

INTRODUCTION

1.1 Background information

‘Parenthood brings with it the strong desire to see our children grow up happily and in good health’. As estimated by the World Health Organization (WHO), each year nearly 3.3 million babies are stillborn, and over 4 million more die within 28 days of coming into the world. Of the four million newborns deaths, 98% occur in developing countries (WHO, 2005; WHO, 2006).

The causes of deaths of babies during this neonatal period are as numerous as those in the following 11 months or those among children aged 1–4 years. Newborns die from different causes than older children; only pneumonia and respiratory tract infections are common to both. Older infants and children in developing countries generally die of infectious diseases such as malaria, acute respiratory infections, diarrhoea, and measles. These diseases are responsible for a much smaller proportion of deaths in newborns: deaths from diarrhoea are much less common, and measles and malaria are extremely rare (WHO, 2005). Thus, interventions designed to prevent and treat these conditions in older infants and children have less impact on deaths within the first month of life.

It is known that prematurity and congenital anomalies account for more than one third of newborn deaths, and these often occur in the first week of life. A further quarter of neonatal deaths are attributable to asphyxia – also mainly in the first week of life. In the late neonatal period, that is, after the first week, deaths attributable to infection (including diarrhoea and tetanus) predominate; together, these causes are responsible for more than one third of newborn deaths. The importance of tetanus as a cause of neonatal death, however, has diminished sharply, because of intensified immunization efforts (WHO, 2005).

According to the World Health Organization, the lifetime risk for a woman to lose a newborn baby is now one in five in Africa, compared with one in one hundred and twenty five in more developed countries (WHO, 2005).

Epidemiological observations have revealed that infants weighing less than 2,500g are approximately 20 times more likely to die than birth weights more than 2,500g (UNICEF-

WHO, 2004). This led to a defined cutoff for normal birth weight. In 1976, the 29th World Health Assembly agreed on the following definition: “Low birth weight is a weight at birth of less than 2,500 g (up to and including 2,499g) irrespective of gestational age”. A baby’s low weight at birth is either the result of preterm birth (before 37 weeks of gestation) or due to restricted foetal (intrauterine) growth (UNICEF- WHO, 2004).

It is estimated that more than 20 million infants worldwide, representing 15.5 per cent of all births, are born with low birth weight with 95.6 per cent of them in developing countries. The level of low birth weight in developing countries is estimated as 16.5 per cent and this is more than double the level in developed regions which stands as 7 per cent. Low birth weight levels in sub-Saharan Africa are around 15 per cent and in Ghana, the level of low birth weight is estimated as eleven percent. In Ghana however, 67 per cent of babies were not weighed at birth (UNICEF- WHO, 2004).

The goal of reducing low birth weight incidence by at least one third between 2000 and 2010 is one of the major goals in ‘A World Fit for Children’, the Declaration and Plan of Action adopted by the United Nations General Assembly Special Session on Children in 2002. The reduction of low birth weight also forms an important contribution to the Millennium Development Goal (MDG) for reducing child mortality (UNICEF- WHO, 2004). Activities towards the achievement of the MDGs will need to ensure a healthy start in life for children by making certain that women commence pregnancy healthy and well nourished, and go through pregnancy and childbirth safely and most importantly care of the neonate both at home and the health centre. Thus, although a good start in life begins well before birth, it is just before, during, and in the very first hours and days after birth that life is most at risk (WHO, 2005).

1.2 Problem statement

The Millennium Development Goals (MDGs) has its fourth goal to reduce infant mortality to two thirds the 1990 value by year 2015. The indicators for MDG4 are infant mortality rate, under five mortality rate and proportion of children immunized against measles (UN Millennium Project, 2005).

Over the entire world, neonatal mortality and infant mortality have almost remained constant although figures are still high in the developing world but more especially in Sub Saharan Africa. According to the African Health Report (2006), of the 10.6 million deaths of children

under five years each year, 40% die during the first 28 days of life and 29% of neonatal deaths worldwide occur in Africa (WHO, 2006).

Mortality estimates in Ghana have also remained fairly constant. Infant mortality and neonatal mortality according to the Ghana Demographic Health Survey (2003) are respectively 64 and 43 per 1000 live births. However, the 1998 Ghana Demographic and Health Survey gave these figures as 65 and 39 per 1000 live births respectively (GSS, NMIMR and ORC Macro, 2004). “The 2003 Demographic and Health Survey showed that the increase in infant mortality was mainly due to the increase in neonatal deaths” and “neonatal deaths were responsible for two thirds of infant deaths” (Ghana Health Service Annual Report, 2007). The Ghana Health Service thus recommends that ‘there is an urgent need to address risk factors for neonatal deaths and to improve the quality of neonatal care including resuscitation of the newborn’.

Research has shown that low birth weight neonates are more likely to die if born alive than normal weight babies (Njokonma and Olanrewaju, 1995; Hong and Ruiz-Beltran, 2008). These neonates could die from many complications such as hypoglycaemia, hypothermia, poor sucking/ feeding, jaundice, bleeding, respiratory distress syndrome, infections and any other cause of death that could affect normal weight infants (Behrman et al, 2006).

Despite interventions to decrease low birth weight delivery such as promotion of antenatal care clinics, iron supplementation in pregnancy, intermittent preventive therapy for malaria in pregnancy among others, the levels of low birth weight are still high in developing countries. This is 16.5 per cent in developing countries but 11 per cent in Ghana (UNICEF- WHO, 2004). Compounding the problem of neonates, but more especially those with low birth weight, is the lack of skilled personnel and unavailability of appropriate equipment to manage these neonates in developing countries including Ghana. The care of these neonates therefore lies solely on their parents, especially mothers. Maternal education on low birth weight, its complications and the kind of care provided to these neonates are also woefully inadequate. The United Nations Children’s Fund (UNICEF) estimates that 50% of neonatal mortality occurs at home.

To achieve the MDG 4, low birth weight infants born alive must survive, and to survive they must be adequately cared for both at home and at the health facility with much emphasis at home. The level of home care depends on the perception of parents of low birth weight which is also dependent on other factors such as educational status, culture, religion, among others. This research was therefore designed to assess the home care practises of neonates.

1.3 Rationale of study

Research on maternal perception of the causes of low birth weight has been done in some countries in the world and different explanations have been given by mothers. Research on the perception of health care staff of low birth weight and its impact on child survival have also been done in some countries. However little is known about maternal perceptions of low birth weight and its impact on neonatal care more especially in Ghana. This study therefore sought to find out the perceptions of low birth weight and identify home care practises that influence neonatal survival. It is hoped that stakeholders would use the information to design interventions in order to decrease neonatal mortality in Ghana.

1.4 Hypothesis

Null hypothesis: There is no difference in home care practises between low birth weight and normal birth weight neonates.

Research hypothesis: There is a difference in home care practises between low birth weight and normal birth weight neonates.

1.5 Research questions

1. What are the maternal perceptions of low birth weight babies?
2. Is the home care of low birth weight neonates different from that of normal weight neonates?

1.6 General objective

To assess the maternal home care practises of neonates in the Sekondi-Takoradi Metropolis.

1.7 Specific objectives

1. To assess the maternal perceptions of low birth weight babies.
2. To assess the home care practises of neonates.

3. To ascertain any difference in the care for low birth weight babies and normal birth weight babies.
4. To use the information gathered to recommend interventions to improve the level of care given to low birth weight neonates.

