

UNIVERSITY FOR DEVELOPMENT STUDIES

RELATIONSHIP BETWEEN PRENATAL CARE AND NEWBORN CARE PRACTICES
IN THE EAST GONJA DISTRICT OF GHANA

BY

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(UDS/CHD/0114/12)

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DECLARATION

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


.....

4-5-2017
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I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of thesis laid down by the University for Development Studies


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ABSTRACT

Prenatal care provides the opportunity for early detection of pregnancy related problems for treatment to improve pregnancy outcomes. However, our knowledge is incomplete about the degree to which the content and delivery of prenatal care are associated with postpartum care practices such as infant feeding behaviors and newborn care. This study aimed at assessing the relationship between prenatal care and the adoption of newborn care practices including child feeding practices among postpartum women. A cross sectional study was conducted in 30 communities involving 422 postpartum women. The communities were selected using probability proportionate to size whilst systematic sampling procedure was used in selecting the respondents. The study found that 62.3% of the respondents made less than 4 ANC visits. About 90.8% initiated ANC in the second trimester. Breastfeeding was initiated in the first 30 minutes after delivery by 91.5% of the respondents. About 94% of the respondents did not practice prelacteal feeding whilst 91.5% fed their babies with colostrum. Women who were of low educational level were more likely to provide good neonatal feeding [AOR 3.03; 95% CI (1.39 - 6.60)], than those with high education level. Religion was also found to be a determinant of neonatal feeding. Mothers of Islamic faith were 4.8 times more likely to provide adequate neonatal feeding than Christians and traditionalist (AOR = 4.84, CI: 1.96- 11.99), $p = 0.001$. Knowledge of danger signs was also a significant determinant of provision of adequate neonatal feeding practices. The higher the knowledge level the higher the likelihood of providing adequate neonatal care (AOR = 2.72, CI: 1.72- 4.30), $p < 0.001$. Women of high status (high household wealth index) were more likely of providing good feeding practices. No association was found between adequate ANC attendance and two main components of new born care

practices. There is also a low practice of prelacteal feeding among the respondents which is very commendable.



DEDICATION

To my husband and children



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LIST OF ABBREVIATIONS

ANC	Antenatal Care
ATR	African Traditional Religion
CBHV	Community based health volunteer
CI	Confidence Interval
DHD	District Health Direct
DHS	Demographic and Health Survey
DPHN	District Public Health Nurse
FGDs	Focus Group Discussions
GDHS	Ghana Demographic and Health Survey
GHS	Ghana Health Service
GSS	Ghana Statistical Service
IEC	Information Education and Communication
JHS	Junior High School
MDGs	Millennium Development Goals
MOH	Ministry of Health
NHIS	National Health Insurance Scheme
NGO	Non- Governmental Organization
OR	Odds Ratio
RCH	Reproductive and Child Health
SBA	Skilled Birth Attendant
SES	Socio-economic Status
SPSS	Statistical Package for Social Sciences

STIs	Sexually Transmitted Infections
TBA	Traditional Birth Attendant
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WIFA	Women in Fertile



CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Prenatal care presents an opportunity to identify and treat problems during pregnancy and mothers are also counseled on healthy living practices to protect their lives that of the child in the womb and after birth. Prenatal care is a window opportunity for the reduction of maternal and child mortalities.

According to the Ghana Demographic and Health Survey (GDHS) (2008), over nine in ten mothers (95 percent) receive antenatal care from a health professional (doctor, nurse, midwife, or community health officer). The Multiple Indicator Cluster Survey (MICS) (2011) also found that about 96.7% of pregnant women in Ghana receive antenatal care. According to Abou Zahr and Wardlaw, (2004) ANC is the key entry point of a pregnant woman to receive a broad range of health promotion and preventive services which promote the health of the mother and the baby.

Childhood mortality rates remain high in the Ghana with infant mortality being 50 deaths per 1,000 live births. According to the Ghana Demographic and Health Survey (2008), 40% of all childhood deaths in Ghana are attributable to under nutrition, making it the single most important cause of child mortality in Ghana.

In children, malnutrition is most likely to strike those who lack nutritionally adequate diets, are not protected from frequent illnesses and do not receive adequate care. Malnutrition contributes to more than one-third of all deaths of under-five children UNICEF 2009. Currently, 195 million under-five children are affected by malnutrition; 90% of them live in sub-Saharan Africa and

South Asia. At least 20 million children suffer from severe acute malnutrition (SAM), and another 175 million are undernourished (Black et al 2008). Malnutrition is the most recognizable and perhaps most untoward consequence of poverty and feeding practices of mothers (Goel et al, 2007). Dop (2002) indicated that breastfeeding is practiced universally throughout West Africa and often extends beyond 24 months. However, the rate of exclusive breastfeeding up to 6 months of age is low in the East Gonja District; about 28.6% among six months postpartum mothers compared with the 64.4% of the Tamale Metropolis (East Gonja District Health Directorate and Tamale Metropolitan health Directorate Annual reports, 2012). The practice of introducing liquids and semi-solids to infants is deeply rooted in cultural beliefs. Further research is needed to improve educational messages promoting exclusive breastfeeding.

Child feeding practices and care seeking interventions have the potential to substantially reduce child mortality, in the country where common childhood illnesses are a major problem. Prompt and appropriate care seeking practices have importance to avoid many deaths attributed to delays and not seeking care particularly in developing countries (Negussie and Chepngeno, 2005).

According to Milligan et al (2002) although the relationship between prenatal care and lower infant mortality rates is not concrete, in populations at high medical and social risk, such as many low-income black communities, there is a definite association between low prenatal care utilization and high infant mortality rates. This makes the advocacy of prenatal care a positive step to decreasing child mortalities through proper child caring practices. At ANC session, pregnant women are also counseled on healthy living to protect the health of the mother and that of the child. The East Gonja District Health Directorate reported that ANC attendance was 70.8% whilst those who made 4 plus ANC visits were 57.1%.

In an attempt to achieve Millennium Development Goal four (MDG4) which is to eradicate infant mortality, it is important for mothers to adopt essential newborn care practices such as exclusive breastfeeding, appropriate complimentary feeding, environmental and personal hygiene, immunization and attending child welfare clinic

1.2 Problem Statement

Prenatal care provides the opportunity for early detection of pregnancy related problems for treatment. Provision of adequate ANC services is an opportunity to promote healthy behaviors for the neonate. As public health interventions are being implemented by government and partners to improve pregnancy outcomes and reverse the increasing trend in the rate of premature births, there is a critical need for information regarding the effectiveness of prenatal care programs and their specific components. For example, the relationship between prenatal care and the adoption of healthy behaviors has received relatively little investigation. In particular, our knowledge is incomplete about the degree to which the content and delivery of prenatal care are associated with postpartum care practices such as infant feeding behaviors and newborn care. This study aimed at assessing the relationship between adequate prenatal care and the adoption of newborn care practices including child feeding practices among postpartum women.

1.3 Aim and Specific Study Objectives

The main aim of the study was to assess relationship between prenatal care services utilization and the adoption of newborn care practices among postpartum women in the East Gonja District of Ghana. Specifically, the study sought to:

- i. Determine the prevalence of essential newborn care practices as recommended by the WHO in the study population

- ii. Evaluate maternal knowledge on newborn danger signs
- iii. Assess the independent contribution of adequate prenatal care to essential newborn care practices including good cord care, optimal thermal care and good child feeding practices
- iv. Investigate the barriers to adoption of healthy essential neonatal care practices including child feeding practices among postpartum women

1.4 Significance of the Study

Prenatal care is the foundation of good maternal and child health. It provides an opportunity for mothers to receive care and health education on the pregnancy care and child care practices. Proper use of prenatal care services has the potential of reducing maternal and infant mortalities through medication and proper feeding practices. The findings of the study will help to establish the relationship between prenatal care and postpartum child feeding practices. This will thus guide the District Health Directorate and personnel in all health facilities in the district to fashion ways of designing health promotion activities for pregnant women during ANC sessions.

1.5 Conceptual Framework

The study was conducted with a conceptual framework presented in figure 1 below as the basis of the study. The study explored the influence of adequacy of prenatal care on child feeding practices. Prenatal care may influence child feeding practices when it is adequate. Adequate ANC attendance was defined in this study as having initiated ANC visits in the first trimester and made at least 4 visits during pregnancy.

This study classified the adequacy of initiation of ANC with the underlying assumption that the earlier prenatal care begins the better. The linkage between early initiation of ANC and infant feeding practices among mothers was assessed.



A classification of the adequacy of received ANC services, the number of ANC visits was made and compared to the expected number of visits for the period between when care began and the delivery date. The feeding practices of mothers who made the required number of ANC visits were compared with those who did not make the required number of ANC visits.

Maternal knowledge of infant feeding practices was assessed in relation to their adoption of health feeding practices for their children. The linkage between maternal knowledge and adoption of healthy feeding practices was established by the study.



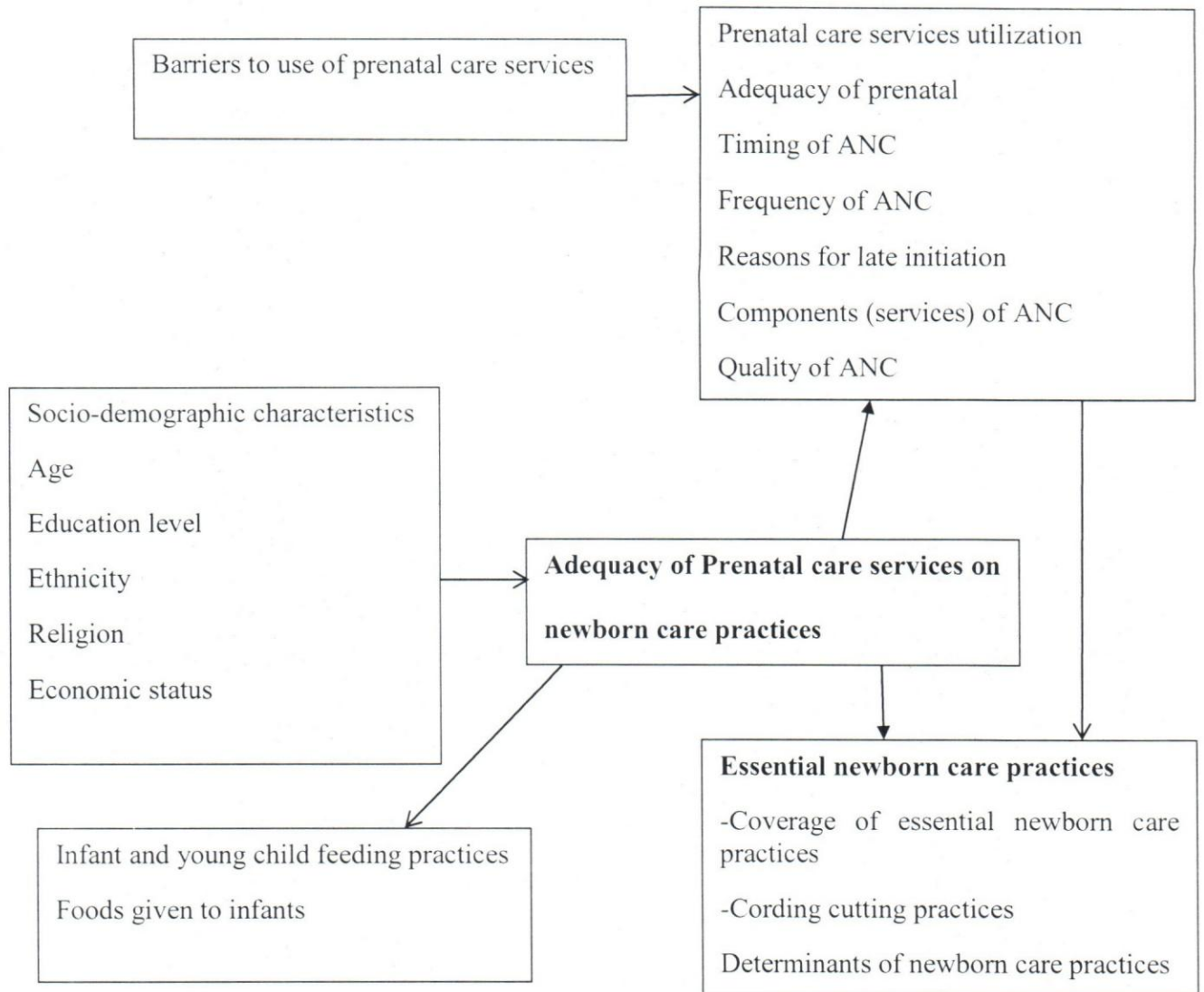


Fig 1.1 Conceptual framework of the study (Source: Author)

From the conceptual framework, adequacy of prenatal care services on new born care practices influence essential newborn care practices exhibited by mothers. This study looks at coverage of essential newborn practices such as cord cutting [Cutting with new blade or sterilized instrument and clamping of the cord.] and the determinants of new born care practices.

Also infant and young child feeding practices are also examples of good neonatal feeding practices that are influenced by ANC attendance or prenatal care. Examples of good infant feeding practices are exclusive breast feeding and good complimentary feeding.

Socio demographic characteristics such as age, educational level Ethnicity, Religion and economic status also have influence on adequacy of prenatal care and new born care practices.

Barriers to the use of prenatal care services can influence prenatal care service utilization, adequacy of prenatal care and timing of ANC, limitation of ANC attendance.

1.6 KEY TERMS;

ANC ;Ante natal care where pregnant women seek care

Adequacy Of Prenatal Care; According to WHO, pregnant women who make 4 or more ANC visit can be classified as those who have adequate ANC visit. Child feeding practices include exclusive breast feeding ie giving only breast milk to a newly born baby till the baby is six months before complimentary feeding (solid food) as well as water is introduced.

Essential new born care practices (ENC) are the practices that protect the newly born baby from infections. This protect the baby against morbidity and mortality. These practices are safe cord care that is cutting and tying of the umbilical cord with a sterilized instrument and thread,

Thermal care(drying and wrapping the new born baby immediately after delivery and delaying the newborn first bath for at least six hours or several days to reduce hypothermia risk.

Colostrum : Is the first breast milk that is yellowish in colour, that actually provides anti bodies for the baby against infections.

Hypothermia: Sub normal body temperature.

Optimal Thermal Care;

This refers to wrapping the baby the moment it is delivered. The baby is not supposed to be bathed until after six hours. Then the baby can be bathed with warm water and not cold water.

The third one is child feeding practices.

New Born Danger Signs; these are signs that show that the baby is not safe Or is having infections.

Prelacteal Feeding; feeding the to a newly born baby other than breast milk.

Vernix; This is a substance found on newly born babies that must not be washed until after six hours, that is why newly born babies are not to be bathed right after birth. Vernix protects babies from infections

Meconium: The content of fetal intestine, hence first excreta. It is also thick dark green mucoid material, that is the first feces of a new born child.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A presentation of literature reviewed with respect to the study topic has been done in this chapter. The literature was reviewed in accordance to the study objectives and the conceptual framework. The areas in which literature was reviewed are an overview of new born care, essential newborn care practices, infant and young child feeding practices, determinants of exclusive breastfeeding and benefits of exclusive breastfeeding.

2.1 Adequacy of Prenatal Care

Several studies evaluating the use of prenatal care facilities since the 1970's have suggested indices to be used to classify this care. Notable among them are the Kessnerindex (Kessner et al, 1973) proposed in 1973, and the index proposed by Kotelchuck (Kotelchuck, 1994) in 1994, known as Adequacy of Prenatal Care Utilization.

Several countries have adopted these indices in measurement of adequacy or otherwise of prenatal care. For example, Brazil adopted the Kessner index proposed in 1994 according to the recommendations of the Brazilian Ministry of Health in 1988. According to Coimbra et al, (2007) all of these indices use as reference the number of visits made during pregnancy and the month when they were started, both adjusted according to the duration of pregnancy.

Studies have shown that several factors account for the adequacy and inadequacy of antenatal care utilization. Coimbra et al, (2007) found that the inadequacy of prenatal care utilization was higher in less developed cities. This showed that women living in urban areas adequately used prenatal care services than those in rural areas. Cesaret al (2005) also found that women who

were attended by the state health facilities were at higher risk for inadequacy of prenatal care. They also found that cohabiting women were at higher risk for inadequacy of prenatal care.

