UNIVERSITY FOR DEVELOPMENT STUDIES

FACTORS INFLUENCING NEONATAL MORTALITY IN THE TAMALE METROPOLIS: PERSPECTIVES OF MOTHERS AND HEALTHCARE PROVIDERS

BY:

OSMAN ABDUL-SAMED

(UDS/CHD/0052/19)

2024

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THESIS SUBMITTED TO THE DEPARTMENT OF SOCIAL AND BEHAVIOURAL CHANGE, SCHOOL OF PUBLIC HEALTH, UNIVERSITY FOR DEVELOPMENT STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PHILOSOPHY DEGREE IN COMMUNITY HEALTH AND DEVELOPMENT

SEPTEMBER 2024

DECLARATION

Student

I hereby declare that this thesis is the result of my original work and that no part of it has been presented for another degree in this University or elsewhere:

Candidate:

Signature: ..... Date: 17/09/2024

Name: Osman Abdul-Samed

Supervisor

I hereby declare that the preparation and presentation of the thesis was supervised following the guidelines on supervision of thesis laid down by the University for Development Studies.

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ABSTRACT

Neonatal mortality remains a devastating reality in Ghana, with the Tamale Metropolis experiencing disproportionately high rates. This qualitative study delves into the lived experiences of parents and healthcare providers, seeking to understand the complex factors contributing to neonatal deaths in this setting. A qualitative study design was employed, using in-depth interviews. Purposive sampling was used to select 20 parents (mothers) who experienced neonatal loss and 2 healthcare providers (midwives) from two public health facilities in Tamale Metropolis. Data was analyzed using thematic analysis. The research findings reveal that neonatal mortality is influenced by cultural practices, such as beliefs in spiritual protection, limited use of antenatal care, preference for home births, and differing breastfeeding practices. The reliance on traditional birth attendants, use of herbal medicine, and adherence to cultural rituals further hinder access to formal healthcare services. Healthcare professionals in the Tamale Metropolis face challenges in reducing neonatal mortality due to inadequate infrastructure and resources. The study highlights that cultural and social beliefs create significant barriers for healthcare providers in addressing neonatal mortality in the region. This study provides a nuanced understanding of neonatal mortality in the Tamale Metropolis, highlighting the need for a multidimensional approach to address the complex factors contributing to these tragic events. By amplifying the voices of parents and healthcare providers, this research informs the development of targeted interventions to improve newborn health outcomes and reduce neonatal mortality in this vulnerable population.

Keywords: Neonatal mortality, Tamale Metropolis, qualitative study, parents' perspectives, healthcare providers' perspectives, Ghana.

ACKNOWLEDGEMENT

I wish to first express my profound gratitude to Almighty Allah for His continuous protection and guidance throughout my study period and now which has brought me this far.

My special gratitude also goes to my able supervisors, Dr. Joseph Owusu-Marfo and Dr. Augusta Kolekang whose valuable inputs, support and guidance has contributed immensely to the successful conduct of this study. I say to them “na gode, Allah biya bukatun ka” meaning thank you and God bless you for the fatherly and motherly care and support. To my enthusiastic team of data collectors, staff of Tamale West and Tamale Central Hospitals, managements of the two hospitals and the gallant mothers (who served as my study participants) I say to you all thank you for your various forms of support and cooperation which has contributed to the successful conduct of this study. I am grateful.

Finally, I wish to thank the staff of Graduate school of University for Development Studies particularly those in the Department of Social and Behavioural Change, School of Public Health most especially HOD Dr. Mustapha Alhassan for their support, guidance and encouragement throughout my study period.

DEDICATION

I wish to dedicate this work to my late mother Mahama Rahinatu and my immediate family which include my wife, Iddrisu Abiba, my son, Osman Abdul-Samed Adnan and my daughter, Osman Abdul-Samed Rahinatu.

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LIST OF ABBREVIATIONS

WHO…… World Health Organization

UNICEF……United Nations Children's Emergency Fund

GDHS……Ghana Demographic Health Survey

NMR……. Newborn Mortality Rate

SDGs……. Sustainable Development Goals

ANC……. Antenatal Care

NEOISM……..…Neonatal health Simulation model

MDG…… Millennium Development Goals

DHIMS…….. District Health Information Management System

EST……. Ecological System Theory

LDCs……Least Developed Countries

MCH……. Maternal and Child Health

TANF……. Temporary Assistance for Needy Families

KMC…….…...…...Kangaroo Mother Care

TMA……. Tamale Metropolitan Assembly

NM……Neonatal Mortality

ICU…….……Intensive Care Unit

SVD…….. Simultaneous Vaginal Delivery

NGO……...…Non-Governmental Organization

TBA……Traditional Birth attendant

NICU……...……Neonatal Intensive Care unit

IPC …… Infection Prevention and Control

UN ……. United Nation

HIV ……...Human Immunodeficiency Virus

AIDS ……Acquired Immunodeficiency Syndrome

GDP ……...Gross Domestic Product

WIC ……...Women Infants and Children

RDS ……Respiratory Distress Syndrome

GHS ……Ghana Health Service

ERC ……. Ethics Review Committee

GSS ……...Ghana Statistical Service

HAIs ……...Healthcare Associated Infections

CHAPTER ONE
INTRODUCTION

1.1 Background of the study

The World Health Organization defines neonatal death as any live birth that occurs within 28 days following delivery. The first 24 hours of a child's existence are the most critical since over a million babies worldwide pass away on their first and only day of life each year (WHO, 2014). Seven thousand babies die worldwide every day; most of these deaths occur in the first week of life, and around 2.6 million babies die in the first month (UNICEF 2017).

Almost six out of ten child fatalities globally are caused by neonatal mortality. Globally, poor countries account for about 98% of newborn mortality; 39% of these deaths occur in Southern Asia, and 38% in sub-Saharan Africa (UNICEF, 2017). Sub-Saharan Africa has a neonatal mortality rate of 27 per 1,000 live births, while the global rate is 19 per 1,000 live births (UNICEF, 2018). Nine neonates die per minute on average, or around 13,000 neonates every day, out of the 8.2 million children under the age of five who pass away every year. Of these deaths, 3.3 million are babies, with 1.2 million occurring in sub-Saharan Africa (Lawn et al., 2014). More than 78% of these neonatal deaths occur in developing countries, primarily in South Asia and Sub-Saharan Africa (Liu et al., 2016). With 39% of all neonatal deaths globally, they rank among the top ten countries with the greatest newborn mortality rates (Devine et al., 2018).

Every year, more than 3.1 million babies worldwide pass away in the first month of life; the bulk of these deaths occur in developing countries (WHO, 2020). Sub-Saharan Africa is responsible for 41% of all newborn fatalities worldwide, with a mortality rate of 28 per 1,000 live births (UNICEF, 2019). Despite an increase in neonatal mortality rates worldwide, West and Central Africa bears

the brunt of this load, with babies there at risk of death within the first 28 days of life roughly ten times higher than in high-income countries (Wardlaw et al., 2014).

In the last ten years (2008 to 2018), Ghana, a lower-middle-income country in Sub-Saharan Africa, has had newborn death rates ranging from 21 to 25 per 1,000 live births. When socioeconomic and regional disparities are considered, these statistics worsen (WHO, 2018). According to the Ghana Demographic and Health Survey (GDHS, 2022), the country's newborn mortality rate (NMR) fell by 2.4% between 1993 and 2022. The largest region in the north of the country saw a 3.04% decline in NMR during this time.

Neonatal mortality is a measure of a country's population growth rate as well as its demographic, biological, socioeconomic, and public health conditions (Gonzalez, 2019). To achieve the Sustainable Development Goals (SDGs), it is imperative to investigate the reasons for neonatal deaths. Furthermore, the first step in implementing the required measures and suitable techniques for lowering the neonatal mortality rate should be identifying the causes of neonatal death and the factors that contribute to it (Tekelab et al., 2019). Complex interactions between several factors that are influenced by various factors are the causes of newborn fatalities (De Souza et al., 2019). Most neonatal deaths are caused by the poorest and most destitute individuals, who also have low socioeconomic status, less education, and little to no access to healthcare (Ndayisenga, 2016).

Pregnancy, childbirth, and infections are a few of the various factors that contribute to neonatal fatalities (Annan and Asiedu, 2018). About one-third of neonatal fatalities are attributable to each of these causes. Low birth weight, preterm birth, and infant death are all much more likely with birth intervals under 36 months (Olack et al., 2021). Large parts of neonatal mortality are caused by asphyxia, congenital abnormalities, infections, bleeding, and respiratory distress syndrome (Chowdhury et al., 2010). According to Mengesha and Sahle (2017), out of every 1,000 live births,

there were 63 neonatal deaths, with preterm births accounting for 34% of these deaths and birth asphyxias for 31%. There is evidence linking birth outcomes to maternal service utilization and access (Kananura et al., 2016).

Greater survival rates have been reported for babies whose mothers attended antenatal care (ANC) clinics four or more times during their pregnancy. This is thought to be partially because of increased attendance at ANC and knowledge of neonatal and maternal fatalities (Kananura et al., 2016). ANC is especially important now that moms are being taught by health professionals to identify risk indications during pregnancy and to welcome deliveries that are supervised by qualified medical personnel (Ononge et al., 2016).

Neonatal health simulation model (NEOSIM) was developed by Semwanga, Nakubulwa, and Adam (2016) to uncover workable solutions for improved newborn healthcare in Uganda. The NEOSIM focused on healthcare options, service delivery, and maternal health. Semwanga et al. (2016) have employed the NEOSIM model to evaluate the outcomes of multiple interventions, such as improving the mother's access to health services, in addition to other factors like the facility's proximity, anti-malarial medication, tetanus vaccination, anaemia, education campaigns, the provision of birth kits during childbirth, and free motorcycling transportation. The study found that the free delivery kits and free transportation for convenient access to a medical facility had the most effects. To gain a deeper understanding of the reasons behind Kampala's consistently high infant death rate and the significance of ANC attendance, Peters (2014) carried out an additional qualitative analysis.

In the 1980s, the World Health Organization and the United Nations Children's Fund collaborated to combat newborn and child mortality. The United Nations has achieved a fifty percent reduction in the number of deaths among children under the age of five through the implementation of

Millennium Development Goal (MDG) number 4. (Diedrich, Clorissa M., 2016). The global health community set out to cut newborn death rates to 12 per 1,000 live births by 2030, among other goals, when they adopted the Sustainable Development Goals (SDGs) in 2015. (Golding et al., 2017). To reduce neonatal mortality nationwide and further Ghana's commitment to achieving the Sustainable Development Goals (SDGs) and Millennium Development Goals (MDGs), the country established a National Newborn Health Strategy and Action Plan (2014–2018), which was updated in 2019.

Despite these efforts, women's access to expert treatment in sub-Saharan Africa is hampered by several circumstances (Habib et al., 2021). Some people merely lack faith in the healthcare system (Psaila, 2018). Reaching a qualified attendant may be difficult due to the challenging geography and the lack of available transportation (Atuoye et al., 2015).

To help authorities and policy makers develop appropriate interventions that could lower the stagnant neonatal mortality rate in Northern Ghana and throughout Ghana, it is important to identify the factors associated with neonatal mortality in the Tamale Metropolitan area. Context-specific information on factors associated with neonatal mortality is scarce.

1.2 Problem statement

Over the previous 20 years, there has been a decline in the rates of newborn and under-five death. Nonetheless, compared to death among children under five, newborn mortality is decreasing more slowly (UNICEF et al., 2019). This phenomenon of slower newborn mortality drops has resulted in relatively constant newborn mortality, and consequently, many regions of the world, particularly sub-Saharan Africa, have not been able to meet the fourth Millennium Development Goal (MDG), which calls for a two-thirds reduction in under-five mortality (UNICEF, 2015). Sixty-nine million fatalities of children under five are predicted to occur between 2016 and 2030; if present trends hold true, more than half of these deaths will occur during the neonatal period (WHO, 2016). Ghana has a high newborn mortality rate, with 30 deaths for every 1000 live births nationwide. The Northern area has one of the highest rates in the Sub-Saharan region, at 35 deaths for every 1000 live births (UNICEF, 2018).

The District Health Information Management System (DHIMS) reports that the Tamale Metro's average neonatal mortality rate over the previous four years has been 20.5 per 1000 live births (DHIMS, 2022). The SDG target 3.2, which calls for a reduction in newborn mortality deaths to 12 deaths per 1000 live births by 2030, is seriously threatened by the current trajectory (WHO, 2022). Research has been carried out to determine the factors that contribute to the death of newborns (Sacks et al., 2022; Woday Tadesse et al., 2021; Wolde et al., 2019).

Despite investments in policy and programs, social norms still discourage some pregnant women from receiving antenatal care promptly, newborn survival programs in Ghana have not improved neonatal survival (Gomez et al., 2018). However, there is a sparse record of studies of this phenomenon in the northern region. Understanding the contextual exposures to neonatal mortality

among women in this population has become a public health imperative. This study, therefore, investigates the factors associated with the neonatal mortality rate.

1.3 Study objectives

1.3.1 Main objective

The main objective of the study was to investigate the perspectives of parents and health care providers on factors influencing neonatal mortality in the Tamale Metropolis.

1.3.2 Specific objectives

- To explore socio-economic factors influencing neonatal mortality in Tamale Metropolis
- To examine the cultural factors influencing neonatal mortality in the Tamale Metropolis.
- To investigate the health facility factors associated with neonatal mortality in the Tamale Metropolis.

1.4 Research Question

1.4.1 Main Research Question

How do parents and health care providers perceive to be the factors influencing neonatal mortality in the Tamale Metropolis?

1.4.2 Specific Research Questions

- How do socio-economic factors influence neonatal mortality in the Tamale Metropolis?
- How do the cultural factors influence neonatal mortality in the Tamale Metropolis?
- How do health facility factors influence neonatal mortality in the Tamale Metropolis?

1.5 Significance of the study

Targeted Intervention Strategies: Understanding the specific socio-economic, cultural, and health system factors influencing neonatal mortality allows for developing targeted intervention strategies. This ensures that interventions address the root causes and are tailored to the unique context of the Tamale Metropolis.

Policy Formulation and Implementation: Findings from the study can inform the development and refinement of healthcare policies aimed at reducing neonatal mortality. Policymakers can use evidence-based insights to implement effective and context-specific interventions.

Resource Allocation: Effective resource allocation is facilitated by the identification of the major variables linked to newborn mortality. Policymakers and healthcare planners can direct resources to regions where they will have the greatest impact by having a thorough grasp of the factors that contribute to newborn death.

Community Engagement and Education: The study can contribute to community engagement and education programs. Awareness campaigns can be designed to address specific socio-economic and cultural factors influencing neonatal mortality, fostering a greater understanding and acceptance of evidence-based healthcare practices.

Healthcare Provider Training: - Healthcare providers can benefit from the study's findings by receiving targeted training on addressing socio-economic and cultural factors that impact neonatal health. This can enhance their ability to provide culturally sensitive and effective care.