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LITERATURE REVIEW

Newborn care and especially low birth weight has been neglected for a long time in public health. It was not until 1983 that data on neonatal mortality was reported worldwide (WHO, 2005). This neglected area was again manifested in the MDG's, as neonatal mortality was not singularly mentioned as an indicator for MDG4 but clouded with infant mortality. Emphasis on neonatal mortality is important since it contributes to about 40% of under five deaths worldwide (WHO, 2006). The task force on child health and maternal health therefore recommended the addition of neonatal mortality as an indicator of MDG4 (UN Millennium Project, 2005).

The proportions of newborn births that are low birth weight have been poorly reported. The annual low birth rate is 11.8% in Italy (Nobile et al, 2007). At a teaching hospital in Nigeria, 32.1% of all deliveries were low birth weight (Mukhtar-Yola and Iliyasu, 2007). A study conducted in Agogo Presby Hospital in Ghana found that 5.5% of total newborns were below 2000g (van de Mei, 1994).

2.1 Perceptions of low birth weight babies

Perceptions of low birth weight are diverse and these could either be positive or negative. Perceptions are influenced by education, religion, culture, socioeconomic status and the society in which the individual finds himself. Employed mothers had more positive perceptions and provided more enriching home environments for their children (Youngblut et al, 1998). Health personnel as well as parents have various perceptions of low birth weight. Parental perceptions are to some extent influenced by health personnel (Lee et al, 1991a). Usually parents and families bring personal, ideological, cultural, and religious beliefs into their relationship with health-care professionals that have the potential to conflict with professional perceptions of good medical care and the interests of the patient (Campbell and Fleischman, 2001).

Studies on perceptions of low birth weight reveal remarkable findings. Mothers perceive the causes of low birth weight to be from racial discrimination (Collins et al, 2000), poor residential environment and stress (Collins et al, 1998). Collins and others found that maternal exposure

to interpersonal discrimination was an independent risk factor to preterm delivery (Collins et al, 2004). On the other hand multiple factors were directly associated with low birth weight (O'Campo et al, 1997; Roberts, 1997).

The perception of parents influences the care given to these infants both at home and the hospital. Sanders and others found that the perception of mortality and parents' wishes influenced health workers willingness to resuscitate low birth weight babies (Sanders et al, 1998). According to Allen and others, the negative perceptions of vulnerability were associated with worse developmental outcome in premature infants (Allen et al, 2004).

The perceptions of health workers also play a role in the attitude they put up towards low birth weight infants. It is found that the negative attitude of health workers has an effect on the care and survival of these infants. Lee and others found that there was a direct correlation between negative attitude toward saving very low birth weight (VLBW) infants and negative false perception of neonatal morbidity and mortality and costs (Lee et al, 1991a). Physicians underestimate the potential for neonatal survival in low birth weight infants (Goldenberg et al, 1982). They usually define cut offs of gestational age (Sanders et al, 1995) and determine which babies need interventions and those that do not. However, some parents believe that they should be the judges of whether their children live or die (Lee et al, 1991b).

The birth of a low birth weight infant comes with lots of psychological problems or crisis. In a hospital based study, Eriksson and Pehrsson found that the birth of a low birth weight baby was marked by emotional confusion during the first weeks of parenthood, then the negative feelings decreased and joy increased, but at the end of a long period of care, the negative feelings reappeared (Eriksson and Pehrsson, 2005). The amount of stress that mothers experienced is a result of the congruence between their infant's behavioral characteristics and their own child-rearing attitudes (Halpern et al, 2001). In their study, Singer and others (1999) found that mothers of low birth weight babies had more psychological distress than normal weight infants (Singer et al, 1999). This distress led to a decrease in milk production (Lau et al, 2007). Some mothers did not want to take their children home and had difficulty in establishing and maintaining relationships with them (McHaffie, 1990). On the other hand, Lee and others found that, the delivery of low birth weight children did not adversely affect families (Lee et al, 1991b) and mothers had the desire to parent their children (Raines, 1998).

In times of psychological distress, there should be social support from health workers and family members (Singer et al, 1996) and postnatal care should incorporate psychological

support services to mothers of low birth weight babies (Singer et al, 1999). Health workers should however, be aware that, the first weeks after birth can be marked by emotional confusion and that negative feelings can return when the infant's medical status has been brought under control (Eriksson and Pehrsson, 2005). In many societies, relatives initially are found to rally to the mothers aid during the initial crisis period but this fails after a while (McHaffie, 1989). Therefore, the psychological stress that parents go through could affect the kind of care given to low birth weight infants.

2.2 Care of neonates

The care of a newborn child, low birth weight or not, is delicate and very essential if the neonate has to survive. Care can be looked at from different perspectives- feeding, provision of warmth, cord care, health seeking behavior, and immunization among others.

Care of the newborn starts from the antenatal period. Adequate nutrition, prevention of anaemia, control of malaria, and screening and management for hypertensive disorders of pregnancy are among the measures taken to prevent low birth weight during the antenatal period in Ghana. Tetanus immunization is important to prevent tetanus in mother and child. Supervised delivery is essential to prevent both maternal and neonatal death but coverage is however low, 46 percent (GSS, NMIMR and ORC Macro, 2004). Also, the skills, knowledge and equipment needed to adequately take care of low birth weight infants are lacking in many health centres and hospitals in the country (Ghana Health Service Annual Report, 2007). Parents are thus the sole caretakers of their low birth weight babies.

Parental care is influenced by beliefs and culture. In Mali, it is found that various beliefs exist with respect to feeding practises. These beliefs are expressed in the community in a variety of specific practises and behaviours. Additionally, mothers differ with respect to the importance they attach to medical care for sick children (Dettwyler, 1986).

2.2.1 Feeding of the neonate

Breast milk has been found to be the best feed for the newborn. It provides for the nutritional and immunologic needs of the infant and also promotes bonding of mother and child. Studies on maternal breastfeeding practises of low birth weight infants are diverse. A study by Adair and Popkin revealed that mothers of low birth weight infants were less likely to initiate

breastfeeding and if they did, they were less likely to exclusively breastfeed (Adair and Popkin, 1996). Another study by Raines however showed that mothers were willing to parent their children (Raines, 1998). Maternal stress due to low birth weight led to a decrease in milk production (Lau et al, 2007). Counseling has been found to increase the initiation of breast milk feeding without increasing maternal stress and anxiety (Sisk et al, 2006).

Early initiation of breastfeeding (breastfeeding within one hour) facilitates the newborn's innate sucking reflex, which helps to stimulate breast milk production and provides all of the nutritional requirements of a young infant. In Ghana, 97 percent children are breastfed for some period of time. Forty-six percent of infants were put to the breast within one hour of birth, and 75 percent started breastfeeding within the first day. The percentage breastfed within one hour of birth and one day of birth for children born in the five years preceding the survey is noticeably higher than the 1998 levels of 25 and 54 percent, respectively (GSS, NMIMR, ORC Macro, 2004).

Initiation of breastfeeding varies among regions in Ghana. The proportion of infants that are breastfed within one hour of birth ranges from 14 percent in the Central Region to 86 percent in the Upper East Region. The Western Region has the lowest percentage of children who started breastfeeding within one day of birth (67 percent), while the Upper East Region has the highest of 93 percent. Prelacteal feeding, something other than breast milk given to newborns prior to the regular flow of breast milk, is not widely practised in Ghana. Only 20 percent of children born received a prelacteal feed. Prelacteal feeding is more widely practised in rural areas (22 percent) than urban areas (14 percent). The Western Region (29 percent) has the highest reported percentage of prelacteal feeding. Children of mothers assisted at delivery by medically trained health professionals have a lower reported rate of receiving prelacteal feeds (14 percent). Women who delivered at home have higher reported rates of prelacteal feeding (25 percent) than those who delivered in a health facility (14 percent). The practise decreases from 24 percent among children of women in the lowest wealth quintile to 10 percent among children of women in the highest wealth quintile. Despite the high breastfeeding prevalence (97 percent) in Ghana, the majority of infants are not fed in compliance with the WHO/UNICEF recommendations. These recommendations call for a period of exclusive breastfeeding for six months and the introduction of complementary foods after the age of six months. Fifty-three percent of children under six months of age are exclusively breastfed in Ghana (GSS, NMIMR, ORC Macro, 2004).