Krueger and Scholl (2000) critiqued the Kessner and Kotelchuck indices and reported that the Kessner index and the index of Adequate Prenatal Care Utilization proposed by Kotelchuck possibly require an excessive number of visits for utilization of prenatal care to be considered adequate.

Puccini et al (2003) in their study on the prenatal care observed that utilization of prenatal care was adequate in the cities. Their study considered prenatal care to be adequate when a pregnant woman attended six or more visits, started them during the first trimester, was submitted to laboratory tests and to at least one breast examination and one ultrasound, and had her blood pressure determined at least once.

In another study by Almeida and Barros (2005) observed a high level (72.2%) of inadequate utilization of prenatal care in Campinas in using as a criterion for adequacy index. They proposed indices of adequacy of prenatal care utilization which were based on the recommendations of the Brazilian Health Ministry. The recommendations were that prenatal care should begin before 14 weeks of pregnancy, there should be six or more visits for a term pregnancy or a smaller number of visits according to gestational age, execution of all routine tests and clinical-obstetrical procedures proposed, and guidelines about breast-feeding. In this study, they proposed that if the Kessner or Kotelchuck indices of adequate utilization of prenatal care appear to be inadequate for Brazilian reality or might not be applicable to any



because the restricted nine visit coding limitation of these indices inaccurately classified the PNC utilization of term and post-term pregnancies. After their study in 1987, Alexander and Kotelchuck (1996) came out with another form of measurement called the Adequacy of Prenatal Care Utilization (APNCU) index and the revised GINDEX (R-GINDEX) which are both currently used to measure utilization of PNC. Several studies have been conducted using these current indices to measure utilization of PNC. For example, a study by Gomez-Olmedo et al, (1996) found an association between inadequate PNC and preterm birth or low birth weight (LBW). However, Koroukian and Rimm (200) questioned the use of these indices in determining an association with outcomes that are highly influenced by gestational age, such as preterm birth and LBW.

The Adequacy of Prenatal Care Utilization (APNCU) index, proposed by Kotelchuck, is comprised of two parts: the month in which PNC is initiated and the number of visits from initiation of care until delivery. According to Taylor et al (2005) inadequate utilization is defined as either starting PNC after the 4th month of pregnancy or receiving less than 50% of expected visits based on the schedule of PNC visits recommended by the WHO. Their study stated that intermediate care is care begun by month 4 and with between 50–79% of expected visits received; adequate care is that begun by month 4 and with 80–109% of expected visits received; intensive (adequate plus) care is begun by month 4 and with 110% or more of expected visits received.

The revised GINDEX (R-GINDEX), proposed by Alexander and Kotelchuck in 1996, has six categories of care: "no care," "inadequate," "intermediate," "adequate," "intensive," and "missing." The R-GINDEX is based on the full (American College of Obstetricians and



Gynecologists (ACOG) recommendation, rather than the flawed Kessner index coding strategy of a 9-visit limit. Kogan et al (1998) gave an explanation of the various categories. For example, at 40 weeks gestation, a woman who began prenatal care in the first 3 months and received between 13 to 16 visits would be categorized as having adequate care, whereas a woman who began care between 1 to 6 months of pregnancy and had less than 8 visits would be categorized as having inadequate care. The intensive care category includes women who have an unexpectedly large number of PNC visits, which may indicate potential morbidity or complications. Women whose number of visits is approximately one standard deviation above the mean number of visits for each trimester of initiation and gestational age at delivery are labeled as intensive care users.

2.2 The Relationship between Adequate Antenatal Attendance and Infant Feeding Behaviours

Many studies have been conducted to find the association between adequate prenatal care utilization and the birth weight of children. According to Orr et al, (2002) much less research has been done to find the association between adequacy of prenatal care utilization and subsequent use of pediatric care services. A study by Butz et al., (2003) to explore this relationship found adequate utilization of prenatal care to be associated with more well-child visits and feeding practices and more adequate childhood immunization rates. Their study stated that because of the importance of maintaining a regular schedule of prenatal care and preventive care for young children, it is valuable for pediatricians to teach women or mothers on the benefits of proper infant feeding practices in order to prevent diseases among infants.

According to Kogan et al (2004), children whose mothers had intensive or adequate prenatal care utilization had significantly more postnatal care visits and good infant feeding practices



compared with children whose mothers had intermediate or inadequate prenatal care utilization. They also found that children whose mothers had adequate prenatal care received all the immunizations necessary for their growth.

Kistin et al (1990) examined whether an exposure to prenatal breastfeeding education would increase the breastfeeding rate among women of black race in the US. They also further investigated whether assigning women into different prenatal educational settings – group classes or individual teaching sessions – had different impacts on women's infant feeding choices. All women were randomly assigned into the two prenatal educational settings and the third group was the control. The difference between the two intervention groups was that those assigned to the group classes had one of the authors as their leader and they had free discussion of several topics, such as myths on breast feeding, problems, and benefits of breastfeeding. Those in the individual session though had one-to-one contact with an author, also had similar topics. The control group received no additional education apart from the routine prenatal care provided.

After controlling for age, prenatal plans to breastfeed, prior breastfeeding experience, perceived support for breastfeeding, education, gravidity, and employment plans, the authors found that women in the two intervention groups had much more increased likelihood to breastfeed than the women in the control group. However, at 12weeks postpartum, women in the class group compared to women in the individual session, showed a higher significance of breastfeeding rates. They therefore suggested that that this difference was due to the result of peer support provided to the women in the class group, which was unavailable to the women in the individual session.

Again, McInnes et al (2000) investigated the impact of peer counseling during antenatal care and early postnatal period on the prevalence and duration of breastfeeding among low-income women in Glasgow. As a quasi-experimental intervention, the intervention group received peer counseling about breastfeeding during pregnancy, while the control group did not receive such support. Before the intervention was started, they reported that 18% of the intervention group and 21% of the control group gave an intention to breastfeed. At delivery, they found that while 23 percent of the intervention group initiated breastfeeding, but it was 20 percent in the control subjects. By 6 weeks post-natal, their result showed a decline in proportion of mothers who were breastfeeding in both groups: in the intervention group, the proportion declined to 10% while in the control group it declined to 8%. They found that socioeconomic status is a key factor of infant feeding practices.

2.3 Overview of Child feeding Practices

In 1991, the World Health Organization (WHO) released a set of indicators designed to be used in population-based surveys to measure adherence to recommended feeding practices. However, most of these indicators focused on breastfeeding practices. Recently, the indicators have been updated to include a greater focus on appropriate feeding practices for children of complementary feeding age (6-23 months).

World Health Organization again reported in 2012 that more than ten million children under five years of age die each year worldwide of which malnutrition underlies a majority of these U5 deaths, 70% of which occur in the first year of life. In 2011, the WHO again reported that infant and young child feeding practices directly impact the nutritional status and, ultimately, the child survival of children under two years of age. Based on this assertion by the WHO, UNICEF



(2013) advocated for an improvement in infant and young child feeding practices which is critical to ensuring their optimal health, nutrition and development.

The importance of child feeding practices has therefore been recognized by many agencies operating in the area of child health. According to UNICEF (2007) infant and young child feeding practices directly affect the nutritional status of children under two years of age and, ultimately, impact child survival. Improving infant and young child feeding practices in children 0–23 months of age is therefore critical to improved nutrition, health and development of children. However, until now, indicators that can be used in population-based surveys to measure infant and young child feeding practices have focused mostly on breastfeeding practices (Kogan et al., 2006). The lack of evidence and consensus on simple indicators of appropriate feeding practices in children 6–23 months of age has hampered progress in measuring and improving feeding practices, thereby constraining improvements in infant and young child nutritional outcomes (Ornila, 2007).

Giglia et al (2008) reported that healthy infant feeding practices, including exclusive breastfeeding and delayed introduction of complementary foods, are promoted by health clinicians as well as by numerous national and international organizations. However, mothers base their infant feeding decisions on an array of factors, including their experiences, family demands, socioeconomic circumstances, and cultural beliefs.

Adequate nutrition during infancy and early childhood is essential to ensure the growth, health, and development of children to their full potential (WHO, 2009). It has been recognized worldwide that breastfeeding is beneficial for both the mother and child, as breast milk is considered the best source of nutrition for an infant.



The World Health Organization (WHO) recommends that infants be exclusively breastfed for the first six months, followed by breastfeeding along with complementary foods for up to two years of age or beyond (Hanif, 2011). Exclusive breastfeeding can be defined as a practice whereby the infants receive only breast milk and not even water, other liquids, tea, herbal preparations, or food during the first six months of life, with the exception of vitamins, mineral supplements, or medicines (Nkala and Msuya, 2011). The major advantage of exclusive breastfeeding from 4 to 6 months includes reduced morbidity due to gastrointestinal infection (Kramer and Kakuma, 2002).

Several studies have shown that mothers find it difficult to meet personal goals and to adhere to the expert recommendations for continued and exclusive breastfeeding despite increased rate of initiation (Whalen and R. Cramton, 2010). Some of the major factors that affect exclusivity and duration of breastfeeding include breast problems such as sore nipples or mother's perceptions that she is producing inadequate milk (Cherop et al, 2009); societal barriers such as employment and length of maternity leave (Thurman and Allen, 2008) inadequate breastfeeding knowledge [8]; lack of familial and societal support; lack of guidance and encouragement from health care professionals (Fewtrell et al, 2007). These factors in turn promote the early use of breast milk substitute.

When breast milk or infant formula no longer supplies infants with required energy and nutrients to sustain normal growth and optimal health and development, complementary feeding should be introduced (More et al, 2011). According to the WHO recommendations, the appropriate age at which solids should be introduced is around 6 months (Brown and Lee, 2011) owing to the immaturity of the gastrointestinal tract and the renal system as well as on the neonatal physiological status of the infant (Dratva et al, 2006). Factors that influence the weaning process

include infant feeding problems such as refusal to eat, colic, and vomiting among others (Hagekull et al, 2006). These factors represent challenges for mothers and in turn may either directly or indirectly influence the feeding pattern.

Predictors of breastfeeding and weaning practices vary between and within countries. Urban or rural difference, age, breast problems, societal barriers, insufficient support from family, knowledge about good breastfeeding practices, mode of delivery, health system practices, and community beliefs have all been found to influence breastfeeding in different areas of developing countries (Akter and Rahman, 2010).

2.4 Infant Feeding Practices

According to Marquis et al (2009), WHO and UNICEF's global recommendations for optimal infant feeding as set out in the Global Strategy are exclusive breastfeeding for 6 months (180 days) and nutritionally adequate and safe complementary feeding starting from the age of 6 months with continued breast feeding up to 2 years of age or beyond.

From the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk, and complementary feeding becomes necessary to fill the energy and nutrient gap. If complementary foods are not introduced at this age or if they are given inappropriately, an infant's growth may falter (WHO, 2009).

Breast and complementary feeding, if adequately promoted and practiced, according to recommended guidelines by WHO; can prevent up to 19% of all childhood deaths in low-income countries (Wamani et al, 2005)

Efforts to promote modest nutritional improvements such as changes in feeding behaviour will have a beneficial impact on mortality rates over time. Feeding practices adopted by mothers



depends on the knowledge, attitude, socio-cultural tradition they are exposed to (Ezechukwu et al, 2004).

Adequate nutrition during infancy and early childhood is essential to ensure the growth, health, and development of children to their full potential. It has been recognized worldwide that breastfeeding is beneficial for both the mother and child, as breast milk is considered the best source of nutrition for an infant (Ku and Chow, 2010)

According to a study conducted in Nepal approximately 7.7 and 19.1% of all neonatal deaths may be avoided with universal initiation of breast-feeding within the first day or hour of life, respectively. Around 54% of children living in Pakistan are malnourished. Malnutrition is associated with >50% of child deaths in addition to impairing child development. Identifying approaches to reduce the prevalence of malnutrition particularly in the vulnerable first 2 year of life is a priority in developing countries (Sibeko, 2001)

The impact of proper infant feeding practices has been extensively studied. Rao (2008) reported that scientific evidence reveals that malnutrition has been responsible, directly or indirectly, for 60% of all deaths among children under five years annually. Over 2/3 of these deaths are often associated with inappropriate feeding practices and occur during the first year of life. Due to the importance of proper child feeding, governments all over the world have always been promoting at the national and international fora exclusive breastfeeding for the first six months and introduction of complementary foods thereafter with continued breastfeeding up to two years (WHO, 2013)



Bottle feeding is another big killer of the babies in developing countries. Bottle fed babies have up to 2-7 times increased risk of mortality compared to breast fed babies. Breast fed babies have less incidence of infective diarrhea, respiratory infections, acute otitis media, and necrotizing entero-colitis. There is a reduced risk of eczema and milk allergies in breast fed babies. Above all there is strong evidence to suggest that breast fed babies have better cognition and IQ scores later in life (Merchant and Sharif, 2005). According to Ashmika et al (2013), socioeconomic indicators of poverty (poor housing conditions, low per capita income and energy consumption) are significantly associated with a greater risk of malnutrition and under 5 year mortality.

2.5 Essential Newborn Care Practices

A common newborn care practice is the bathing of the newborn soon after birth. The body of the newborn baby is coated with vernix, which is considered dirty and impure.

Most newborn babies are bathed immediately after birth to remove the vernix and keep the baby pure and clean. In rural Nepal 72.9% of the newborns were bathed within an hour of birth and 17% were bathed between 2-24 hours of birth. Less than 10% were bathed after 24 hours of birth) (MoHP, New ERA, & Macro International Inc., 2007). Bathing newborns soon after birth makes them more vulnerable to hypothermia and also interferes with their suckling ability, hence, Ministry of Health and Population (MoHP) recommends bathing newborn only after 24 hours of birth.

Early breastfeeding behavior is also not ideal in rural Africa. The recommended practice is that the mothers breastfeed their child soon after birth, at least within one hour. However, only few of the newborns were breastfed within one hour of birth in rural Africa (Lawn et al, 2001). Prelacteal feeding, that is, giving something other than breast milk during the first three days of life is also practiced by a considerable proportion of the rural people (Akter and Rahman, 2010).



A report by the WHO (2013) stated that many of the world's infants are given liquids other than mother's milk in the first few days after birth, including those who eventually are breastfed exclusively. This practice of feeding infants non milk liquids before the first breastfeeding stems from concerns about the nutritional value of and the cultural taboos against colostrum. Although immunologic and nutritional benefits of colostrum are evident from scientific literature, its thinner consistency and yellowish color (compared with the later human milk) likely encourages these beliefs. Also, some groups believe that feeding sugared water, honey, teas, sweet oils, or butter "cleanses" the newborn's gut by promoting the elimination of meconium, which is believed to be harmful (Nguyen et al, 2008).

Infants in Durango, Mexico, have been reported to be fed an infusion of sugar water mixed with herbs 30 minutes after birth because mothers believe their milk is muyfuerte (too strong) for the baby (Giglia, et al, 2008). In Vietnam, colostrum often is viewed to be "old milk" and discarded, and infants are fed either ginseng herbal-root tea or boiled sugar water for the first 2 to 3 postnatal days (Ladomenou et al, 2007). In several African countries, common water-based prelacteal feedings given to infants in the first 3 postnatal days include sugar water, water, salty liquids, and teas as well as milk, porridge, and honey (Amin et al, 2011).

Maine et al (2013) argued that although high rates of hospital deliveries make it unlikely that US-born infants will be fed prelacteal fluids in the first few days, early home discharge still raises the possibility of prelacteal fluids being fed at home.

According to Sloan et al, (2006), honey is a common prelacteal feeding for many cultures, and clinicians may be unaware of such practices unless they specifically ask about its use at home to screen for the risk of infantile botulism. In addition, Mashud et al, (2012) reported that an underlying cultural acceptance of prelacteal feedings and avoidance of colostrum leads to



delayed breastfeeding and more requests for formula to feed the newborn. Both factors interrupt the hormonal feedback to stimulate human milk production, setting up the mother for inadequate human milk production.

Ann et al (2010) reported that consistent messages or education regarding the benefits of early breastfeeding coupled with lactation support and the discouragement of formula supplements have been shown to increase initiation rates of breastfeeding.