Reducing Health Disparities: Understanding socio-economic factors can help identify and address disparities in access to healthcare services. This can contribute to efforts aimed at reducing health inequalities and ensuring that all segments of the population receive adequate and timely care.

Improving Health System Efficiency: Identifying health system factors contributing to neonatal mortality can guide efforts to improve the efficiency of healthcare delivery. This may involve strengthening infrastructure, optimizing healthcare workflows, and enhancing emergency response systems.

Research and Academic Contributions: The study adds to the existing body of knowledge on neonatal mortality, socio-economic factors, cultural influences, and health system dynamics. It contributes valuable information for researchers, academics, and policymakers working in the field of maternal and child health. The study's findings may have broader implications for global health, offering insights into effective approaches to addressing neonatal mortality that could apply to other regions facing similar challenges.

1.6 Theoretical framework of the study

The study used the Ecological Systems Theory (EST). Applying the Ecological Systems Theory in a study to assess factors associated with neonatal mortality in the Tamale Metropolis provides a comprehensive framework that considers the multifaceted influences on health outcomes. The Ecological Systems Theory, developed by Urie Bronfenbrenner, explores the interactions between individuals and their environments at various levels.

Microsystem (Individuals and Families)

Explore individual and family characteristics, behaviors, and practices related to neonatal care. Investigate how socio-economic factors, such as income and education, influence individual health-seeking behaviors during pregnancy and childbirth. Examine family dynamics, support systems, and decision-making processes concerning neonatal care.

Mesosystem (Community)

Investigate community-level factors that contribute to or mitigate neonatal mortality. Assess cultural beliefs, practices, and norms within the community related to pregnancy, childbirth, and neonatal care. Explore the role of community networks, such as social support systems and community organizations, in promoting or hindering neonatal health.

Exosystem (Institutional Factors):

Analyze the institutional aspects of the healthcare system that affect newborn mortality. Evaluate the quality of maternity and newborn services as well as the accessibility and availability of healthcare facilities. Examine how laws, rules, and the funding of healthcare affect the health of newborns.

Macrosystem (Socio-Cultural Factors):

Explore broader socio-cultural factors influencing neonatal mortality. Investigate how socio-cultural beliefs and practices related to childbirth and neonatal care shape community norms. Assess the impact of broader cultural and societal attitudes toward women's health and reproductive practices on neonatal outcomes.

Chronosystem (Time Dimension):

Think about the temporal factors affecting trends in newborn mortality throughout time. Examine past modifications to socioeconomic circumstances, cultural norms, and healthcare laws that may have had an impact on newborn death rates. Analyze how particular occurrences or actions affect the trends in newborn mortality.

By applying the Ecological Systems Theory, the study can gain a holistic understanding of the interrelated factors influencing neonatal mortality in the Tamale Metropolis. This approach allows for the identification of not only individual-level factors but also the broader community, institutional, and societal factors that contribute to neonatal health outcomes. The findings can inform targeted interventions at multiple levels to address the complexities of neonatal mortality in this specific context.

1.7 Conceptual Framework of the study

The conceptual framework illustrates the factors influencing neonatal mortality through Bronfenbrenner's Ecological Systems Theory, categorizing influences into five systems. The Microsystem (Individual and Families) includes factors such as income level and education of parents, particularly mothers, affecting access to healthcare and health practices. The cultural norms, practices, and beliefs of the Mesosystem (Community) pertaining to pregnancy, childbirth, and neonatal care are all included. The Exosystem (Institutional Factors) considers healthcare facilities' accessibility and availability, which affects the frequency and quality of service.

The Macrosystem (Socio-cultural Factors) involves cultural and societal attitudes towards women's health, affecting resource allocation and the value placed on women's health. The Chronosystem (Time Dimension) encompasses historical changes in healthcare policies, cultural practices, and socio-economic conditions that impact current neonatal health outcomes. Neonatal mortality is at the center of this framework, showing it is influenced by the interplay of these multi-layered factors, highlighting the need for a holistic approach to improve neonatal health outcomes.

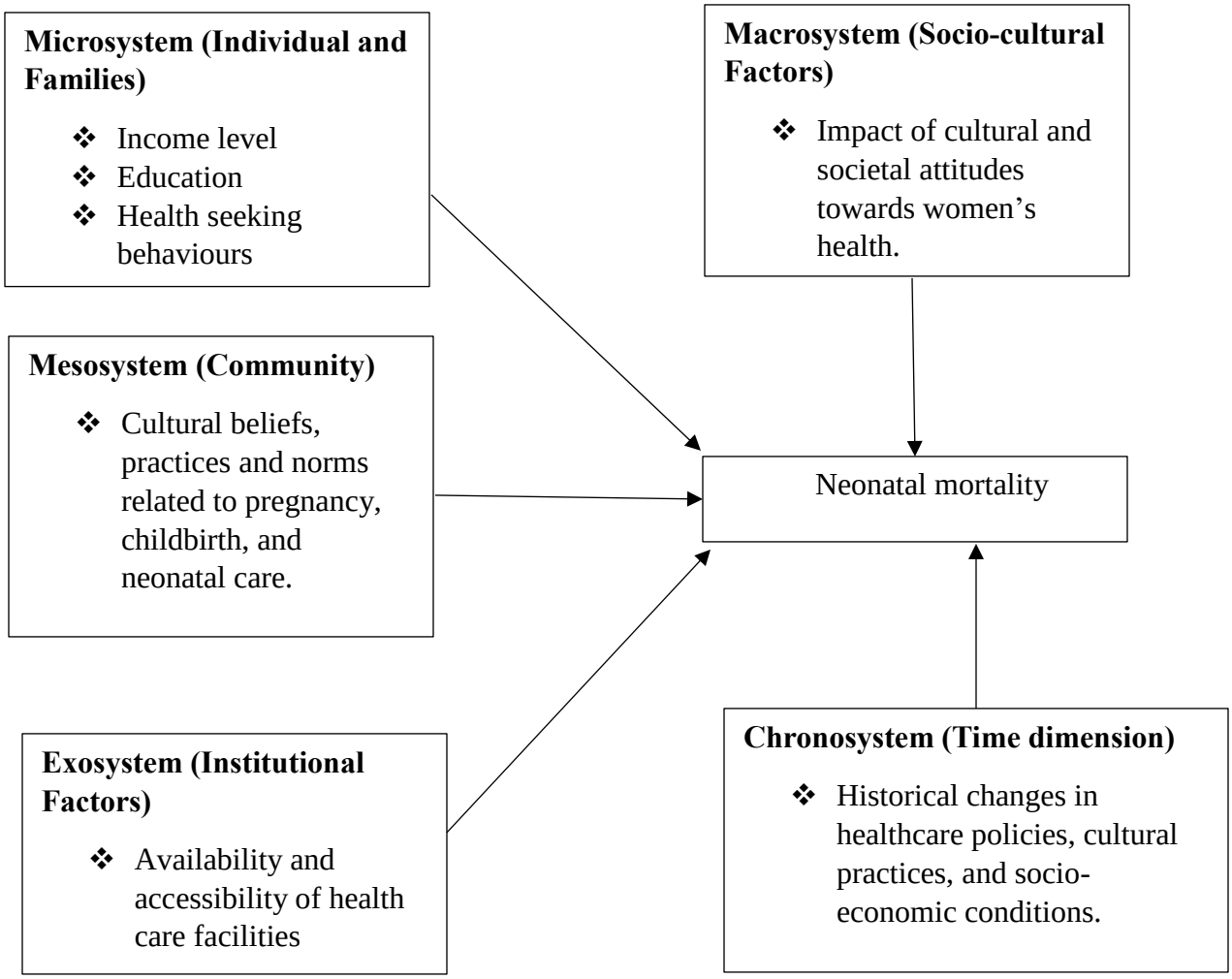

Figure 1: Conceptual framework showing the factors influencing neonatal mortality.

1.8 Operational definition of terms

Neonatal mortality: The death of a live-born infant within the first 28 days of life.

Socio-economic factors: Socio-economic factors refer to individual and household characteristics related to economic status, education, and occupation.

Cultural factors: Cultural factors encompass the beliefs, customs, values, and practices within a community or society.

Health system factors: Health system factors pertain to the characteristics and functioning of the healthcare system, including infrastructure, personnel, and service delivery.

1.9 Organization of the Study

There are six chapters in this study effort. The study's backdrop, problem description, study justification, research questions, objectives, definitions of words, and organizational structure were all covered in Chapter 1. The second chapter included pertinent literature on the research topic, gathered from websites, books, journals, and articles. The study design, study setting, study population, inclusion and exclusion criteria, study variables, sample size and sampling techniques, data collection techniques and tools, quality control, data processing and analysis, and ethical considerations were all covered in Chapter 3's section on research methodology. The study's results were presented in Chapter Four, while their discussion was covered in Chapter Five. A summary of the study's key findings, conclusion, and suggestions was then provided in Chapter Six.

CHAPTER TWO

LITERATURE REVIEW

This chapter provides a literature review of the study. It also provides the gaps the current study sought to address.

2.1 Overview of Neonatal Death

A newborn baby's death during the first 28 days of life is referred to as a neonatal death. Newborns are especially susceptible to disease and difficulties during this crucial period as they acclimatize to the outside world (Lawn et al., 2015). Due to the numerous illnesses that newborns are susceptible to, this condition accounts for over 40% of all pediatrics fatalities and is the most dangerous time of life (Lawn et al., 2015). The period known as the neonatal period marks the change from intrauterine to independent life. Early neonatal deaths, or deaths between 0 and 7 full days of delivery, are another category into which deaths that take place during this time can be divided (Dare, 2021).

Moreover, late neonatal deaths occur after seven days to 28 completed days of birth (Pathirana, 2016). Most maternal and neonatal deaths happen during childbirth and the early postnatal period. Ensuring effective and appropriate interventions before, during pregnancy, and after delivery can preserve the lives of mothers and babies. Safe motherhood measures and interventions in the first month of life can also decrease long-term disability and encourage behaviours such as breastfeeding, with vast benefits for the health of children, families, and communities (Gülmezoglu, 2016).

Improving neonatal mortality is, to a far extent, an essential element of reducing under-five mortalities. To do this, global policies were implemented by UN Secretary-General Ban Ki-moon in 2012. In 2014, the global plan was improved with the "Every Newborn Action Plan" (Hug et al., 2019). The Sustainable Development Goals (SDGs), which aim to stop preventable deaths of newborn babies and children under five by 2023, were inspired by the goals set forth in the "Every Newborn Action Plan" to reduce under-five and neonatal mortality. To do this, all nations are working hard enough to reduce the newborn mortality rate (NMR) to less than five deaths per 1000 live births, or 12 deaths per 1000 live births, through public health initiatives (Hug et al., 2019).

Nearly three million newborns die each year, making neonatal death not only a severe public health issue but also a genuine threat to global development. Within the first 24 hours following birth, half of these deaths take place (Owusu et al., 2018). According to reports, 99% of newborn deaths worldwide occur in low-income or developing nations and are mostly avoidable (Dibisa et al., 2019). According to Gelano et al. (2019), preterm birth (28%), severe infections (26%), and suffocation (23%) are the three main causes of neonatal mortality (NMR). The health sector has a role in humanity from conception to death. In doing that, a specific effort such as regular check-ups, ultrasound monitoring, and other diagnostic tests must be performed throughout a woman's pregnancy and birth to help prevent neonatal mortality. According to the World Bank (2016), Ghana reports over thirty thousand neonatal deaths annually, and four (4) neonates die every hour. The numbers are shocking compared to other West African countries, such as Liberia and it deserves attention as a country (Diedrich, 2016). As of 2020, there were 30.6 newborn deaths for every 1,000 live births in Liberia. According to Lawubah et al. (2023), Liberia has one of the highest rates of newborn death worldwide. Every day, about ten babies will pass away before they reach their first three months of life (UNICEF, 2018).

2.1.1 Institutional Challenges Confronting Neonatal Mortality

A qualitative study found that the majority of the respondents do experience leadership challenges such as improper communication, non-involvement of unit heads in decision-making, poor leadership style, role conflicts, poor supervision, inadequate provision of essential resources needed, and inadequate monitoring by the personnel in-charge of neonatal care (Brobbey et al., 2023). Many point out the issue of prioritization of interest by some health practitioners (Brobbey et al., 2023). This confirms the findings of Kwami et al. (2023) that leadership challenges, availability of essential resources, health-strengthening interventions such as capacity building, and monitoring and evaluation were the main institutional challenges confronting neonatal care in health facilities. The study's findings also added role conflicts, improper communication, and non-involvement of unit heads in decision-making as institutional challenges confronting neonatal care in health facilities.

A study conducted by Narang et al., (2013) in Delhi India, discovered that ambulances carrying patients to referral centers were few, and most patients rely on private vehicles such as hired taxis/tempos and public transport such as trains and buses. Even among those who were transported by ambulances, there was no equipment for resuscitation or warming, while a clinical note did not even accompany others. Similarly, Galal & Al-Gamal (2014) discovered that the most important health factor linked to neonatal death is the availability of healthcare professionals with midwifery abilities during labour, backed by transportation in the event of an emergency referral. While Moyer et al. (2012) found in their analysis that an enabling atmosphere at different levels of the healthcare system, sufficient resources, facilities, and an effective and successful referral

network, backed by supportive policy and regulatory framework, affect neonatal death, Esena and Sappor (2013) added that the poor attitude of health workers accounts for neonatal mortality.

2.2 Socio-Economic Factors Influencing Neonatal Mortality

2.2.1 Socio-economic factors affecting high infant and child mortality rates in African Countries

A few research (Akinlo & Sulola, 2019; Chireshe & Ocran, 2020; Kiross et al., 2020) looked at the impact of public health spending on infant and child mortality rates in the context of African regions. According to these findings, spending on public health considerably lowered the rates of infant and child mortality in African nations. In contrast, Akinlo & Sulola (2019) found that the high level of corruption in public health expenditure contributed to an increase in baby and child mortality in sub-Saharan Africa. Edeme (2017) demonstrated, from a single-country standpoint, that public health spending had a mitigating effect on Nigeria's infant mortality rate throughout the 1981–2014 data period. Hlafa et al., (2019) found that, depending on provincial management and the availability of infrastructure across nine provinces in South Africa, the effects of public health expenditure on the child mortality rate varied between 2002 and 2016.

The literature on African nations also investigates the impact that doctors play in lowering baby and child mortality (Hlafa et al., 2019). Anyanwu & Erhijakpor (2019) found a negative correlation between the rates of infant and child mortality in 47 African nations from 1999 to 2004 and the number of physicians. Rahman et al., (2018) research, however, showed that the number of doctors per 100,000 people has no effect on the rates of child mortality in underdeveloped nations.