The Demographic and Health Survey which is carried out at five yearly intervals has recorded an increasing trend in the rate of exclusive breast feeding. It increased from 17% in 1993 to 36.5% in 1998 and to 53.4% in 2003. The Ghana Multiple Indicator Cluster Survey which was carried out in 2006 recorded a rate of 54.3% (Ghana Health Service Annual Report, 2007).

The exclusive breastfeeding rate at discharge has been consistently high over the years indicating that health facilities are implementing the policy on breastfeeding. In 2007, out of the 169,817 mothers who were discharged from health facilities after delivery, 158,663 (93.4%) were breastfeeding their babies exclusively at the time of discharge. The regional proportion ranges from 80.5% in Ashanti to 100% in the Northern and Upper East regions. The rate of exclusive breast feeding on discharge from health facilities was 87.9% in 2006 (Ghana Health Service Annual Report, 2007).

In a study to identify predictors of breastfeeding initiation and duration among a cohort of predominantly low-income, inner-city women, and evaluate the contribution of breastfeeding contraindications to breastfeeding practises it was found that 51% initiated breastfeeding and 16% had at least one documented contraindication to breastfeeding; 94% of these had a history of HIV infection and/or cocaine use. Twenty-five percent of study participants who did not initiate breastfeeding cited concern about passing dangerous things to their infants through breast milk (England et al, 2003).

In Hong Kong, only 50.9% infants were breastfed. Infant formulae were widely given among partially breastfed infants. 45% mothers were full-time employed. Restricted food varieties (54%), sore nipple and breast engorgement (67%), perceived home confinement (41.5%) and perceived inadequate milk supply (31.7%) were major concerns upon breastfeeding. Furthermore, 76.9% mothers turned to maternal and child health staff for advice when they encountered difficulties during breastfeeding (Lee et al, 2006).

Morgan and others studied breastfeeding patterns in low birth weight and found that 37.1% of infants received breast milk exclusively; 83.7% were breast-fed at some stage, a practise favoured more by first-time mothers (90.2%) than multiparous mothers (73.4%) as well as by mothers of higher social groups. The median age of solid food introduction was 17 postnatal weeks (range 8-36 weeks); the timing correlated strongly with infant birth weight. A highfibre diet and a low-fat diet were incorrectly considered important for their infants by 67.1% and 51.6% of mothers, respectively (Morgan et al, 2006).

Scarlett and others found that 37.6% of six week old infants were exclusively breastfed. Older maternal age and multiparity favoured exclusive breastfeeding. There was no significant association between pattern of breastfeeding (exclusive versus partial) and employment or union status. Breastfeeding was found to favour good weight gain in normal birth weight babies. Normal birth weight babies who were exclusively breastfed had a higher mean weight gain than the exclusively breastfed low birth weight infants, who in turn had better weight gain when partially breastfed (Scarlett et al, 1996).

A study in the United Arab Emirates showed that only 4 per cent of mothers practised exclusive breastfeeding during the first month of the infants' life; 51 per cent of them initiated breastfeeding on the first day of life. Factors associated with delayed initiation of breastfeeding beyond the first day of life included low birth weight, complicated delivery, ignorance of the advantages of colostrum, and young maternal age. Non-milk supplements fed to babies included water, tea, juice, yansun, and babunj (local herbal drinks). The preferred method of feeding the supplements was the feeding bottle. There were significant associations between the use of these supplements and the mother's nationality and education (al-Mazroui, 1997).

Thus, understanding feeding from the parents' perspective can guide clinicians as they support the development of parents' feeding skills (Thoyre, 2000).

2.2.2 Warmth provision for neonates

Prevention of hypothermia is essential to neonatal survival. In many traditional set ups in Ghana and Africa, neonates are covered in clothes (conventional care), a lantern to provide warmth by the bed side and babies bathed using warm to moderately hot water. Recent research has high-lighted the old African practise of skin-to-skin warmth provision which was hither-to used for older infants and children.

Initiated in 1978 by a Colombian team, then largely adapted in industrialized countries as well as in poor developed countries, kangaroo mother care (KMC) is known to ensure for the low birth weight newborn, a thermoregulation, a good physiological stability and a better relational comfort with their parents (Dzukou et al, 2004). KMC has been found to;

1. Reduce the risk of hypothermia (Cattaneo et al, 1998; Ibe et al, 2004; Darmstadt et al, 2006)
2. Promote exclusive breastfeeding (Bier et al, 1996; Cattaneo et al, 1998; Ramanathan et al, 2001; Suman et al, 2008)

3. Improve weight gain in low birth weight infants (Cattaneo et al, 1998) and improve growth (Suman et al, 2008)
4. Increase oxygen saturation in babies (Bier et al, 1996)
5. Facilitate mother- baby attachment (Gathwala et al, 2008)
6. Be acceptable to mothers (Cattaneo et al, 1998; Ibe et al, 2004; Darmstadt et al, 2006; Suman et al, 2008) and could be practised at home (Gupta et al, 2007; Suman et al, 2008)
7. Be feasible, cheap and convenient (Cattaneo et al, 1998; Lima et al, 2000; Kadam, 2005).

One study reported that mothers perceived KMC enhanced their capability to protect their children from evil spirits and that the babies were more content (Darmstadt et al, 2006). Sadly, Ibe and others found in their study that some mothers had difficulty in adjusting to KMC (Ibe et al, 2004).

Certain studies however fail to prove the importance of KMC over conventional care. A meta-analysis by Conde-Agudelo, Diaz-Rossello and Belizan suggests that well designed randomized controlled trials of KMC are needed since various studies that report various advantages lack credibility (Conde-Agudelo et al, 2003).

The introduction of KMC in some centres has been met with resistance. Lincetto, Nazir and Cattaneo found that the obstacles and constraints to successful implementation of KMC were resistance to change by the health staff, cultural problems, and managerial difficulties (Lincetto et al, 2000). According to Charpak and Ruiz-Pelaez, resistance from health professionals, mothers and families was often related to local cultural practises (Charpak, and Ruiz-Pelaez, 2006).

2.2.3 Immunization

Despite the advantage of childhood immunization in preventing disease, certain studies show that low birth weight infants were disadvantaged.

Langkamp and others found that low-birth-weight children received their first 3 doses of diphtheria and tetanus toxoids and pertussis vaccine and their first 2 doses of polio vaccine significantly later than normal birth weight children (Langkamp et al, 2001). In their study, Davis and others concluded that infants born prematurely are vaccinated at levels approaching that of the general population, but levels of vaccination for very low-birthweight infants lag slightly behind (Davis et al, 1999).

Arguments in this delay are that low birth weight infants are unable to mount an immune response to the vaccines and that certain vaccines are not safe for low birth weight babies. D'Angio reports that the immunological response is variable and dependent on the type of vaccine and gestational age at birth (D'Angio, 2007). Pfister and others found that the administration of diphtheria-tetanus-acellular pertussis-inactivated polio-Haemophilus influenzae type B (DTaP-IPV-HIB) vaccine to premature babies (mean gestational age 28+/- 2 weeks; mean birth weight 1045+/- 357g) led to an increase in cardiorespiratory events in these babies (Pfister et al, 2004). According to Saari, although the immunogenicity of some childhood vaccines may be decreased in the smallest preterm infants, antibody concentrations achieved usually are protective (Saari, 2003).