Studies conducted by Baqui et al (2006) and Sharan (2004) examined the relationships between newborn care practices and socio-demographic factors and service utilization. They found a positive correlation between newborn care practices and maternal age, educational level and economic status. They however suggested that there is the need to study the other predictors of newborn care practices and the interrelationships that influence newborn survival.

Vaahtere et al (2001) stated that maternal education is a predictor for use of pre-lacteal fluids, with uneducated mothers more likely to give pre-lacteals than their educated counterparts. The reasons for giving pre-lacteals documented in various studies are 'waiting for spontaneous milk flow and purging the gut of meconium, there is no literature to explain why mothers indulge in this practice. This suggests that despite improvement in breastfeeding practices there is little change due to strong cultural beliefs.

The World Health Organization recommends improving care practices at birth in order to reduce neonatal morbidity and mortality. A set of practices that reduces newborn morbidity and mortality has been identified as essential and these include clean cord care (cutting and tying of the umbilical cord with a sterilized instrument and thread), thermal care (drying and wrapping the newborn immediately after delivery and delaying the newborn's first bath for at least six



hours or several days to the reduce hypothermia risk), and initiating breastfeeding within the first hour of birth (World Health Organization, 1996; Saving Newborn Lives, 2001; Marsh, et al, 2002).

According to Mamta (2013) the care newborn receives in the initial weeks is the key to their successful outcome and the vital factor in the survival and future development of the newborn. Every newborn has the right to the best possible conditions for its growth and development, especially because children are assets for the nation's development. As rightly remarked by W.H.O. "A healthy child is nation's pride" therefore mothers need to be educated on newborn care practices.

The first two years of life involve rapid physical, cognitive and social development that requires optimal nutrition. Adequate infant and young child feeding practices are needed to support this development and provide protection from the risk of morbidity and mortality in low-resource environments (Tushar et al, 2014).

Studies have shown that about 70% of infant deaths occur during the first month of life. It has also been stated that policy-makers and health professionals in developing countries, until recently, neglected newborn care (Costello and Manandhar, 2000). Newborn deaths result from a combination of medical causes, social factors, and health system failures that vary by context and culture. In most settings, newborn health is closely associated with maternal health (Belsey, 1992). Paul and Beorari (2002), however, observe that factors contributing to the high newborn mortality rates in South Asia include widespread LBW, lack of skilled health care at birth, and low levels of exclusive breast-feeding in the initial months of life.



Studies have shown that most of the neonatal deaths can be prevented with cost-effective solutions that do not depend on highly trained provider or sophisticated equipment. Proper nutrition and hygiene are the answers in many cases, while other deaths can be prevented by using widely available vaccines and medications to prevent and treat infections, by having skilled health care at hand during and after delivery, by recognizing and promptly treating obstetric complications, by keeping the baby warm and the umbilical cord clean, and by improving breastfeeding and family planning practices (MoHSW, 2006).

The principles of essential newborn care are simple, requiring no expensive high technology equipment: resuscitation, warmth to avoid hypothermia, early breastfeeding, hygiene, support for the mother-infant relationship, and early treatment for low birth weight or sick infants (Maine, 2008).

The use of unsterile instruments for cord cutting increases the chances of neonatal tetanus and infection among newborns, hence, the use of such instruments for cord cutting is not recommended. A quarter (25.1%) of newborns receives the application of substances such as oil, turmeric paste and ash on their freshly cut cord stump (MoHP, New ERA & Macro International Inc., 2007).

According to Stephenson et al (2008), the application of substances to the freshly cut umbilical cord stump is not necessarily harmful but the ways in which such substances are prepared in the household are usually not very hygienic. Application of such substances on the freshly cut cord stump increases the chance of infection, hence keeping the cord dry for newborns has been recommended.



According to Deoraret al (2007) umbilical cord infection is a major cause of death and it occurs due to poor aseptic practices. Bacterial infection often enters the neonatal body through umbilicus and fifty percent of these deaths occur during the first four weeks of life. Neonatal tetanus due to application of cow-dung to the umbilical stump causes septicemia and lead to neonatal death. Untreated neonatal sepsis is life threatening and therefore its early identification and treatment is essential for the child's survival.

It has been reported in Nepal that, keeping the newborn warm after birth is not a common practice. Usually, families look for clothes only after birth and often they do not have warm clothes ready at the time of delivery. The newborn is kept naked or covered with a thin piece of cloth until the placenta is delivered or the umbilical cord is cut. There may be no preparedness for birth (Wei, 2012). The Nepal Demographic and Health Survey of 2006 data shows that only 41.7% of the newborns in rural Nepal were dried soon after birth before the delivery of the placenta.

Statistics show that about three-quarters of the newborns' cords are cut using a sterile instrument from the clean home delivery kit or a new boiled blade in the rural areas of Africa, but a considerable proportion are still using other unsterile instruments such as a sickle, knife, curved knife and wood for cord cutting (Agboado et al, 2010)

Thapa et al (2000) in Sudan found an association between maternal and newborn care practices and mothers' education. Low education of women was significantly associated with two practices, including not getting antenatal care and not boiling the cord cutting instruments before cord cutting. The husbands' education was significantly associated with a reduced odds of practicing high risk birth practices- not getting antenatal care, delivering in an animal shed, having an unattended delivery and not boiling the cord cutting instrument



Bang et al (1995) stated that mothers need to be aware of danger signs of a sick newborn such as poor sucking, rapid breathing at the rate of greater than 60 breaths/minute, difficult breathing, body cold to touch, lethargy, up-rolling of eye balls, jaundice, abdominal distention and cyanosis. The mother's knowledge, practices and attitude, regarding newborn care forms the bench mark for her child care. However, a study by Ergenekon-ozelci et al (2006) found that mothers are equipped with intuitive information on newborn care practices but they lack specific information. There is also so much anxiety and worries which hinder proper child care practices. They also lack confidence and practical experience of taking care of newborns.

Poor newborn care practices together with poor maternal care and staff shortages in rural health facilities have been explained as two contributing factors of newborn mortality in developing countries (Saving Newborn Lives, 2001). Often, these factors do not act in isolation but act upon each other to influence child survival outcomes.

A study was conducted by Winch et al (2005) on breastfeeding pattern in neonates in Patna, India to examine breastfeeding patterns, knowledge and attitudes about breastfeeding and food supplementation of the newborn. The study found that unhygienic practices such as offering foods with a fingertip, cotton wick, or dropper was practiced more widely among women with lower socioeconomic backgrounds and illiterate mothers and mothers who fed their infants colostrum were unaware of the health benefits. The results of their study showed that over 90 % of the mothers considered food supplementation appropriate only after one year of age, which can lead to malnutrition and 94 % of mothers considered dry fruits and ghee or other expensive items were necessary for the lactating mother, while low-cost items such as pulses, skimmed milk, and green vegetables were ignored.



Darmstadt et al (2007) conducted a study in Egypt and found that most grandmothers and mothers believe in early feeding within two hours of delivery. They found that colostrum was considered beneficial; they felt that a baby who was playful and not crying excessively was usually healthy. The study suggested that knowledge regarding desirable breastfeeding practices was inadequate and quite a few inappropriate beliefs were widely prevalent. Although knowledge regarding sickness was present, health-seeking from qualified providers was considerably delayed with most respondents preferring village practitioners to government hospitals.

Newborn care is strongly influenced by women's social and health status and by home care and practices for mother and newborn, as well as by maternal and newborn cares services (Rodolfo et al. 2000). Traditional care practices at home and in the community inevitably affect maternal and newborn health

A cross-sectional study was conducted in Brazil to study pregnant women's knowledge about general health care of newborns including breast-feeding aspects. The study concluded that pregnant women's knowledge of newborn health care is low as much in the aspects of general care as in relation to the practices of breast-feeding (Sreeramareddy et al, 2006)

In order to reduce infant mortalities and morbidities, family life education and mother craft skills, care during pregnancy, safe delivery, prevention of hypothermia and infections, promotion of breast feeding, home care of small babies, early recognition of a sick baby and prompt seeking of care are important points about which a mother should have enough knowledge (Sing, 1999)

Sharan (2004) examined the determinants of safe motherhood and newborn care practices in Uttar Pradesh, India among women who delivered at home. The study found that older maternal



age (>28 years) was associated with decreased odds of adopting hygienic cord care practices. The findings indicate that younger mothers are more aware of clean delivery practices and infections such as tetanus that are associated with poor cord care practices.

Studies have shown that parity has linkage with child survival. Ibrahim et al (1994) studied factors associated with a high risk of prenatal and neonatal mortality in the rural communities of Sudan. Van den Broeck et al (1989) in their study of the maternal determinants of child survival in a rural African community, found that high parity together with illiteracy and chronic maternal stress hampered the survival of children.

Baqui et al (2006) in their study on newborn care in rural Uttar Pradesh of India has linked three newborn care practices- clean cord care, thermal care and early breastfeeding with socio-demographic, antenatal and delivery care factors.

2.6 Determinants of Practicing Exclusive Breastfeeding

Sharon (2007) stated that breastfeeding evokes deeply held beliefs that are rooted in culture which conjures up a warm image of a mother nurturing and nourishing her young offspring. It is also argued that breastfeeding creates a repulsive mental image of a woman exposing herself in a deviant fashion and a mother's attitude regarding breastfeeding is highly reflective of the culture and environment from which we come

An understanding is needed by mothers in order to be able to breastfeed exclusively to the recommended six months. They need to understand the factors that influence EBF. According to Nkala and Msuya (2011), various factors are associated with EBF and breastfeeding initiation and duration. Some of the factors that were espoused by their study are; socio-demographic factors (education level, urban versus rural residence, monthly household income and parity);



biosocial factors (breastfeeding support); cultural factors (beliefs, norms and attitudes towards breastfeeding) and employment policies.

Studies have also shown the importance of recognizing the social circumstances in improving the understanding of infant feeding, thereby improving the ability to increase breastfeeding in the communities (Lisa, 2011). The identification of the determinants of breastfeeding practices will inform the design of targeted interventions to promote breastfeeding and the formulation of national public health policy (Newton, 2004).

Lu et al, (2001) showed that women who receive encouragement to breastfeed from health care providers are more likely to initiate and maintain breastfeeding than women who did not receive encouragement.

Bentley and Jensen (2003) in demonstrating factors that influence exclusive breastfeeding used a social ecological framework, which conceptualizes overlapping spheres of influence, to demonstrate linkages between macro level and micro level factors that contribute to the decision to breastfeed. Macro level factors such as “media, marketing of breast milk substitutes, welfare reform, hospital policy and breastfeeding legislation interact with micro level factors influencing a women’s decision to breastfeed. These micro level factors that were found include features of the community, neighborhoods, workplaces that support or discourage breastfeeding, social and personal networks and cultural norms and individual beliefs about breastfeeding. The role of power at each level in influencing women’s choice of an infant feeding method is also addressed (Li & Grummer-Strawn, 2002).



The HER project, (2012) carried out studies on breastfeeding in Bangladesh and found some important factors influencing breastfeeding practice to reach satisfactory levels. Education of the mother is one of the most important determinants for increasing breastfeeding practice. They found that women who are highly educated are more likely to exclusively breastfeed their children compared to women without any formal education.

Uchendu et al, (2009) in a study in Nigeria stated that factors such as social, physical, biological and psychological may impact positively or otherwise on the ability and willingness of women to practice EBF. Some researchers have proposed that lack of suitable facilities outside of the home, inconvenience; conflicts at work, family pressure and ignorance adversely affect the willingness of women to practice EBF (Ogbonna et al, 2000). The need to return to work or school has also been implicated as a factor interfering with EBF (Forbes et al, 2003). Various misconceptions by mothers have also been noted to adversely affect EBF; these include beliefs that breast milk is insufficient or of poor quality, and that the baby does not gain weight adequately or is thirsty (Aghaji, 2002).

A previous study by Illiyasu et al, (2005) found maternal age, educational level, family size, presence in the family of extended family members during the first 6 months of the baby's life, and the number of other children who were exclusively breastfed.

Also assessed were reported reasons for being able to practice EBF or not, such as the need to return to work or school, or demands by the husband. The mother's perception of the quality and quantity of breast milk and weight gain of her baby was also determined.



2.7 Summary of the literature review

The literature review has revealed that extensive studies have been done to establish the benefits of prenatal care and its relationship with newborn care practices. The literature review identified the newborn care practices among rural and urban women.

The literature review has shown that several important factors operating at individual, household levels, women education and their use of maternal health services significantly influence their newborn care practices. With this host of potential determinants, it is not obvious whether the factors that have been established in the literature review are applicable to the East Gonja District and hence the need to conduct this study.



CHAPTER THREE

METHODOLOGY

3.0 Introduction

The methodology that was used in conducting the study is presented in this chapter. The sections under this chapter include the study design, description of the study area, study population, sample size determination and sampling procedure, data collection, dependent and independent variables, data processing and analysis and ethical considerations.

3.1 Study Design

The study was a community-based analytic cross-sectional study conducted in 30 communities. Cross-sectional studies measure certain phenomena (events, behaviour, attitudes) in the population of interest (e.g the use of prenatal care services, infant feeding practices). They are known as cross sectional because the data are collected from the field at one point in time. The respondents are generally asked to answer questions on events, practices and behaviour retrospectively therefore the surveys are called retrospective studies.

3.2 Study Area

East Gonja Districts located at the South-eastern section of the Northern Region of Ghana. The district lies within Lat. 8°N & 9.29°N and, Long. 0.29°E & 1.26°W. It shares boundaries with Yendi and Tamale districts to the North, Central Gonja District to the West, Nanumba-North, Nanumba-South and Kpandai Districts to the East, and the Volta and Brong Ahafo Regions to the South. The total land area of the district is 10,787 square kilometres, occupying about 15.3% of the landmass of the Northern Region. The district comes first in terms of land area (size) among the districts of the Northern Region. The 2010 Population and Housing Census put the

population of the East Gonja District at 135,450. 69,721 are made up of males and 65,729 females (Ghana Statistical Service, 2012).

The district's share of the total population of the Northern Region is 5.46%. The total population of the Northern Region stood at 2,479,461 (as at 2010). The district's population growth rate is 2.1% (1984-2000), lower than both the regional and national averages of 2.9% and 2.5% respectively. This relatively low population growth rate could be explained by increased outmigration from the district combined with modest success of population control and education measures of the Ministry of Health and other Development Partners. This lower population growth rate in East Gonja district is an asset to be maintained and reinforced through conscious policy, promotional and educational measures.

According to the District health Directorate (2012), the East Gonja District has a total population of 143,420 and 3 sub-districts. The district has a total of 250 communities. The district has 15 demarcated CHPS zones with 13 functional CHPS zones as of 2012. There are 10 CHPS compounds which are distributed over the sub-districts.

3.3 Study Population and Sampling

The primary study population comprised of one year postpartum women. Data were collected from these mothers using structured questionnaires. Since the focus of the study was to establish the relationship between prenatal care and infant feeding behaviors, it was appropriate to use mothers who were feeding children below one year.

3.4 Sample size Determination

The sample size was calculated using the Snedecor and Cochran (1998) formula for a point estimate sample:

$$n = z^2 pq / d^2$$

where

n= sample size

z= Z- score of a 95% confidence level of the study equivalent to 1.96

p= estimated population prevalence of adequate ANC services utilization among pregnant women in the district which is taken to be 50% in this study

q= proportion of mothers who feed their children who made adequate ANC attendance (1-p)

d= margin of error of the study thus 100%- 95%= 5% in this study

$$\text{Therefore the sample size (n)} = \frac{(1.96)^2 \times 0.5(1-0.5)}{0.05^2} = 384.16$$

$$n \approx 384$$

A 10% allowance was made for non-response, withdrawal from the study and damaged questionnaires culminating into a final sample size of 422



3.5 Sampling techniques

The study used a stratified sampling method in selecting the respondents for interviewing. The East Gonja District has been divided into suburbs by the District assembly which the Ghana Health Service also used during immunization programmes. Out of 250 communities in the district, 30 communities were selected which represents 12% of the total number of communities in the district. This is enough for a 95% confidence level (which means that there is only a 5% chance of the sample results differing from the true population average) (Niles, 2006).

