2026 Volume: 02 Issue: 04 www.ijrpa.com ISSN 2456-9995 Review Article

International Journal Research Publication Analysis

Page: 01-24

# INVESTIGATING THE FACTORS RESPONSIBLE FOR PREMATURITY AMONG WOMEN OF CHILD-BEARING AGE IN WESTERN URBAN DISTRICTS, SIERRA LEONE

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**Article Received: 24 February 2026**
**Article Revised: 14 March 2026**
**Published on: 03 April 2026**

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DOI: https://doi-doi.org/101555/ijrpa.4155

## ABSTRACT

**Background:** Preterm birth is a pressing issue in maternal and child health, affecting approximately one in eight babies in the United States and 21,168 infants per year in Illinois. It poses significant risks to infants, including lifelong disabilities such as cognitive and learning problems, cerebral palsy, respiratory problems, and sensory impairments. **Aim:** Investigating factors responsible for prematurity among women of childbearing age in Western urbandistricts, Sierra Leone. **Methodology:** The study used a cross-sectional design to assess factors associated with prematurity among women aged 15–49 years in Western Urban District, Freetown. A total of 85 respondents were selected using convenience sampling, and data were collected through structured questionnaires. Analysis was done using descriptive statistics in Microsoft Excel. The study faced financial and logistical limitations but followed ethical principles, including informed consent and confidentiality**.** **Results:** The majority of respondents were aged 18–24 years (58.8%), unmarried (58.8%), and predominantly Christian (58.8%). Nearly half of the participants were illiterate (47.1%), while a smaller proportion had a tertiary education (17.6%). Prematurity was highly prevalent, with 88.2% reporting a history of premature birth, most commonly during the first pregnancy (58.8%). About 35.3% experienced births before 37 weeks of gestation, highlighting prematurity as a significant concern. Key lifestyle factors associated with prematurity included poor nutrition (47.1%) and excessive stress (17.6%), while smoking, alcohol, and drug use were less common. Major psychosocial factors were financial stress (49.3%) and depression or anxiety (20%), access to healthcare was limited, with 47.8%

reporting that healthcare facilities were not accessible at all. Knowledge about prematurity was generally poor, as 58.8% could not correctly define it. The most commonly identified cause of prematurity was poor maternal nutrition (45.9%), followed by infections and maternal stress.

**Conclusion:** Prematurity in western urban districts of Sierra Leone results from multiple interrelated factors, including medical, socio-economic, psychosocial, healthcare access, and environmental challenges. The high prevalence highlights the need for stronger maternal health services, improved prenatal care, better maternal education, mental health support, and reduced environmental and healthcare disparities. These findings provide a basis for targeted public health interventions and policy action.

**Recommendations:** Recommendations include improving access to prenatal care, strengthening maternal health education, integrating mental health support into antenatal services, enhancing early detection and management of pregnancy-related conditions, improving environmental health and sanitation, and promoting healthy lifestyles among women of childbearing age.

## Background of the Study

Preterm birth is a pressing issue in maternal and child health, affecting approximately one in eight babies in the United States and 21,168 infants per year in Illinois. It poses significant risks to infants, including lifelong disabilities such as cognitive and learning problems, cerebral palsy, respiratory problems, and sensory impairments. Preterm infants are also at higher risk for conditions like Sudden Unexpected Infant Death, Attention Deficit-Hyperactivity Disorder, and recurrent hospitalizations. Moreover, preterm birth is the leading cause of infant mortality and newborn death. (Krieger et al., 2023).

The persistent disparities in preterm birth rates based on race, ethnicity, and socioeconomic status aredeeply concerning. These disparities have profound emotional and financial impacts on families, communities, and public-sector services. Understanding the timing of preterm births is crucial. Most pregnancies last around 40 weeks, with infants born between 37 and 42 weeks considered full term. Infants born before 37 completed weeks of pregnancy are classified as premature or preterm. Late-preterm births, occurring between 34 and 36 weeks, account for over 70% of preterm births and have driven the increase in preterm births in the United States over the past two decades. Approximately 12% of preterm infants are born between 32 and 33 weeks, 10% between 28 and 31 weeks, and 6% atless than 28 weeks of gestation. The mortality rates in the first 28 days of life for infants born at these gestational

ages are 19, 65, and over 183 times higher, respectively, compared to full-term infants. (Krieger et al., 2023).

Globally, prematurity is a significant public health concern, with an estimated 15 million premature births occurring annually. The incidence of prematurity in Sierra Leone is particularly high, with 12.3% of all births being premature. It is a leading cause of infant morbidity and mortality in the country, andit can have long-term health consequences. Factors such as high population density, environmental pollution, and lifestyle choices prevalent in Western urban districts contribute to the risk of prematurity. Therefore, it is essential to investigate the factors that contribute to prematurity among women in thesedistricts to identify potential risk factors and develop targeted interventions for reducing the incidenceof preterm birth. (DeMier et al., 2000).

**Problem Statement**

Premature delivery, or preterm birth, is a significant public health problem in the Western Urban District of Sierra Leone, with adverse consequences for both mothers and infants. However, the specific factors contributing to premature delivery among women aged 12-49 years in this district are not wellunderstood. Identifying these factors is crucial for developing targeted interventions and improving maternal and infant health outcomes. Therefore, there is a need to assess the factors influencing premature delivery in the Western Urban District of Sierra Leone. (MOHS, 2018)

However, the issue of prematurity which is a significant public health concern worldwide, with high rates of incidence and mortality. The study aims to investigate the factors responsible for prematurity among women of childbearing age in a western urban district. The study's research questions focus on the prevalence of prematurity, sociodemographic characteristics, medical conditions, lifestyle and psychosocial factors, healthcare access, and environmental factors associated with prematurity in the study population. The objectives of the study include identifying risk factors for prematurity to informthe development of targeted interventions and contributing to the existing knowledge on this topic. However, the study's limitations include the use of a convenience sample, self-reported data, and a cross-sectional design, which may limit the generalizability and validity of the results.