2.2.4 Health seeking behavior

Low birth weight infants are more susceptible to infections than normal weight infants. Birth weight was found to be inversely associated with the risk of infectious diseases (Hviid and Melbye, 2007). There is the need therefore to seek professional help when infants fall ill (WHO, 2005). Mothers of low birth weight babies perceived poorer infant health compared to normal weight infants. As such they sought help from a variety of sources- health workers and non health workers alike (May and Hu, 2000).

There is therefore the need to discuss the practise of perinatal care especially low birth weight newborns with mothers and also include cultural aspects into this care (Bonilla and Stefanelli, 1999). Nurses have a critical role in family development of competences in giving care to low birth weight infants (Pridham et al, 2006). Pridham and others thus described a continuing programme designed to strengthen nurses' support of families in developing care giving competences through a process of guided participation.

2.2.5 Herbal practises

Herbs are usually given to babies in different cultures for various reasons. Other feeding practises are carried out also for various reasons.

A study in Nigeria found that most of the mothers believed that exclusive breastfeeding was not adequate for the low birth weight babies, and so herbal mixtures believed to accelerate growth were given in addition to breast milk. The use of forced hand-feeding and feeding bottles was universal among the mothers of low birth weight babies in order to 'increase the volume of feeds the baby gets'. Herbal dressing was used for cord and anterior fontanel care,

while the babies were kept warm by using extra clothing, lighted lanterns and shutting of the windows (Adejuyigbe et al, 2008).

In the United Arab Emirates, babunj (local herbal drinks) and other non-milk supplements were fed to babies usually by means of the feeding bottle (al-Mazroui et al, 1997).

2.3 Interventions

Interventions to prevent neonatal death include

1. The inclusion of neonatal deaths as an indicator of MDG4 and the inclusion of newborn to maternal, newborn and child health (WHO, 2005).
2. The promise by governments of various countries especially developing countries to reduce neonatal mortality (WHO, 2006).
3. The promotion of girl child education and women empowerment.
4. The control of malaria, micronutrient supplementation, tetanus immunization and health education during the antenatal period.
5. Clean delivery practises.
6. The promotion of exclusive breastfeeding and kangaroo mother care.
7. Hygienic cord care.

UNICEF estimates that 50% of neonatal deaths occur at home and thus suggests that a postnatal mother should be visited by trained community health workers at least till after the neonatal period (UNICEF, date unknown).

In India several studies have demonstrated the effectiveness of home visitation by community health workers in reducing neonatal mortality and morbidity. Bang and colleagues found a significant reduction in neonatal infections (61.6% to 27.5%), care-related morbidities (asphyxia, hypothermia, feeding problems) from 48.2 to 26.3% and low birth weight from 41.9 to 35.2% (Bang et al, 2005a). Retrospective analysis showed that there was a significant decline in case fatality in low birth weight neonates (11.3 to 4.7%) and also a significant decline in sepsis, hypothermia and feeding problems (Bang et al, 2005b). They thus concluded that home-based neonatal care, including management of sepsis, is acceptable, feasible, and reduced neonatal and infant mortality (Bang et al, 1999) and morbidity (Bang et al, 2005a).

In Bolivia, women were encouraged to participate in groups involved in promoting the health of the newborn. This led to a decrease in perinatal mortality from 117 to 44 per 1000 live births. Similarly in Nepal, there was a reduction by 30% of neonatal mortality as there was the development of women groups. This was achieved mainly through better uptake of health services (WHO, 2005).

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METHODOLOGY

3.1 Study type and design

A cross sectional analytical study was conducted in the Sekondi sub-metropolis of the Sekondi Takoradi Metropolis from January to March, 2009.

Initially, a retrospective study was to be undertaken in the metropolis. This study however was changed to a cross sectional study. The problems encountered included;

1. Inadequate addresses of mothers at the labour wards in the hospitals.
2. Wrong name and/ or addresses provided by clients to midwives. The home name of clients being different from that provided in the hospital and,
3. Relocation of mothers from the addresses provided.

3.2 Data collection techniques and tools

A questionnaire which contained both open and closed ended questions was administered to the respondents by four trained research assistants. The principal investigator served as the coordinator during the course of the study.

3.3 Study population

Mothers who delivered between 1st July and 31st December, 2008 and at least 29 days postdelivery in the Sekondi sub-metropolis of the Sekondi Takoradi Metropolis.

3.4 Profile of study area

The Sekondi Takoradi Metropolis was carved out of the then Shama Ahanta East Metropolis after Shama District was created. The metropolis is bounded to the north-east by the Shama District, to the north by the Mpohor- Wassa East District, to the west by the Ahanta West

District and to the south by the sea, the Gulf of Guinea. It is a cosmopolitan metropolis consisting of two sub-metropolitan district assemblies- Sekondi and Takoradi.

The metropolis has various governmental, quasi- governmental and private health institutions. There are four government hospitals including the regional hospital which serves as the major referral point for all health facilities in the Western region, 31 privately owned clinics and numerous health centres and maternity homes that offer a variety of services to clients. Also in this cosmopolitan area are several pharmacies, chemical shops, herbalists and traditional birth attendants. Two government hospitals, the Essikado Hospital and Effia Nkwanta Regional Hospital are located in the Sekondi sub-metropolitan District of the metropolis.

3.4.1 Birth, Weighing and Postnatal services

Despite the numerous health facilities in the metropolis, more than half of all deliveries were unsupervised. The proportion of supervised deliveries however increased owing to the introduction of the 'free maternal care' by the Government of Ghana which started on the 1st of July, 2008. Various health facilities reported increases in delivery rates in various media houses. However these reports were yet to be documented and verified. Data on low birth weights are scanty in the metropolis as there are no report forms for low birth weight as is the case for still birth. Also in the metropolis, various health centres use different weighting scales with different margins of error. At the labour wards of two hospitals, Essikado and Effia Nkwanta, the scales were calibrated in pounds. A recorded birth weight in pounds had to be converted into kilograms using a chart. Some privately owned maternity homes however, have scales calibrated in grams. The weighting scales at all postnatal care centres had scales calibrated in grams. All hospitals in the metropolis have been designated as 'Baby friendly' hospitals. The postnatal coverage in the metropolis was nearly 70% in 2007. This was higher than the regional average of 38%. Immunization coverage for 2007 was 85% (Penta 3 coverage).

3.4.2 Neonatal care facilities in the metropolis

All hospitals and health centres refer neonates to the Effia Nkwanta Regional Hospital since it is the only facility with a number of incubators and staff to take care of seriously ill neonates. The predominant causes of neonatal deaths at the neonatal intensive care unit of the hospital in 2007 were prematurity, birth asphyxia and septicaemia. There is no adequate data on the proportion of neonatal deaths attributed to low birth weight in the hospital.

3.5 Study variables

Table 3.1 Background variables

Variable	Definition	Scale of measurement
Age of mother	Age group of mother	Ordinal
Marital status	Marital status	Nominal
Education	Highest level of education attained	Ordinal
Occupation	Occupation	Nominal
Religion	Religion	Nominal
Parity	Parity (later grouped)	Numerical (Ordinal)

Table 3.2 Independent variable

Variable	Definition	Scale of measurement
Birth weight	Birth weight grouped into low birth weight and normal birth weight	Ordinal
Low birth weight: birth weight \leq 2499g. Normal birth weight: birth weight \geq 2500g.		