The 30 communities were then selected using probability proportionate to size (PPS). This has been proposed by UNICEF to be more appropriate for community based studies because it gives every element in the sampling frame equal chance of being selected. Communities with larger populations have a proportionately greater chance of containing a selected cluster than smaller communities. Each household in the sample has an equal chance of being selected which is self-weighting. In each cluster, a complete list of all households was compiled and systematic random sampling was used in selecting study participants. All the households in each cluster were serially numbered and the total number of households in a cluster was divided over the sample size to give the sampling interval. The first household was randomly selected by picking any number within the same interval. Subsequent selections were made by adding the sampling interval to the selected number in order to locate the next household to visit. If the selected household does not have a target respondent, then next household was selected using the systematic sampling procedure. This was done until the sample size was obtained. A maximum of 14 postpartum women were randomly selected from a cluster giving a total of 422 respondents. Only one eligible participant was selected from each household using simple random sampling.



3.6 Household selection

All interviews were conducted within households using the face-to-face interview method. From the center of each cluster, the researcher and research assistants walked in opposite directions and selected all households along the row for administering the questionnaires for each of the cluster.

3.7 Respondent selection

Within each sampled household, only one eligible respondent was interviewed. In houses where two or mothers qualified to be interviewed, the one with the youngest child was interviewed. In cases with absentee household members, the researcher moved to the next house to select a respondent for the questionnaire administration.

3.8 Data Collection

Both quantitative and qualitative methods were used. For the quantitative method,

Structured survey questionnaires were administered to the primary respondents and for the qualitative method interviews focus group discussions were used.

After consent was obtained from eligible mothers, face-to-face interviews using a pretested structured questionnaire were conducted. Data collected included maternal socio demographic characteristics, knowledge of women about newborn danger signs, and experience of respondents in caring for their babies during the first one year of life.

The questionnaire was divided into five sections thus; socio-demographic characteristics, use ANC services, use of skilled delivery services, infant feeding practices, and socio-economic status

The interview and focus group discussions solicited in-depth information on the feeding behaviors of postpartum mothers and the barriers to the adoption of good feeding practices.

Dependent and Independent Variables

The dependent variables were safe cord care, optimal thermal care and good neonatal feeding practices.

Independent Variables

- i. Maternal Knowledge of Newborn Danger Signs
- ii. Socio-demographic characteristics of respondents
- iii. Adequacy of ANC attendance
- iv. Content of ANC

3.9 Data Processing and Analysis

The data from the structured questionnaire were coded and entered into SPSS version 20.0 for Windows. Univariate analyses was done to assess the socio-demographic characteristics of the respondents, proportion of ANC services utilization, proportion of skilled delivery services utilization, reasons for ANC services utilization, types of ANC services received, infant feeding practices, frequency of feeding, coverage of essential newborn care practices and the perceived quality of ANC services received.



In addition descriptive and inferential statistics were performed using Predictive Analytic Software (PASW) known formerly as SPSS for Windows version 20.0. In order to make statistically valid population inferences from sample data, standard errors were computed using procedures in SPSS complex samples that took into account the complex nature of the cluster sample design.

Chi-square statistics were performed to compare the levels of each of the dependent variables with the explanatory variables. A multiple logistic regression (stepwise method) was used to identify independent factors that were associated with good child feeding practices. The variables that were entered as potential variables in the multiple linear regression models if they were significant at based upon the results of the bivariate tests. The variables included socio-demographic characteristics, mothers' knowledge of specific newborn danger signs, child feeding practices

Bivariate analyses were done to assess the relationship between adequacy of ANC attendance and newborn care practices including safe cord care. Test statistics that were used in the bivariate analyses are the P-values and Chi square values. P values less than 0.05 were considered statistically significant.

Multivariate analyses were done to assess the determinants of safe cord care and determinants of good neonatal feeding. Test statics that were used include confidence intervals, Chi square values and odd ratios.

The focus group discussions were recorded with a tape record and transcribed. The transcribed tapes were then analyzed using thematic and content analysis. The main themes that there found

were discussed under the barriers to the adoption of good infant feeding behaviors. The themes were supported with some statements from the discussants.

3.11 Ethical Consideration

The study topic was approved by the Department of Allied Health Sciences and the Graduate School of the University for Development Studies. The East Gonja District Health Directorate was also informed which then directed its Community Based Volunteers to assist in the community entry process.

There was also a verbal and a written consent to inform respondents to agree on before taking part in the study. The respondents' identity was also ensured by maintaining confidentiality and anonymity.

CHAPTER FOUR

RESULTS

4.0 Introduction

A total of 422 postpartum mothers were interviewed. Both quantitative and qualitative data were collected. The results of the study are presented in this chapter. The results of the quantitative data are presented in tables and charts. Thematic and content analysis was done for the qualitative data with some direct quotations from the discussants.

4.1 Respondents Characteristics

The mean age of respondents was 29.2 ± 5.3 (Mean $\pm$ SD) with a minimum age of 15 years and a maximum age of 42 years. The results of the study showed that majority of the respondents representing 54.3% (229) of the study sample were within the group of 20-30 years. The proportion of teenage mothers was only 3.3% (14) whilst 2.1% (9) were within the age group of 41-45 years. The respondents were predominantly Gonjas who formed 46% (194) of the study sample. Most of the respondents representing 55.7% (235) of the study sample were Christians with Muslims forming 35.3% (149) of the study sample. Most of the respondents 90.3% (381) were married. . Majority of the respondents who represented 64.7% (273) of the study sample did not have any formal education. The proportion of respondents who had secondary education was 12.1% (51) whilst 7.1% (30) had tertiary education. About 29.1% (123) of the respondents were unemployed with 26.8% (113) of the respondents being farmers. The proportion of respondents who were educated to the tertiary level was almost the same as those who were employed in the civil/public service thus 7.1% (30) versus 7.8% (33). Some of the respondents

were petty traders and formed 27.7% (117) of the study sample. Table 4.1 below shows the socio demographic characteristics of the respondents.

Table 4.1: Respondent characteristics of respondents

Variable	Frequency N=422)	Percentage
Age group		
15-19	14	3.3
20-30	229	54.3
31-40	170	40.3
41-45	9	2.1
Ethnicity		
Dagomba	54	12
Gonja	194	46
Nanumba	14	3.3
Akan	10	2.4
Others	150	35.6
Religion		
Christianity	235	55.7
Islam	149	53.3
ATR	38	9
Marital status		
Single	29	6.9
Married	381	90.3
Widowed	12	2.8
Educational level		
Illiterate	273	64.7
Basic	61	14.3
Secondary	51	12.1
Tertiary	30	7.1
Occupation of mother		
Unemployed	123	29.1
Petty trade	117	27.7
Farmer	113	26.8
Civil/public servant	33	7.8
Others	36	8.5



4.2 Spousal Information

The results of the study showed that 90.3% of the respondents were married. An assessment of the spousal information showed that majority of the husbands had higher levels of formal education compared to their wives. The proportion of the spouses who did not have any formal education was 47.9% (202) whilst 16.4% (69) had basic education. Compared to the women, the proportion of their spouses who had tertiary education was higher than that of the women thus 13.5% (57) versus 7.1% (30).

The studies also found that majority of the men were farmers with 47.9% (202) of the spouses being farmers whilst 8.3% (35) were unemployed. About 21.3% (90) of the spouses were petty traders as shown in Table 4.2. .

Table 4.2 Educational levels and occupation of respondents' spouses

Variable	Frequency (n=422)	Percentage
Educational level		
Illiterate	202	47.9
Basic	69	16.4
Secondary	63	14.9
Tertiary	57	13.5
Not applicable	29	6.9
Occupation		
Unemployed	35	8.3
Petty trade	90	21.3
Farmer	202	47.9
Public/civil servant	49	11.6
Others	17	4.0
	29	6.9



4.3 Antenatal Care during Pregnancy

The WHO recommends that pregnant woman should make at least 4 ANC visits in the entire duration of her pregnancy which makes the ANC visit adequate. Majority of the respondents representing 93% (395) said that their pregnancies were planned. All the respondents sought antenatal care during pregnancy. However, there were variations in the number of visits and the time ANC was initiated. The results showed that majority of the respondents who represented 62.3% (263) made less than 4 ANC visits whilst 37.7% (159) made at least 4 ANC visits. The few number of ANC visits made by the respondents was linked to the late initiation of ANC as majority of the respondents who represented 90.8% (383) initiated ANC in the second trimester of pregnancy whilst 7.8% (33) initiated ANC in the first trimester of pregnancy. Table 4.3 shows the maternal history of antenatal care.



Table 4.3 Use of antenatal care services

Variable	Frequency (n=422)	Percentage
Planned pregnancy		
Yes	395	93
No	27	6.4
Number of ANC visits		
1-3	263	62.3
4 and above	159	37.7
ANC initiation		
First trimester	33	7.8
Second trimester	383	90.8
Third trimester	6	1.4
Adequacy of ANC attendance		
No	267	63.3
Yes	155	36.7
Total	422	100.0

4.4 Reasons for Late Initiation of ANC

The main reasons that were given by the respondents for the late initiation of ANC were financial challenges and far distance to health facilities. The respondents who initiated ANC in the third trimester gave these reasons. About 83.3% (5) of them said that they initiated ANC in the third trimester due to financial challenges whilst 16.7% (1) said that the distance to the nearest health facility was too far which prevented them from seeking ANC early. Figure 4.1 shows the reasons for late ANC initiation.

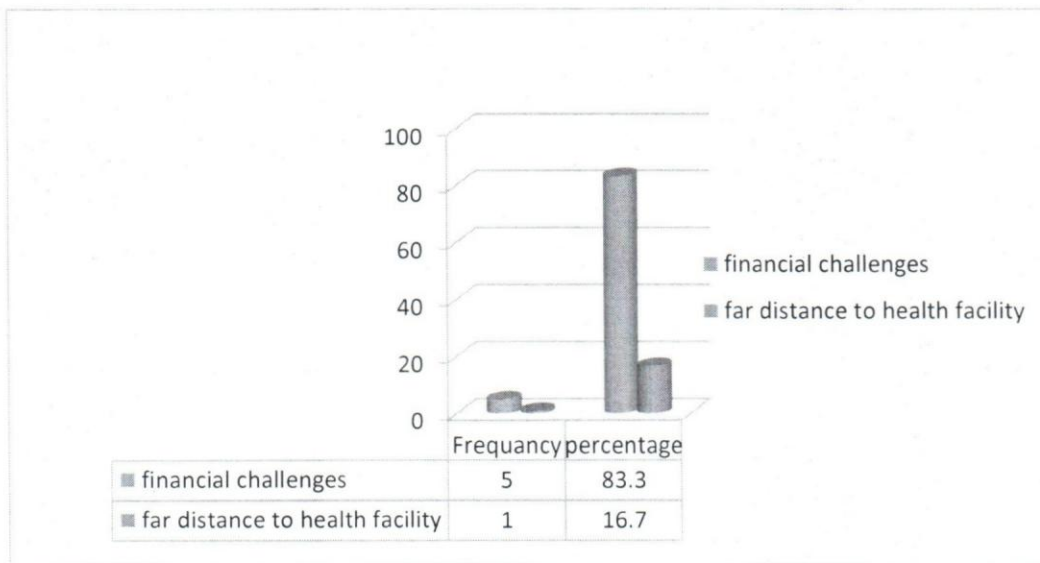


Figure 4.1 Reasons for late attendance of ANC

4.5 ANC Services Received by Respondents

The services received by the respondents during the ANC clinic were assessed by the study. The results show that majority of the respondents who represented 90% (380) received ANC care from the same health care providers; specifically the nurses at the RCH throughout the entire period of pregnancy. This was attributable to the fact that the nurses at the health centres and CHPS compounds are not many so they provide the health care services to communities over so



many years. Weight checking was the commonest ANC service received by pregnant women with 98.8% (417) of the pregnant had their weight checked. The proportion of respondents whose BPs were checked was 92.4% (396) whilst 93.8% (396) of them had their urine examined. Blood examination was done for 92.4% (390) of the respondents whilst 93.8% (396) were given Tetanus Toxoid injection. The proportion of respondents who received malaria prophylaxis (SP) was 96.2% (407) whilst 94.8% (400) received iron supplements. Table 4.4 below shows the ANC services received by the respondents.



Table 4.4 ANC services received by respondents

Service	Frequency (n=422)	Percentage
Received care same health care provider		
Yes	380	90
No	42	16.2
Weight checked		
yes	417	98.8
No	5	1.2
Height measured		
Yes	403	95.5
No	19	4.5
BP measured		
yes	390	92.4
No	32	7.6
Urine examined		
Yes	396	93.8
No	26	10.7
Blood sample taken		
Yes	390	92.4
No	32	7.6
Received health education		
Yes	397	94.1
No	25	5.9
Received TT injection		
yes	396	93.8
No	26	6.2
Received iron supplement		
yes	400	94.8
No	22	5.2
Fundal height measured		
Yes	407	96.4
No	15	3.6
Received malaria prophylaxis		
Yes	407	96.2
No	16	3.8



4.6 Perception of Respondents on the Quality of Antenatal Care Services

Respondents were asked about the quality of ANC services including their satisfaction and the birth preparedness. On quality of ANC services, most women 92.7 % (391) felt services were good (Table 4.5). Women were also asked about the kind of birth preparedness and complication readiness (BPACR) practices they did follow while pregnant with the index child. Majority of them (71.9 %) reported saving money towards delivery whilst 5.2 % identified a health facility for emergency.

Table 4.5: Perception of respondents on the quality of antenatal care services

Perception of ANC services	Frequency (n)	Percentage (n)
Grading of ANC quality		
Poor	7	1.7
Fair	18	4.3
Good	391	92.7
Excellent	6	1.4
Total	422	100.0
Birth preparedness and complication readiness (BPACR) practices		
Identified a trained birth attendant for delivery	17	4.0
Identified a health facility for emergency	7	1.7
Arranged for transport for delivery and/or obstetric emergency	22	5.2
Saved money	334	79.1
Others	42	10.0
Total	422	100.0



4.6 Uptake of Skilled Delivery Services

The results of the study showed that most of the respondents delivered in health facilities (thus hospital and health centres). The proportion of respondents who delivered in health facilities was 71.6% (302) whilst 28.4% delivered at home. Doctors assisted only 2.1% of the women to deliver whilst (69.4%) were assisted by midwives and other nurses during delivery. TBAs assisted 20.6% (87) to deliver whilst 4.3% (18) were assisted by their mother in-laws. About 1.2% (5) delivered without assistance from anybody. Table 4.6 shows the use of place of delivery and personnel who assisted respondents during delivery.

Table 4.6 Use of skilled delivery services by respondents

Variable	Frequency (n=422)	Percentage
Place of delivery		
Home	120	28.4
Hospital	294	69.7
health center	8	1.9
Who assisted you during delivery?		
Doctor	9	2.1
Midwife	293	69.4
TBA	87	20.6
mother in- law	18	4.3
self-delivery	5	1.2
other relatives	10	2.4



4.7 Feeding Practices

The results of the study showed that majority of the respondents who represented 80.1% (338) of the study sample were still breastfeeding their children. Majority of the respondents 91.5% (386) initiated breastfeeding within the first 30 minutes after delivery. Majority of the respondents 94.5% (399) stated that they did not feed their children on anything before initiating breastfeeding as shown in Table 4.7 below. The study also found that 91.5% (386) of the respondents fed their children on colostrum which is the first yellowish milk after delivery.

Table 4.7 Breastfeeding practices among respondents

Variable	Frequency (n=422)	Percentage
Child still breastfeeding		
Yes	338	80.1
No	84	19.9
Initiation of breastfeeding		
within 30minutes of delivery	386	91.5
during the first hour after delivery	18	4.3
the next day	18	4.3
Fed child on nothing before initiating breastfeeding		
Yes	399	94.5
No	23	5.5
Fed child on colostrums		
gave it to baby	386	91.5
discard it/spill it	36	8.5



4.8 Foods that were used to Feed Children

Only 3.1% (13) of the respondents gave their children water before initiating breastfeeding. 3.3% (14) gave their children glucose water or sugar and 9 (2.1%) mothers gave gripe water. 8 (1.9%) mothers gave salt or sugar solution, 8 respondents (1.9%) gave fruit juice, 8 (1.9%) mothers gave infant formula and 11(2.6%) gave honey. Table 4.8 shows the foods that were given to the children by their mothers before initiating breastfeeding.