Sierra Leone has faced numerous challenges in its healthcare system, including limited resources, inadequate access to quality healthcare services, and socioeconomic disparities. These challenges contribute to the high prevalence of prematurity, emphasizing the need for

targeted research to understand the underlying factors and develop evidence-based strategies for prevention and management. (MOHS, 2018)

By investigating the factors responsible for prematurity in this specific region, policymakers, healthcare providers, and researchers can gain insights into the unique circumstances and challenges faced by women of childbearing age in the western urban districts of Sierra Leone.

## GENERAL OBJECTIVES

Investigating factors responsible for prematurity among women of childbearing age in Western urbandistricts, Sierra Leone.

### Specific Objectives

The objectives of this study are:

- Determine the prevalence of prematurity among women of childbearing age in western urbandistricts in Sierra Leone.
- Determine the medical conditions, lifestyle factors, and psychosocial factors associated withprematurity in the study population.
- Determine the level of access to healthcare and environmental factors associated with womenwho experience prematurity in the study population.

### Research Questions

**The main research question for this study is:**

- What is the prevalence of prematurity among women of childbearing age in western urbandistricts in Sierra Leone?
- What are the medical conditions, lifestyle factors, and psychosocial factors associated withprematurity in the study population?
- What is the level of access to healthcare and environmental factors associated with womenwho experience prematurity in the study population?

### Significance of the Study

This study is significant because it will provide valuable information on the factors responsible for prematurity among women of childbearing age in a Western urban district. The findings of this study will be useful for healthcare providers, policymakers, and researchers who are interested in improving maternal and child health outcomes. By identifying the risk factors for prematurity, this study can inform the development of targeted interventions to reduce the incidence of prematurity in the study population. Additionally, the

study can contribute to the existing body of knowledge on prematurity and provide insights for future research on this topic.

1. **Global Health Impact:** Prematurity is a leading cause of neonatal mortality and morbidity worldwide, particularly in low- and middle-income countries. Understanding the factors responsible for prematurity is crucial to address this global health challenge effectively.
2. **Identifying Modifiable Risk Factors:** Investigating the factors associated with prematurity can help identify modifiable risk factors. These are factors that can be targeted through interventions and preventive strategies to reduce the occurrence of preterm birth.
3. **Informing Intervention Strategies:** By identifying and understanding the factors contributing to prematurity, researchers and policymakers can develop evidence-based intervention strategies. These interventions can include improved access to quality prenatal care, health education programs, lifestyle modifications, and environmental improvements.
4. **Enhancing Maternal and Child Health Outcomes:** The findings of this study can potentiallylead to improvements in maternal and child health outcomes. By addressing the identified risk factors, the study may contribute to reducing the adverse health consequences associated with prematurity, such as infant mortality, long-term disabilities, and maternal complications.
5. **Healthcare Resource Allocation:** Prematurity places a significant burden on healthcare resources and systems. Understanding the factors responsible for prematurity can inform resource allocation decisions, enabling healthcare providers and policymakers to allocate resources more effectively and efficiently to address the needs of high-risk populations.
6. **Policy Development:** Evidence-based research on factors contributing to prematurity can inform the development of policies aimed at reducing preterm birth rates. This includes policiesrelated to prenatal care, social support systems, maternal health,

## LITERATURE REVIEW

### History of Prematurity

Indonesia is currently facing several health issues, particularly in the realm of maternal and child health, and one of the significant problems is the high number of neonatal deaths. The Neonatal Mortality Rate (NMR) measures the number of deaths per 1,000 live births. According to the Indonesian Ministry of Health (2018), in 2017, Indonesia had a NMR of 15

deaths per 1,000 live births. This marked a decrease of 4 deaths compared to the neonatal mortality rate in 2012. However, it is crucial to continue efforts to reduce this number further in order to achieve the Sustainable Development Goals (SDGs) target. The SDGs aim to reach a comparative rate of 0.0007 deaths between premature births and live births by 2030.

Among the various factors contributing to neonatal deaths, maternal and child health problems duringpregnancy play a significant role. The period from the fertilization process to the birth of the fetus is commonly referred to as pregnancy (Fatimah and Nuryaningsih, 2017).

In general, a normal pregnancy is expected to have a reasonable gestation period. However, some mothers may experience abnormal conditions known as pregnancy complications during their pregnancy. These complications can occur in different trimesters and may occur multiple times throughout the pregnancy. According to Manuaba, Manuaba, and Manuaba (2009), there are seven types of pregnancy complications that occur in the third trimester, which is a critical period when the baby's condition should be approaching normal pregnancy complications. One potential complication during this stage is premature birth, which is a significant contributor to the high Neonatal Mortality Rate (NMR).

The World Health Organization (WHO, 2012) states that preterm birth is the most significant contributor to neonatal mortality and ranks as the second leading cause of mortality in children under five years of age, following pneumonia. The WHO also reports that Indonesia ranks ninth globally in terms of the highest number of preterm births. This is supported by the research of Sari and Syarif (2016), which establishes a relationship between preterm birth and neonatal mortality in Indonesia. Krisnaldi (2009) states that the risk of death for babies born prematurely is 7,000% higher compared to those born at full term. Premature babies have incomplete organ development, which hampers theirability to adapt to life outside the womb, unlike babies born at term. These findings highlight the importance of addressing preterm births in Indonesia to reduce the Neonatal Mortality Rate (NMR) and achieve the desir targets.