As seen in the modern works, HIV/AIDS has had a catastrophic impact on baby and child mortality in African nations. In 2020, Salahuddin et al., (2020) found that the prevalence of HIV had a beneficial effect on neonatal and child mortality rates in 47 African nations. Using community-

based survey data from 2000–2002, Manda et al., (2020) found that HIV/AIDS was the main factor contributing to higher baby and child mortality rates in a rural area of South Africa. Similarly, Arunda et al., (2016) found a favourable correlation between a mother's HIV status and Tanzania's child death rate between 2003 and 2012. Nonetheless, Akinlo & Sulola (2019) found a statistically significant inverse association in ten sub-Saharan African countries between the prevalence of HIV and infant and child mortality rates. The impact of the HIV prevalence rate on infant mortality in sub-Saharan African nations was shown to be uncertain by Novignon et al., (2012).

newborn and child health is also strongly impacted by economic growth, and numerous researchers have found that in African countries, economic growth has a positive effect on newborn and child mortality rates (Akinlo & Sulola, 2019; Kiross et al., 2020a; Manda et al., 2020). Numerous researchers found that economic expansion significantly lowered infant and child death rates outside of African nations (Dutta et al., 2020; Rahman et al., 2018). On the other hand, Pérez-Moreno et al., (2016) found that while child mortality in the Least Developed Countries (LDCs) is not significantly affected by rising GDP per capital, it is dramatically increased in response to declining GDP per capital. Thus, a more in-depth analysis of how economic expansion affects the health of newborns and children is required.

Because education increases public awareness and understanding about leading a healthy life, it has a key influence in lowering the rates of infant and child mortality. Some recent research focusing on African nations has indicated that education plays a significant influence in lowering infant and child mortality (Kiross et al., 2020b; Yaya et al., 2017). Numerous authors discovered that the correlation between the rate of child mortality and the rate of schooling was negative, even outside of African nations (Arunda et al., 2016; Rahman et al., 2018). Nonetheless, some authors felt that there was no statistically significant correlation between schooling and the rates of infant

and neonatal death (Anwar et al., 2019; Pérez-Moreno et al., 2016). Thus, there is a need for additional research on how education affects newborn and child mortality rates.

Globalization is currently thought to be a significant factor influencing the health of infants and children in African nations (Nguea et al., 2020; Shahbaz et al., 2019). According to Nguea et al., (2020), 32 sub-Saharan African nations saw a decrease in baby and child mortality rates because of globalization. According to Shahbaz et al., (2019), the sixteen sub-Saharan African nations have seen an increase in life expectancy at birth because of globalization. On the other hand, globalization raises the risk of diabetes and cardiovascular disease, which worsens health outcomes in nations in sub-Saharan Africa, according to Arunda et al., (2016). A few studies have discovered that globalization has a major impact on newborn and child health in regions other than Africa. Globalization dramatically lowered child death rates in 110 poor countries between 1970 and 2015, according to Olagunju et al., (2019). In a similar vein, Welander et al., (2014) found that globalization reduced newborn mortality rates in 70 developing nations and the overall setting. According to Martens et al., (2018), in the instance of 117 countries, globalization decreased the rates of newborn and child mortality.

2.2.2 Influence of Socio-economic Factors on Child Mortality

Child mortality rates are significantly impacted by socioeconomic conditions. To understand the intricate interactions between economic, social, and environmental factors, several research have examined the impact of socioeconomic factors on child mortality (Ibrahim et al., 2021; Khan et al., 2020; Taramsari et al., 2021). According to Zilidis & Hadjichristodoulou (2020), children from lower socioeconomic origins are more likely than those from higher socioeconomic backgrounds to have higher mortality rates.

Socioeconomic status can affect a family's ability to access quality healthcare services. Families with lower income or limited resources may face barriers such as lack of health insurance, limited transportation options, or insufficient funds to cover medical expenses (Taramsari et al., 2021). As a result, children from economically disadvantaged families may not receive timely and appropriate healthcare, leading to higher mortality rates (Adongo & Ganle, 2023).

According to Khan et al., (2020), a child's access to nutrient-dense food is significantly influenced by their family's financial situation. Food insecurity affects children from low-income households and can result in malnutrition and heightened disease risk. Children who are malnourished are more likely to have compromised immune systems, which leaves them more susceptible to infections and other health issues that raise the risk of child mortality.

Socioeconomic factors influence living conditions, including access to clean water, sanitation facilities, and adequate housing (Taramsari et al., 2021). The writers reported that children living in impoverished areas may be exposed to unclean water sources, inadequate sanitation facilities, and overcrowded living conditions. These factors can increase the risk of waterborne diseases, respiratory infections, and other illnesses that can be life-threatening for children.

Education and literacy levels are linked to child mortality rates. Higher levels of education among parents are generally associated with better health outcomes for children (Adongo & Ganle, 2023). Educated parents are more likely to make informed decisions about their children's health, seek appropriate healthcare, and adopt preventive measures. Additionally, education can also empower individuals to understand and implement practices related to hygiene, nutrition, and child safety (Islam & Biswas, 2021).

Socioeconomic status often determines access to social and economic resources, which can have an impact on child mortality. Families with higher incomes may have better access to social support networks, community resources, and opportunities for social mobility (Dare et al., 2021). These factors can positively influence children's health outcomes by providing a supportive environment and enabling access to better healthcare, nutrition, and education (Kwami et al., 2023).

A comprehensive strategy that promotes education and literacy, enhances nutrition programs, lowers income disparities, and improves access to healthcare is needed to address the socioeconomic determinants that lead to child mortality. It also calls for the implementation of programs and policies that target underprivileged groups and deal with the underlying social and economic factors that influence health.

2.2.3 Influence of Socio-economic Factors on Seeking Healthcare Services for Children

Socioeconomic factors can significantly influence parents' decisions and behaviors regarding seeking healthcare services for their children.

The cost of healthcare services, including consultations, medications, and diagnostic tests, can be a significant barrier for parents from lower socioeconomic backgrounds (Latunji & Akinyemi, 2018). Families with limited financial resources may struggle to afford healthcare expenses, especially if they lack health insurance or have high out-of-pocket costs (Ilinca et al., 2019). As a result, they may delay or avoid seeking healthcare services for their children, which can increase the risk of complications and mortality.

Gordon et al. (2020) found that parents' healthcare-seeking behaviour for their children can be significantly influenced by their health insurance coverage or lack thereof in South Africa. Because

they have access to a network of healthcare professionals and financial security, families with good health insurance are more likely to seek timely and appropriate healthcare services for their children, according to the authors. On the other hand, parents who do not have health insurance may find it difficult to obtain and pay for medical services, which could result in delayed or subpar care (Paul & Chouhan, 2020).

Socioeconomic status can impact parents' knowledge and understanding of health issues, as well as their ability to navigate the healthcare system (Taramsari et al., 2021). Parents with lower levels of education and health literacy may face difficulties in recognizing symptoms, understanding treatment options, and advocating for their children's healthcare needs. This can result in delayed or inappropriate care-seeking behaviour (Gordon et al., 2020).

Proximity to healthcare facilities and transportation options are important considerations for parents when seeking healthcare services for their children (Ibrahim et al., 2021). Families with limited access to healthcare providers may have to travel far distances or deal with transportation issues if they live in rural or underdeveloped locations (Ilinca et al., 2019). These obstacles may deter parents from getting their kids the prompt medical attention they need.

Socioeconomic factors intersect with cultural beliefs and perceptions, influencing parents' decisions regarding healthcare-seeking behaviour for their children (Gordon et al., 2020; Khan et al., 2020). Cultural norms, language barriers, and mistrust of the healthcare system affect parents' attitudes toward seeking healthcare services in Pakistan (Khan et al., 2020). Additionally, socioeconomic disparities can contribute to disparities in healthcare access, leading to a lack of trust in the healthcare system among marginalized communities (Ilinca et al., 2019).

Addressing socioeconomic factors that impact parents' healthcare-seeking behaviour for their children involves implementing strategies to improve affordability and access to healthcare services. This can include expanding health insurance coverage, implementing targeted outreach and education programs to enhance health literacy, improving transportation options, and culturally tailoring healthcare services to meet the needs of diverse populations. Additionally, addressing social determinants of health, such as poverty and education, can also have a positive impact on parents' ability to seek appropriate healthcare services for their children.

2.2.4 Support Mechanisms to Address Socio-Economic Challenges

Support systems that can assist mothers in addressing socioeconomic challenges with neonatal care are crucial for ensuring the well-being of both mothers and their newborns. Mothers and families can receive comprehensive support from government-funded programs centered on maternal and child health, such as the Maternal and Child Health (MCH) programs (Gordon et al., 2020). Prenatal and postnatal care, health education, and access to healthcare services are frequently provided by these programs. Additionally, they can link people to social resources like financial aid, housing help, and nutrition assistance programs (Ringson, 2020).

Community health workers, also known as lay health workers or promotors, can play a vital role in supporting mothers facing socioeconomic challenges (Taramsari et al., 2021). These individuals are often from the same community as the mothers they serve and can provide culturally appropriate guidance, education, and advocacy. Community health workers can help connect mothers to healthcare services, provide information on available resources, and offer emotional support (Ibrahim et al., 2021).

Home visiting programs involve trained professionals or volunteers visiting the homes of new mothers and providing support and guidance. These programs can be particularly valuable for mothers facing socioeconomic challenges as they address barriers such as transportation and access to healthcare facilities (De-Bruin et al., 2020). Home visitors can provide education on newborn care, breastfeeding, nutrition, and child development. They can also connect mothers to social services and resources in the community (Rahman et al., 2022).

Support groups and peer networks can provide mothers with a sense of community, emotional support, and practical advice. These groups can be facilitated by healthcare professionals, community organizations, or online platforms. By connecting with other mothers who have faced similar challenges, mothers can share experiences, learn from one another, and find encouragement (Ibrahim et al., 2021).

Some of the socioeconomic difficulties related to newborn care can be mitigated by having access to financial support programs. Financial assistance for healthcare services, wholesome food, and other necessities can be obtained through programs like Medicaid, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and Temporary Assistance for Needy Families (TANF) (Paul & Chouhan, 2020; Rahman et al., 2022). Helping moms find their way around and utilize these resources can be quite beneficial.

Mothers can lessen their financial burden and focus on providing newborn care by utilizing supportive workplace policies and practices, such as paid maternity leave, flexible work schedules, and breastfeeding support programs (Ibrahim et al., 2021). According to Linca et al., (2019), employers have a significant impact on fostering a supportive work environment that acknowledges the special requirements of working mothers. By implementing and strengthening these support systems, mothers facing socioeconomic challenges can receive the assistance they

need to address the barriers they encounter in accessing neonatal care. These systems can help ensure that all mothers have equal opportunities to provide optimal care for their newborns, regardless of their socioeconomic status.

2.3 Cultural Beliefs Associated with Neonatal Mortality

2.3.1 Cultural Beliefs and Practices Related to Neonatal Health and Care

Cultural beliefs and practices play a significant role in shaping attitudes and behaviours related to neonatal healthcare. These beliefs and practices can influence how parents and communities perceive and approach the care of newborn infants. In many cultures, traditional healing practices are deeply rooted and continue to be valued alongside or even in place of modern medical interventions (Ansong et al., 2022; Selbana et al., 2020). Traditional healers, such as herbalists or spiritual practitioners, may be consulted for various newborn health issues. For example, herbal remedies or rituals might be used to address common conditions like colic or jaundice. It is important to note that while some traditional practices may be beneficial, others may lack scientific evidence or pose potential health risks (Selbana et al., 2020).

Cultural beliefs about illness and health can influence how parents interpret and respond to their newborn's health concerns (Withers et al., 2018). Some cultural beliefs may attribute illness to supernatural forces, ancestral spirits, or imbalances in energy or humours. This can lead to seeking traditional healing methods or spiritual interventions, rather than seeking medical care. Understanding and respecting these cultural beliefs is important for healthcare providers to establish effective communication and build trust with families (Joseph & Earland, 2019).

In many cultures, newborn care is seen as a collective responsibility of the family and community (Ansong et al., 2022). Extended family members, such as grandparents or aunts, may play a

significant role in providing care and support for the newborn and the mother. Cultural practices that emphasize communal caregiving can impact decisions regarding healthcare-seeking, as families may rely on the advice and experiences of their elders or community members (Sutan & Berkat, 2014).

Cultural beliefs and practices around breastfeeding can significantly impact neonatal health. Some cultures strongly encourage and support breastfeeding, recognizing its benefits for the baby's health and bonding between mother and child (Annan & Asiedu, 2018). Conversely, certain cultural practices or beliefs may discourage breastfeeding or introduce early introduction of other foods or liquids.

Many cultures have specific rituals, ceremonies, or celebrations associated with the birth of a child (Dare et al., 2021). These cultural practices often have symbolic and social significance but may also have implications for neonatal healthcare. For example, cultural practices such as delayed bathing, cord cutting rituals, or specific dietary restrictions may impact the timing or manner in which healthcare interventions are provided (Sutan & Berkat, 2014).

Cultural and social beliefs can influence healthcare-seeking behaviors and practices related to neonatal care (Okereke et al., 2019). Traditional practices, cultural norms, and misconceptions may impact the acceptance and utilization of essential healthcare services. Overcoming cultural barriers and promoting evidence-based practices through community engagement and education are crucial in improving neonatal outcomes (Paudel et al., 2018).

2.3.2 Cultural Beliefs Contributing to Neonatal Mortality

Cultural beliefs can sometimes contribute to neonatal mortality, either directly or indirectly (Chakona, 2020). While cultural beliefs and practices can have positive influences on neonatal

health, there are instances where certain cultural beliefs may hinder access to appropriate healthcare or lead to harmful practices (Garcia, 2022). It is essential to note that these examples vary across cultures, and not all cultural beliefs have negative implications (Maniruzzaman et al., 2018).

In some cultures, traditional birth attendants or community-based midwives are preferred over hospital or skilled birth attendance (Geruso & Spears, 2018). While traditional birth attendants may play a valuable role in providing care and support during childbirth, they may lack the necessary training and resources to address complications that can arise during delivery (Sumankuuro et al., 2018). This can lead to delays in recognizing and managing obstetric emergencies, increasing the risk of neonatal mortality.

Cultural beliefs and practices may lead to delays in seeking medical care for newborns (Withers et al., 2018). Some cultures have a preference for home remedies or traditional healing methods, leading to delays in seeking professional medical attention (Garcia, 2022). This delay can result in missed opportunities for early intervention and appropriate medical treatment, potentially exacerbating neonatal health conditions and increasing the risk of mortality (Geruso & Spears, 2018).

Certain cultural rituals and traditional practices, although steeped in cultural significance, may inadvertently contribute to neonatal mortality. For example, harmful cultural practices such as female genital mutilation or scarification rituals can lead to severe complications during childbirth, including neonatal mortality (DeVane-Johnson et al., 2018; Garcia, 2022). Other practices like early bathing, traditional cord care, or dietary restrictions may also have unintended adverse effects on newborn health if they interfere with recommended medical interventions or disrupt essential care practices (Latunji & Akinyemi, 2018).