Table 3.3 Dependent variables to assess maternal perception of low birth weight babies

Variable	Operational definition	Indicator	Scale of measurement
Perception	An answer yes or no to the question; would you like to give birth to a low birth weight baby?	Yes= positive perception No= negative perception	Nominal
Reason for positive or negative perception	Reason for above answer	Coded reasons (content analysis)	Nominal
Vulnerability	An answer to the question; do you think low birth weight babies need more care/attention?	Yes= vulnerable No= not vulnerable	Nominal
Perceived importance of care of low birth weight babies	Care of low birth weight babies	Feeding, immunization, warmth provision, access to health care	Nominal
Recommended food for low birth weight babies	Recommended feeding options for low birth weight babies	Breast milk, formula feed, cereal diet 'koko'	Nominal

Herbs for low birth weight	Answer to question; are herbs good for LBW?	Yes No	Nominal
Reason for recommending herbs for LBW	Reasons for recommending herbs	Coded reasons (content analysis)	Nominal

Table 3.4 Dependent variables to assess the home care of neonates

Variable	Operational definition	Indicator	Scale of measurement
Feeding practises			
• Breastfeeding initiation	Breastfeeding initiation within 24 hours of delivery	Yes or No	Nominal
• Reason for lack of initiation	Reasons for lack of initiation		Nominal
• Exclusive breastfeeding in first month of baby's life	Age of baby at which water was introduced	Grouped into Yes and No Yes= water introduced in first month of life No= water not introduced in first month which is equivalent to exclusive breastfeeding in first month	Ordinal
• Introduction of semi-solid food	Age of baby at which semi-solid food was introduced	Grouped into Yes and No Yes= semi-solid food introduced in first month No= semi-solid food not introduced in first month	Ordinal
Warmth provision			
• Knowledge of KMC	Answer to question do you know of skin-to-skin attachment to provide warmth for the baby	Yes= knowledge of KMC No= no knowledge of KMC	Nominal

• Practise of KMC	Answer to the question Have you practised skin-to-skin attachment	Yes= practised KMC No= not practised KMC	Nominal
Immunization			
• BCG in first week of life	Period between birth and BCG immunization	Yes= BCG received within first week of life No=BCG not received within first week	Ordinal
Cord care practises			
• Items used to tie cord at birth	Items used to tie cord at birth		Nominal
• Cord care	Materials used on Cord till it fell off		Nominal
Health seeking behavior			
• Jaundice in first month	Age at which child developed jaundice	Grouped into Yes and No Yes= jaundice in first month No= no jaundice in first month	Ordinal
• Practises to treat jaundice	Practises to treat jaundice	Practises coded	Nominal
• Practises when child was sick	Practises when child was sick	Practises coded	Nominal
Herbal practises			
• Herbal use	Answer to question: have you used/ given herbs to child during first month?	Yes= herbal use No= no herbal use in first month of life	Nominal
• Reason for herbal use	Reason for herbal use	Reasons coded	Nominal

3.6 Sample size and Sampling

3.6.1 Sample size

A minimum sample size of 80 (16 low birth weight and 64 normal birth weight) was calculated using Epi Info version 3.4.1 at 95% confidence level and power of 80%. The calculation assumed that 20% of neonates were low birth weight and 60% of low birth weight babies versus 20% of normal birth weight babies would die during the neonatal period.

3.6.2 Sampling

The Sekondi sub-metropolis was chosen randomly by a toss of a coin. The sub-metropolis was divided into four zones. Each research assistant was assigned randomly to a zone by drawing pieces of paper each containing a name of a zone from a box.

In all 121 respondents were identified in all zones in the sub-metropolis by a snow ball approach with the help of community guards. In each community visited, at least two community guards were recruited to assist the research assistant in identifying the homes of mothers. In some communities, the team asked around to identify the first mother whilst in other communities the first mother was mentioned by the community guards. Mothers' identified in each community mentioned and directed the team to at least one other person they knew with babies aged one to seven months. These mothers were subsequently contacted. The community guards were helpful in identifying the homes of respondents.

Data from health records of baby were transcribed unto sections of the questionnaire by the research assistants. Data included date of birth, birth weight of baby, and immunization record. The researcher followed up to the health facilities of birth and ascertained the birth weights of babies of respondents from health facility delivery records.

3.7 Pretesting

The questionnaire was discussed extensively with the academic supervisor, field supervisor and some members of the Ghana Statistical Service, Western Regional Office including the Regional Director and various modifications made. Pretesting of the questionnaire was done on the 14th of January 2009. Exit interviews were organized at the postnatal clinic of Takoradi Hospital. The questionnaire was subsequently modified. The data collection period however, was delayed till 29th January, 2009 to make room for babies born on the 31st of December 2008 to complete the neonatal period.

3.7.1 Training of Research Assistants

Research assistants were recruited from the Western Regional Office of the Ghana Statistical Service. They were trained in two phases. Phase one entailed training in research methodology, data collection techniques and informed consent process. Phase two was after pretesting where problems were identified, discussed and corrected. Problems identified included, 'flow' of questions and interpretation of certain local words.

3.8 Data handling

Data were entered into Epi info version 3.4.1 and exported into Excel 2000. This was then imported into SPSS version 14 (evaluation version). String variables were coded by content analysis manually. This was achieved by picking the first 20 answers per open ended question on the SPSS screen; contents were analyzed and grouped into four to six main context areas. These context areas or themes were given codes and entered into the SPSS screen.

3.9 Data analysis

Data were analysed using SPSS version 14 (evaluation version). Graphs were drawn in both SPSS and Excel 2007. Significant test of difference in care practises between low birth weight and normal birth weight babies was done manually and Chi square analysis to identify associations was done by Epi info version 3.4.1. In situations where the expected cell counts was less than five, the p values of the Fisher exact tests were used.

3.10 Ethical consideration

Permission to conduct the study in the metropolis was obtained from the Sekondi Takoradi Metropolitan Assembly and the Sekondi Takoradi Metropolitan Health Directorate. Permission was also obtained from the Medical Superintendents and head of labour wards of the Essikado hospital and Effia Nkwanta Regional hospital to review delivery records. Permission was also obtained from the Medical Superintendent of the Takoradi Hospital to carry out the pretest. Informed consent was obtained from each respondent before the onset of the interview.

3.11 Limitation of study

The study was limited to the Sekondi sub-metropolis of the Sekondi Takoradi Metropolitan Assembly.

3.12 Assumptions

The study assumed that, there was no/ minimal recall bias.

The study also assumes that, there were no biases regarding weighing scales or techniques in weighing at birth at the various health facilities and that all readings were accurate.



RESULTS**4.0 Description of background characteristics of respondents**

15-19	12	9.92
20-24	33	27.27
25-29	34	28.10
30-34	18	14.88
35-39	19	15.70
40-44	4	3.31
45-49	1	0.83
Marital status		
Married/ living together	100	82.64
Single	21	17.36
Education		
No formal education	13	10.74
Primary	21	17.36
Junior secondary/middle school	61	50.41
Senior secondary/ technical/ vocational	23	19.01
Postsecondary/ Tertiary	3	2.48
Occupation		
Unemployed	21	17.36
Self employed	92	76.03
Working in private firm	3	2.48
Working for government	5	4.13
Religion		
Christian	113	93.39
Moslem	5	4.13
Traditional	1	0.83
Other	2	1.65
Parity		
1	46	38.02
2	28	23.14
3	16	13.22
4	18	14.88
5	6	4.96
6	3	2.48
7	4	3.31
Total number of respondents		100

Table 4.1 Background characteristics of respondents

Background characteristic	Frequency	Percentage
Age		
Note: Education categories refer to the highest level of education attended, whether or not that level was completed; Mean age = 27.4, standard deviation= 6.797; Median age= 26 Source: Field Survey, 2009.		