Typically, a pregnancy lasts between 37 and 41 weeks. However, in some cases, there may be an abnormality where the gestational period is shorter, leading to what is known as preterm birth. Pretermbirth occurs when the gestational age is less than the normal length of 37 weeks (Koniyo, Hakim, andArsin, 2012). According to the WHO (2012), a premature birth refers to an infant born alive with a gestational period of 37 weeks or less.

Premature delivery, also known as preterm birth, is a significant global concern with implications for both maternal and infant health. It refers to the birth of an infant before completing 37 weeks of gestation. Understanding the factors that contribute to premature delivery is crucial for implementing effective prevention and intervention strategies. This chapter aims to review the recent literature on factors influencing premature delivery among women aged 12-49 years.

Recent studies have highlighted maternal age as a crucial factor in premature delivery. Teenage pregnancies (ages 12-19 years) have consistently been associated with a higher risk of preterm birth (Smith et al., 2021). Similarly, advanced maternal age (≥35 years) has been identified as a significant risk factor for preterm birth due to various maternal and fetal factors (Stothard et al., 2022). Socioeconomic factors also play a significant role in premature delivery. Lower socioeconomic status,characterized by limited access to healthcare, poverty, and educational disparities, has been linked to an increased risk of preterm birth (Blair et al., 2023). Recent studies emphasize the importance of addressing socioeconomic disparities to reduce the burden of preterm birth (Krieger et al., 2023).

Maternal health conditions and lifestyle choices contribute to premature delivery. Chronic medical conditions such as hypertension, diabetes, and infections increase the likelihood of preterm birth (Chawanpaiboon et al., 2021). Recent evidence also suggests that lifestyle factors like smoking, substance abuse, poor nutrition, and obesity contribute to an increased risk of preterm birth (Araújo etal., 2022). Identifying and addressing modifiable risk factors is crucial for prevention. A woman's obstetric history, including previous preterm births, multiple gestations, and prior cesarean deliveries,influences the risk of subsequent premature delivery. Women with a history of preterm birth are at a higher risk of experiencing another preterm birth in subsequent pregnancies (Ananth et al., 2021).

Recent studies highlight the importance of evaluating and managing obstetric risk factors to prevent recurrent preterm birth (Iams et al., 2022). Psychosocial factors, such as maternal stress, depression, anxiety, and social support, have gained recognition as contributors to preterm birth. Recent research has demonstrated a significant association between psychosocial stressors and an increased risk of preterm birth (Alhusen et al., 2023). Addressing these factors through appropriate support systems andinterventions can potentially reduce the incidence of preterm birth.

Human newborns are more immature and reliant on parental care compared to other species

(Zeveloff and Boyce, 2015). They require extensive care in terms of feeding, protection, stimulation, and affection for their survival and development (Pavard, Koons, and Heyer, 2017). Parental bonding is crucial for the infant's well-being as it enhances parental investment (Hrdy, 2012; Kennell and Klaus, 2013). However, parental bonding and commitment to offspring are not automatic or innate processes. The assumption that parents, especially mothers, are genetically pre-programmed to nurture babies has been challenged (Daly and Wilson, 2012, 2013; Hrdy, 2014). Parents may deeply love their newborns but often prioritize investment returns (Hrdy, 2014; Solomon and George, 2016). Parental neglect, abuse, and infanticide can occur in infants with poor survival prospects due to ill health or adverse circumstances (Daly and Wilson, 2012, 2013; Soltis, 2014).

From an evolutionary perspective, parental investment depends on the energy and resources a specific infant requires, potentially at the expense of other offspring or family members (Trivers, 2013). Parental investment decisions are influenced by the reproductive value of both the parent and the infant,as well as the impact of the investment and the parents' circumstances and resources (Daly and Wilson, 2011, 2012; Salmon, 2015; Trivers, 2012). Parents can discern infant characteristics related to reproductive potential, which may affect parental bonding (Hrdy, 2012; Kennell and Klaus, 2012; Miles, Funk, and Kasper, 2013; Soltis, 2014).

Uncertainty about the health and developmental outcome of an infant can delay and disrupt bonding inparents (DeMier et al., 2000). Parents of sick or premature infants may keep their distance from the infant or overstimulate them as coping mechanisms to manage overwhelming emotions (Borghini et al., 2016; Feldman and Eidelman, 2015; Muller-Nix and Ansermet, 2015; Pierre Humbert and Nicole, 2013). Parental bonding may be delayed until the infant's physical condition improves and survival seems more certain (Robson and Kumar, 1980). Consequently, handicapped, sick, or premature infants,who require additional parental care in terms of time, resources, and attention, face an increased risk of non-optimal parenting, neglect, or abuse compared to healthier infants (Daly and Wilson, 2012, 2014; Hrdy, 2012; Tifferet et al., 2017).

**Defining Prematurity and Its Prevalence**

Prematurity refers to the birth of a baby before 37 weeks of gestation and is a significant global publichealth issue. The World Health Organization (WHO) estimates that around 15

million babies are born prematurely each year, with increasing rates observed in many countries. In Sierra Leone, prematurityis a notable problem, affecting approximately 12.1% of births. Prematurity is a leading cause of infantmorbidity and mortality, and it can also result in long-term health complications such as developmental delays, cerebral palsy, and chronic respiratory and cardiovascular diseases.