Table 4.8 Foods that were given to children before initiating breastfeeding

Food	Frequency (n=422)	Percentage
Gave child plain water		
Yes	13	3.1
No	409	96.9
Sugar or glucose water		
Yes	14	3.3
No	408	96.7
Gripe water		
Yes	9	2.1
No	413	97.9
Sugar and salt solution		
Yes	8	1.9
No	411	97.4
Fruit juice		
Yes	8	1.9
No	414	98.1
Infant formula		
Yes	8	1.9
No	414	98.1
Honey given		
Yes	11	2.6
No	411	97.4

4.9 Frequency of Feeding

The proportion of respondents who were practicing complementary feeding was 50.8% (212). . Majority of the respondents 98.1% (206) said that their children ate within the past 24 hours prior to this survey. About 58.6% (123) also reported that their children are bottle fed. On the



frequency of feeding of the children, majority of the respondents 67.1% (141) fed their children four times whilst 28.1% (59) of the respondents fed their children three times in a day as shown in Table 4.9.

Table 4.9 Frequency of feeding of children

Variable	Frequency (n=422)	Percentage
Complementary feeding		
Yes	210	49.2
No	212	50.8
Child ate within past 24hours		
Yes	206	98.1
No	3	1.4
don't know	1	0.5
Not applicable	212	
Child ate within past 1 month		
Yes	206	46.4
No	3	48.1
don't know	1	2.8
not applicable	212	1.9
Bottle feeding		
Yes	123	58.6
No	87	41.4
Not applicable	212	
Number of feeding times		
Once	3	1.5
Twice	7	3.3
three times	59	28.1
four times	141	67.1
Not applicable	212	

4.10 Coverage of Essential Newborn Care Practices

The essential newborn care practices that were assessed in this study were time baby was wrapped, the time baby was bathed, temperature of the water that was used in bathing the baby,



the instrument that was used to cut the cord, materials that were used to treat the cord and the instrument that was used to clamp the cord of the baby.

The results of the study showed that majority (74.2%) of the babies were wrapped within the first 5-10 minutes after delivery whilst 18.5% (78) were wrapped within 30-60 minutes after delivery. Most of the babies who represented 75% (317) were bathed soon after birth whilst 19.7% (83) were bathed within the first 1-6 hours after delivery. Majority of the respondents who represented 96% (405) reported that they bathed their babies with warm water. The umbilical cords of 85.3% (360) were cut with new blades whilst 7.3% (31) were cut with scissors. About 72.3% (305) of the respondents said that the cords of the babies were clamped with cord clamps with 17.1% (72) were clamped with a thread. Table 4.10 shows the essential newborn care practices.



Table 4.10 Essential newborn care practices

Variable	Frequency (n=422)	Percentage
Time baby was wrapped after delivery		
Less than 5 minutes	20	47
5-10 minutes	313	74.2
30-60 minutes	78	18.5
More than 60 minutes	1	0.2
Unable to tell	10	2.4
Time baby was bathed		
Soon after birth	317	75
1-6 hours	83	19.7
Cannot tell	22	5.2
Temperature of water used in bathing the baby		
Cold water	14	3.3
Warm water	405	96
Don't know	3	0.7
Instrument used to cut cords		
Any available blade	5	1.2
Scissors	31	7.3
New blade	360	85.3
Others	26	6.2
Material used for cord clamping	7	3.3
String	8	1.7
Cord clamp	305	72.3
Thread	72	17.1
Cord tie	20	4.7
Others	17	4
Materials used to treat cord		
Nothing	94	22.3
Shea butter	272	64.5
Methylated spirit	56	13.3

The following composite outcome variables were created: (i) Safe cord care (defined as use of a clean cutting instrument to cut the umbilical cord plus clean thread to tie the cord plus no substance applied to the cord); (ii) Optimal thermal care (defined as baby wrapped within 10



minutes of birth plus first bath after six or more hours plus using warm water to bath the baby); and (iii) Good neonatal feeding practices (defined as child currently breast feeding, initiating breastfeeding within the first one hour after birth, giving no prelacteal, feeding the child with colostrum and avoidance of bottle-feeding). These composite variables were then dichotomized to yes (all practices present) or no (one or more practices missing).

Of the 422 newborns, only 27.7 % (117) was judged to have had safe cord care, 1.9% (8) optimal thermal care, and 55.9% (236) were considered to have had adequate neonatal feeding. The overall adequate total new born care comprising good cord care, optimal thermal care and good neonatal feeding practices was 17.5 % (Table 4.11).



Table 4.11 Composite measures of newborn care practices

New born care practice	Frequency (n)	Percentage (n)
Safe cord care		
No	305	72.3
Yes	117	27.7
Total	422	100.0
Optimal thermal care		
No	414	98.1
Yes	8	1.9
Total	422	100.0
Good neonatal feeding		
No	186	44.1
Yes	236	55.9
Total	422	100.0
Adequate total neonatal care		
No	348	82.5
Yes	74	17.5
Total	422	100.0



4.7 Relationship between Adequacy of ANC attendance and new born care practices

Bivariate analysis showed that there was no discernible association between adequate ANC attendance and two main components of new born care practices (that is, safe cord care and good neonatal feeding). Adequate ANC attendance was however, positively associated with optimal thermal care (Table 4.12).

Table 4.12: Relationship between Adequacy of ANC attendance and new born care practices (Bivariate analysis)

Variable	N	Safe cord care?		Test statistic
		No n (%)	Yes n (%)	
Adequacy of ANC attendance				
No	267	187 (70.0)	80 (30.0)	Chi-square (χ^2) = 1.8 , p = 0.18
Yes	155	118 (76.1)	37 (23.9)	
		Optimal thermal care?		
Adequacy of ANC attendance		No n (%)	Yes n (%)	
No	267	266 (99.6)	1 (0.4)	Fisher's Exact Test = 9.0 , p = 0.005
Yes	155	148 (95.5)	7 (4.5)	
		Good neonatal feeding?		
Adequacy of ANC attendance				
No	267	120 (44.9)	147 (55.1)	Chi-square (χ^2) = 0.2 , p = 0.64
Yes	155	66 (42.6)	89 (57.4)	



4.11 Maternal Knowledge of Danger Signs during Labour

Majority of the respondents 69.2% (292) had knowledge on prolonged labour as a danger sign. The proportion of respondents who mentioned difficulty in breathing and high fever as danger signs associated with labour was 32% (135) in each of the situations. Table 4.13 shows maternal knowledge of danger signs associated with labour and delivery.

Table 4.13 Maternal knowledge of danger signs of labour

Variable	Frequency (n=422)	Percentage
Convulsion		
Yes	21	5.0
No	401	95.0
High Fever		
Yes	135	32.0
No	287	68.0
Heavy Bleeding		
Yes	199	47.2
No	223	52.8
Difficulty/fast breathing		
Yes	135	32.0
No	287	68.0
Retained placenta		
Yes	77	18.2
No	345	81.8
Headache/blurred vision		
Yes	188	44.5
No	234	55.5
Prolonged labour		
Yes	292	69.2
No	130	30.8

The study also found majority of the respondents representing 94.8% (397) stated that fever among children is symptom of illness among children and will cause them to seek care from a



health facility. Poor suckling among children was also found as a symptom of illness and will cause mothers to seek care from health facilities. This was reported by 91.2% of the respondents (Table 4.14).

Table 4.14 Maternal knowledge of newborn danger signs

Variable	Yes (%)	No (%)
Convulsion	6.2	93.8
Fever	94.8	5.9
Poor suckling	91.2	8.8
Child has difficulty in breathing	50.7	49.3
Baby feels cold	51.2	48.8
Baby too small/too early	32.9	67.1
Yellow palms, soles or eyes	31.0	69.0
Swollen abdomen	33.9	66.1
Unconscious	28.2	71.8
Pus or redness of the umbilical stump or eyes	30.6	69.4

4.9 Determinants of essential newborn care practices (Bivariate Analysis)

The chi-square test was performed to test whether the composite newborn care practices (safe cord care, optimal thermal care and good neonatal feeding) had a significant relation with socio-demographic/antenatal care factors and mothers' knowledge of specific newborn danger signs. The predictors were common for the newborn care practices. Overall, the findings show that good neonatal feeding practices, optimal thermal care and safe cord care were commonly



adopted among women aged 25-34 years, women who had adequate ANC attendance (both early initiation and frequent attendance), and those who could mention at least 4 danger signs of the newborn (Table 4.15a, 4.15b, 4.15c).

Table 4.15a: Predictors of safe cord care (Bivariate analysis)

Variable	N	Safe cord care?		Test statistic
		No n (%)	Yes n (%)	
Age (years)				
Under 25 years	87	63 (72.4)	24 (27.6)	Chi-square (χ^2) = 8.2 , p = 0.017
25-34 years	269	185 (68.8)	84 (31.2)	
At least 35 years	66	57 (86.4)	9 (13.6)	
ANC Attendance				
1-3	224	173 (77.2)	51 (22.8)	Chi-square (χ^2) = 5.8, p = 0.02
At least 4	198	132 (66.7)	66 (33.3)	
Religion of mother				
Christianity	235	172 (73.2)	63 (26.8)	Chi-square (χ^2) = 8.4, p = 0.02
Islam	149	113 (75.8)	36 (24.2)	
African Traditional Religion (ATR)	38	20 (52.6)	18 (47.4)	
Place of delivery				
Home	120	96 (80.0)	24 (20.0)	Chi-square (χ^2) = 5.0, p = 0.025
Health Institution	302	209 (69.2)	93 (30.8)	



A **statistically significant** relationship is a relationship observed in a sample that would have been unlikely to occur if really there is no relationship in the larger population. A ***p*-value** for a chi-square statistic is the probability that the chi-square value would be as large as it is (or larger) if really there were no relationship in the population. An observed relationship will be called statistically significant when the *p*-value for a chi-square test is less than (typically $\alpha = 0.05$). In this case, if we reject the null hypothesis, then we generalize that there is a relationship in the population.

From our table above, it can be observed that the *p* value is less than α value of 0.05 and based on that, we can conclude that there is a significant relationship between any two variables above in the data on the table

From table 4.15a, bivariate analysis showing of the age of the mother and safe cord practices shows there is a significant relationship between mother's age and safe cord care practices, with the a *p*-value of 0.017. The implication is that mother's age can positively influence safe cord care.

Looking at the relationship between ANC attendance and safe cord practices, there is a relationship with a *p*-value of 0.02. Also there is a relationship between the religion of the mothers and safe cord care practices. Bivariate analysis showed that there was an association between wealth index, Religion of the mother and good neonatal feeding.

Table 4.15b: Relationship between good neonatal feeding and socio-demographic/antenatal care factors (N = 418)

Variable	N	Good neonatal feeding?		Test statistic
		No n (%)	Yes n (%)	
Wealth Index				
Low	240	121 (50.4)	119 (49.6)	Chi-square (χ^2) = 9.1 , p = 0.003
High	82	65 (35.7)	117 (64.3)	
Place of delivery				
Home delivery	120	81 (67.5)	39 (32.5)	Chi-square (χ^2) = 37.3, p < 0.001
Institutional delivery	302	105 (34.8)	197 (65.2)	
Religion of mother				
Christianity	235	89 (37.9)	146 (62.1)	Chi-square (χ^2) = 19.8 , p < 0.001
Islam	149	68 (45.6)	81 (54.4)	
African Traditional Religion (ATR)	38	29 (76.3)	9 (23.7)	
Mothers' education				
None	273	131 (48.0)	142 (52.0)	χ^2 = 9.6, p = 0.008
Low	61	16 (26.2)	45 (73.8)	
High	81	35 (43.2)	46 (56.8)	
Knowledge of newborn danger signs				
1-3	224	113 (50.4)	111 (49.6)	χ^2 = 7.9 p = 0.005



From table 4.15b, the relationship between good neonatal feeding and socio demographical or antenatal care factors were studied and the variables were wealth index (low and High). For the relationship between wealth status of the mother and good neonatal feeding shows that there is a significant relationship between the wealth status of the and good neonatal feeding. With a p-value of 0.003, it means there is an association between the wealth status of the mother and good neonatal feeding.

Place of birth was also looked at under the variable wealth index. The relationship between home or institutional delivery and good neonatal feeding was established. The study shows a significant relationship between the dependent and independent variables. It is established that though the chi-square value is large but the p-value is less than 0.05 ($p=0.001$).

Religion of the mother was studied to assess the relationship between the religion of the mother and good feeding practice. From the table, it is clear that the religion of the mother has a significant relationship with good neonatal feeding because of the p-value of the test is less than 0.05 ($p\text{-value}=0.001$). In other words the religion of the mother has an influence on good feeding neonatal feeding.

The relationship between mother's education and that of good feeding practices was studied. The result shows that there is a positive relationship between mother's education and good neonatal feeding because the p-value of the test statistics is less than 0.05 which is $p\text{-value}=0.008$. This shows that mother's education can actually influence the feeding practices of the mother.

Knowledge of Newborn danger signs was assessed based on the number of times that mothers assessed ANC services. From the table above it is clear that there is no association between ANC attendance and mother's knowledge of newborn danger signs. Though the chi-square value is 7.9

but the p-value is equal to 0.05. This makes it insignificant, which means there is no association or relationship between ANC attendance and mother's knowledge on new born danger signs.

Table 4: 15c: Relationship between total newborn care and socio-demographic/antenatal care factors (N = 418)

Variable	N	Total newborn care?		Test statistic
		No n (%)	Yes n (%)	
Age (years)				
Under 25 years	87	69 (79.3)	18 (20.7)	Chi-square (χ^2) = 5.5 , p = 0.06
25-34 years	269	218 (81.0)	51 (19.0)	
At least 35 years	66	61 (92.4)	5 (7.6)	
Mothers education				
None	273	217 (79.5)	56 (20.5)	Chi-square (χ^2) = 4.9 , p = 0.09
Low	61	51 (83.6)	10 (16.4)	
High	81	73 (90.1)	8 (9.9)	
Knowledge of newborn danger signs				
1-3	224	197 (87.9)	27 (12.1)	χ^2 = 9.9 p = 0.002
At least 4	198	151 (76.3)	47 (23.7)	

The table 4.15c above shows the relationship between total newborn care and socio demographic and antenatal care factors. The independent variables were mother's age, mother's



education and knowledge of Newborn danger signs and the dependent variable is total new born care. On the age of the mother and total newborn care, there is no relationship between the age of the mother and total new born care because the p-value of the study is greater than 0.05 (ie p-value = 0.06) and the chi-square is $\chi^2 = 5.5$. This means there is no association between the age of the mother and total new born care.

On mother's education, the study looks at the relationship between the mother's education and total newborn care. The result shows that there is no association between the mother's age and total newborn care practices because the p-value = 0.09. The final dependent variable looked at was the mother's knowledge of newborn danger signs. The study shows that mother's knowledge of newborn danger signs has a relationship or an association with total newborn care exhibited by the mother because the p-value of the test is 0.002 which is less than 0.05. This makes the relationship between mother's education and total newborn care significant.

4.9 Determinants of essential newborn care practices (Multivariate Analysis)

In logistic regression analysis, the main predictors of essential new born care practices were maternal educational attainment, maternal age, delivery in health institutions, maternal knowledge of newborn danger signs and household wealth index.

