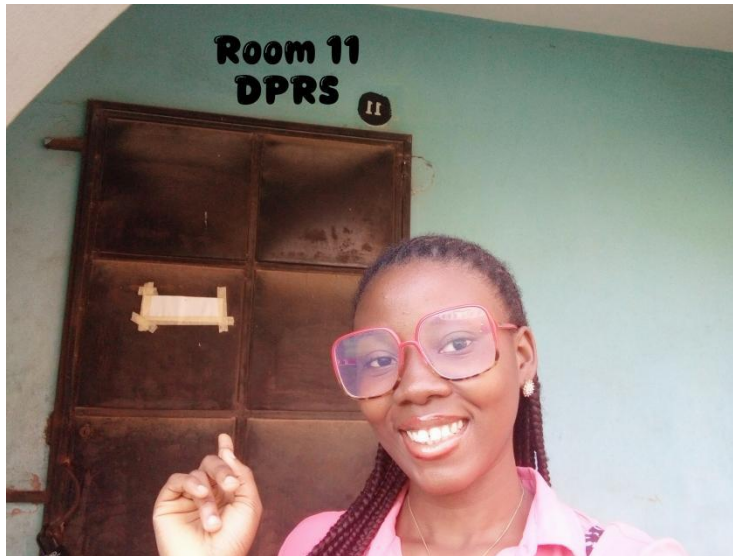
3. All forms and questionnaires used in this study must carry the HREC assigned number and the duration of HREC approval. You are to note further that the National Code of Health Research Ethics requires you to comply with all Institutional guidelines, rules and regulation of the codes. Please ensure that any adverse effect from your study is quickly reported to the HREC Oyo State Ministry of Health, Ibadan.

4. You are expected to submit a report to this committee every three (3) months from the date of this approval. The Oyo State HREC reserves the right to conduct compliance visit on your research sites without previous notification.

5. I thank you.


Adekunle Aremu
Director, Planning, Research & Statistics
Secretary, Oyo State Research Ethics Review Committee

APPENDIX IV: PICTURES TAKEN DURING STUDY



A: Researcher at Ministry of Health, Department of Research and Statistics, Oyo State, Ibadan.



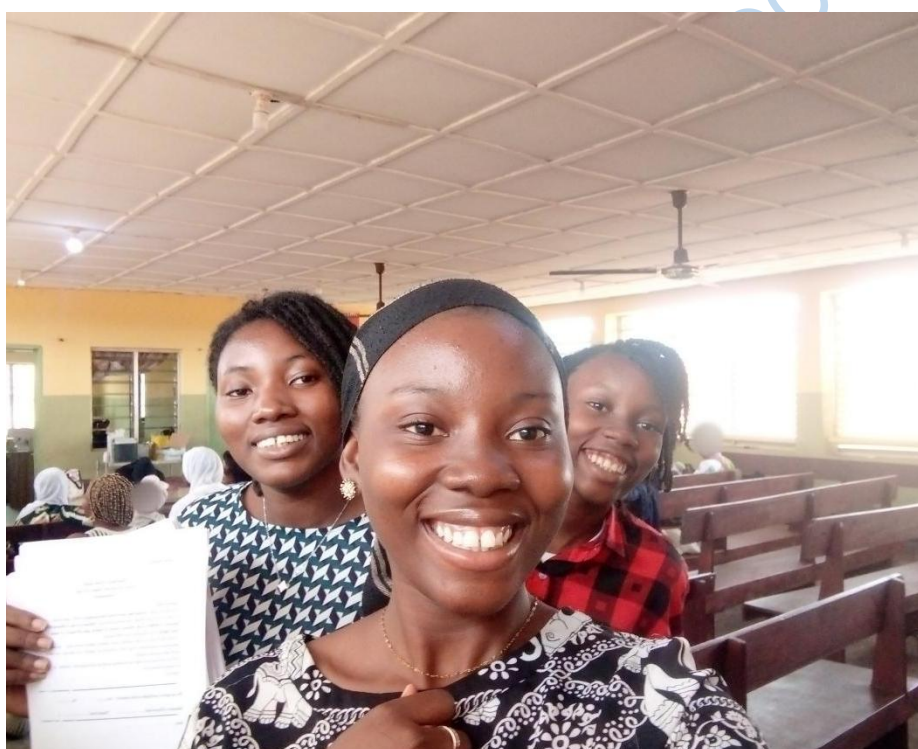
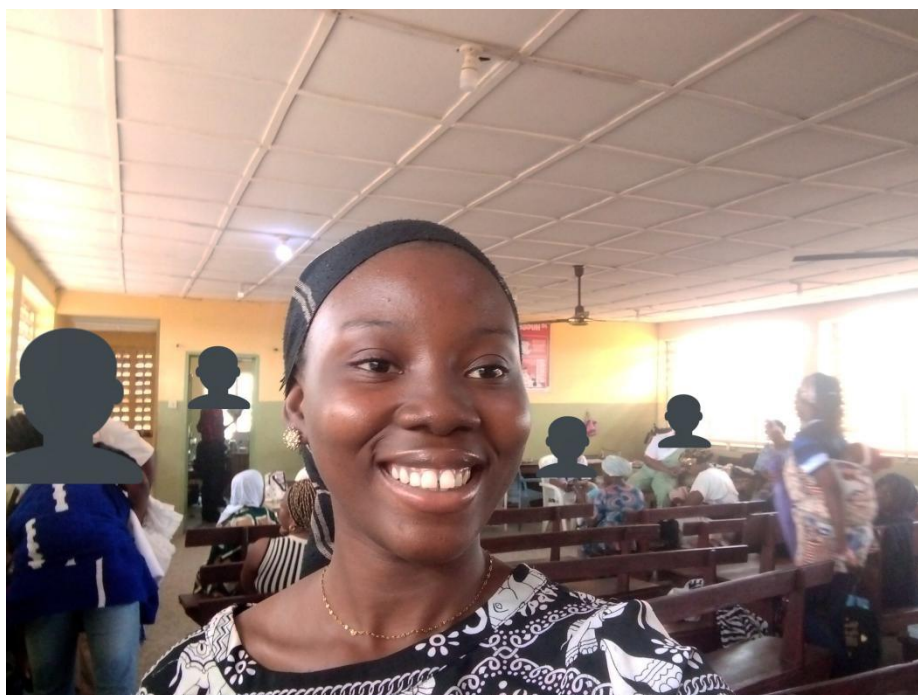
B: Researcher at Institute of Child Health, UCH.