**Medical Factors Linked to Prematurity**

Several medical conditions have been identified as risk factors for prematurity. These include preeclampsia, gestational diabetes, multiple pregnancies, infections, and placental abnormalities.Preeclampsia, characterized by high blood pressure and organ damage, poses a significant risk for prematurity. Gestational diabetes, a form of diabetes that occurs during pregnancy, also increases the likelihood of prematurity. Multiple pregnancies, such as twins or triplets, are associated with a higher risk of prematurity. Infections like urinary tract infections, bacterial vaginosis, and sexually transmitted infections can also elevate the risk. Lastly, placental abnormalities, including placenta previa and placental abruption, can contribute to prematurity. (Smith et al., 2021).

**Medical Factors Associated with Prematurity**

Various psychosocial factors have been connected to prematurity, such as stress, anxiety, depression,and intimate partner violence. High levels of stress and anxiety during pregnancy are associated with a higher risk of prematurity. Depression during pregnancy has also been linked to an increased likelihood of prematurity. Intimate partner violence during pregnancy is another factor that has been associated with a higher risk of prematurity.

- **Factors Associated with Prematurity:** Prematurity among women of childbearing age is influenced by various factors. Here are some commonly studied maternal factors associated with prematurity:
- **Maternal Age:** Both young maternal age (adolescence) and advanced maternal age (35 years or older) have been identified as risk factors for prematurity. Young mothers may experience reproductive system immaturity, while older mothers have higher rates of comorbidities and obstetric complications.
- **Medical Conditions:** Maternal medical conditions such as hypertension, diabetes (pre-gestational and gestational), preeclampsia, and chronic kidney disease have been associated with an increased risk of prematurity. These conditions can affect placental function and fetal development, leading to preterm birth. (Blair et al., 2023).

- **Lifestyle Factors:** Maternal lifestyle choices, such as smoking and substance abuse, consistentlyincrease the risk of prematurity. These behaviors can have detrimental effects on maternal health, placental function, and fetal outcomes. (Krieger et al., 2023).
- **Socioeconomic Status:** Lower socioeconomic status, including factors like poverty, limited healthcare access, and insufficient social support, is associated with a higher risk of prematurity. These factors contribute to maternal stress, inadequate prenatal care, and unfavorable living conditions, which impact pregnancy outcomes. (Krieger et al., 2023).
- **Maternal Nutrition:** Inadequate maternal nutrition, including insufficient intake of essential nutrients and inadequate weight gain during pregnancy, is linked to an increased risk of prematurity. Maternal malnutrition can negatively affect fetal growth and development, leadingto preterm birth.
- **Environmental and Sociodemographic Factors:** Environmental and sociodemographic factors are significant contributors to the risk of prematurity among women of childbearing age. These factors encompass various aspects of the social, economic, and physical environment inwhich women live. Understanding the influence of these factors is crucial for the development of targeted interventions and strategies to reduce the incidence of prematurity. (Krieger et al., 2023).

**Obstetric Factors**

Obstetric factors are important contributors to the risk of prematurity among childbearing women. These factors are related to the woman's reproductive history and current pregnancy. Understanding the influence of obstetric factors is crucial for identifying high-risk pregnancies and implementing appropriate interventions. In this section, we will review the literature on obstetric factors associated with prematurity among childbearing women.

**Previous Preterm Birth:**

Women who have previously experienced a preterm birth are at an increased risk of subsequent pretermdeliveries (Martin et al., 2017; Hamilton et al., 2019). The recurrence risk depends on the gestational age of the previous preterm birth, with earlier preterm births associated with higher recurrence rates.

**Multiple Gestations:**

Pregnancies with twins, triplets, or higher-order multiples are at an increased risk of prematurity compared to singleton pregnancies (Yamamoto et al., 2012; Blondel et al., 2015).The increased risk isattributed to factors such as placental insufficiency, preterm labor, and preterm premature rupture of membranes (PPROM).

**Cervical Insufficiency:**

Cervical insufficiency, also known as an incompetent cervix, is characterized by the premature dilation and effacement of the cervix during pregnancy. It is associated with an increased risk of preterm birth, particularly in the second trimester (Berghella et al., 2011; Owen et al., 2019).Appropriate management, such as cervical cerclage or progesterone supplementation, can help reduce the risk of preterm birth in women with cervical insufficiency.

**Uterine Anomalies:**

Structural abnormalities of the uterus, such as a uterine septum or a bicornuate uterus, have been associated with an increased risk of preterm delivery (Chan et al., 2011; Rac et al., 2013). These anomalies can affect uterine function and increase the risk of preterm labor or preterm rupture of membranes.

**Interactions and Complexities**

The occurrence of prematurity among childbearing women is often influenced by the interplay and complex interactions among various factors. Understanding these interactions is crucial for developing effective strategies to prevent and manage prematurity. In this section, we will explore the interactionsand complexities involved in prematurity.

**Multifactorial Nature of Prematurity:**

Prematurity is a multifactorial condition, meaning that it arises from the combined influence of multiple risk factors acting together rather than a single cause (Kistka et al., 2007).Various maternal, environmental, sociodemographic, and obstetric factors can interact and synergistically contribute to the risk of prematurity.

**Gene-Environment Interactions:**

Genetic factors may interact with environmental factors to increase the risk of prematurity (Plunkett etal., 2009; Muglia et al., 2014). Certain genetic variations may render an individual more susceptible to the effects of environmental factors, such as inflammation or oxidative stress, leading to an increased risk of prematurity.