4.9.1 Determinants of safe cord care

Compared to women aged at least 35 years, women aged 20-34 years were 2.6 times more likely of providing safe cord care to their babies (AOR = 2.61, CI: 1.22- 5.57), $p = 0.013$. Compared to women who delivered at home, women who delivered their index baby in a health facility were 1.7 times more likely of having safe cord care for their babies (AOR = 1.73, CI: 1.03- 2.92), $p = 0.03$. Women who could mention at least four newborn danger signs were 1.8 times



more likely of providing safe cord care to their babies (AOR = 1.75, CI: 1.13- 2.72), $p = 0.012$, compared to women who could mention 1-3 signs (Table 4.16)

Table 4.16: Determinants of safe cord care

	Wald	Sig.	Exp(B)	95% C.I. for EXP(B)	
				Lower	Upper
Maternal age (Reference: At least 35 years)	6.218	.045			
Under 20 years	3.046	.081	2.14	0.91	5.05
20-34 years	6.127	.013	2.61	1.22	5.57
Maternal knowledge of at least 4 new born danger signs	6.277	.012	1.75	1.13	2.72
Institutional delivery	4.236	.040	1.73	1.03	2.92
Constant	33.489	.000	.087		

4.9.2 Determinants of good neonatal feeding

Strangely, women who were of low educational level (Primary to JHS) were 3.0 times more likely to provide good neonatal feeding [AOR 3.03; 95% CI (1.39 - 6.60)], compared to who attained at least Senior High Secondary School. Compared to mothers of African Traditional Religion (ATR), mothers practicing Christian religion were 4.3 times more likely (AOR = 4.28, CI: 1.78- 10.28), $p = 0.001$ and mothers of the Islamic faith were 4.8 times more likely (AOR =



4.84, CI: 1.96- 11.99), $p = 0.001$ of providing adequate neonatal feeding. Women who could mention at least 4 danger signs of the neonate were 2.7 times more likely of providing good feeding practices to their babies (AOR = 2.72, CI: 1.72- 4.30), $p < 0.001$. Compared to women low socio-economic status, women of high status (high household wealth index) were more likely of providing good feeding practices (Table 4. 17). The set of variables explained 20 % of the variance in good neonatal feeding (Nagelkerke R Square = 0.23).



Table 4.17: Determinants of good neonatal feeding

	Wald	Sig.	Exp(B)	95% C.I. for EXP(B)	
				Lower	Upper
Maternal knowledge of at least 4 new born danger signs	18.25	<0.001	2.72	1.72	4.30
Institutional delivery	30.71	<0.001	4.169	2.516	6.908
Mother's religion (reference: ATR)	12.00	0.002			
Christianity	10.59	0.001	4.28	1.78	10.28
Islam	11.64	0.00	4.84	1.96	11.99
Maternal educational level (Reference: At least SHS)	7.84	0.020			
No formal education	1.76	0.185	1.509	.821	2.773
Low (Primary to JHS)	7.83	0.005	3.03	1.394	6.603
High Household Wealth index	5.08	0.024	1.746	1.075	2.834
Constant	27.93	0.000	.039		



4.12 Information from Focus Group Discussions (FGDs)

The main method that was used to gather data in the qualitative study was FGDs. These were organized in 15 communities of the study district with 10 women in each focus group. The discussants were the women who were not interviewed with structured questionnaire in the quantitative study. Information was gathered on the following areas:

- i. Barriers to adoption of healthy essential neonatal care practices including child feeding practices among postpartum women
- ii. Maternal knowledge on newborn danger signs
- iii. The effect of adequate prenatal care on essential newborn care practices including good cord care, optimal thermal care and good child feeding practices.

4.12.1 Barriers to adoption of healthy essential neonatal practices and feeding practices

The FGDs revealed that there are some barriers that prevent postpartum mothers from adopting healthy neonatal care practices and child feeding practices. Some of these barriers are presented below;

Cultural and historical antecedents of neonatal care; Some of the neonatal care practices that were practiced by postpartum mothers were drawn from their cultural backgrounds or beliefs. Some of the mothers treated the umbilical cords of their children with charcoal because of their cultural beliefs. A statement of one of the mothers is stated below;

... "I used charcoal to treat the umbilical cord of the child because my grandmother told me that charcoal is able to prevent the child's umbilical cord from rotting. According to her when the umbilical cord is treated with other materials it can develop into a big sore and will produce some bad odor in the body of the child" ...



Another postpartum mother also reported that she treated the umbilical cord with charcoal because it prevents some evil spirits that could enter the child through the umbilical cord. This is a statement from the mother;

... "evil spirits always hunt for children to possess them at the early stages of life. In our culture we believe that evil spirits do not like charcoal so when there is charcoal on the body of the child it prevents evil spirits from coming near him or her" ..

Some of the mothers also treated the umbilical cords with shea butter. Different interpretations were given for this practice. Some of them are presented below;

... "our grandmothers were using shea butter to treat the umbilical cords of children when there were no hospitals in this area. It has never presented any side effect in the healing process of the sore. It also heals it with perfection unlike other materials which later culminates into some inner sores which affect the abdomen" ...

... "shea butter is used to treat the umbilical cord of children because traditionalists believe that it is very soothing and smooth. It does not carry any painful reaction which will not cause the child to be crying. In this case it prevents the child from incessant crying to disturb the mother. Any child who cries continuously is believed to be hunted by evil spirit" . ..

On the issue of feeding child with colostrum, some of the discussants did not give colostrum to the children because of their belief system. Some of the statements from the discussants are stated below;



.... "I was told that colostrum is not good for the child. My mother told me that when you give it to the child it will make the child to fall sick because it is too dirty for the child to consume. This is the reason why I did not give it to the child"

.... "colostrum is believed to be too heavy for the child to consume. When you feed a child on it, it will make the child to have constipation because the child's system is not well develop to digest it"

... "our grandmothers told us that when you feed the child with colostrum he will be passing black stools for a long time. Colostrum is not good for the health of the child. The child can develop fever or diarrhea when you give him colostrum"

Low level of knowledge on essential newborn care practices: The study also found that low level of maternal knowledge on essential newborn care practices and feeding practices greatly influence their practices. Some of the assertions by the discussants include;

.... " Children are not supposed to be bathed immediately after birth because the child is regarded as a stranger who has just arrived from a journey. The child appears to be tired after the journey so he/she has to rest for some time before you bath him/her. We always wait for some hours before you bath the child" ...

.... "my child was not wrapped immediately after birth because the child is believed to have travelled through a difficult journey. There is so much heat in the womb so when the child is born you have to allow him/her to experience the fresh air from the atmosphere to make him/her feel comfortable"



... "when I gave birth to my child, my mother in-law who assisted me to deliver gave water to the child. The child is said to be so tired from the journey so he has to be given some water to cool his system"

On the feeding practices of the mothers, the study found that most of the women were not practicing exclusive breast feeding. The reasons for not practicing exclusive breastfeeding were varying. Some of their statements include:

....."my child was sick when I gave birth to her. Her eyes were yellowish and she had some boil on her hand. I was therefore advised to give her some herbal infusions after which I started giving her water. This prevented me from practicing exclusive breastfeeding"...

.."my breast were engorged when I delivered so the child could not suckle. I bought infant formula for the child for about two months"....

...."the weather is very hot over here so you cannot stop giving water to the child. My child used to cry a lot in the hot weather so I started giving him water to refresh his body. I felt that he could die out of thirst"....

..."our mothers were not practicing exclusive breastfeeding when they gave birth to us but we are even stronger than these current children who are were exclusively breastfed. So I think that exclusive breastfeeding has little or no effective on the health of the child. The important thing is to make sure that the water you give to the child is clean"...

..."complementary feeding should start when you see that your child is growing faster and the breast milk alone cannot satisfy him. You can start it at three months after birth if your child is eager to eat"...



Complementary feeding is influenced by the available foods in the area: The study also found that the foods that were being given to the children by their mothers were influenced by the types of foods grown in the area. Some of the extracts from the interviews are presented below;

... "I feed the child with tuozaafi because that is the commonest food which we prepare. I only make sure that I don't add plenty pepper to the food so that the child can eat it well. It is very expensive to prepare special foods for the child"

... "I started feeding the child with millet porridge because it very nutritious and more available in the market. It is cheap in the market so you don't struggle to get some.

4.12.2 Maternal Knowledge of the Danger signs of labour and newborn care

At Gruzongo, during the discussions it was found that most of the mothers had high level of knowledge on the danger signs of labour and newborn care. The following statements are some extracts from the interviews;

.... "when a woman is in labour, one of the serious danger signs is the retention of placenta. This has resulted in the death of so many women. It can cause the woman to die within 30 minutes. This is why we sometimes discourage home delivery because if you deliver in the hospital, doctors and nurses can expel the placenta when there is a difficulty" ...

... "I lost my senior sister through placenta retention. When she delivered the child, the placenta did not come out so they struggled to bring it out. She was given some herbal concoctions to help contraction so that the placenta could come out but it did not work and she died"



...."prolonged labour is one of the dangers a woman can experience during delivery. It can lead to the death of the child or the mother. Some women can be in labor for more than three days. It is very painful and can lead to death"...

....."some women bleed heavily when they are in labour. Those who deliver at home can die through this condition because they can bleed so heavily and become anemic. If it is in the hospital, they can give you some blood transfusion but if you are delivering in the house, you cannot get any blood transfusion and you will have to die"....

On the danger signs of newborn care, the discussants demonstrated a high knowledge level of signs of illness among children especially from the mothers in Kumdi, Some of their statements are"

...."when a child is not well catered for; he can be vomiting and refuse to eat. If it continues for so many days, the child will grow lean"....

...."a child who is sick may have high body temperature and feel feverish. The child may refuse to eat. Any child who shows signs of fever is likely to suffer from malaria"...by Nsenbawa.

...."the main signs of sickness in children are poor feeding or suckling, high body temperature and yellowish palms and soles of the child. When you see these signs in children it means that they are not well"....

The above findings are from the focus group discussions.



CHAPTER FIVE

DISCUSSION OF RESULTS

5.0 Introduction

The results of the study are discussed in this chapter. The discussion was done by comparing the results with that of similar studies conducted by other researchers in various parts of the world. In areas where the results were not consistent with the findings of other studies, reasons are given for the discrepancies. The discussion has been done based on the study objectives.

5.1 Utilization of Antenatal Care Services during Pregnancy

It is recommended by the WHO for pregnant women to make a minimum of 4 ANC visits in the entire duration of pregnancy. This study found that majority of the respondents in the study sample did not meet this requirement or recommendation because they made less than 4 ANC visits. Only 37.7% of the respondents made a minimum of 4 ANC visits. These findings are inconsistent with that of the GDHS (2014) which indicated that 87.0% of pregnant women in Ghana made a minimum of 4 ANC visits to seek care from professional health care providers. The findings are also inconsistent with that of UNICEF (2011) in the Multiple Indicators Cluster Survey conducted in Ghana which found that progress has been made in the attendance of ANC among pregnant women in Ghana because 84.7% of pregnant women made a minimum of 4 ANC visits. The lower proportion of pregnant women who made 4 ANC visits could be attributed to the fact that the study area where this study was conducted is a rural district which both the GDHS (2014) and UNICEF (2011) established that there are variations in the frequency of ANC visits between urban and rural women.

In Nigeria, a study conducted by Uchendi et al, (2012) in the Anambra state also found that 68.4% of pregnant women made a minimum of 4 ANC visits which is higher than the 37.7% found by this study. Again, the 37.7% is lower than the 54.6% established by GDHS (2014) for the northern region of Ghana. Even though the East Gonja district is in the northern region the variation between the GDHS and this study results could be attributed to the rural nature of the district. The few number of ANC visits made by the respondents could be linked or attributed to the late initiation of ANC as 90.8% of the respondents initiated ANC in the second trimester of their pregnancies. This is consistent with a study conducted by Nguyen and Tarba (2010) who conducted a study among rural women in Kenya and found that less than 10% of the women initiated ANC in the first trimester of pregnancy.

Financial challenges or constraint was one of the reasons that was given for late initiation of ANC. About 83% of the respondents said that they initiated ANC in the second or third trimester because they did not have money to cater for transportation fares and other expenses. This is consistent with the findings of the GDHS (2008), UNICEF (2011), Uchendi et al, (2012) and Nguyen et al, (2010) that ANC initiation is influenced by the economic status of women. According to their studies, women with high economic status initiate ANC earlier and make more visits than women with lower economic status.

Another reason for late initiation of ANC among the respondents could be attributed to the fact that some of the women said that they were healthy and did not have health problems so they did not seek care. This was shown in the findings from the focus group discussions.



5.2 ANC Services Received by Respondents

ANC services offered to pregnant women were assessed by this study. The study found that weight checking (98.8%), measurement of BP (92.4%), urine examination (93.8%), blood examination (92.4%), Tetanus Toxoid injection (93.8%), malaria prophylaxis (SP) (96.2%) and iron supplementations (94.8%) were the services given to pregnant women in the study area. Ornella (2009) citing the WHO (2008) recommendation that focus antenatal care should be done in health facilities said that fundal height should be measured. The findings of this study showed that fundal measurement was not done for any of the respondents.

Weight measurement was the commonest service received by the respondents which is consistent with the assertion by Carroli et al, (2001) that weight measurement is the first service given to women who visit health facilities for antenatal care. This study found that 93.8% of the respondents received TT injection which is inconsistent with the findings of Otupre and Adusei (2011) who reported that 54.6% of pregnant women in Kwabre West district of the Ashanti received TT injections. However, the 92.4% of the pregnant women whose BP was measured is consistent with the findings of Otupre and Adusei (2011) who established that 94% of pregnant women in the Kwabre West District had their BP measured during ANC visit.

5.3 Perception of Respondents on the Quality of Antenatal Care Services

Quality of a health care service is the level of satisfaction as reported by the client or patient (Rosa, 2001). Quality is measured with different variables or indices therefore it is relative. In this study, most of the women representing 92.7 % felt that ANC services were good. This is an improvement on the figure obtained by UNICEF (2011) which found that 82% of the pregnant women who were interviewed said that ANC services offered to them were good. This also



implies that the quality of services was higher or better compared to the findings of Kolbila(2008) who assessed the quality and content of ANC services in the Savelugu Municipality and Tamale Metropolis and found that only 58% of the pregnant women reported that the ANC services they received were good and they were satisfied with the services received.

The finding higher level of satisfaction and high quality of the services is consistent with the findings of Nkuleka and Markezimebe (2009) who reported that ANC care services offered to rural women were of high quality. They found that 91% of pregnant women who sought antenatal care from health facilities in rural areas were more satisfied with the services because of the familiarity they have with the health care providers. This makes them to treat them with patience and courtesy.

5.4 Uptake of Skilled Delivery Services

The results of the study showed that most of the respondents delivered in health facilities (that is, hospital and health centres). The study found that 71.6% of the women delivered in health facilities whilst 28.4% delivered at home. This shows that majority of the women in the study area delivered in health facilities. The findings are consistent with that of the GDHS (2014) which reported that 74% of pregnant women in Ghana delivered in health facilities whilst 27% of pregnant women in the Northern region delivered in health facilities. The higher proportion of facility delivery in the study sample could be attributed to the smaller sample size compared to the national surveys such as the GDHS. TBAs assisted or conducted 19.4% of the deliveries in the study sample which is less than the 30% reported by the GDHS (2014). The results therefore show that the activities of TBAs in the study area are low as compared to the national average of 30% of TBA conducted deliveries in Ghana.



The study also found that only 4.3% of the deliveries were conducted by relatives of the pregnant women which is lower than the 6.5% reported by the GDHS (2008). These deliveries were conducted by relatives of the pregnant women. Doctors assisted or conducted only 2.1% of the deliveries. This is far lower than the 16.4% of deliveries conducted by doctors in the Kumasi Metropolis as established by Agyarko et al, (2011). The low proportion of deliveries conducted by doctors in the study area is due to inadequate number of doctors in the study area.

5.5 Feeding Practices

Giglia et al, (2008) reported that healthy infant feeding practices, including exclusive breastfeeding and delayed introduction of complementary foods, are promoted by health clinicians as well as by numerous national and international organizations. Their study reported proper infant feeding practices promotes good health for infants. The findings of this study showed that majority of the respondents 91.5% initiated breastfeeding within the first 30 minutes after delivery. This is not consistent with the findings of the GDHS (2014) and UNICEF (2011) which found that 52% of the mothers initiated breastfeeding within the first hour after delivery. Both surveys found that breastfeeding was initiated within the first hour after delivery.

However, in Uganda, a report by UNICEF (2010) stated that only 22% of breastfeeding mothers initiated breastfeeding in the first hour after delivery. The high proportion of early initiation of breastfeeding in the study sample could be attributed to the mass campaign by the Ghana Health Service and non-governmental organizations on maternal and child health practices.