Cultural norms and gender roles can influence neonatal mortality rates indirectly. Certain civilization's place a premium on women performing household chores and providing care for others, which might restrict their access to economic and educational possibilities (Paul & Chouhan, 2020). This may lead to a lack of finances and decision-making authority within the family, which may affect the mother's capacity to get the care her infant needs or to seek medical attention. Furthermore, societal norms that emphasizes the worth of male offspring over female offspring may have a role in the disparate treatment and disregard for female neonates, which could result in higher mortality rates among Pakistani girls (Khan et al., 2020).

2.3.3 Cultural Beliefs Hindering the Utilization of Healthcare Services for Neonates

Cultural beliefs can sometimes hinder the utilization of healthcare services for neonates (Ali et al., 2018). These beliefs can stem from cultural norms, traditions, and perceptions that may discourage or delay parents from seeking appropriate medical care for their newborns (Kea et al., 2018). While it is important to respect and understand diverse cultural perspectives, it is crucial to recognize and address cultural beliefs that may negatively impact neonatal health (Adugna et al., 2020).

Some cultures place a strong emphasis on traditional healing practices, such as herbal remedies, spiritual healing, or the use of traditional healers (Silumbwe et al., 2018). Although there is a role for traditional medicine, treating major newborn health issues with these methods alone may cause them to be treated insufficiently or too slowly. To guarantee the best possible results for babies, it is crucial to inform parents about the prospective advantages of combining traditional and modern healthcare practices (Mekonnen et al., 2019).

Cultural beliefs and fears surrounding medical interventions, such as vaccinations or hospital births, may discourage parents from seeking healthcare services for their newborns (Planey et al.,

2019). Misinformation or mistrust of healthcare systems can contribute to parents' hesitancy or refusal to utilize medical services. Addressing these concerns requires open communication, culturally sensitive education, and the involvement of trusted community leaders or healthcare providers to provide accurate information and alleviate fears (Quaosar et al., 2018).

Cultural taboos or stigmas surrounding certain health conditions or seeking medical help can deter parents from accessing healthcare services for their newborns (Geleto et al., 2018). For example, cultural beliefs that view disability as a punishment or curse may lead parents to hide their child's condition or avoid seeking appropriate medical care (Gitobu et al., 2018). Breaking down these stigmas and promoting acceptance and support is crucial to ensure that all newborns have access to necessary healthcare services (Kyilleh et al., 2018).

In cultures where home births or traditional birth practices are valued, parents may be hesitant to seek healthcare services during the prenatal period or for postnatal care (Mekonnen et al., 2019). Traditional birth practices may not always provide the necessary medical interventions and monitoring that can prevent or treat complications. Educating parents about the potential benefits of skilled birth attendants and the importance of prenatal and postnatal care can help overcome these barriers (Quaosar et al., 2018).

In some cultures, gender roles and decision-making processes may restrict the involvement of mothers in healthcare decision-making for their newborns (Gitobu et al., 2018). Cultural norms that prioritize the authority of male family members or elders in decision-making can lead to delayed or inadequate healthcare seeking. Promoting gender equality and empowering mothers to actively participate in healthcare decision-making can help improve neonatal health outcomes (Quaosar et al., 2018).

Addressing cultural beliefs that hinder the utilization of healthcare services for neonates requires culturally sensitive approaches. Engaging with community leaders, religious authorities, and cultural mediators can help bridge gaps in understanding and promote the importance of seeking appropriate medical care for newborns. Providing culturally tailored education, addressing misconceptions, and involving trusted community members in healthcare decision-making processes can help overcome these barriers and ensure that newborns receive the care they need.

2.3.4 Influence of Cultural Beliefs on Decision-Making

Cultural beliefs can have a significant influence on decision-making processes when it comes to seeking healthcare services for neonates (Boland et al., 2019). These beliefs shape the way parents and families perceive, interpret, and respond to health issues affecting their newborns (Quaye et al., 2019). Cultural beliefs can shape how illness is perceived and attributed to certain causes (Geleto et al., 2018). Diverse cultures may have varying explanations for neonatal health issues, which can influence parents' decisions on seeking healthcare. For example, some cultures may attribute illness to supernatural forces, spiritual imbalances, or karma, leading parents to seek traditional healing methods or spiritual interventions rather than medical care (Engelbert Bain et al., 2019).

Cultural beliefs and historical experiences can influence trust or mistrust in healthcare systems (Kokorelias et al., 2019). Some communities may have a deep-rooted mistrust of Western medicine due to historical events or cultural biases. This mistrust can affect decision-making regarding seeking healthcare services for neonates, with parents opting for alternative or traditional healing methods (Panda et al., 2018). Building trust between healthcare providers and communities is

essential to address these concerns and encourage utilization of healthcare services (Mekonnen et al., 2019).

When choosing which healthcare treatments to seek for their newborns, cultural norms and gender roles may come into play (Adugna et al., 2020). The authority of male family members or elders may have an impact on healthcare decisions in various cultures (Planey et al., 2019). Mothers' ability to seek and obtain healthcare services for their newborns may be hampered by gender stereotypes that limit their participation in decision-making (Ali et al., 2018). To empower mothers and guarantee their active involvement in healthcare decisions, it is imperative to acknowledge and tackle these cultural conventions (Garcia, 2022).

Cultural beliefs in the efficacy of traditional healing practices can influence parents' decision-making regarding healthcare services for neonates (Ali et al., 2018). Some cultures may prioritize traditional healers or home remedies over medical interventions (Adugna et al., 2020). Parents may choose to rely on traditional healing methods due to cultural beliefs, accessibility, or affordability. Understanding and respecting these cultural beliefs while providing appropriate education on the benefits of modern medical care is important to support informed decision-making (Mekonnen et al., 2019).

Cultural beliefs around birth and postpartum care can influence decisions related to seeking healthcare services for neonates (Bee et al., 2018). Some cultures value home births or traditional birth practices, leading parents to prefer these approaches over hospital births or skilled birth attendance. Cultural practices surrounding postpartum care, such as specific dietary restrictions or rituals, can also impact decisions on seeking healthcare services for the newborn (Withers et al., 2018).

2.4 Health Facility Factors Associated with Neonatal Mortality

2.4.1 The primary cause of neonatal mortality in the hospital settings

Neonatal mortality in hospital settings is caused by several factors (Fleischmann et al., 2021; Hutton et al., 2019). According to Fleischmann et al. (2021), premature delivery is one of the main causes of newborn death. According to Hutton et al. (2019), premature newborns are more likely to experience problems such as intraventricular hemorrhage, sepsis, and respiratory distress syndrome. These conditions often require specialized neonatal intensive care, and despite advances in medical care, preterm birth complications continue to contribute significantly to neonatal mortality (Adatara et al., 2019).

When a baby's brain and other organs do not receive enough oxygen and blood flow after birth, it can result in birth asphyxia, also known as perinatal hypoxia-ischemia (Fleischmann et al., 2021). If left untreated, it can cause fatalities or significant brain damage. Interventions like resuscitation and specialized neonatal care are essential in lessening the impact of birth asphyxia, which is a major cause of neonatal mortality in the hospital environment (Muhe et al., 2019).

A significant percentage of neonatal fatalities are caused by infections in the newborn, including meningitis, pneumonia, and sepsis (Mboera et al., 2018). These infections can be contracted from the hospital environment, during pregnancy, or during childbirth. Hospital diseases can spread due to inadequate infection prevention and control methods, such as inadequate hand hygiene and subpar sterilization procedures (Adatara et al., 2019).

A considerable amount of infant mortality is caused by congenital malformations, which include anatomical deformities and genetic problems (Fleischmann et al., 2021). These defects could be found during prenatal screening or show up soon after birth. Some congenital anomalies are

incompatible with life, while others require specialized medical interventions that may not be readily available or feasible in all hospital settings (Muhe et al., 2019).

Low birth weight is a known risk factor for neonatal death since it is frequently linked to intrauterine growth restriction or preterm birth (Hutton et al., 2019). Babies with low birth weight are more susceptible to respiratory distress, infections, hypothermia, and other issues. Low birth weight and the death that goes along with it can be decreased with the management of maternal diseases, adequate prenatal care, and nutrition (Hutton et al., 2019).

Respiratory distress syndrome (RDS) occurs primarily in preterm infants due to immature lungs and inadequate surfactant production. RDS can lead to respiratory failure and death if not promptly diagnosed and managed with respiratory support, including mechanical ventilation and exogenous surfactant administration (Yadav, 2023).

Fleischmann et al., (2021) observed that inadequate access to quality antenatal care can contribute to neonatal mortality. Also, antenatal care played a critical role in identifying and managing maternal conditions, monitoring fetal development, and providing counseling on healthy behaviors. Without appropriate antenatal care, preventable risk factors for neonatal mortality may go unrecognized or untreated.

Socioeconomic factors play a significant role in neonatal mortality (Sobhy et al., 2019). Limited access to quality healthcare, inadequate nutrition, poor sanitation, and unsafe living conditions contribute to increased neonatal mortality rates. Addressing socioeconomic disparities, improving healthcare infrastructure, and implementing interventions that target vulnerable populations are essential in reducing neonatal mortality (Mboera et al., 2018).

Neonatal death rates are influenced by elements of the health system, including the accessibility and caliber of healthcare services (Adatara et al., 2019). Neonatal deaths that can be prevented can be caused by inadequate access to experienced birth attendants, a shortage of neonatal intensive care facilities, and inadequate referral mechanisms. Reducing neonatal mortality requires bolstering health systems, guaranteeing competent birth attendance, and raising the standard of care across the continuum of maternal and newborn health (Mboera et al., 2018).

2.4.2 Factors That Contribute to The Quality of Neonatal Care in Hospital Settings

The presence of skilled and trained healthcare providers, including neonatologists, pediatricians, nurses, and other healthcare professionals, is crucial for delivering high-quality neonatal care (Benzies et al., 2019). Adequate staffing levels, ongoing professional development, and adherence to evidence-based guidelines contribute to improved neonatal outcomes.

To deliver high-quality neonatal care, hospital settings must have the necessary infrastructure and equipment (Kennedy et al., 2018). This comprises well-stocked newborn intensive care units (NICUs) with ventilators, incubators, monitoring equipment, and other essential supplies in addition to cutting-edge medical technology. Availability and maintenance of these resources are essential for providing optimal care to newborns (Desalew et al., 2020).

Reducing newborn infections and raising the standard of care require effective infection prevention and control strategies (Benzies et al., 2019). This entails using personal protective equipment appropriately, adhering to infection control procedures, maintaining a clean and sterile environment, and practicing good hand hygiene. Findings for improvement in infection control procedures are aided by routine audits and monitoring (Reyes et al., 2018).

The implementation of evidence-based protocols and guidelines for neonatal care promotes standardized and consistent practices (Chou et al., 2019). These guidelines encompass various aspects of care, such as resuscitation, nutrition, temperature management, infection prevention, and developmental care. Adherence to these protocols improves the quality of care and reduces variations in practice (Williams et al., 2018).

According to Desalew et al. (2020), family-centered care emphasizes the value of involving parents and families in their newborns' care. It encourages families to communicate, make decisions together, and get emotional support. Better newborn outcomes and increased patient satisfaction with care are associated with hospitals that provide a welcoming and inclusive atmosphere for families (Reyes et al., 2018).

Enhancing the quality of newborn care requires putting in place a culture of continuous quality improvement (Desalew et al., 2020). Making regular observations of adverse occurrences, near misses, and clinical outcomes enables the identification of areas that require improvement. Initiatives aimed at improving quality, like reviews of morbidity and mortality, root cause analysis, and feedback systems, facilitate modifications and optimize care delivery (Reyes et al., 2018).

Crehan et al., (2019) reported that collaborative teamwork among different healthcare professionals is essential for providing comprehensive neonatal care. Effective communication, coordination, and interdisciplinary rounds facilitate the exchange of information, promote shared decision-making, and enhance the overall quality of care.

Supportive policies and regulations at the institutional, regional, and national levels play a crucial role in ensuring the quality of neonatal care (Chou et al., 2019). These policies may include

standards for infrastructure, staffing, training, and quality assurance. Adequate regulation and oversight help maintain a high standard of care and ensure accountability (Benzies et al., 2019).

2.4.3 Challenges Healthcare Providers Face in Addressing Neonatal Mortality

There is restricted access to healthcare services in many places, especially in low-income and rural communities (Bolan et al., 2021). This may lead to inadequate or delayed prenatal care, restricted access to trained delivery attendants, and a shortage of facilities for newborn care. According to Okereke et al. (2019), the inability to obtain healthcare services impedes prompt interventions and raises the rate of infant mortality.

Insufficient healthcare infrastructure and limited availability of resources pose significant challenges in addressing neonatal mortality (Munyuzangabo et al., 2021). This includes a shortage of neonatal intensive care units (NICUs), inadequate medical equipment, and limited availability of essential medications and supplies. The lack of necessary infrastructure and resources can lead to suboptimal care and poorer outcomes for newborns (Dol et al., 2018).

There is often a shortage of skilled healthcare providers trained in neonatal care, including neonatologists, pediatricians, and specialized nurses (Beltran & Hamel, 2021). This shortage can lead to increased workload and limited capacity to provide optimal care. It also affects the ability to handle complex cases and emergencies, resulting in higher neonatal mortality rates (Mian et al., 2018).

Healthcare providers may face knowledge gaps and inadequate training in managing neonatal conditions and complications (Beltran & Hamel, 2021). Neonatal care requires specialized knowledge and skills, including resuscitation, management of preterm infants, and recognition of

warning signs. The limited availability of training programs and ongoing professional development opportunities can hinder healthcare providers' ability to deliver high-quality neonatal care (Bolan et al., 2021).

Socioeconomic factors, such as poverty, limited education, and social inequalities, contribute to higher neonatal mortality rates (Mian et al., 2018). Disadvantaged populations often lack access to quality healthcare, have poor nutrition, and face challenges in adhering to recommended prenatal and neonatal care practices. Addressing health disparities and implementing strategies to reach vulnerable populations are necessary to reduce neonatal mortality (Munyuzangabo et al., 2021).

Accurate and comprehensive data collection on neonatal mortality is essential for understanding the underlying causes and developing targeted interventions (Munyuzangabo et al., 2021). However, Okereke et al., (2019) revealed that healthcare systems in Nigeria lack robust data collection and surveillance mechanisms. Incomplete or inaccurate data can hinder the identification of trends, evaluation of interventions, and monitoring of progress in reducing neonatal mortality.

Weak health systems, including fragmented care delivery, inadequate referral systems, and limited coordination among healthcare providers, can impede effective management of neonatal care (Paudel et al., 2018). Strengthening health systems is crucial in improving access to quality care, ensuring effective communication and collaboration, and providing the necessary infrastructure and resources for neonatal care (Okereke et al., 2019).

2.4.4 Strategies and Interventions to Reduce Neonatal Mortality

Reducing newborn mortality is largely dependent on providing adequate prenatal care (Nove et al., 2021). Increasing the availability and cost of services, encouraging early and frequent prenatal visits, and putting community-based programs into place are some strategies to increase access to prenatal care (Rhoda et al., 2018). Quality improvement initiatives within prenatal care, such as screening and management of high-risk pregnancies, can help identify and address potential complications that could lead to neonatal mortality (Bolan et al., 2021).