**Maternal-Fetal Interactions:**

Maternal-fetal interactions are crucial during pregnancy and can influence the risk of prematurity. Maternal factors, such as maternal health, nutrition, stress, and immune response, can impact fetal development and the risk of preterm birth (Entringer et al., 2012; Wadhwa et al.,

2011). Fetal factors, including genetic and epigenetic variations, can also contribute to the

risk of prematurity (Muglia et al., 2014).

**Pathways and Mediators:**

Prematurity can involve multiple biological pathways and mediators, such as inflammation, hormonal imbalances, oxidative stress, and placental dysfunction (Romero et al., 2006; Muglia et al., 2014).These pathways can be influenced by various factors, including maternal, environmental, and obstetric factors, leading to preterm birth.

**Cultural and Ethnic Considerations**

Cultural and ethnic considerations play a significant role in understanding prematurity rates and outcomes among childbearing women. Different cultural practices, beliefs, and disparities can influence prematurity risk and contribute to variations in prematurity rates across populations. Examining these cultural and ethnic factors is crucial for addressing health disparities and developing culturally sensitive interventions. In this section, we will explore the influence of cultural and ethnic considerations on prematurity among childbearing women.

**Cultural Practices and Beliefs**

Cultural practices during pregnancy, childbirth, and the postpartum period can impact prematurity rates. Practices such as traditional remedies, herbal medicine, dietary habits, and certain rituals may affect maternal health and subsequently influence the risk of prematurity (Machiyama et al., 2014; Kozuki et al., 2013). Cultural beliefs and attitudes towards healthcare, prenatal care, and childbirth may also influence healthcare-seeking behaviors and utilization of prenatal services.

**Health Behaviors**

Health behaviors influenced by cultural and ethnic factors, such as smoking, substance abuse, and nutrition, can impact prematurity risk (Goldenberg et al., 2008; Kistka et al., 2007).Cultural norms and practices related to these behaviors may differ among populations, contributing to variations in prematurity rates.

**METHODOLOGY**

**Study Design**

This study employs a cross-sectional design to investigate the factors contributing to prematurity among women of childbearing age in Western urban districts of Sierra Leone. A cross-sectional design is suitable for this study because it enables the collection of data on

exposure and outcome variablesat a single point in time. This design is particularly useful for investigating the prevalence of a condition, such as prematurity, and identifying potential risk factors

**Study Area**

The Western Area Urban District is one of the 16 districts of Sierra Leone. It is by far the most populous district in the country, with a population of 1,050,301, and is located in the Western Area of the country. The Western Area Urban District exclusively comprises the entire city of Freetown, the national capital, and is divided into the East End of Freetown, Central Freetown, and the West End ofFreetown, which are in turns divided into wards and constituencies within the City of Freetown.

Western Urban includes the oldest city and national capital, Freetown and its surrounding, towns, villages and landscape. It is Sierra Leone's major urban, economic, financial, cultural, educational andpolitical center. The city's economy revolves largely around its final natural harbour, which is the largest natural harbour on the continent of Africa. The Freetown peninsula consists of three roughly parallel ranges of highlands that are narrow but extend about 30 km south of Freetown. The hills and mountains in the highlands rise impressively from 200 m to 1 000 m above the low-lying narrow coastalarea. As the rest of the country has a tropical climate with two pronounced seasons: wet season from May to October, and a dry season from November to April. Rainfall is this area is 3 001-4 000 mm peryear. Education in Sierra Leone is legally required for all children for six years at primary schoollevel and three years in junior secondary school. A shortage of schools and teachers has made implementation impossible, although the number of children in primary education has greatly increasedsince the end of the civil war. Recently, the outbreak of Ebola led to the closure of schools for a prolonged time period from July 14 to April 2015. In Western Urban after the Ebola outbreak 1,120 schools were operational Sierra Leone has a low level of literacy among adults with only 37.1% of adults literate in 2006.District Health Management Team (DHMT) has registered a total of 538 staff medical and non-medical staff working in health facilities in Western Urban Area. In addition, the facilities available in Western Rural Area are 20 Community Health Center (CHC), 20 Community Health Post (CHP), 13 Maternal Child Health Post (MCHP) and 9 hospitals. Traditional medicine forms part of the primary health care system in Sierra Leone.


**Map Showing Western Urban**

**Study Population:** This research focuses on women in the reproductive age group (15-49 years) residing in the specified study regions, namely, Kingharmnn Road and Ola-During Children Hospitals. This demographic group is considered most suitable for providing the specific information sought by the researcher.

**Sampling Approach:** The study employed a random sampling method to enlist participants. Women who have encountered preterm birth experiences will be identified, and questionnaires were distributed to them within the designated study areas for their responses.

**Sample Size:** A total of eighty-five (85) respondents were chosen randomly from among women within the reproductive age range (15-49 years). This approach was followed since the target participants primarily comprise healthcare workers.

**Sample Size Determination for convenience sampling.**

According to Fisher's Formula $n=Z^2NP\ (1-P)/D^2N-1+Z^2P\ (1-P)$

**Where:**

n= the required Sample Size

N= Population Size (Base on the Micro Plan of 2019, the population is 1414) Z= normal standard deviation with a 95% confidence interval, in this case, 1.96P population proportion, which accounts for 4.4%

D Standard Error in this 0.05.

Hence

n?