4.1 Maternal perception of low birth weight babies

4.1.1 Positive or Negative perception of low birth weight with reasons

Table 4.2 Perception of low birth weight

Would you like to give birth to a LBW baby?	Frequency	Percentage
Yes	22	18.18
No	99	81.82
Total	121	100

Note: A positive perception was an answer **YES** and a negative perception an answer **NO**

Source: Field Survey, 2009.

Table 4.3 Reasons for a Positive perception of low birth weight baby

Reason	Frequency	Percentage
Baby needs more care and/ or attention	10	45.45
For easy birth	8	36.36
Baby is normal	2	9.09
Others: allows child to grow well and no response	2	9.09
Total	22	100

Source: Field Survey, 2009.

Table 4.4 Reasons for a Negative perception of low birth weight baby

Reason	Frequency	Percentage
Baby needs more care and/ or attention	39	39.39
Baby not healthy enough	20	20.20
Mother admires bigger babies	13	13.13
Religious/ superstitious reasons	18	18.36
People's comment	5	5.05
Others indicates no response or LBW babies are abnormal	4	4.04
Total	99	100

Note: Religious / superstitious responses include the belief that God did not design delivery at less than nine months gestation and a supernatural cause is responsible for low birth weight

Source: Field Survey, 2009

Table 4.5 describes the perception of low birth weight by background characteristics.

Table 4.5 Positive and negative perception by background characteristics

Background characteristics		Perception of low birth weight baby				Total	
		Positive		Negative			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Maternal age	< 30	18	22.78	61	77.22	79	100
	≥ 30	4	9.52	38	90.48	42	100
Education	Yes	20	18.52	88	81.48	108	100
	No	2	15.38	11	84.62	13	100
Marital status	Married/ living together	16	16.00	84	84.00	100	100
	Single	6	28.57	15	71.43	21	100
Occupation	Unemployed	5	23.81	16	76.19	21	100
	Employed	17	17.00	83	83.00	100	100
Parity	1	13	28.26	33	71.74	46	100
	2-4	7	11.29	55	88.71	62	100
	≥5	2	15.38	11	84.62	13	100

Source: Field Survey, 2009.

From Table 4.5, there is no significance in perception difference with respect to maternal age ($p= 0.07$), educational status ($p= 1.0$), marital status ($p= 0.21$), occupation ($p=0.53$) and parity ($p= 0.07$). However, positive perception is significantly higher in women less than 30 years ($p= 0.035$) and women with only one child ($p= 0.024$).

4.1.2 Vulnerability of low birth weight babies

In the study 112 mothers representing 92.56% perceived low birth weight babies as vulnerable and thus needed more care or attention. Table 4.6 describes the perception of vulnerability of low birth weight baby by background characteristics of mother.

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Table 4.6 Perception of vulnerability of low birth weight babies by background characteristic of respondents

Background characteristics		Vulnerability				Total	
		Yes		No			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Maternal age	< 30	73	92.41	6	7.59	79	100
		39	92.86	3	7.14	42	100
Education		99	91.67	9	8.33	108	100
	≥ 30	13	100.00	0	0.00	13	100
	Yes						
	No						
	Married/ living together						
Marital status		92	92.00	8	8.00	100	100
	Single	20	95.24	1	4.76	21	100
Occupation	Unemployed	21	100.00	0	0.00	21	100
	Employed	91	91.00	9	9.00	100	100
Parity		42	91.30	4	8.70	46	100

<div> <div>1</div> <div>2-4</div> <div>≥5</div> </div>	58	93.55	4	6.45	62	100
	12	92.31	1	7.69	13	100
Yes implies vulnerable and No, not vulnerable						

Source: Field Survey, 2009.

The perception of vulnerability was not different based on maternal characteristics.



4.1.3 Perceived importance of care of low birth weight babies Table

4.7 Perceived importance of care of low birth weight babies

Kind of care	Perceived importance	Percentage (%)
Feeding	96	85.71
Immunization	66	58.93
Warmth provision	62	55.36
Hospital when sick	96	85.71
Note: 9 mothers were excluded from the above calculation since they did not perceive that low birth weight babies need more care and attention.		

Source: Author, 2009.

4.1.4 Recommended feed for low birth weight babies Table

4.8 Recommended foods for low birth weight babies

Food Option	Frequency	Percentage (%)
Breast milk	105	86.78
Formula feed	92	76.03
Koko	48	39.67
Other	7	5.79
Other responses: water, mashed 'kenkey' and 'weanimix'		

Source: Field Survey, 2009.

4.1.5 Herbs for low birth weight babies

In the study, 32 mothers representing 26.45% perceived herbs as good for low birth weight babies (95% confidence interval 18.59- 34.31%).

Table 4.9 Reasons for recommending herbs for low birth weight babies

Reason for importance of herbs	Frequency	Percentage
Herbs good for healing/ prevention of certain diseases	13	40.63
Herbs good for growth/ strength in babies	11	34.38
Herbs have same effects/ better than orthodox medicine	6	18.75
Other: no response, herbs work	2	6.25
Total	32	100

Source: Field Survey, 2009.

Table 4.10 describes the perception of herbs by background characteristics of mother.

Table 4.10 Perception of herbs good for low birth weight babies by background characteristics of respondents

Background characteristics		Herbs Good for LBW babies				Total	
		Yes		No			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Maternal age	< 30	26	32.91	53	67.09	79	100
	≥ 30	6	14.29	36	85.71	42	100
Education	Yes	23	21.30	85	78.70	108	100
	No	9	69.23	4	30.77	13	100
Marital status	Married/ living together	24	24.00	76	76.00	100	100
	Single	8	38.10	13	61.90	21	100
Occupation	Unemployed	6	28.57	15	71.43	21	100
	Employed	26	26.00	74	74.00	100	100
Parity	1	13	28.26	33	71.74	46	100
	2-4	17	27.42	45	72.58	62	100
	≥5	2	15.38	11	84.62	13	100

Source: Field Survey, 2009.

Perception of herbs as being good for low birth weight babies was significantly different with respect to maternal age ($p= 0.027$) and educational status ($p= 0.0008$) but not different with respect to marital status ($p= 0.18$), occupation ($p= 0.808$) and parity ($p= 0.629$).

4.2 Home care of neonates

4.2.1 Feeding practises

4.2.1.1 Initiation of Breastfeeding within 24 hours after delivery

All mothers breastfed their babies. However, 82.64% of mothers initiated breastfeeding within the first 24 hours of delivery (95% confidence interval 75.89, 89.39%). 21 mothers representing 17.36% failed to breastfeed within 24 hours after delivery. The reasons for failure to breastfeed within 24 hours were as in Table 4.11.

Table 4.11 Reasons for failure to breastfeed within 24 hours after delivery

Reason	Frequency	Percentage
Lack of breast milk	13	61.90
Prematurity	1	4.76
Birth asphyxia	1	4.76
Baby refusing to suck	2	9.52
Flat nipple of mother	1	4.76
Perineal pain in mother	2	9.52
Mother advised to start breastfeeding after three days	1	4.76
Total	21	100

Source: Field Survey, 2009

4.2.1.2 Introduction of water and food within the first month of life

In the study, 21 mothers constituting 17.36% started giving water to their babies in the first month of life with eleven mothers giving water within the first week of life. Thus, 82.64% of mothers exclusively breastfed in the first month. Table 4.12 describes the introduction of water in first month of baby's life by background characteristics of mother.