Prelacteal feeding was assessed among the respondents. The results showed that 94.5% of the respondents did not practice prelacteal feeding. This finding is not in agreement with that of KuC and Chow (2010) who found that only 43% of mothers from Hong Kong did not practice



prelacteal feeding. Again, most of the women who formed 91.5% fed their children on colostrum which is the first yellowish milk after delivery which is lower than the 37.6% established by Ekechukwu et al, (2010) among mothers in Ogun state.

The study again found that 3.1% of the respondents gave water to their children before initiating breastfeeding. This is not consistent with the report of the Ghana Health Service (2011) that 28.6% of breastfeeding mothers gave water to their babies before initiating breastfeeding. The lower proportion of respondents who gave water to their babies before initiating breastfeeding could be attributed to the smaller sample size used in this study and the education going on in the media.

The study also found that 58.6% of the respondents said that their children were bottle fed. This supports the assertion by Ornella (2009) that more 50% of breastfeeding mothers' bottle feed their children. It was also found that 67.1% of mothers fed their children more than three times in a day. This supports the findings of Overboch et al, (2007) that infants are fed more than three times in a day. According to their study, infants should be fed on demand and they should not be restricted to specific number of times for feeding.

5.6 Coverage of Essential Newborn Care Practices

Essential newborn care practices were assessed by this study. It was found that 74.2% of the babies were wrapped within the first 5-10 minutes after delivery whilst 18.5% were wrapped within 30-60 minutes after delivery. These findings are consistent with that Onah et al, (2014) in their study at Nnamdi Azikiwe University Teaching hospital in Nigeria to assess newborn care practices among mothers. They found that 70.2% of the reported that their babies were wrapped



within the first 5-10 minutes after birth whilst 20% said that their children were wrapped within 30 -60 minutes after birth.

The study also found that 75% of the babies were bathed immediately after birth. This is higher than the 42% that was established or found by Ogunlesi et al, (2005) as the proportion of babies who were bathed immediately after birth. Their study was conducted in five Baby Friendly Hospitals in Nigeria. Again, it was found that 19.7% of the respondents were bathed within the first 1-6 hours after delivery. This is inconsistent with the findings of Okolo et al, (2009) that 47.6% of babies were bathed after the first hour of delivery.

Warm water was also found to be used by majority of the respondents to bath their babies after birth. In this study, it was found that 96% of the respondents said that their babies were bathed with warm water after birth. This is consistent with the findings of Maine et al (2013) in Brazil who reported that majority of babies delivered in hospitals were bathed with warm water. This was reported to stabilize the body temperature of the newborn.

The umbilical cords of 85.3% were cut with new blades whilst 7.3% were cut with scissors. Similarly, it was found that 72.3% of the babies' cords were clamped with cord clamps with 17.1% (72) were clamped with a thread. The World Health Organization recommends improving care practices at birth in order to reduce neonatal morbidity and mortality. It therefore proposed a set of practices that reduces newborn morbidity and mortality has been identified as essential and these include clean cord care (cutting and tying of the umbilical cord with a sterilized instrument and thread), thermal care (drying and wrapping the newborn immediately after delivery and delaying the newborn's first bath for at least six hours or several days to the reduce hypothermia risk. According to the WHO only 38% of babies born in rural areas have their cord



treated under hygienic conditions like cutting with a new blade or scissors with only 40% having their cords clamped with cord clamps. The findings of this study are inconsistent with that of WHO because the values proportion of babies whose cords were clamped is higher than that found by the WHO. This could be attributed to health education given to mothers and the training that is given to TBAs who in turn educate mothers in their communities on essential newborn care practices.

The data confirm sub-optimal newborn care practices for safe cord and optimal thermal care in the East Gonja District. It was also found that 27.7 % were judged to have had safe cord care which is lower than what Nade and Posh (2008) found in Nepal. They found that 56% of newborns in Nepal were found to have received safe cord care or treatment. This study also found that only 1.9% of the babies received optimal thermal care which is also lower than the 48% established by Nade and Posh (2008) in Nepal.

Neonatal feeding is also considered as an essential newborn care practices. In this study, 55.9% were considered to have had adequate neonatal feeding. This is inconsistent with Deorar et al, (2007) who found that 87% of mothers gave adequate neonatal feeding to their babies in Tanzania. The overall adequate total new born care comprising good cord care, optimal thermal care and good neonatal feeding practices was 17.5 % of the study sample. This is far lower than the 78.5% found by Rozi and Ornella (2013) in Brazil and 64.4% found by Baral and Wei (2012) in Nepal.



5.7 Relationship between Adequacy of ANC attendance and new born care practices

The study did not find any association between adequate ANC attendance and safe cord care practices. There was no significant differences in the cord care practices between women who made a minimum of 4 ANC visits and those who made less than 4 ANC visits. This finding is consistent with that of Rodolfo et al, (2000) who reported that good cord care practices is not associated with ANC attendance but strongly influenced by women's social and health status and by home care and practices for mother and newborn, as well as by maternal and newborn cares services. Their study further reported that good care practices are influenced by the prevailing traditional care practices at home and in the community.

The results of this study also showed that there is no significant relationship between adequate ANC attendance and good neonatal feeding practices. According to Sreeramareddy et al, (2006) good neonatal feeding practices is influenced by the educational level of the woman and her economic status. Their study found that ANC attendance does not have any significant effect on the neonatal feeding practices among mothers. The study concluded that pregnant women general knowledge of newborn health determines their neonatal feeding practices. The finding of this study therefore supports that of Sreeramareddy et al, (2006) because the adequacy of ANC visits did not have any influence on the neonatal feeding practices.

However, the study found that adequate ANC attendance was positively associated with optimal thermal care only at the bivariate but not in the multivariable regression analyses. This means that adequate ANC attendance was not a strong independent predictor of optimal thermal care. This is thus in agreement with the findings of Tushar et al, (2014) who reported that optimal thermal care is not influenced by number of ANC visits but rather the maternal education level.



The lack of association between adequacy of ANC and newborn care practices could also be due to the fact mothers were not given education regarding newborn care practices during ANC. Therefore, more studies should be conducted into this area.

5.8 Maternal Knowledge of Danger Signs during Labour

The study results showed that 69.2% of the respondents had knowledge on prolonged labour as a danger sign. This supports the assertion by Thind et al, (2008) that prolonged labour is the commonest danger sign known by pregnant women. This was attributed to the fact that most women who live in rural areas used to deliver at home without the help of any health professional. In most cases they experienced prolonged labour which has made a lot of women to know prolonged labour as danger sign.

Only few of the respondents (32%) cited difficulty in breathing as a danger sign of labour which is consistent with the assertion by Turmen and Abou Zahr (2002) that only 8% of women know difficulty in breathing as a danger sign of labour.

Maternal knowledge of signs of ill health among their children was assessed. The study found that 94.8% of the respondents stated that fever among children is symptom of illness among children and will cause them to seek care from a health facility. This is consistent with the report of the Ghana Health Service (2008) that fever is the commonest symptom among children which is known by mothers and caregivers. This is attributable to the rise in body temperature and shivering shown among the children. UNICEF (2012) also reported that poor suckling among children is a symptom known among caregivers and mothers of children under two years.

This study found that 91.2% of the respondents showed that knew poor suckling as a symptom of ill health among mothers and caregivers.

5.9 Determinants of essential newborn care practices

The predictors of newborn care practices were assessed by the study. The findings show that good neonatal feeding practices, optimal thermal care and good cord care were commonly adopted among women aged 25-34 years and women who had delivered in a health institution. These imply that age and place of delivery are significant predictors of safe cord care practices. This is consistent with the results of studies conducted by Baqui et al (2006) and Sharan (2004) who examined the relationships between newborn care practices and socio-demographic factors and service utilization. They found a positive correlation between newborn care practices and maternal age, educational level and economic status. They also found that adequate ANC attendance is positively associated with good cord care practices which were not the case in the present study.

It was also found that knowledge of danger signs of newborn is positively associated with good cord care practices. Vaahtere et al, (2001) stated that maternal education is a predictor for good cord care practices. They found that mothers or women who know danger signs of new born care practices were more likely to provide good cord care practices for their children. This showed that level of education of is a significant predictor of good cord care practices. This is confirmed by the results of this study which found that educated women are more likely to provide good essential newborn practices as compared to uneducated women.

The results of this study also showed that wealth index of women are associated with essential new born care practices. This supports the assertion that the principles of essential newborn care



are not so simple, but may require expensive high technology equipment: resuscitation, warmth to avoid hypothermia, early breastfeeding, hygiene, support for the mother-infant relationship, and early treatment for low birth weight or sick infants (Maine, 2008).

Compared to women who delivered at home, women who delivered their index baby in a health facility were 1.7 times more likely of having safe cord care for their babies. This supports the findings of Thapa et al (2000) in Sudan who found an association between facility delivery and newborn care practices and mothers' education. Women who delivered at home were less likely to have good or safe cord care practices for their babies as compared to women who delivered in health facilities.

From the results, the main reason why safecord care was not met was because of the application of potentially infectious substance on the cord. Majority of such substances are applied in the homes after discharge from a health facility and away from the supervision of a qualified health worker.

5.10 Determinants of good neonatal feeding

It was strangely found that, women who were of low educational level thus Primary to JHS were more likely to provide good neonatal feeding. This directly disagrees with the findings of Merchant and Sharif, (2005) who found that as the level of education increases, the more likely they are to provide good neonatal feeding practices to their babies. This was attributed to the knowledge of the benefits of good neonatal feeding practices by these mothers. In this study women with low educational level were found to provide good neonatal feeding practices than women with high educational level.



Health facility delivery was a strong predictor of neonatal feeding but not a good predictor of safe cord care. This could be attributed to the education on feeding practices given to women who deliver in health facilities.

Religion was also found to be a significant determinant of good neonatal feeding practices. Compared to mothers of African Traditional Religion (ATR), mothers practicing Christian religion were 4.3 times more likely to provide good neonatal feeding practices whilst mothers of the Islamic faith were 4.8 times more likely of providing adequate neonatal feeding. There is no available literature or finding from other studies to compare this finding. Most of the earlier studies compared good neonatal feeding practices with the educational level, age and economic status. This finding on the association of religion with good neonatal feeding practices could be attributed to the skewed nature of the results where more Muslims were found in the study.

Knowledge of women and the wealth index were also found to be positively related to the good neonatal feeding practices. These findings are consistent with that Ashmika et al (2013), who reported that socioeconomic indicators of poverty (poor housing conditions, low per capita income and energy consumption) and maternal knowledge are significantly associated with a good neonatal feeding practices.

5.11 Barriers to adoption of healthy essential neonatal practices and feeding practices

During the focus group discussions, the study assessed the barriers to the adoption of healthy essential neonatal care and feeding practices. It was found that cultural and traditional practices of the women and the communities in which they lived influenced the essential newborn care



practices. The types of newborn care practices were influenced by their traditions. For example the statement below was made by one of the discussants;

... "I used charcoal to treat the umbilical cord of the child because my grandmother told me that charcoal is able to prevent the child's umbilical cord from rotting. According to her when the umbilical cord is treated with other materials it can develop into a big sore and will produce some bad odor in the body of the child" ...

The effect or influence of traditional and cultural beliefs on neonatal care practices was earlier established by Akter and Rahman, (2010) and Lawn et al, (2001). Their studies revealed that early initiation of breastfeeding in most African countries is hindered by cultural beliefs. Akter and Rahman (2010) stated that it is recommended for mothers to breastfeed their children soon after birth, at least within one hour. However, only few of the newborns in Africa were breastfed within one hour of birth especially in rural Africa because of traditional and cultural; practices. Prelacteal feeding is a common practice in most African ethnic groups.

The study also found that complementary feeding is influenced by the available foods in the area. Most of the respondents fed their children with the available food in the house. One of the respondents from Nkwanta reported that she feeds her child with the food prepared for the household food. This is a statement one of the respondents;

... "I feed the child with tuozaafi because that is the commonest food which we prepare. I only make sure that I don't add plenty pepper to the food so that the child can eat it well. It is very expensive to prepare special foods for the child"

This supports the assertion by Vaahtere et al, (2001) stated that majority of mothers feed their children with the staple foods of their communities. This could be attributed to the economic



status of the women. This determines the ability of the women to prepare foods aside the usual household food.



CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

The use of prenatal care has been extensively studied in Ghana. Many researchers have studied the determinants of the use of prenatal care and its effect on birth weight. Little is however, known about the relationship between prenatal care and newborn care practices in the East Gonja District. The study specifically sought to:

- v. Determine the prevalence of essential newborn care practices as recommended by the WHO in the study population
- vi. Evaluate maternal knowledge on newborn danger signs
- vii. Assess the independent contribution of adequate prenatal care to essential newborn care practices including good cord care, optimal thermal care and good child feeding practices
- viii. Investigate the barriers to adoption of healthy essential neonatal care practices including child feeding practices among postpartum women

6.1 Summary of Findings

The findings of the study were summarized to indicate Antenatal care services utilization, use of skilled delivery services, essential newborn care practices, maternal knowledge of newborn and danger signs, determinants of neonatal feeding, Relationship between adequacy of ANC attendance and newborn care practices. These are discussed below;

Antenatal care services utilization: The study found that 37.7% of the respondents made a minimum of 4 ANC visits as recommended by the WHO and most of them (90.8 %) initiated



ANC in the second trimester of pregnancy. The ANC services received were weight measurement (98.8%), measurement of height (95.5%), BP measurement (92.4%), urine examination (93.8%), blood samples examination (92.4%), TT injection (93.8), SP doses (96.2%) whilst 94.8% received iron supplements.

Use of skilled delivery services: The study found that 71.6% of the respondents delivered in health facilities. **Infant feeding practices:** Breastfeeding was initiated in the first 30 minutes after delivery by 91.5% of the respondents whilst 94.5% did not practice prelacteal feeding.

Essential newborn care practices: Of the 422 newborns, only 27.7 % (117) was judged to have had safe cord care, 1.9% (8) optimal thermal care, and 55.9% (236) were considered to have had adequate neonatal feeding. The overall adequate total new born care comprising safe cord care, optimal thermal care and good neonatal feeding practices was 17.5 %.

Maternal Knowledge of newborn and danger signs: The study found that 69.2% of the respondents knew prolonged labour as a danger sign whilst 47.2% of the respondents mention heavy bleedings as a danger sign associated with labour with 18.2% who mentioned placenta retention as a danger sign of labour and delivery. The study also found that 94.8% of the respondents mentioned fever as a sign of ill-health among children.

Determinants of neonatal feeding: Women who were of low educational level more likely to provide good neonatal feeding [AOR 3.03; 95% CI (1.39 - 6.60)], than those with high education level. Religion was also found to be a determinant of neonatal feeding. Mothers of Islamic faith were more likely to provide adequate neonatal feeding than Christians and traditionalist (AOR = 4.84, CI: 1.96- 11.99), $p = 0.001$



Knowledge of danger signs was also a significant determinant of provision of adequate neonatal feeding practices. The higher the knowledge level the higher the likelihood of providing adequate neonatal care (AOR = 2.72, CI: 1.72- 4.30), $p < 0.001$. Compared to women low socio-economic status, women of high status (high household wealth index) were more likely of providing good feeding practices.

Relationship between Adequacy of ANC attendance and new born care practices:

No association was found between adequate ANC attendance and three main components of new born care practices (that is, safe cord care, optimal thermal care and good neonatal feeding).

6.2 Conclusion

Proper new care practices are essential to prevent morbidities and mortalities. Much campaign has been done about the use of prenatal care services, however a follow up campaign is not done to ensure that the mothers translate the message or information received during prenatal care in taking care of the neonate. The overall good neonatal care practices were low [17.5%]. 90% of the respondent were found to initiate ANC late.

The results shows newborn care practices are suboptimal (old ways of taking care the neonate, such as bathing newly born babies immediately they are born, not using warm water to bath babies and then not wrapping them.). Application of potentially harmful substance on the cord and early bathing of the newborn are some of the drivers of inappropriate newborn care practices. Though the World Health Organization recommends adequacy of ANC attendance, this was not an independent predictor of safe cord, optimal thermal care or good neonatal feeding. This has important implications for the implementation of the policy of focused ANC



that will adequately inform pregnant women about essential newborn care practices in the East Gonja District.