N= 1414

Z= 1.96

P= 4.4 %( 0.044)

D= 0.05

$n= Z^2NP (1-P)/D^2N-1+Z^2P (1-P)$

$n= (1.96)^2*1414*0.044(0.956)/ (0.05)^2*1414-1+ (1.96)^2*0.044(0.956)$n= 228.49259/2.69659

n= 84.733

**n=85.**

**Data Collection:** Data was collected through well Structure Questionnaires. Questionnaires are a common method of collecting data in research, surveys, and various fields where standardized responses are needed to address specific objectives. Here's a more detailed explanation of data collection using questionnaires:

**Questionnaire**

This is a list of questions seeking information. A questionnaire was designed by the researcher, and therespondents answered all the questions in the study.

**Data Analysis**

Data were analysis, summarized, and presented along the lines of the objectives, with two main parts: Results and discussions. The data were analysed using descriptive statistics, frequency distribution and Microsoft Excel. Results were presented in a table and figures. This was done to ensure a precise and concise presentation of information obtained from the collected data.

**Study Limitations and Constraints.**

During the course of the study, the following were inhibiting factors to the research: financial resources, information gap, as most health care workers cannot provide the required information, some negative attitudes of the respondents, poor light facility, as my computer battery was not good and hence couldnot last for longer hours.

**Ethical Considerations**

The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Informed consent was obtained from all participants before their inclusion in the study. Participants were informed of the study's purpose, procedures, potential risks and benefits, and theirright to refuse or withdraw from participation at any time. Participants were assured of theconfidentiality and anonymity of their responses.

## ANALYSIS AND DISCUSSION OF RESULTS

## DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

### Age of the Respondents

| AGE | FREQUENCY | PERCENTAGE |
|---|---|---|
| 18-24 | 50 | 58.8% |
| 32-38 | 20 | 23.5% |
| 39-45 | 15 | 17.7% |
| **TOTAL** | **85** | **100%** |

**Source: Field Data 2025**

The above table revealed the sex distribution whereas, 50(58.8%) with age 18-24 year, 20(23.5%) withage 32-38 years and 15(17.7%) with age 39-45 years. This analysis provides a clear picture of the age distribution, with the majority falling into the 18-24 age group, followed by smaller proportions in the32-38 and 39-45 age groups.

### Showing the Marital Status of the respondents

| MARITAL STATUS | FREQUENCY | PERCENTAGE% |
|---|---|---|
| Married | 20 | 23.5% |
| Unmarried | 50 | 58.8% |
| Divorced | 5 | 5.9% |
| Separated | 10 | 11.7% |
| **Total** | **85** | **100%** |

**Source: Field Data 2025**

The above table revealed that, majority of individuals in the sample are categorized as "Unmarried," accounting for nearly 5(59%) of the total."Married" is the second-largest category, with approximately 20(23.5%) of the total. “Separated" and "Divorced" individuals make up smaller proportions of the sample, at around 11.7% and 5.9%, respectively.

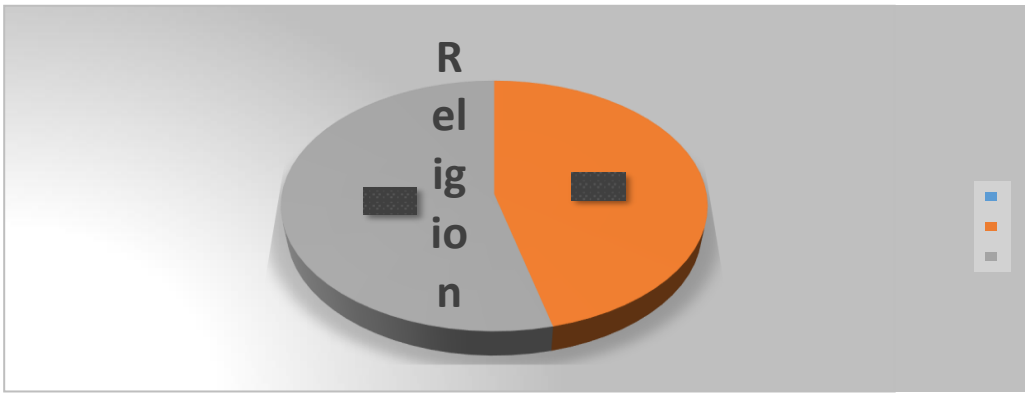



**Figure Showing the Religion of the Respondents**

**Source: Field Data 2025**

The above Figure indicates that, in this sample, the majority of individuals identify as "Christian," accounting for approximately 50(58.8%) of the total."Muslim" is the second-largest religious category, representing approximately 35(41.2%) of the total.

**Highest Level of Educational Attainment**

| **Education attainment** | FREQUENCY | PERCENTAGE% |
|---|---|---|
| Illiterate | 40 | 47.1% |
| Basic | 5 | 5.9% |
| Secondary (WAACE/GCE,O LEVEL | 13 | 15.3% |
| Tertiary (Vocational, Collage (University) | 15 | 17.6% |
| Other specify | 12 | 14.1% |
| **Total** | **100** | **100%** |

**Source: Field Data 2025**

The above table indicate that, this sample, the largest education attainment category is "Illiterate," which accounts for approximately 47.1% of the total, the "Tertiary (Vocational, College, University)" category is the second-largest, representing around 17.6% of the total, the other three categories, "Basic," "Secondary (WAACE/GCE, O LEVEL)," and "Other Specify," make up smaller proportions of the sample.