4.13% of mothers started giving semi-solid food in the first month of life. One mother started giving her baby rice and stew during the first month of life (95% confidence interval 0.58 to 7.68%).

Table 4.12 Introduction of water to neonate by background characteristic of respondents

Background characteristics		Water in first month				Total	
		Yes		No			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Maternal age	< 30	17	21.52	62	78.48	79	100
	≥ 30	4	9.52	38	90.48	42	100
Education	Yes	18	16.67	90	83.33	108	100
	No	3	23.08	10	76.92	13	100
Marital status	Married/ living together	17	17.00	83	83.00	100	100
	Single	4	19.05	17	80.95	21	100
Occupation	Unemployed	7	33.33	14	66.67	21	100
	Employed	14	14.00	86	86.00	100	100
Parity	1	9	19.57	37	80.43	46	100
	2-4	9	14.52	53	85.48	62	100
	≥5	3	23.08	10	76.92	13	100
Proportions of the response NO was used as an approximate measure of exclusive breastfeeding in the first month of life.							

Proportions of the response **NO** was used as an approximate measure of exclusive breastfeeding in the first month of life.

Source: Field Survey, 2009.

From the above table, exclusive breastfeeding was not significantly different with respect to all the background characteristics. However, exclusive breastfeeding was significantly lower in mothers less than 30 years than mothers 30 years and older ($p= 0.0485$) and unemployed mothers than employed mothers ($p= 0.0174$).

4.2.2 Warmth provision

The conventional method of clothing was universal among all mothers. Skin-to-skin method of warmth provision also known as kangaroo mother care (KMC) was practised by 59.50% of mothers (95% confidence interval 50.75- 68.25%). However 61.16% of mothers had knowledge of the skin-to-skin method of providing warmth for their babies. Table 4.13 and Table 4.14 describe KMC knowledge and practise by background characteristics of mother respectively.



Table 4.13 Knowledge of kangaroo mother care by background characteristic of respondents

Background characteristics		KMC knowledge				Total	
		Yes		No			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Maternal age	< 30	41	51.90	38	48.10	79	100
	≥ 30	33	78.57	9	21.43	42	100
Education	Yes	70	64.81	38	35.19	108	100
	No	4	30.77	9	69.23	13	100
Marital status	Married/ living together	62	62.00	38	38.00	100	100
	Single	12	57.14	9	42.86	21	100
Occupation	Unemployed	8	38.10	13	61.90	21	100
	Employed	66	66.00	34	34.00	100	100
Parity	1	23	50.00	23	50.00	46	100
	2-4	39	62.90	23	37.10	62	100
	≥5	11	84.62	2	15.38	13	100

Source: Field Survey, 2009.

Knowledge of KMC was different with respect to maternal age ($p= 0.004$), education ($p= 0.017$) and occupation (0.017).

Table 4.14 Practise of kangaroo mother care by background characteristic of respondents

Background characteristics		KMC practise				Total	
		Yes		No			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Maternal age	< 30	41	51.90	38	48.10	79	100
	≥ 30	31	73.81	11	26.19	42	100
Education	Yes	68	62.96	40	37.04	108	100
	No	4	30.77	9	69.23	13	100
Marital status	Married/ living together	60	60.00	40	40.00	100	100
	Single	12	57.14	9	42.86	21	100
Occupation	Unemployed	8	38.10	13	61.90	21	100
	Employed	64	64.00	36	36.00	100	100
Parity	1	23	50.00	23	50.00	46	100
	2-4	39	62.90	23	37.10	62	100
	≥5	10	76.92	3	23.08	13	100

Source: Field Survey, 2009.

There was significance difference in KMC practises with respect to maternal age ($p= 0.019$), education ($p=0.025$) and occupation ($p= 0.028$).

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4.2.3 Immunization

97.52% of mothers vaccinated their children. 109 out of the total 121 mothers had a child health record booklet or card. However, 100 child record booklets/ cards were seen by the research assistants all of which had the date of birth of the child written. Of these 74 had the birth weights of babies written. The child immunization record of 98% of all those whose child health record booklet/ card were seen had dates of immunization written. 60 babies constituting 61.22% of babies received BCG within the first seven days of life.

Table 4.15 describes BCG immunization in first week by background characteristics of mother.



Table 4.15 BCG immunization in the first week of life of babies of respondents by background characteristic

Background characteristics		BCG in first week				Total	
		Yes		No			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Maternal age	< 30	37	57.81	27	42.19	64	100
	≥ 30	23	67.65	11	32.35	34	100
Education	Yes	58	64.44	32	35.56	90	100
	No	2	25.00	6	75.00	8	100
Marital status	Married/ living together	52	63.41	30	36.59	82	100
	Single	8	50.00	8	50.00	16	100
Occupation	Unemployed	9	50.00	9	50.00	18	100
	Employed	51	63.75	29	36.25	80	100
Parity	1	26	66.67	13	33.33	39	100
	2-4	30	62.50	18	37.50	48	100
	≥5	4	36.36	7	63.64	11	100
Note: 23 respondents not included in analysis because 2 did not have entries for immunization despite having birth weight, 3 did not vaccinate their children and 18 did not have birth dates even though there were entries for immunization.							

Source: Field Survey, 2009.

There was no significant difference based on all background characteristics. However, the proportion BCG immunization in uneducated mothers is significantly lower than that for educated mothers ($p=0.014$).

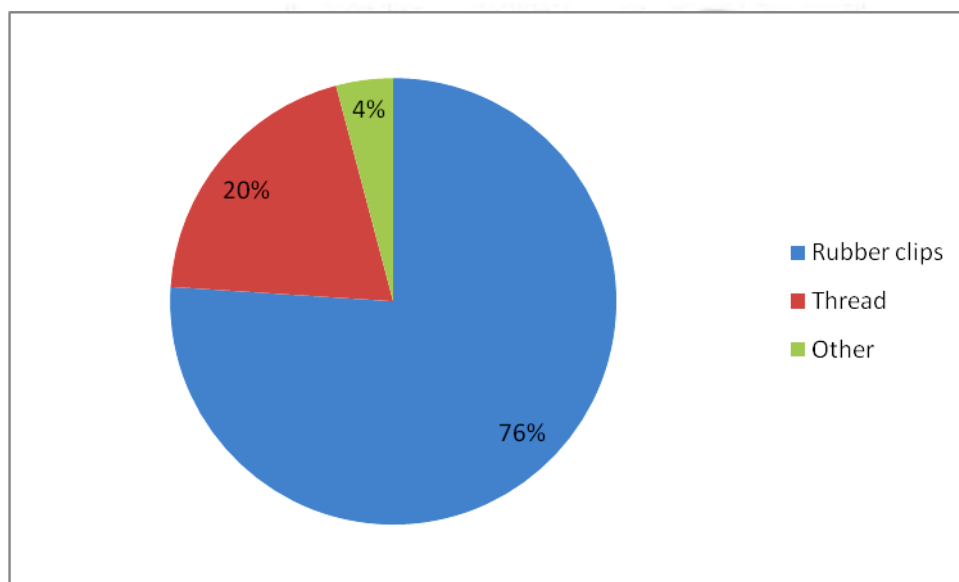
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4.2.4 Cord care

At birth, various items were used to tie the cord as illustrated in the figure below.

Figure 4.1 Items used for umbilical cord at birth



Source: Field Survey, 2009.

At home, 92.56% mothers used methylated spirit for cord care, whilst nine mothers (7.44%) used herbs or local preparation for cord care. Materials used include 'S2P1' cream; white clay ('estiro') with salt; palm kernel oil; salt and cassava; grounded sand, salt and lime; sugar cane leaves and salt; spirit and salt; and 'close up' tooth paste.