Neonatal death rates are considerably decreased by encouraging facility-based deliveries and ensuring competent birth attendance (Willcox et al., 2020). Pregnant women should be encouraged to give birth at medical facilities equipped with trained doulas and emergency obstetric care skills so that issues can be handled quickly (Neal et al., 2018). Strategies to promote facility-based deliveries include improving access to healthcare facilities, enhancing transportation options, and addressing cultural and social barriers to facility utilization (Rhoda et al., 2018).

Implementing essential newborn care practices can significantly reduce neonatal mortality (Paudel et al., 2018). These practices include immediate and thorough drying and skin-to-skin contact, early initiation of breastfeeding, and proper cord care (Nove et al., 2021). Promoting these practices through maternal and community education, training of healthcare providers, and integration into routine care protocols can have a positive impact on neonatal survival (Benzies et al., 2019).

Kangaroo Mother Care includes exclusive breastfeeding, early hospital discharge with close follow-up, and constant skin-to-skin contact between the mother and the infant. Neal et al. (2018) have demonstrated that KMC enhances newborn outcomes, particularly for preterm infants.

Neonatal death rates can be decreased by putting KMC programs into place and giving families and healthcare professionals the necessary support and training (Okereke et al., 2019).

Neonatal resuscitation training programs for healthcare providers have been shown to improve survival rates among newborns who require resuscitation at birth (Mian et al., 2018). These programs teach essential resuscitation skills and emphasize the importance of prompt and effective interventions. Widespread implementation of neonatal resuscitation training, including regular updates and refresher courses, can contribute to reduced neonatal mortality (Dol et al., 2018).

Exclusive breastfeeding in the first six months of life has numerous benefits, including a reduction in neonatal mortality (Beltran & Hamel, 2021). Implementing interventions to promote exclusive breastfeeding, such as breastfeeding education for mothers, lactation support, and creating a breastfeeding-friendly environment, can contribute to improved neonatal outcomes (Paudel et al., 2018).

Strategies to prevent and control neonatal infections can significantly impact neonatal mortality rates (Desalew et al., 2020). These include encouraging the use of hand hygiene products, cleaning and disinfecting tools properly, using antibiotics sparingly, and adhering to infection prevention and control procedures. Reducing healthcare-associated infections and newborn mortality requires the implementation of comprehensive infection prevention and control strategies in healthcare institutions (Willcox et al., 2020).

Reducing newborn mortality requires strengthening health systems (Nove et al., 2021). This entails increasing referral networks, boosting staff capacity through professional development and training, guaranteeing the availability of necessary supplies and equipment for newborn care, and upgrading healthcare infrastructure. To track developments and pinpoint areas in need of

improvement, comprehensive data gathering methods and integrated health information systems are also essential (Mian et al., 2018).

2.5 Gaps of the study seeks to address

Identification of Key Socioeconomic Factors: The study aims to identify the specific socioeconomic factors that contribute to neonatal mortality in the Tamale metropolis. This could include factors such as income levels, educational attainment, employment status, access to basic amenities, and living conditions. Understanding these factors can provide insights into the social determinants of health that influence neonatal mortality rates.

Cultural Beliefs and Practices: The study may seek to explore the cultural beliefs and practices that impact neonatal health outcomes. This could involve examining traditional healing practices, cultural norms surrounding childbirth and newborn care, and cultural perceptions of illness and health. By understanding these cultural factors, the study can shed light on how they influence decision-making and healthcare-seeking behaviours among families in the Tamale metropolis.

Healthcare Utilization and Access: The purpose of the study is to evaluate how Tamale metropolis newborns use healthcare services. This can entail looking at things like the accessibility and availability of medical facilities, the rates at which prenatal and postnatal care are used, the proportion of experienced birth attendants, and the degree to which advised medical procedures are followed. Finding opportunities to enhance healthcare service delivery can be facilitated by having a thorough understanding of the obstacles and enablers to accessing healthcare.

The interplay of Socioeconomic and Cultural Factors: The goal of the research is to comprehend how socioeconomic and cultural factors interact to affect newborn mortality. This entails looking at how cultural norms and beliefs interact with socioeconomic variables to influence healthcare-seeking behaviours and health outcomes. The study can offer a more thorough understanding of the many elements influencing infant mortality in Tamale city by examining these interconnections.

The study can aid in evidence-based programs and policies targeted at lowering newborn mortality in Tamale city by filling in these gaps. Additionally, it can help with the creation of context-specific and culturally aware methods for enhancing the region's newborn healthcare outcomes and services.

CHAPTER THREE
METHODOLOGY

3.0 Introduction

Information on the approach taken to address the research questions is provided in this chapter. Study design, population, inclusion and exclusion criteria, sampling strategies, sample size, research instrument, data collection method, quality assurance, data analysis, and ethical issues are all included.

3.1 Study Area

One of the 16 districts of Ghana's Northern Region, the Tamale Metropolis, is where the survey was carried out (Ghana Statistical Service, 2021). The Metropolis is bordered to the north and north-west by the Sagnarigu district, to the east by the Mion district, and to the south and west by the East and West Gonja districts. The Tamale metropolitan region is home to about 1011 square kilometers, or 13% of the Northern Region's total land area. Even though the capital has become a metropolis, the surrounding area still contains a mix of traditional rural towns that are incorporated into the urban areas.

There are 267 communities in the Metropolis overall, comprising both rural and urban areas (TMA, 2012). Based on a 2.9% regional growth rate from the 2010 population census, Tamale's estimated population is 263,082, with a population density of 261 people per square kilometer, more than ten times greater than the region's average density of 25.9 people per square kilometer. In Tamale, there is a significant disparity in the population densities of urban and rural areas. This suggests that Tamale is becoming more urbanized, supporting the claim that modern economic opportunities and services are concentrated in a small number of locations (TMA, 2012).

Dagombas make up most of the population, with minorities representing the other two northern regions (Upper East and Upper West). Most of the population is Muslim. The population of Roman Catholics is notably larger than that of other Christian religions. A few individuals in the city still follow traditional African religion.

3.2 Study design

A phenomenological approach was employed in this facility-based qualitative study. The design aimed to explore factors influencing neonatal mortality in the Tamale Metropolis. This involved understanding how aspects such as income levels, education, employment status, and access to resources affected neonatal outcomes. By examining these factors, the study sought to identify specific socio-economic barriers that contributed to high neonatal mortality rates.

An in-depth interview was conducted with parents to examine the cultural factors that influenced neonatal mortality in the Tamale Metropolis. Cultural beliefs, practices, and norms were known to significantly impact maternal and neonatal health behaviors. It included evaluating the quality of healthcare services, availability of medical supplies, healthcare infrastructure, and the competence of healthcare providers. The study evaluated the impact of these factors on neonatal outcomes and highlighted areas within the healthcare system that require improvement.

3.3 Study Population

Health care providers and mothers made up the study population. Mothers of neonates—infants younger than 28 days old—who had suffered from neonatal mortality were included in the study. The second group was made up of midwives who worked directly in the Tamale Metropolis's chosen hospitals, providing care and delivery for newborns.

3.4 Inclusion/exclusion criteria

This study included all moms who, between October 2020 and November 2023, lost their newborns within 28 days or were admitted to one of the two neonatal intensive care units (NICUs) and later passed away at the hospitals for any cause. Nevertheless, this study did not include any neonates whose discharge summary papers did not make it apparent if they had passed away or not, nor any neonates who had been sent right away to specialized medical institutions for additional care.

3.5 Study Variables

3.5.1 Dependent Variable

Neonatal mortality was the dependent variable of the study. Neonatal mortality is defined in this study as any infant's death occurring during the first 28 days of life.

3.5.2 Independent Variables

The following were the independent variables of the study: Socio-economic factors played a significant role, encompassing variables such as household income, maternal education level, access to healthcare services, and the employment status of parents. These factors shed light on the socio-economic backdrop against which neonatal health is situated.

Maternal health factors, including maternal age, prenatal care utilization, maternal health complications during pregnancy, and maternal nutrition status, were also crucial determinants. These variables provided insights into the maternal health status and care received during pregnancy, influencing neonatal outcomes.

Neonatal health factors, such as gestational age at birth, birth weight, neonatal health complications, and access to neonatal healthcare services, were pivotal in understanding the direct health status and care received by neonates.

Cultural and behavioral factors, like cultural beliefs and practices related to childbirth and neonatal care, breastfeeding practices, and the use of traditional remedies or alternative healthcare practices, highlighted the cultural context within which neonatal health is managed.

Healthcare system factors, including the quality of healthcare services, availability of medical resources, and accessibility of healthcare facilities, provided insights into the healthcare infrastructure and its impact on neonatal health outcomes.

3.6 Sample Size Determination

The idea of "saturation" guided the selection of the study's sample size. When fresh data stopped offering fresh perspectives or details on the study topics or themes, saturation happened. Because this was a qualitative study, the idea of reaching saturation guided the sample size instead of a set number of participants. Twenty moms and two (2) midwives were interviewed for the study in total.

3.7 Sampling Technique

The study used purposive sampling to sample respondents to participate in the study.

To choose volunteers with experiences or insights pertinent to the study's goals, purposeful sampling was used. For instance, inclusion was targeted at healthcare professionals with substantial experience in neonatal care or parents who had personally encountered neonatal mortality. This approach improved the depth of knowledge obtained from the study by allowing researchers to concentrate on people who might offer rich, in-depth opinions on the factors impacting newborn death.

3.8 Data Collection Tools and Techniques

Parents who had experienced infant mortality were interviewed in-depth utilizing semi-structured interviews. Through these interviews, the study was able to thoroughly examine the experiences, perspectives, attitudes, and emotions of participants regarding newborn death. The interview was captured on audio using a recorder.

3.9 Data collection Technique

Potential participants were then contacted. Phone calls were made to the selected mothers, explaining the study and inviting participation. The message was crafted to be compassionate and acknowledged the sensitive nature of their experience. A method for mothers to express their willingness to participate, such as returning a consent form or contacting the research team, was included.

A follow-up process was implemented for potential participants who did not respond to the initial contact. A respectful and gentle approach was used, understanding that some mothers might not wish to revisit their experiences.

Interviews were conducted by scheduling them at convenient times for the participants in their homes. A supportive environment was ensured, possibly offering professional support if distress arose during the interview. Interviews were recorded and transcribed with the participants' consent. The midwives were interviewed in their offices, and the mothers were interviewed in their homes, ensuring there were no disturbances (noise). A tape recorder was used to record all the responses. The interview was conducted in Dagbani and English, with the keywords explained to the respondents. However, respondents who did not understand English had the interview conducted in the language they understood. The principal researcher did the interview.

3.10 Validity/Trustworthiness of the study

The study protocols were piloted to ensure that the questions in the interview guide were adequate to answer the research objectives. The pretest took place at Vittin Health Center with four parents and two nurses.

3.11 Data Management and Analysis

The investigator downloaded the audio files onto their personal laptop. After listening to the tapes, the words were verbatim transcribed. This was followed by revising the transcription to enable the deletion of unnecessary components such repetitions, filler words, and false starts. The edited transcription was conducted to allow for complete and accurate scripts. It ensured readability, conciseness, and clarity as it addressed grammatical errors, slang, and incomplete sentences.

The data analysis was performed through a thematic content analysis. First, the data was prepared by selecting the transcribed interviews to be analyzed. The interviews were subsequently coded by reading and analyzing the data to identify themes or patterns. The interviews were broken down into smaller units called codes, which were then grouped into broader themes. In addition, theme development was conducted by identifying and defining the themes that emerged from the transcribed interviews through inductive and deductive approaches. The interviews were interpreted considering the themes that emerged.

3.13 Ethical considerations

Before beginning the study, permission was obtained from the Northern Regional Health Directorate. The Ghana Health Service Ethics Review Committee (GHS-ERC: 045/06/23) granted ethical approval for the research project. Prior to their inclusion in the study, respondents provided written consent. The goal of the study, its methods, possible risks and benefits, and the requirements for participation were explained to the respondents. The option to participate in the study was given to the respondents. All information obtained from the respondents was used only for academic purposes, and confidentiality was upheld.

CHAPTER FOUR
RESULTS

4.0 Introduction

This chapter contains the results of the study. It is arranged according to the objectives of the study.

4.1 Socio-demographic characteristics of respondents

The study sampled twenty (20) mothers and midwives from Tamale Metropolis to respond to the survey. All the respondents were Muslim, there was no other religious group captured in this study. Most of them were aged 30 years and above. Most of the respondents had trading as their occupation. More information is provided in Table 1.

Table 1: **Socio-demographic Characteristics of respondents.**

No	Age	Occupational status	Educational level	Household size	Husband occupation status
1.	39	Seamstress	JHS	5	Islamic teacher
2.	30	Trader	Primary	20	Driver
3.	25	Seamstress	None	4	Mechanic
4.	40	Trader	Primary	8	Driver
5.	29	Seamstress	No	9	Fire service man
6.	33	Student	Tertiary	10	Trader
7.	35	Teacher	SHS	14	Computer Technician
8.	30	Seamstress	SHS	5	No husband
9.	30	Seamstress	SHS	5	Agric extension officer
10.	30	Trader	SHS	5	Trader
11.	30	Unemployed	Tertiary	2	Web developer
12.	25	Trader	JHS	10	Welder
13.	35	Charcoal seller	None	8	Businessman
14.	20	Businesswoman	JHS	17	Trader
15.	30	Unemployed	None	6	Mechanic
16.	26	Trader	None	14	Trader
17.	42	Trader	JHS	4	Widow
18.	30	Teacher	Tertiary	4	Teacher
19.	31	Housewife	None	5	Driver
20.	30	Seamstress	JHS	19	Nurse

The result showed that the key informants were females. More information is provided in Table 2.

Table 2: Socio-demographic characteristics of midwives

Sex	Age	Year of working experience	Years of being at the current position
Female	36	13	7
Female	38	12	12

4.2 Perspectives of parents on factors that affected the death of their child

The study had eight main themes, and fifteen sub-themes (Table 4.2). The main themes included socio-economic status and its effect on child mortality, healthcare seeking, and measures to address socio-economic challenges. It also included cultural beliefs on neonatal health and care, how cultural beliefs affect neonatal mortality, health seeking behavior, and related decision making.