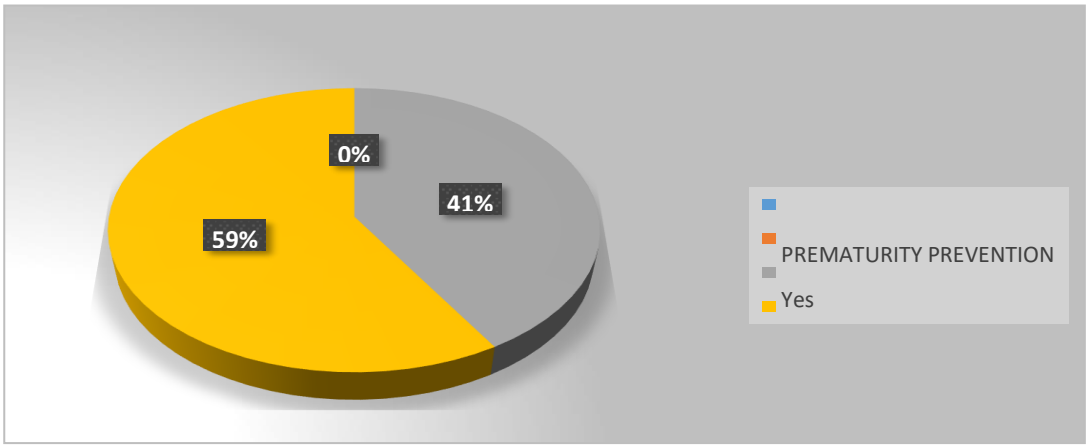
**DETERMINE THE PREVALENCE OF PREMATURITY AMONG WOMEN OF CHILDBEARING AGE IN THE STUDY AREA.**

**The Figure Shows the report of premature birth (s) among the respondents**

| **REPORT OF PREMATURE BIRTH** | **FREQUENCY** | **PERCENTAGE%** |
|---|---|---|
| Yes | 75 | 88.2% |
| No | 10 | 11.8% |
| **Total** | **85** | **100%** |

**Source: Field Data 2025**

According to the above data, the majority of individuals have reported "Yes" to experiencing premature birth through the Healthcare facilities, accounting for approximately 75(88.2% )of the total. The "No" category, indicating individuals who have not reported experiencing premature birth, makes up a smaller proportion of the sample, at around 10(11.8%).




**Number of Pregnancies of Premature Birth of the Respondents**

**Source: Field Data 2025**

In the above Figure, the largest group is respondents reporting premature births in their first pregnancy, accounting for approximately 58.8% of the total, the second-largest group is those reporting premature births in their second pregnancy, representing around 23.5% of the total, the smallest group is those reporting premature births in their third or subsequent pregnancies,making up about 17.6% of the total

**ASSESS THE MEDICAL CONDITIONS, LIFESTYLE FACTORS, AND PSYCHOSOCIAL FACTORS ASSOCIATED WITH PREMATURITY IN THE STUDY POPULATION IN THE STUDY AREA.**

**Lifestyle behaviors of the respondents during pregnancy**

| LIFESTYLE BEHAVIORS DURING PREGNANCY | FREQUENCY | PERCENTAGE% |
|---|---|---|
| Smoking | 5 | **5.9** |
| Alcohol consumption | 10 | 11.8 |
| Illicit drug use | 3 | 3.5 |
| Poor nutrition | 40 | 47.1 |
| Lack of physical activity | 10 | 11.8 |
| Excessive stress | 15 | 17.6 |
| Inadequate sleep | 2 | 2.3 |
| Other | 0 | 0.0 |
| **Total** | **85** | **100** |

**Source: Field Data 2025**

The above table indicates that various lifestyle behaviors during pregnancy were reported, with varying frequencies and percentages. Poor nutrition had the highest reported frequency, with approximately 40(47.1%) of individuals acknowledging this behavior during pregnancy. Other behaviors, such as smoking, alcohol consumption, and illicit drug use, were reported

less frequently but were still present in the sample.

**The psychosocial factors during your pregnancies.**

| PSYCHOSOCIAL FACTORS DURING YOUR PREGNANCIES | FREQUENCY | PERCENTAGE |
|---|---|---|
| High levels of stress | 5 | **5.9** |
| Depression or anxiety | 17 | 20.0 |
| Lack of social support | 10 | 11.8 |
| Intimate partner violence | 10 | 11.8 |
| Financial stress | 42 | 49.3 |
| Other | 1 | 1.2 |
| **Total** | **85** | **100** |

**Source: Field Data 2025**

The above table indicates that the various psychosocial factors were reported, with varying frequencies and percentages, financial stress had the highest reported frequency, with approximately 49.3% of individuals reporting experiencing this factor during pregnancy. Other factors, such as depression or anxiety, intimate partner violence, and lack of social support, were reported withmoderate frequency.

**Premature births (before 37 weeks of gestation) among the respondents**

| PREMATURE BIRTHS (BEFORE 37 WEEKS OF GESTATION) | FREQUENCY | PERCENTAGE% |
|---|---|---|
| Yes | 30 | **35.3%** |
| No | 55 | **64.7%** |
| **Total** | **85** | **100%** |

**Source: Field Data 2025**

The above table indicates that approximately 35.3% of individuals reported experiencing premature births (before 37 weeks of gestation) during their pregnancies. The majority of individuals (64.7%) indicated that they did not experience premature births during their pregnancies. The presence of approximately 35.3% of individuals reporting premature births highlights the significance of this issue in the sample. The majority of individuals reporting no premature births indicates a diverse range of pregnancy experiences withinthe sample.