6.3 Recommendations

The following recommendations are made based on the findings of this study;

1. The Ghana Health Service through its health facilities should intensify a health campaign on the need for early initiation of antenatal care for pregnant women. This is important because over 90% of the respondents sought antenatal care after the first trimester.
2. Based on the sub-optimal essential newborn care practices like bathing newly born babies, not wrapping them and bathing them with cold water, the Ghana Health Service and non-governmental organizations that are involved in maternal and child health programmes should educate women on neonatal care practices are based on optimal thermal care because children can get various forms of infections if they not properly cared for.
3. Policy makers in the area of health care in Ghana should adopt a modern method of newborn care practices in order to improve the suboptimal newborn care practices with modern newborn care practices through the training of health personnel and community opinion leaders.



6.4 Suggestion for Further Research

The study found that women with low educational level provide good newborn care practices to their babies. However, the reasons for this were not established in this study. It is therefore recommended that further studies should be conducted to compare newborn care practices among educated and uneducated women.



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APPENDICES

THE RELATIONSHIP BETWEEN PRENATAL CARE AND NEWBORN CARE PRACTICES IN THE EAST GONJA DISTRICT OF GHANA

QUESTIONNAIRE FOR POST PARTUM WOMEN

INFORMED CONSENT

Hello, my name is **Antoinette** I am a student of the University for Development Studies offering a Masters Degree Program in Community Health and Development. I am conducting a study on **“The Relationship between Prenatal Care with Postpartum Child Feeding Behaviors in the East Gonja District of Ghana**

”. I would very much appreciate your participation in this study. This information will help the District Health Directorate, private agencies, the community and other decision making bodies to know the exact relationship between prenatal care and postpartum child feeding practices.

The interview will take between 10 and 20 minutes to complete. Whatever information you provide will be treated in confidence. Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important. At this time, do you want to ask me anything about the survey?

May I begin the interview now? YES.....

NO.....



IDENTIFICATION

District.....

Sub-District.....

Name of community.....

Interview Date..... Interview #.....

House Number/Name

Name of Interviewer.....

Facility Name.....

Language of interview.....

Translator used (A| Yes B| No)



SECTION A : SOCIO – DEMOGRAPHIC CHARACTERISTICS OF MOTHER

- 1) How old are you?..... (years)
- 2) What tribe are you A) Dagomba B) Gonja C) Mamprusi D) Nanumba E) Akan
F) Others
- 3) What is your religion A) Islam B Christianity C) ATR D) Others
- 4) What is your marital status? A. [Single] B. [married] C. [widowed] D. [Divorce]
- 5) What is your educational level? A.[illiterate] B. [Primary] C. [Basic] D.[Secondary]
E.[Tertiary]
6. Occupation of mother?

0[] Unemployed
1[] Petty Trader
2[] Farmer
3[] Civil/Public Servant
4[] Others (specify)
9. What is your husband's educational level? A.[illiterate] B. [Primary] C. [Basic] D
[Secondary] E.[Tertiary]
10. Occupation of husband??

A. Unemployed
B. Petty Trader
C. Farmer
Civil/Public Servant
D. Others (specify)



SECTION B: ANTENATAL CARE DURING PREGNANCY

11) Did you plan for your present pregnancy? A.[Yes] B. [No]

12) How many months was your pregnancy when you first received antenatal services?.....

13. How many times did you receive antenatal care during the last pregnancy?.....

14. If the first ANC visit was initiated after the first trimester (12 weeks), what was the main reason for seeking ANC services late?

.....

.....

.....

.....

.....

15. Who makes the decision for you to seek prenatal care?

- A. Husband
- B. Mother in-law
- C. Friends
- D. Self



17. Registered with National Health Insurance.....? A. [Yes] B. [No]

18. Number of pregnancies.....

19. Number of live births.....

20. What information/assistance is given during ante-natal (Tick all that apply)

A. Childhood diseases

B. Nutrition of mothers and children

C. Breastfeeding

D. Antenatal and delivery care

E. Vaccinations

F. Birth control and contraceptives

G. Not Applicable (Has not attended ANC)

21. How will you rate the quality/adequacy of ANC services received?

A. Poor

B. Fair

C. Good

D. Excellent

E. Not Applicable

22. What is your level of satisfaction with ANC services?

A. Dissatisfied

B. Satisfied



- C. Very satisfied
- D. Indifferent
- E. Can't say
- F. Irrelevant

23. Number of tetanus toxoid (TT) injections received during the last pregnancy (Interviewer should check from the maternal health records booklet)

24. What birth preparedness and complication readiness (BPACR) practices did you follow while pregnant with the index child?

- A. identified a trained birth attendant for delivery
- B. identified a health facility for emergency
- C. arranged for transport for delivery and/or obstetric emergency
- D. saved money
- E. Others (specify).....

25. How much do the facilities charge you when you deliver?

- A. No fee paid
- B. Less than 5 GH
- C. 5GH – 10 GH
- D. 11 GH – 19 GH
- E. 20 GH and above
- F. Not Applicable



26. Did you receive care from the same health care provider throughout the pregnancy?

YES

NO

27. Which of the following services did you received from ANC (Circle all that apply)

- A. weight checked at least two times
- B. height taken on first visit
- C. blood pressure taken at least three times
- D. urine examination performed at least once
- E. blood sample examination performed at least once
- F. received health and nutrition talk at least four times on possible danger signs/complications of pregnancy
- G. received tetanus toxoid injection at least once
- H. received iron supplementation monthly
- I. Measurement of fundal height against the age of gestation, fetal heart beat and fetal movement count monthly
- J. Received Malaria prophylaxis at least two doses

28. Where did you deliver your child? A. Home B. Hospital C. Health Centre

29. Who assisted you during delivery? A. Doctor B. Midwife C. TBA D. Mother in-law E. Self delivery. F. Other relatives



30. If home delivery was not planned, what was your reason?

- A. Spontaneous labour B. Late night labour C. Problems with previous home delivery
- D. Others (specify).....

SECTION C: SOCIOECONOMIC HOUSEHOLD WEALTH INDEX OF RESPONDENT

INSTRUCTION: These questions should be asked in the house of the respondent

1. What type of house do members of the household dwell in?

- A. Block house
- B. Brick house
- C. Mud house
- D. Others (specify).....

2. Does the household own a house?

- A. Yes
- B. No

3. How many rooms does the household have at their disposal?



4. What kind of toilet facility do members of the household usually use?

- A. Own flush toilet
- B. Public or shared flush toilet
- C. own pit toilet
- D. public or shared pit toilet
- E. No facility

5. What is the source of lighting for the household?

- A. Electricity
- B. Gas
- C. Kerosene
- D. Others (specify)

6. What type of fuel does your household mainly use for cooking?

- A. Electricity
- B. LPG
- C. Charcoal
- D. Kerosene
- E. Firewood
- F. Others (Specify).....



7. What is the main source of drinking water for members of the household?

- A. Pipe water
- B. Borehole
- C. dug well
- D. Bottle /Sachet water
- E. Others (specify).....



8. Does your household have any of these assets? (Tick Yes or No)

ITEM	YES	NO
Radio		
Color /black TV		
Satellite dish		
Sewing Machine		
Mattress		
Refrigerator		
DVD/VCD		
Computer		
Electric Fan		
Mobile Telephone		
Bicycle		
Motorcycle/Tricycle		
Animal-drawn cart		
Car/truck		



SECTION D: POST NATAL CARE UPTAKE/ ESSENTIAL NEWBORN CARE PRACTICES

1. How soon after delivery was the baby wrapped?

- A. ≤ 5 minutes
- B. 5-10 minutes
- C. 30-60 minutes,
- D. > 60 minutes
- E. unknown

2. When child was born, how long was it before you bathed him/her?

- A. Soon after birth
- B. 1-6 hours
- C. More than 6 hours but less than 24 hours ,
- D. More than 24 hours,
- E. Can't tell

3. Temperature of water was used in bathing the child?

- A. Cold water
- B. Hot water

4. Which of the following was used to cut the cord after delivery?

- 0[] New blade
- 1[] Any available blade
- 2[] Scissors
- 3[] Others (specify)



5. What was used to clamp the cord?

0[] Thread

2[] Cord tie

3[] Cord Clamp

4[] String

5[] Others (specify).....

6. What did you use to treat the cord stump?

0[] Nothing

1[] Shea butter

2[] Spirit

3[] Shea butter with powder

4[] Ointment

5[] Others (specify

7. If something was applied, what is the reason for applying that?

.....

.....

.....

8. Since giving birth to the index child, have you attended postnatal care (PNC)?

A. Yes

B. No

9. If yes, how many times have you so far attended PNC?

10. If no, give one main reason for your action

.....

11. How many weeks after delivery of the index child did you first attend postnatal care (PNC)?

A. Before six weeks,

B. At six weeks,

C. After six weeks.....

D. Not applicable



SECTION E:INFANT AND CHILD FEEDING PRACTICES

1. Is your child currently breastfeeding? (a) Yes (b) No

2. After delivery of the index child, how long did it take you to breastfeed him/her for the first time?
 - A. Within 30 minutes of delivery
 - B. During the first hour after delivery
 - C. 2-8 hours
 - D. The next day
 - E. Do not remember

3. Before putting child to the breast for the first time after delivery, what was child given to drink? (Multiple responses possible)
 - A. Nothing
 - B. Milk (other than breast milk)
 - C. Plain water
 - D. Sugar or glucose water
 - E. Gripe water
 - F. Sugar-salt-water solution
 - G. Fruit juice



- H. Infant formula
- I. Tea / infusions
- J. Honey
- K. Other (specify) _____

4. When you delivered (Name of child) what did you do with the first yellowish breast milk?

- A. Give it to the baby
- B. Discard it/spill it
- C. Don't know

5. Within the last 24 hours has your child drunk anything in addition to breast milk?

- A. Yes
- B. No
- C. Don't know

5. Within the last ONE MONTH has your child drunk anything in addition to breast milk?

- A. Yes
- B. No
- C. Don't know
- D. Not applicable



6. If your child drunk something in addition to breast milk in the last 24 hours/past one month, what was it and why was the child given that food?

.....

.....

.....

7. Did (name of child) drink anything from a bottle with a nipple during the past 24 hours?

A. Yes

B. No

8. Is child currently eating other foods apart from breast milk?

A. Yes

B. No

9. If yes, when did you start complementary feeding?.....

10. If child is not currently breast feeding, what informed the mother or what motivated her from discontinuing with the breast feeding?.....

11. How many times do you feed the child with other food apart from breast milk in a day?

A. Once

B. Twice

C. Three times

D. Other (specify).....

12a. Please, mention all the foods and drinks that were eaten by (Name of child) over the past 24 hours whether at home or outside the home. (Hint: start with meal eaten at supper yesterday).

Eating moment	Name of dish	Ingredients
Breakfast		
Snack before lunch		
Lunch		
Snack before dinner		
Dinner		
Snack after dinner		
Drinks		



12b. From the meals mentioned by the mother, indicate whether (Name of child), ate from the following food groups during the past 24 hours whether at home or outside the home.

Food group	Examples	YES	NO
CEREALS	Bread, noodles, biscuits, any other food made from millet, sorghum, maize, rice, wheat.		
WHITE TUBERS AND ROOTS	White potatoes, white yam, cassava, or food made from roots.		
DARK GREEN LEAFY VEGETABLES	Dark green leafy vegetables, including wild ones + other locally available vitamin-A rich leaves such as cassava leaves, ayoyo, alefu, bra, fresh baobab leaves etc.		
VITAMIN A RICH VEGETABLES AND TUBERS	carrots, sweet potatoes that are orange inside + other locally available vitamin –A rich vegetables (e.g. Sweet pepper)		
FRESH VITAMIN A RICH FRUITS	Ripe mangoes, papayas, dawadawa pulp (yellow part) + other locally available vitamin-A rich fruits		
DRIED FRUITS AND VEGETABLES	Any form of dried vegetables (okro, baobab leaves (kuuka), wild types		
ORGAN MEAT (IRON-RICH)	Liver, kidney or other organ meats or blood-based foods		
FLESH MEATS	Beef, pork, lamb, goat, rabbit, wild game, chicken, duck, or other birds		
EGGS	fowl, duck, guinea fowl or any other egg		
FISH	keta schoolboys (anchovies), tilapia, mudfish etc		
LEGUMES, NUTS, AND SEEDS	Beans, pigeon peas, soya beans, groundnuts, bambara nuts, bungu, neri,		
MILK AND MILK PRODUCTS	Milk, cheese (wagashi), yogurt or other milk products		
OILS AND FATS	groundnut oil, palm oil, sheabutter, margarine		
SPICES, CONDIMENT, BEVERAGES	Spices (black pepper, salt), condiments(e.g.dawadawa, kanton, maggi),coffee, tea, alcoholic beverages e.g. pito		



SECTION F: CHILD MORBIDITY AND UTILIZATION OF HEALTH SERVICES

1. Has (Name of child) had an illness with a cough that comes from the chest at any time in the last two weeks?

i. Yes ii. No iii. Don't know

2a. Have the child had diarrhoea in the past two weeks?

i. Yes ii. No iii. Don't know

2b. When (name of child) had diarrhoea, what treatment, if any, did you give?

- i. Nothing
- ii. ORS
- iii. Sugar-salt solution
- iv. Infusion at the hospital
- v. Other (specify).....
- vi. Not Applicable (Child had no diarrhoea)

3. Has (Name of child) had Fever/Malaria: High temperature with shivering/ suspected malaria in the last two weeks?

i. Yes ii. No iii. Don't know

4. The last time [child's name] was sick, did you offer less, more or the same amount of breast milk as when [child's name] is healthy? (If response is "less", ask additional questions to determine why.)

- i. Less, because the child did not want it

- ii. Less, because mother's decision
- iii. More
- iv. The same
- v. Child never breastfed or child breastfeeding before last illness
- vi. Child has never been sick
- vii. Does not know

5. The last time [child's name] was sick, did you offer less, more or the same amount of solid/semi-solid foods as when [child's name] is healthy? IF THEY RESPOND "LESS" THEN PROBE "WHY?")

- i. Less than usual, because the child did not want it
- ii. Less than usual, because mother's decision
- iii. More than usual
- iv. The same as usual
- v. Stopped completely
- vi. Child has never been sick
- vii. Does not know

6. Where did you seek health care assistance when child was sick?

- i. Child has never been sick
- ii. No assistance sought
- iii. Own medication
- iv. Traditional healer
- v. Private Clinic



- vi. Public health facility/ PHC
- vii. Drug Peddler
- viii. Chemical Store

7. During the past 6 months, did [child's name] ever take a vitamin A capsule, supplement or syrup?

- i. Yes
- ii. No
- iii. Does not know

8. Record from the Child Health Record Card the number of times in the last 4 months (Name of child) was weighed:.....

SECTION F: MATERNAL KNOWLEDGE OF NEWBORN AND DELIVERY DANGER SIGNS

1. Sometimes newborns, within the first month of life, have severe illnesses and should be taken immediately to a health facility. What types of symptoms would cause you to take your newborn to a health facility right away?

ASK: Anything else? But DO NOT READ RESPONSES. RECORD ALL THAT ARE MENTIONED

- A. Convulsions
- B. Fever
- C. Poor suckling or feeding
- D. Fast/difficult breathing



- E. Baby feels cold
- F. Baby too small/too early
- G. Yellow palms/soles/eyes
- H. Swollen abdomen
- I. Unconscious.....
- J. Pus or redness of the umbilical stump, eyes or skin
- Other (Specify)

2. During delivery, once contractions started, woman may encounter severe problems or illnesses and should go or be taken immediately to a health facility. While having contractions or delivering a baby, what types of symptoms would cause you to seek immediate care at a health facility (right away)?

DO NOT READ RESPONSES. RECORD ALL THAT ARE MENTIONED.

- A. Convulsions
- B. High Fever
- C. Heavy Bleeding
- D. Fast/Difficult Breathing
- E. Retained Placenta
- F. Headache/Blurred Vision
- G. Prolonged Labour
- H. Other (Specify)



SECTION G: ANTHROPOMETRIC ASSESSMENT OF INDEX CHILD

- I. Name of child: _____
- II. Date of birth: ____/____/____
- III. Age.....(months)
- IV. Sex of child.....
- V. Weight of child: _____.____(kg)
- VI. Height of child: _____.(cm)