Table 3: Main themes and sub-themes of the study

Objectives	Main themes	Sub-themes
Socio-economic factors influencing neonatal mortality	Socio-economic status	Not poor Not rich
	Influence of socio-economic factors on child mortality	Poverty Socio-economic factors do not contribute to child mortality.
	Influence of socio-economic factors on seeking healthcare services for child	Poverty
	Effective strategies in addressing neonatal mortality.	Education Financial assistance Food assistance
Cultural factors influencing neonatal mortality	Cultural beliefs related to neonatal health and care	
	Cultural beliefs that contribute to neonatal mortality	Low uptake of ANC services, home delivery, and not practicing exclusive breastfeeding.
	Cultural beliefs that prevent seeking healthcare services for neonates	Presence of TBAs in the community, and belief in herbal medicine
	Influence of cultural beliefs on decision making	Ritual performance

4.3 Socio-economic Factors Influencing Neonatal Mortality

Majority of the respondents stated that poverty contributed to the death of their child. The following statement buttress this:

"Yes, our socio-economic status contributed significantly on the passing away of my baby, in a sense that, when I went for ANC book for the first time and the nurses check me, they said my HB level was so low, so I should consume food that would provide me with more blood. But due to the poverty level I was not able to do that." – Mother – 2.

"Yes, the socio-economic status contributed a lot, and it all boil down to money, we do not have enough wealth to cater for ourselves so when day breaks you will think a lot thinking of how to take care of the pregnancy." – Mother – 3.

However, it was stated by some of the respondents that socio-economic factors did not contribute to the death of their child as in the quote below:

"No socio-economic factors did contribute to the passing away of my baby." *– Mother – 7.*

In relation to mortality is the effect of poverty on health seeking behaviuor. Most of the respondents indicated that poverty influence their ability to seek timely healthcare services for their child.

"Because of poverty, I was not able to seek the needed health care for myself and timely. Because the baby was put on oxygen and if your baby is put on oxygen every 1 hour you must pay 6 Ghana cedi's and that itself was challenging." *– Mother – 3*.

"Yes, because transportation and feeding were a challenge to the health facility." – Mother - 8.

"There was no money for transportation." – Mother – 16.

4.4 Cultural Beliefs and Practices Affecting health seeking behavior

This sub-section focuses on how cultural beliefs and practices affect health seeking behaviour. It was revealed by the respondents that inadequate uptake of ANC services is related to neonatal mortality.

"Babies mortality is somewhat attributed to mothers' refusal to attend ANC" – Mother – 13.

Again, the respondents mentioned that home delivery is a factor that leads to neonatal mortality.

"Neonatal mortality occurs because some mothers want to delivery in the house." – Mother – 11.

Moreover, the respondents stated that not practicing exclusive breastfeeding is a cultural belief that can lead to neonatal mortality.

"Mostly neonatal mortality occurs because mothers do not want to practice exclusive breastfeeding." – Mother – 1.

I also learned that preference for TBAs and belief in herbal medicine hinder proper and timely health seeking. Here are what some said:

"Yes, but people still believe in home delivery, because they have experienced TBA's at home who can take care of them and sometimes the rude nature of some health workers at the hospitals women do not prefer going to the hospitals but prefer delivery at home." – Mother – 1.

"Yes, because when a neonate is sick in a typically traditional home, they need to consult their gods and if it is something they cannot handle at home, then they rush to the hospital or sometimes

their gods will tell them what to do whether to go to hospital or get herbs for treatment." – Mother – 3.

"Yes, when the child is sick seriously and per consultations it requires seeking healthcare services the child would be sent to the hospital unless maybe it is a minor ailment that needs herbal treatment because they are some ailments that cannot be treated at the hospital level unless traditional herbal treatment." *– Mother – 3.*

Additionally, cultural practices also hinder proper health care seeking contributing to child mortality. Some of the respondents mentioned that ritual performance on women to confirm their pregnancy affect early initiation of ANC attendance during pregnancy as outlined below:

"Yes, for cultural barriers that hinder access to healthcare services is for the first timers, women who have become pregnant for the first time cannot be called or referred to as pregnant women, unless some certain rituals are performed and placed on the pregnant woman and certain sound is made 3 times into the ears of the woman and it mostly done by the sister-in-law and now pronounce her a pregnant woman and a certain waist beads are put on the waist of her before anybody can now call her a pregnant woman, after all this she can now seek healthcare." – Mother – 2.

"Yes, they are women who become pregnant for the first time are made to stay at home for some time until some certain rituals are performed on her before she is allowed to be called a pregnant woman and able to go for ANC." – Mother – 3.

"Yes, if a child is sick the child can be taken to hospital and when a child is born, a ram is slaughtered on the seventh day to name the child. Some herbs are requested and used to bath the baby in other to cure some ailments." – Mother – 4.

The study highlighted that cultural and social beliefs constitute a significant barrier for healthcare providers in addressing neonatal mortality.

"The population we serve believe in culture and sometimes it contributes to neonatal deaths. Some of the beliefs include naming ceremony (Sunna) and 'Eid-El-Adha' festivals period everyone wants to be discharged, because they do not want to miss their meat. Even when the night nurse notice conditions that needs to be managed and when the doctor comes in the morning and ask of the condition and wants to still detain them, all the mothers will be insisting they want to be discharged." - Midwife, 1.

"The cultural group that experiences higher rates of neonatal mortality are the Dagombas, the other tribes are better, per my observation the other tribes look better as the Dagombas are more around this place. There are other tribes we offer services to, for example, Ga, Ewe, Akan, Frafra and Dagaabas. And the reason is that personal hygiene is an issue, because the women hardly sweep the compound that we leave in, so the personal hygiene here is poor. They believe in whatever their mother-in-law says, because in a typical Dagomba home an in-law cannot challenge the mother-in-law." - Midwife, 1

4.5 Perspectives of healthcare workers on neonatal mortality

The result on healthcare factors associated with neonatal mortality include primary causes of neonatal mortality such as medical conditions, complications, or systemic factors that contribute to neonatal deaths, quality of neonatal care, challenges or barriers health care providers face in

addressing neonatal mortality, and strategies or intervention that are currently in place to reduce neonatal mortality.

Table 4: Main themes and sub-themes generated from the Midwives

Objective	Main theme	Sub-theme
Health facility factors associated with neonatal mortality	Primary causes of neonatal mortality	Local antitoxins intake
		Birth asphyxia
		Low birth weight
	Medical conditions, complications, or systemic factors that contribute to neonatal deaths	Inadequate infrastructure
		Infection
	Quality of neonatal care provided in Tamale	Healthcare provider and client relationship
		Skilled healthcare providers
		Infection prevention and control
	Challenges or barriers health care providers face in addressing neonatal mortality	Inadequate infrastructure and resources
		Cultural and societal beliefs

4.6.1 Primary Causes of Neonatal Mortality

4.6.1.1 Local Antitoxins Intake

The midwives mentioned that the intake of local antitoxins is a major cause of neonatal mortality in Tamale Metropolis.

Most of the primary causes of neonatal deaths is asphyxia, some mothers come in extremely late and then they take in local antitoxin popularly known as the "Kagligu Tim" because they believe that, that hastens labour. They take it and once they come in, and labour sets in and they come in late they get here and we have fetal distress mostly they get in maybe sometimes if it is 8cm we can intervene, but they get here with 4cm or 5cm there is nothing you can do, you will ask her and do

everything and she won't even tell you the truth until the baby comes out. So, it is mostly the "Kagligu Tim" that is causing the birth asphyxia. - Midwife 1.

Another response had this to say about the relationship between "Kagligu Tim" and birth asphyxia:

"Most of the primary causes of neonatal deaths is asphyxia. ……. I think mostly the conditions we get here are asphyxia. So, it is mostly the "Kagligu Tim" that is causing the birth asphyxia." - Midwife 1.

This was also said about the causes of NM:

"So here the main cause is asphyxia, sometimes sepsis and jaundice, but most of the jaundice cases they do recover with the help of our phototherapy and breast feeding unless in severe cases that we refer, if it is beyond as we refer to Tamale Teaching Hospital or Tamale Central Hospital, but the main causes are birth asphyxia and sepsis." - Midwife 2.

It was further revealed by the key informants that low birth weight is a primary cause of neonatal mortality.

"Yes, there are maternal conditions that can cause pre-term birth with low birth weight. Those who do not eat well too can also give us low weight babies." - Midwife 1

*"…… we have low birth weight and some of them are premature with low birth weight, others too are pre-term baby but have low birth weight. But most of the diagnosis are pre-maturity with low birth weigh*t." - Midwife 2

Infection is also featured as a major cause of NM. This was attributed to poor personal hygiene.

The respondents indicated that infection is a systemic factor that contribute to neonatal death.

"So, assuming a mother comes in as I explain that some of the cultural backgrounds are very dirty and assuming she was not doing personal hygiene very well and then she has infection during delivery the baby can come out with infections, the baby is coming on admission. So that baby is vulnerable to infections and that baby might even end up in eye clinic, so sometimes some of the tetracycline cannot help the infection they carry from the vagina. But assuming the mother is very neat, the baby comes out healthy and fine, you only give tetracycline eye ointment and the baby is good to go home." - Midwife, 1.

"Yes, for risk is there, because they are prone to infection that is why we try as much as possible to minimize the entry of people into the Intensive Care Unit (ICU) and then handwashing because sometimes in the ward, we have problem with water." - Midwife, 2.

4.6.3.3 Issues with healthcare infrastructure and care providers

The respondents said that their services to neonates are quality because they have good relationship with client's family.

I think it is the nurse client relationship, I think the interpersonal relationship is a good one. We take our time to explain procedures to them and we do not shout at our clients and even here visiting hours are there, but our clients always go against the rules, they explain to us, and we let them in. So, I think it is the good interpersonal relationship between we and the clients, we always understand them, there are a lot of things we do for them, but I do not know or cannot say TTH do not do for them. - Midwife, 1.

The respondents mentioned that they have skilled health care providers who are equipped for the job.

"So, we do a lot of training to make us all well equipped for the job." - *Midwife 2.*

The present investigation revealed that healthcare providers in the Tamale Metropolis encounter challenges in addressing neonatal mortality due to insufficient infrastructure and resources.

"We need help to expand the infrastructure of the unit, it is too small." - Midwife 1.

"The equipment's we have is inadequate for our needs we want more equipment's in other to facilitate our work."- Midwife 2

"Yes, you see here when you examine the woman and then she must go through CS, the other colleagues will tell her that she fears and she is not brave enough and you know in our culture, a real woman delivers through simultaneous vagina delivery (SVD). So, it means when you agree to CS, you are not a real woman, so when your colleague women are telling you cannot talk. So, when a woman comes for ANC and she is 41 weeks and you tell her to go and prepare and come for you to help her through CS, she goes, and she will not return. She will wait till labour sets in because of what they believe in." - Midwife, 2.

4.3.4 Effective strategies in addressing neonatal mortality

4.3.4.1 Education

The respondents mentioned that they need education on maternal and child health. This is supported by the following quotes:

"We need to start educating each other especially at the hospitals, when we go for weighing or ANC looking at each other physical appearance alone will tell you that this person is able to afford or not." – Mother – 1.

"Educating pregnant women on diet and pregnancy related outcomes." – Mother – 4.

4.3.4.2 Financial and food Assistances

It also emerged that respondents need financial assistance from Non-governmental Organizations (NGOs).

"If NGO's can assist us financially. If government can also help family heads with jobs to aid in their financial constraints." – Mother - 2.

The respondents mentioned that they need food support.

"We need food support." – Mother – 3.

"Food assistants to mothers and children." – Mother – 5.

CHAPTER FIVE
DISCUSSION

5.0 Introduction

This chapter discusses the key results with previous literature. It is arranged based on the objectives of the study.

5.1 Socio-Economic Factors Influencing Neonatal Mortality

The current result revealed that most of the respondents described their socio-economic status as not poor and not rich. This contrasts with the findings among women in Greece, who reported having a high socio-economic status (Zilidis & Hadjichristodoulou, 2020). This difference may be because few of the mothers in the current study had tertiary education. Access to quality education is a significant determinant of socio-economic status. In developed nations, there may be better educational opportunities, including higher education and vocational training, leading to increased employment prospects and earning potential. In contrast, some developing nations like Ghana do face challenges such as limited access to education, particularly for girls, and lower educational attainment. Moreover, developed nations often have more robust social support systems, including social welfare programs, parental leave policies, and childcare services. These systems can contribute to a more favourable socio-economic environment for mothers. In Ghana, limited social support places additional burdens on mothers, affecting their socio-economic status.

Again, the current result agrees with a study which revealed that mothers in Nigeria, Ethiopia, and Mali had middle income (M. Rahman et al., 2022). This similarity may be due to the fact that in developing nations, limited job opportunities and informal economies contribute to lower socio-economic status among mothers (Taramsari et al., 2021). The availability of diverse and well-

paying job opportunities is crucial for improving socio-economic status. In addition, in developing nations, gender disparities restrict women's access to education, employment, and financial independence, affecting their socio-economic status (Khan et al., 2020).

The current study revealed that most of the respondents stated that poverty contribute to child mortality. Tamale is recognized as one of the regions with significant poverty challenges. The area faces socioeconomic disparities that contribute to high poverty rates among its population. According to the Ghana Statistical Service's Poverty Mapping Report, the northern regions, including Tamale, exhibit higher poverty incidence compared to other parts of the country. Factors contributing to this include limited access to education, healthcare, and economic opportunities, as well as environmental and infrastructural constraints (Ghana Statistical Service, 2015).

Similar results were revealed by Sacks et al., (2022) in their study on factors contributing to neonatal mortality in Ghana. This similarity may be attributable to the fact that families living in poverty often face barriers in accessing healthcare services. These barriers may include a lack of financial resources to pay for medical care, transportation challenges, and inadequate healthcare infrastructure in impoverished areas. Limited access to preventive and curative healthcare increases the likelihood of illnesses going untreated or undiagnosed, leading to higher child mortality rates (Ibrahim et al., 2021). Again, poverty is closely linked to insufficient access to nutritious food. Malnutrition, whether due to a lack of quantity or quality of food, can weaken a child's immune system, making them more susceptible to infectious diseases and increasing the risk of mortality. Malnutrition during pregnancy and early childhood can also lead to stunted growth and developmental issues (Islam & Biswas, 2021).

As a result, respondents wanted support to address the socio-economic challenges they face. Most of the mothers mentioned financial support as help they need to address neonatal mortality. Similar

studies conducted in Ghana recommended support for mothers to help reduce or eliminate neonatal mortality (Adongo & Ganle, 2023; Sacks et al., 2022). Financial support can help cover the costs of emergency obstetric care, including caesarean sections and other life-saving interventions (Ibrahim et al., 2021). Timely access to emergency obstetric services is critical for addressing complications that can arise during childbirth and preventing neonatal deaths. Besides, adequate nutrition is crucial for maternal and neonatal health. Financial assistance can help families afford nutritious food during pregnancy and lactation, contributing to the well-being of both mothers and newborns.

According to the results of the current study, respondents stated that they require assistance with food. It was discovered in Bangladesh that a healthy fetus's development during pregnancy depends on adequate nutrition (Islam & Biswas, 2021). A mother who eats properly increases her chances of having a healthy pregnancy, which lowers the possibility of birth difficulties and improves the health of the newborn. Pregnancy-related malnutrition increases the risk of low birth weight. Low birth weight babies are more susceptible to infections and other health issues, which raises the possibility of neonatal death (Islam & Biswas, 2021).