**The accessibility of healthcare facilities.**

| ACCESSIBILITY OF HEALTHCARE FACILITIES | FREQUENCY | PERCENTAGE% |
|---|---|---|
| Very Accessible | 10 | **11.8%** |
| Somewhat Accessible | 15 | **17.7%** |
| Not Very Accessible | 20 | **23.5%** |
| | 40 | **47.8%** |

| | | |
|---|---|---|
| Not Accessible at All | | |
| **Total** | **85** | **100%** |

**Source: Field Data 2025**

The above data indicated that approximately 35.3% of individuals reported experiencing premature births (before 37 weeks of gestation) during their pregnancies. The majority of individuals (64.7%) indicated that they did not experience premature births during their pregnancies.

**EVALUATE THE LEVEL OF KNOWLEDGE, ATTITUDE OF WOMEN OF CHILDBEARING AGE TOWARDS PREMATURITY IN THE STUDY AREA**.

**How Would You Define "Prematurity" In Pregnancy?**

| **MEANING OF "PREMATURITY" IN PREGNANCY** | **FREQUENCY** | **PERCENTAGE%** |
|---|---|---|
| I'm not sure | 50 | 58.8% |
| Prematurity refers to a baby being born before the due date. | 20 | 23.6% |
| Prematurity is when a baby is smaller and less developed than normal. | 15 | 17.6% |
| **Total** | **85** | **100** |

**Source: Field Data 2025**

The above table indicated that, there is a diversity of definitions provided for "prematurity" in pregnancy, the majority of respondents (58.8%) indicated that they are not sure about the definition of prematurity, the second most common definition (23.6%) is that prematurity refers to a baby being born before the due date, followed by the definition that it's when a baby is smaller and less developedthan normal (17.6%).

**Some potential causes of prematurity among Respondents.**

| **POTENTIAL CAUSES OF PREMATURITY** | **FREQUENCY** | **PERCENTAGE** |
|---|---|---|
| Maternal stress | 10 | **11.8** |
| Infections during pregnancy | 13 | **15.3** |
| Multiple pregnancies (twins, triplets, etc.) | 6 | **7.1** |
| High blood pressure or preeclampsia | 7 | **8.2** |
| Smoking or substance abuse | 5 | **5.9** |

| | | |
|---|---|---|
| Poor maternal nutrition | 39 | **45.9** |
| conditions in the mother | 3 | **3.5** |
| Other | 2 | **2.3** |
| **Total** | **85** | **100** |

**Source: Field Data 2025**

The above table indicates that individuals provided various potential causes of prematurity during pregnancy; the most frequently mentioned cause was "Poor maternal nutrition," which was identified by 45.9% of respondents. Other causes, such as infections during pregnancy, maternal stress, and high blood pressure or preeclampsia, were also mentioned, albeit with lower frequencies.

**Potential complications of prematurity**

| **POTENTIAL COMPLICATIONS OF PREMATURITY** | **FREQUENCY** | **PERCENTAGE** |
|---|---|---|
| Breathing problems | 5 | 5.9 |
| Developmental delays | 40 | 47.1 |
| Vision or hearing problems | 8 | 9.4 |
| Long-term disabilities | 10 | 11.7 |
| Sudden Infant Death Syndrome (SIDS) | 15 | 17.6 |
| None | 4 | 4.7 |
| Not sure | 3 | 3.6 |
| **Total** | **85** | **100** |

**Source: Field Data 2025**

The above table indicates that individuals provided various potential complications that premature babies might face. The most frequently mentioned potential complication was "Developmental delays," identified by 40 ( 47.1%) of respondents; other complications, such

**The Prematurity Prevention**

| **PREMATURITY PREVENTION** | **FREQUENCY** | **PERCENTAGE%** |
|---|---|---|
| Yes | 35 | 11.8% |
| No | 50 | 17.7% |
| **Total** | **85** | **100%** |

**Source: Field Data 2025**

The above data shows that 35 individuals (41.2%) responded "Yes," indicating they received regular prenatal care, while 50 individuals (58.8%) responded "No," indicating they did not receive regular prenatal care.

## SUMMARY, CONCLUSION, AND RECOMMENDATIONS

### SUMMARY

The study found that prematurity is highly prevalent among women of childbearing age in the western urban districts of Sierra Leone, making it a significant public health concern. Prematurity was associated with medical factors (such as infectious diseases and poorly managed chronic conditions), lifestyle factors (poor nutrition and limited education), psychosocial challenges (stress, trauma, and lack of mental health support), limited access to prenatal healthcare, and environmental factors (poor sanitation and exposure to toxins). These findings highlight the multifactorial nature of prematurity and the need for comprehensive interventions.

### CONCLUSION

Prematurity in western urban districts of Sierra Leone is influenced by a complex interaction of medical, socio-economic, psychosocial, healthcare access, and environmental factors. The high prevalence underscores the urgent need for strengthened maternal healthcare services, improved access to prenatal care, better management of medical conditions during pregnancy, enhanced maternal education, and supportive mental health services. Addressing environmental and healthcare disparities is critical to reducing prematurity rates and improving maternal and infant health outcomes. The study provides a strong foundation for policy action and targeted public health interventions.

### Recommendations

1. Improve access to prenatal and maternal healthcare services, including the establishment of additional health facilities, mobile clinics, and community outreach programs.
2. Strengthen maternal health education on nutrition, hygiene, and healthy lifestyle practices using culturally appropriate approaches.
3. Integrate psychosocial and mental health support services into routine prenatal care to address stress and trauma among pregnant women.
4. Enhance early detection, prevention, and management of infectious diseases and chronic

conditions during pregnancy through improved training of healthcare providers.

5. Implement environmental health interventions to improve sanitation, access to clean water, and reduce exposure to environmental toxins.
6. Promote healthy lifestyles among women of childbearing age through targeted public health campaigns focusing on nutrition, smoking, and alcohol use.

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