C: Institute of Child Health, UI, COM, University College Hospital



D: Researchers during Fieldwork at AMTH



E: Researcher and Research Assistants on Field after Questionnaire administration at AMTH



F: Anthropometric measurement of an under-5 on a weighing balance





G: Interviewer-assisted Questionnaire filling Sessions with respondents





H: Head Circumference and Weight Measurements of Respondents and Child



I: A section of Mothers and their Children with Researcher during Fieldwork at JSH



J: Child Welfare Unit, ICH, UCH



K: Research Assistants and respondents



L:Child Measurement Instruments (Above: Weighing Balance; Below: Infantometer)





M: Child Anthropometric Measurements (Weight, Height/Length, Head Circumference and MUAC)

Biodata

A. Personal Data

Full Name: Emma-Jimo Saint-Perfect Oluwajomiloju
Address: 27, Peace Estate, 1st PowerLine, Ologuneru- Eruwa Road,
Ibadan, Oyo State, Nigeria
E-mail Address: emmajimosaintperfect@gmail.com
Phone Number: 08137833222
Date of Birth: 15 July
Place of Birth: Ibadan, Oyo State
Nationality: Nigerian
Marital Status: Single
Name of Next of Kin: Dr. Emma Jimo
Address of Next of Kin: 27, Peace Estate, 1st PowerLine, Ologuneru- Eruwa Road,
Ibadan, Oyo State

B. Educational Background

School Attended	Date	Qualifications
Bright Souls Nur & Pry School, Oyo State	2008 -2013	Primary School Leaving Certificate
Sunshine Diamond College Ibadan, Oyo State	2013-2019	Senior Secondary School Certificate
Lead City University Ibadan, Oyo State	2019-2023	B.Sc. Human Anatomy (First Class)
Lead City University, Ibadan, Oyo State	2024- 2025	M.Sc. Public Health

C. Work Experience: With Dates

Departmental Administrator August 2024 – March 2025

Environmental Health Science Department, Lead City
University, Ibadan

Departmental Administrator May 2024-July 2024

Public Health Department, Lead City University, Ibadan

Ultrasound and Radiology Department Intern
(Students Industrial Work Experience Scheme)

June 2022- September
2022

Adeoyo Maternity Teaching Hospital, Yemetu, Ibadan

D. Awards

- Best Graduating Student; Sunshine Diamond College- **2019**
- Best Graduating Student; Department of Anatomy, Lead City University -**2023**

E. Memberships

Nil

F. Publication

Nil

G. Major Conferences Attended with Dates

Nil

H. References

1. Prof. T.K Adenowo - Gerar University of Medical Science, Ogun State
+234-803-353-9613
2. Dr. Olowolafe T.A -- Department of Public Health, University of Ibadan
+ 234-803-393-6388
3. Dr. T.M Ajayi-- Lecturer, Department of Public Health, Lead City University, Ibadan
+234-806-6580-0105

The University Compliance Certification

This is to certify that this thesis by Saint-Perfect Oluwajomiloju, **EMMA-JIMO** with matriculation number LCU/PG/006618 in the Department of Public Health, Faculty of Basic Medical and Health Sciences, Lead City University, Ibadan, Oyo State is in full compliance with the approved university format and style.

Signature

Date

Lead City University Ibadan DO NOT COPY