Adequate food support can help prevent low birth weight by ensuring that pregnant women receive the necessary nutrients (M. Rahman et al., 2022). The authors revealed that adequate iron intake through food support helps prevent maternal anaemia. Anaemia in pregnant women is associated with preterm birth and low birth weight, both of which increase the risk of neonatal mortality. Addressing maternal malnutrition through food support can also contribute to reducing maternal mortality. Mothers who are healthier and better nourished are more likely to have safer pregnancies and childbirth experiences.

Food support programs often include nutritional education for pregnant women and mothers. This education helps them make informed choices about their diet, promoting healthier practices during pregnancy and lactation (Dwomoh, 2021). Moreover, food support initiatives can foster community engagement, encouraging a supportive environment for pregnant women and mothers. Community-based education and support contribute to positive maternal and neonatal health outcomes (Imdad et al., 2021).

5.2 Cultural Factors Influencing Neonatal Mortality

The respondents mentioned that protecting the child against evil doers is a cultural belief that is related to neonatal health and care. Similar result was found among Indian mothers who perform rituals to prevent their child against evil powers (Narang et al., 2013). Some cultures have specific rituals or practices intended to protect newborns from perceived threats. These rituals involve ceremonies, charms, or specific behaviours aimed at warding off evil spirits or malevolent forces (Ansong et al., 2022; Selbana et al., 2020). While these practices may have cultural significance, their effectiveness in promoting neonatal health may vary. In some cultures, traditional healers or spiritual leaders play a role in neonatal health. Families may seek their guidance for protection against perceived threats. Integrating traditional practices with evidence-based healthcare can be important to ensure that cultural beliefs do not hinder access to necessary medical interventions.

Cultural beliefs can influence how illness and health are perceived within a community. If a community attributes certain health issues to supernatural causes or the influence of evil spirits, the approach to neonatal care may involve protective measures tied to those beliefs (Selbana et al., 2020). Understanding these cultural perspectives is important for healthcare providers when delivering care.

Protecting pregnant women and mothers from harm contributes to their overall well-being. A safe and supportive environment helps reduce stress and anxiety during pregnancy, positively impacting maternal health (Dantas et al., 2020). Neonatal health and maternal well-being are intimately related since the mother's health has a big impact on the newborn's health. Violence and dangerous conditions can have a lasting impact on expectant mothers and their unborn children. Negative outcomes including preterm birth and low birth weight, which are risk factors for neonatal health difficulties, may be caused by stress and trauma experienced during pregnancy.

It was revealed by the respondents that low/no uptake of ANC services is related to neonatal mortality. In Uganda, Dantas et al., (2020) found that mothers who lost their babies were those who did not go for ANC services. This may be due to cultural beliefs about the nature of pregnancy and health influence perceptions of the need for ANC services. If a community holds strong beliefs that pregnancy is a natural and uncomplicated process, there may be less perceived need for medical interventions, including ANC visits. Some cultures have deep-rooted traditions surrounding childbirth that prioritize home-based or traditional birth practices over institutionalized ANC services. Cultural norms that emphasize the role of traditional birth attendants or community-based rituals may discourage seeking formal medical care during pregnancy.

Cultural beliefs that view modern medicine with suspicion or fear can contribute to reluctance in seeking ANC services (Pallangyo et al., 2020). Mistrust of healthcare providers, medical facilities, or specific interventions may lead individuals to opt for traditional or alternative healthcare methods. Cultural norms around modesty and privacy may impact the willingness of pregnant women to attend ANC appointments. Some cultures may consider discussing pregnancy-related

issues with healthcare providers as intrusive, leading to a preference for keeping such matters within the family or community (Arunda et al., 2021).

These cultural beliefs contribute significantly to neonatal mortality because ANC visits include screenings and assessments to identify and address potential complications early in pregnancy. Frequent antenatal care is essential to prevent complications including pre-eclampsia, gestational diabetes, and infections. If these conditions are not diagnosed and treated, there is a higher chance of negative consequences, such as newborn mortality. Treatments for malaria and other infectious diseases, as well as tetanus vaccinations, are frequently administered during ANC visits. Without these preventive measures, both maternal and neonatal health may be compromised, leading to increased mortality risks.

Antenatal care involves monitoring fetal growth, assessing the baby's position, and identifying any anomalies. Without these regular check-ups, issues such as intrauterine growth restriction or congenital abnormalities may go unnoticed, leading to increased risks for neonatal mortality (Dantas et al., 2020). ANC services are essential for addressing maternal health issues that can impact the well-being of both the mother and the baby. Conditions such as anemia, nutritional deficiencies, and infections can contribute to preterm birth or low birth weight if left untreated, increasing the risk of neonatal mortality (Tiruye & Shiferaw, 2023). ANC visits provide opportunities for education and counselling on birth preparedness, newborn care, and breastfeeding. Without these preparations, mothers may lack the knowledge and skills needed for a safe delivery and appropriate neonatal care, increasing the risk of neonatal mortality (Tolossa et al., 2020).

One of the factors cited by the respondents as contributing to newborn mortality is home birth. Early neonatal mortality in Bangladesh was found to be significantly correlated with the place of

delivery and the quality of infant care (Ijdi et al., 2022). This could be because many African nations have ingrained birthing traditions and practices. Home delivery is viewed as a traditional and culturally significant practice passed down through generations. The belief in the cultural importance of home births can influence individuals to choose this method over hospital deliveries (Ijdi et al., 2022). Cultural norms surrounding privacy and modesty can play a role in the choice of home delivery. Some individuals may prefer the intimacy and privacy of their own home, especially when it comes to a culturally sensitive event like childbirth. Hospital settings may be perceived as invasive or exposing, leading to a preference for home births (Lee et al., 2022). Spiritual and religious beliefs can influence decisions about childbirth. Some cultures associate spiritual or religious significance with home births, considering the home environment more conducive to spiritual blessings or rituals during delivery.

Home deliveries without the presence of skilled birth attendants, such as midwives or healthcare professionals, result in insufficient care during labour and delivery (Rasaily et al., 2020). Skilled birth attendants are trained to manage complications and provide timely interventions, reducing the risk of neonatal mortality. Complications during childbirth can arise unexpectedly. In a home delivery setting, the response time to access emergency medical care may be delayed compared to deliveries in healthcare facilities. Delays in seeking medical attention can lead to adverse neonatal outcomes (Grünebaum et al., 2020).

Skilled healthcare professionals monitor the fetal heartbeat and assess the well-being of the baby during labour. In a home delivery, this level of monitoring is lacking, potentially leading to undetected complications that could impact the neonate's health (Chaka et al., 2020). Home births may lack the sterile conditions found in healthcare facilities, increasing the risk of infections for both the mother and the newborn. Neonatal infections are significant contributors to mortality,

especially when proper hygiene practices are not followed during and after delivery (Rasaily et al., 2020).

The respondents stated that not practicing exclusive breastfeeding is a cultural belief that can lead to neonatal mortality. A similar result was found among mothers in Bangladesh (Abdulla et al., 2022). Zhao et al., (2020) in their study among mothers in sub-Saharan Africa found that almost 50% of mothers do not practice exclusive breastfeeding. This may be due to cultural beliefs about the nutritional value of breast milk can influence feeding practices. If a culture values breast milk as superior in providing essential nutrients for the baby's growth and development, there may be a stronger inclination towards exclusive breastfeeding. Colostrum, the first milk produced by the mother after childbirth, is rich in nutrients and antibodies. Cultural beliefs about colostrum may influence whether a mother chooses to initiate breastfeeding immediately and provide this valuable substance to the newborn (Couto et al., 2020).

Cultural traditions and rituals surrounding childbirth and infant care can impact breastfeeding practices. Cultures that encourage immediate breastfeeding initiation or have specific rituals related to breastfeeding may promote exclusive breastfeeding (Saeed et al., 2020). The influence of elders and extended family members within a cultural context can be significant. Cultural beliefs that support and promote exclusive breastfeeding may be reinforced by the advice and practices of older family members (Hossain & Mihrshahi, 2022).

Breast milk provides infants with essential antibodies, enzymes, and immune factors that protect against infections. Lack of exclusive breastfeeding exposes infants to a higher risk of infections, including respiratory infections, diarrhea, and sepsis, which are major contributors to neonatal mortality (Abdulla et al., 2022). Exclusive breastfeeding ensures optimal nutrition for infants during the first six months of life. When infants are not exclusively breastfed, there is an increased

risk of malnutrition, including both undernutrition and overnutrition (Abdulla et al., 2022). Malnutrition is a significant factor contributing to neonatal mortality. Exclusive breastfeeding provides protection against diarrhea diseases, a leading cause of neonatal mortality. Breast milk contains substances that help prevent and treat diarrhea, reducing the severity and duration of episodes (Couto et al., 2020).

Some of the respondents mentioned that because of TBAs in the community, they do not prefer to seek healthcare services for neonates. In rural Nigeria, women utilize traditional birth attendants for maternity care (Ntoimo et al., 2022). This may be due to cultural norms and beliefs that may influence the perception of childbirth and the role of TBAs in the community. In some cultures, TBAs are highly respected and valued for their traditional knowledge and practices. Pregnant women may choose to rely on TBAs due to cultural beliefs that prioritize traditional methods over modern healthcare. Pregnant women may feel a sense of trust and familiarity with TBAs who are part of their community (Mcnojia et al., 2020).

TBAs are often well-known and respected figures within local communities, and this familiarity may make pregnant women more comfortable seeking their services compared to interacting with healthcare professionals in formal facilities. TBAs may be perceived as more culturally sensitive and respectful of local customs. Some pregnant women may feel that TBAs understand and respect their cultural practices and traditions better than healthcare professionals in formal facilities, leading them to choose traditional care over institutional care (Ntoimo et al., 2022).

The respondents mentioned that their belief in herbal medicines prevents them from seeking healthcare services for neonates. In Ethiopia, women uptake herbal medicines more than orthodox medicines (Selbana et al., 2020). Ansong et al., (2022) revealed that cultural beliefs attribute healing properties to herbal medicines during childbirth in the southern part of Ghana. If mothers

believe in the efficacy of herbal remedies for treating common ailments or promoting general well-being, they may opt for these traditional treatments over seeking healthcare services, especially for perceived minor health issues in neonates. Herbal medicines are often perceived as more accessible and affordable compared to formal healthcare services. Mothers may choose herbal remedies due to financial constraints, believing that traditional treatments offer a cost-effective and readily available alternative for neonatal care (Souza et al., 2023). Herbal medicines may have been used within a community for generations, forming part of cultural practices and traditions. Mothers may adhere to these historical practices, considering them as tried-and-true methods of caring for neonates, which can lead to a preference for herbal remedies over modern healthcare services.

The current study found that some of the respondents mentioned that ritual performance for women to confirm their pregnancy is a cultural belief that influences their decision-making. In Indonesia, a majority of the respondents' babies had low birth weight because of ritual performances (Sutan & Berkat, 2014). Ritual performances associated with childbirth and neonatal care can hold immense cultural significance. Mothers may feel compelled to adhere to traditional rituals as a way of ensuring the well-being and protection of the neonate. The importance placed on these rituals may influence decisions related to seeking healthcare services (Ansong et al., 2022). Again, Selbana et al., (2020) found that cultural beliefs may link specific rituals with newborn blessings or protection from harm among mothers in Ethiopia. The writers showed that mothers engaged in these rituals as a means of safeguarding the health and future of the neonate. The belief in the efficacy of these rituals may affect decisions regarding healthcare-seeking behaviours.

5.3 Health facility factors associated with neonatal mortality

Home delivery is one of the factors mentioned by the respondents as a contributing factor to newborn death. It was discovered that there was a substantial correlation between the place of delivery and the standard of newborn care in Bangladesh and early neonatal mortality (Ijdi et al., 2022). This might be because of the deeply established birthing customs and traditions in many African countries. While not always the case, there have been cases when using herbal remedies while pregnant has been linked to unfavorable results, such as infant mortality. According to Planey et al. (2019), this was caused by things like hazardous consequences, incorrect dosing, or interactions with traditional medical therapies. This similarity may be because herbal products may not be regulated as strictly as pharmaceutical drugs. As a result, their safety and efficacy may not be thoroughly evaluated.

The key informants highlighted that a predominant issue they encounter is the occurrence of babies experiencing birth asphyxia. In a comparable study conducted in Ethiopia, Tolossa et al., (2020) found that maternal infections and malnutrition impacted fetal development and increased the risk of birth complications, including birth asphyxia. This similarity may be attributable to the fact that insufficient prenatal care can lead to a lack of monitoring and early detection of potential complications during pregnancy. Once more, the prevention of birth asphyxia depends heavily on the early detection and management of risk factors. Certain populations may have a high prevalence of traditional birthing methods, such as home births supervised by untrained birth attendants (Selbana et al., 2020). These behaviours could postpone access to medical interventions and raise the chance of birth problems. It was further revealed by the key informants that low birth weight was a primary cause of neonatal mortality. In Ghana, Dwomoh, (2021) reported that the

majority of neonatal deaths were a result of low birth weight. This may be because low birth weight infants may have compromised immune systems, making them more susceptible to infections. Infections can progress rapidly in these vulnerable infants and lead to serious complications, including sepsis, which is a major cause of neonatal mortality. Once more, low birth weight is frequently linked to premature delivery (birth occurring before 37 weeks of gestation). Preterm newborns are more likely to experience respiratory problems, increased sensitivity to infections, and organ immaturity, all of which raise the risk of neonatal death.

The respondents stated that because of infection prevention and control, they provide neonates with high-quality care. According to a meta-analysis (Chaka et al., 2020), infection prevention and control (IPC) practices are essential for raising the standard of neonatal care provided in medical facilities. Infants are more susceptible to infections, particularly those who are born preterm or with low birth weight. Effective IPC strategy implementation lowers infection risk, improves overall neonatal healthcare quality, and contributes to a safer environment.

In 2020, Manda et al. did a study in Kenya which revealed that newborns residing in healthcare facilities are susceptible to diseases known as healthcare-associated infections (HAIs). Adhering strictly to infection prevention and control (IPC) protocols reduces the risk of healthcare-associated infections (HAIs) in neonates by halting the transmission of infections inside hospital environments. One of the most important IPC precautions for healthcare professionals is good hand hygiene. Ensuring that healthcare professionals and caregivers regularly wash their hands helps prevent the transmission of pathogens from one patient to another, reducing the risk of neonatal infections.

The present investigation revealed that healthcare providers in the Tamale Metropolis encounter challenges in addressing neonatal mortality due to insufficient infrastructure and resources. In a

similar study among pregnant women in Nigeria, Edeme, (2017) revealed that insufficient infrastructure, including poor road networks and transportation facilities, hindered the timely transfer of pregnant women in need of emergency care to well-equipped healthcare facilities. In Ghana, Dare et al., (2021) delays in transportation negatively impact neonatal outcomes.

Brobbey et al., (2023) their study in Ghana also reported that inadequate infrastructure often translates to a shortage of essential medical equipment, medications, and supplies. This compromises the ability to respond effectively to emergencies, resuscitate newborns and manage complications. This may be because neonates born with complications or preterm may require specialized care in neonatal intensive care units. In settings with inadequate infrastructure, there may be a lack of Neonatal Intensive Care Units (NICUs) or insufficient capacity, hindering the provision of critical care for vulnerable infants.

Additionally, the study highlighted that cultural and social beliefs constitute a significant barrier for healthcare providers in addressing neonatal mortality in the same region. In Asian countries, Anwar et al., (2019) reported that cultural preferences for home births, influenced by traditional beliefs and practices, resulted in deliveries without the presence of skilled birth attendants or access to medical interventions. This may be due to the factor that in the absence of professional care, complications during childbirth may not be promptly identified and managed, leading to an increased risk of neonatal mortality.

Hossain & Mihrshahi, (2022) also reported that in Nigeria cultural beliefs emphasize traditional healing methods over conventional medical care. This may be attributable to the fact that families opt for traditional healers or herbal remedies, delaying or substituting necessary medical interventions for neonates experiencing health complications. Again, religious beliefs may influence decisions related to seeking medical care for newborns. Certain religious groups may

have specific views on healthcare, leading to variations in the acceptance of medical interventions and timely access to healthcare services.

5.4 LIMITATIONS OF THE STUDY

The study was able to establish the socio-economic and cultural factors associated with neonatal mortality in Tamale Metropolis. However, the following are some limitations of the study:

Limited generalizability: The limited sample size and particular circumstances of qualitative research frequently restrict the applicability of the results to a larger population. The study's current findings are unique to Tamale Metropolis and could not be immediately transferable in other areas or contexts.

Sampling Bias: Because of its qualitative design, the study is vulnerable to sampling bias. Because Muslims were over-represented in the current study, it's possible that the results do not fairly represent the variety of socioeconomic and cultural factors influencing newborn death in the Tamale Metropolis.

Difficulty establishing causation: Once more, the study's qualitative design means that it is better suited for examining patterns and relationships than for proving causality.

CHAPTER SIX
SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter provides a summary of the study. It also presents the conclusion and recommendations of the study.

6.1 Summary

The study involved surveying twenty (20) mothers and midwives from Tamale Metropolis, all of whom identified as Muslims. Most respondents were aged 30 years and above.

The study found that most respondents had a middle-income socio-economic status. Poverty emerged as a significant factor influencing child mortality, with respondents expressing challenges in accessing timely healthcare services for their children due to financial constraints. In response to these socio-economic challenges, respondents identified the need for education on maternal and child health, financial assistance, and food support. These support measures were suggested as crucial interventions to address the impact of poverty on child health outcomes.

The respondents highlighted several factors contributing to neonatal mortality, including practices such as low/no uptake of antenatal care (ANC), home delivery, and non-exclusive breastfeeding. Some respondents attributed their avoidance of healthcare services for neonates to the presence of traditional birth attendants (TBAs) in the community. Additionally, beliefs in herbal medicines were mentioned as a barrier to seeking healthcare for neonates. Furthermore, the cultural belief in the ritual performance for women to confirm their pregnancy was identified as influencing decision-making on timely access to healthcare services.

6.2 Conclusion

The research findings highlighted that neonatal mortality is affected by practices such as beliefs in protection from spiritual harm, limited antenatal care utilization, preference for home births, and varying breastfeeding practices. Additionally, reliance on traditional birth attendants, herbal medicine, and adherence to cultural rituals further deter access to formal healthcare services.

Healthcare professionals in the Tamale Metropolis encounter difficulties in reducing neonatal mortality due to insufficient infrastructure and resource constraints. The study underscored that cultural and social beliefs pose significant obstacles for healthcare providers striving to address neonatal mortality rates in the area.

The study further found that support measures, such as education on maternal and child health, financial assistance, and food support, are crucial interventions to address the significant impact of poverty on child mortality among middle-income respondents.

6.3 Recommendations

- Economic Empowerment Programs: The Government of Ghana through the Ministry of Health, Ghana Health Service and Non-Governmental Organizations should advocate for and implement economic empowerment programs for mothers and families, focusing on income generation, cash transfer programs, job opportunities and skill development. Improving economic stability can positively impact access to healthcare, nutrition, and overall living conditions.
- Accessible and Affordable Healthcare Services: The Ministry of Health, and Ghana Health Service should work towards enhancing the accessibility and affordability of healthcare

services for pregnant women and neonates. This includes efforts to reduce financial barriers, improve transportation infrastructure, and increase the availability of maternal and neonatal healthcare facilities.

- Education and Awareness Campaigns: Ghana Health Service and Regional Health Directorate should conduct sensitization and awareness campaigns targeting mothers and families about the importance of early and regular antenatal care, cultural beliefs and norms during antenatal visits, proper nutrition, and other factors that can positively influence neonatal health outcomes. Emphasize the long-term benefits of investing in maternal and neonatal health. Engage TBAs in training programs to enhance their knowledge about safe birthing practices and early neonatal care. Establishing partnerships can improve the referral system between TBAs and healthcare facilities.
- Infrastructure Investment: The facilities managers should advocate for increased in government and private sector investment in healthcare infrastructure, focusing on the expansion and improvement of existing neonatal care facilities. Prioritize the construction and renovation of neonatal intensive care units (NICUs) equipped with advanced technology and sufficient bed capacity.

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APPENDICES

Appendix 1: Survey Questionnaire

UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE

DEPARTMENT OF SOCIAL AND BEHAVIOURAL CHANGE

SCHOOL OF PUBLIC HEALTH

Questionnaire for a Survey in the Tamale Metropolis

TOPIC: Factors Influencing Neonatal Mortality in the Tamale Metropolis: Perspective of Mothers and Healthcare Providers.

Principal investigator: Osman Abdul-Samed

Address: C/o Osman Mohammed Shaibu, P. O. Box TL 2373, Tamale

Contact : 0243210644/0202955123

Email : asamed2012@gmail.com

Informed Consent

Hello. My name is……. I am working for Mr. Osman Abdul-Samed, a master's student at the University for Development Studies. He is conducting a qualitative survey on the topic "Factors Influencing Neonatal Mortality in the Tamale Metropolis: Perspective of Mothers and Healthcare Providers". This is in partial fulfillment of the requirement for the award of master's degree in Community Health and Development. You

have been selected to be part of the study to respond to a questionnaire which will take about 30 minutes of your time.

Any information you will give will be treated confidential and will not be shared with anyone else except members of the survey team. All information given will only be used for the purpose of this study and nothing else.

Your participation in the study is purely voluntary and so you are at liberty to opt out. We would however be grateful if you agree to participate since your views are important to the researcher and for the success of the study.

There is no material or monetary benefit for participating in this survey. However, the indirect benefit will be that by participating in the study, you would help contribute to the success of the study whose results can inform policy change to improve health for all including yourself.

There is no any possible health risk identified to be associated with your participation or ethical issues in this, if any you can contact GHS ERC Administrator "Nana Abena Apatu, 0503539896, ethics.research@ghs.gov.gh or Mr. Osman Abdul-Samed on 0243210644/0202955123. asamed2012@gmail.com. If you agree to be part of the study, you need to sign or thumbprint below.

I certify that the purpose, benefit and possible risk associated with the participation in this study has been read/explained to me and my participation is based on my own voluntary decision to be part of the study as a respondent

Date: …….. Signature /thumbprint of respondent ……

Date: …… Signature of interviewer……...

KEY INFORMANT QUESTIONAIRE

SOCIODEMOGRAPHIC CHARACTERISTICS OF IN CHARGES

1. Sex of respondent …….

2. Age of respondent ……..

3. Years of being a nurse/midwife …….

4. Years of being in her current position ……

GENERAL INFORMATION REGARDING NEWBORNS

1. Can you provide an overview of the neonatal mortality rates in your unit over the past year?

2. How do these rates compare to previous years, and what trends or patterns do you observe?

3. What do you perceive to be the primary causes of neonatal mortality in your unit?

4. Are there specific medical conditions, complications, or systemic factors that contribute to these deaths?

5. How would you describe the quality of neonatal care provided in your unit?

6. Are there any areas that you feel require improvement to reduce neonatal mortality rates?

7. What are the main challenges or barriers your unit faces in addressing neonatal mortality?

8. Are there any specific risk factors or vulnerabilities that you have identified among the neonates who experience higher mortality rates? This could include premature births, low birth weight, maternal health issues, or other factors.

9. What strategies or interventions are currently in place to reduce neonatal mortality in your unit? Are there any notable successes or areas where these efforts have been particularly effective?

10. How do you collaborate with other healthcare professionals or departments, such as obstetrics, neonatology, or community health services, to address neonatal mortality?

11. Are there any specific initiatives or partnerships that have been beneficial in this regard?

12. In your opinion, what are the key areas that require attention at a broader healthcare system level to decrease neonatal mortality rates?

13. Have you implemented any specific data collection or monitoring systems to track neonatal mortality and identify areas for improvement?

14. How do you utilize this data to inform decision-making and interventions?

15. Are there any best practices or lessons learned from other pediatric units or healthcare systems that you believe could be valuable in reducing neonatal mortality rates?

Socioeconomic factors

1. How would you describe the socio-economic profile of the population served by your pediatric unit? Are there any specific socio-economic factors, such as income levels, education, or access to healthcare, that are prevalent among this population?

2. In your experience, what role do you think socio-economic factors play in contributing to neonatal mortality rates? How do these factors interact with medical and healthcare-related factors?

3. Are there any specific socio-economic disparities or inequalities that you have observed among the neonates who experience higher mortality rates? This could include disparities related to poverty, housing conditions, nutrition, or access to prenatal care.

4. How do socio-economic factors influence the ability of parents or caregivers to seek timely and appropriate healthcare for neonates? Are there any financial, logistical, or cultural barriers that hinder access to healthcare services?

5. Have you noticed any patterns or trends regarding the impact of socio-economic factors on neonatal mortality rates? Are there any groups or communities that are particularly vulnerable?

6. Are there any specific interventions or programs in place to address the socio-economic determinants of neonatal mortality? How do these interventions aim to mitigate the impact of socio-economic factors on neonatal health outcomes?

7. How do you collaborate with community organizations, social services, or public health agencies to address the socio-economic aspects of neonatal mortality? Are there any successful partnerships or initiatives that have had an impact in this regard?

8. What kind of support or resources do you think would be most effective in addressing the socio-economic challenges faced by families with neonates at risk of mortality? This could include financial assistance, education programs, social support networks, or other interventions.

9. How do you collect and utilize socio-economic data related to neonatal mortality in your unit? Do you assess the impact of socio-economic factors on health outcomes, and if so, how does this inform your decision-making and interventions?

10. Are there any best practices or lessons learned from other pediatric units or healthcare systems that you believe could be valuable in addressing the socio-economic determinants of neonatal mortality?

CULTURAL FACTORS

1. How would you describe the cultural diversity within the population served by your pediatric unit? Are there any specific cultural groups or communities that exhibit distinct beliefs, practices, or traditions related to neonatal health and care?

2. In your experience, what cultural factors do you believe contribute to neonatal mortality rates? How do these factors interact with medical and healthcare-related factors?

3. Are there any cultural beliefs or practices that may impact the seeking of healthcare services for neonates? For example, are there specific cultural beliefs surrounding childbirth, postnatal care, or traditional healing practices that may affect neonatal health outcomes?

4. Have you observed any cultural disparities or variations in neonatal mortality rates? Are there any cultural groups or communities that experience higher or lower rates of neonatal mortality?

5. How does cultural competency and sensitivity factor into the healthcare provided in your unit? Are there any specific strategies or training programs in place to address cultural differences and ensure effective communication and understanding with families?

6. How do cultural factors influence the decision-making process of parents or caregivers regarding neonatal care? Are there any cultural norms or expectations that impact their choices and actions?

7. Are there any cultural rituals or practices related to birth, postnatal care, or infant feeding that may have an impact on neonatal mortality rates? How do you navigate the balance between respecting cultural practices and promoting safe and healthy neonatal care?

8. How do you engage with community leaders, cultural organizations, or religious institutions to address cultural factors related to neonatal mortality? Are there any successful partnerships or initiatives that have been effective in bridging cultural gaps and improving neonatal health outcomes?

9. How do you collect and incorporate cultural data into your assessments of neonatal mortality rates? Do you consider cultural factors when developing interventions or educational programs?

10. Are there any best practices or lessons learned from other pediatric units or healthcare systems that you believe could be valuable in addressing cultural factors influencing neonatal mortality?

HOSPITAL RECORDS

1. What is the bed capacity of the hospital?
2. How many admission bed capacities do you have?
3. How many functional incubators do you have?
4. How many phototherapy machines do you have?
5. What is the total number of deliveries through vagina deliveries?
6. How many admissions were recorded in the last 5 years?
7. How many deaths? In the last 5 years
8. How many pediatricians do you have in this hospital?
9. How many medical officers do you have in this hospital?
10. How many professional and unprofessional nurses are in the hospital?
11. Do you operate throughout the week?
12. How many doctors are in the postnatal unit?
13. How many midwives are in the postnatal unit?
14. Do you remove stiches and wound care?
15. Do you do education on breastfeeding and hygiene?
16. Do you have ENT unit?
17. Do you have eye care?

MOTHERS QUESTIONAIRE

SOCIODEMOGRAPHIC CHARACTERISTICS OF MOTHERS

1. Sex of respondent
2. Age of respondent
3. Occupational status of respondent
4. Educational status of respondent
5. Religion of respondent
6. Household size
7. Husband occupation status

GENERAL QUESTIONS

Have you ever lost a child (a neonate) before

Did you attend ANC during your pregnancy period

Did you notice some anomalies in your baby after the delivery?

SOCIO-ECONOMIC FACTORS

1. How would you describe the socio-economic profile of your household?
2. What role do you think socio-economic factors play in contributing to the passing away of your child?

3. Did socio-economic factors influence your ability to seek timely and appropriate healthcare for your neonates? Are there any financial, logistical, or cultural barriers that hinder access to healthcare services?

4. What kind of support or resources do you think would be most effective in addressing the socio-economic challenges faced by families with neonates at risk of mortality? This could include financial assistance, education programs, social support networks, or other interventions.

CULTURAL FACTORS

1. How would you describe the cultural diversity within your locality? Are there any specific cultural beliefs that are practiced, or traditions related to neonatal health and care?

2. In your experience, what cultural factors do you believe contribute to neonatal mortality rates?

3. Are there any cultural beliefs or practices that may impact the seeking of healthcare services for neonates? For example, are there specific cultural beliefs surrounding childbirth, postnatal care, or traditional healing practices that may affect neonatal health outcomes?

4. How do cultural factors influence your decision-making process as a parents or caregivers regarding neonatal care?

5. Are there any cultural rituals or practices related to birth, postnatal care, or infant feeding that may have an impact on neonatal mortality rates? How do you navigate the balance between respecting cultural practices and promoting safe and healthy neonatal care?