4.2.5 Health seeking behaviour

4.2.5.1 Neonatal jaundice practises

In the study, 19 babies had jaundice during the first month of life. This constitutes 15.70% (95% confidence interval 9.22, 22.18%).

Table 4.16 Maternal practises to treat jaundice

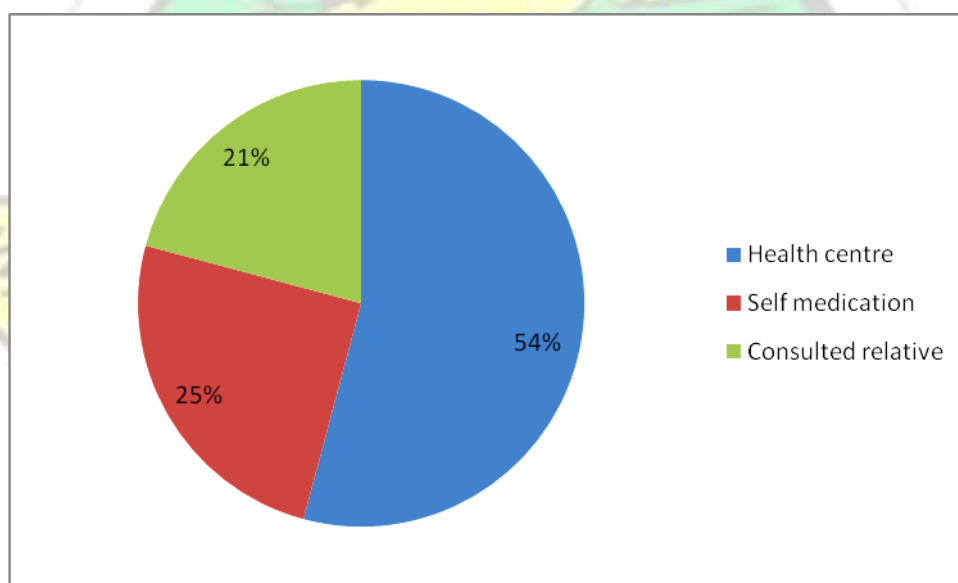
Practise	Frequency	Percentage
Breast milk in baby's eyes	1	5.26
Gave baby more breast milk	2	10.53
Gave child glucose solution	4	21.05
Sat with child at dawn	3	15.79
Sat with child in early morning sun	6	31.58
Took child to hospital for treatment	1	5.26
Did nothing	2	10.53
Total	19	100

Source: Field Survey, 2009

4.2.5.2 First actions of mothers when baby was sick

In the study, 24 babies were sick during the first month of life. First actions are illustrated in Figure 4.2.

Figure 4.2 Health seeking behavior of mothers when child was sick



Source: Field Survey, 2009.

4.2.6 Herbal practises

15.70 percent of mothers administered herbs to their babies for various reasons. The common routes of administration were by mouth and enema, with some mothers applying herbs on the skin and into the nostrils of the babies.

The reasons for giving child herbs were: Table 4.17 Reasons for giving baby herbs

Reason	Number of mothers	Percentage
Child stretches the body	2	10.53
Empty bowel	4	21.05
Heal diseases (e.g. measles, diarrhea)	6	31.58
Prevent disease (e.g. 'mpaemu')	4	21.05
Remove phlegm	3	15.79
Total	19	100
'mpaemu' interpreted to mean childhood convulsions		

Source: Field Survey, 2009.

Table 4.18 describes herbal practises by background characteristics of mother.



Table 4.18 Herbal practises during neonatal period by background characteristic of respondents

Background characteristics		Herbal practise				Total	
		Yes		No			
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Maternal age	< 30	14	17.72	65	82.28	79	100
	≥ 30	5	11.90	37	88.10	42	100
Education	Yes	15	13.89	93	86.11	108	100
	No	4	30.77	9	69.23	13	100
Marital status	Married/ living together	15	15.00	85	85.00	100	100
	Single	4	19.05	17	80.95	21	100
Occupation	Unemployed	6	28.57	15	71.43	21	100
	Employed	13	13.00	87	87.00	100	100
Parity	1	6	13.04	40	86.96	46	100
	2-4	12	19.35	50	80.65	62	100
	≥5	1	7.69	12	92.31	13	100

Source: Field Survey, 2009.

There was no significant difference with respect to all background characteristics. However, herbal use in uneducated mothers was significantly higher in uneducated women than in educated women ($p= 0.038$).

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4.3 Test of hypothesis

Null hypothesis: There is no difference in home care practises between low birth weight and normal birth weight neonates.

Research hypothesis: There is a difference in the home care practises of low birth weight and normal birth weight babies.

Level of significance= 0.05.

85 babies birth weight could be ascertained after tracing up to the health centres and cross checking with birth data. 16 were low birth weight and 69 normal birth weight, giving a low birth weight proportion of 18.82% (95% confidence interval of 10.51, 27.13).

Table 4.19 Breast feeding initiation within 24 hours after birth by birth weight

Birth weight	Breastfeeding initiation within 24 hours		Total
	Yes	No	
Low birth weight	14 (87.50%)	2 (12.50%)	16 (100%)
Normal birth weight	59 (85.51%)	10 (14.49%)	69 (100%)
Total	73 (85.88%)	12 (14.12%)	85 (100%)

Source: Field Survey, 2009.

There was no statistical difference of breastfeeding initiation by birth weight and I fail to reject the null hypothesis ($z= 0.206$, $p= 0.8336$).

Table 4.20 Water in the first month of life by birth weight

Birth weight	Water		Total
	Yes	No	
Low birth weight	4 (25.00%)	12 (75.00%)	16 (100%)
Normal birth weight	6 (8.70%)	63 (91.30%)	69 (100%)
Total	10 (11.76%)	75 (88.24%)	85 (100%)

Source: Field Survey, 2009.

There was no difference in exclusive breastfeeding practises in terms of birth weight ($z= 1.824$, $p= 0.0688$). Thus, I fail to reject the null hypothesis.

Table 4.21 Liquid/ semisolid food in the first month of life by birth weight

Birth weight	Semisolid food		Total
	Yes	No	
Low birth weight	2 (12.50%)	14 (87.50%)	16 (100%)
Normal birth weight	1 (1.45%)	68 (98.55%)	69 (100%)
Total	3 (3.53%)	82 (96.47%)	85 (100%)

Source: Field Survey, 2009.

There was a significant difference in the introduction of semi-solid food ($z = 2.158$, $p = 0.0308$).

I thus, reject the null hypothesis and accept the research hypothesis.

Table 4.22 Practise of skin-to-skin warmth provision by birth weight

Birth weight	Skin-to-skin practise		Total
	Yes	No	
Low birth weight	7 (43.75%)	9 (56.25%)	16 (100%)
Normal birth weight	45 (66.67%)	24 (33.33%)	69 (100%)
Total	52 (61.18%)	33 (38.82%)	85 (100%)

Source: Field Survey, 2009.

From the study there was no significant difference ($z = -1.695$, $p = 0.091$). I therefore fail to reject the null hypothesis.

Table 4.23 BCG in the first week of life by birth weight

Birth weight	BCG in first week		Total
	Yes	No	
Low birth weight	9 (56.25%)	7 (43.75%)	16 (100%)
Normal birth weight	45 (65.22%)	24 (34.78%)	69 (100%)
Total	54 (63.53%)	31 (36.47%)	85 (100%)

Source: Field Survey, 2009.

There was no difference in BCG immunization practises of low birth weight and normal birth weight babies ($z = -0.672$, $p = 0.5028$). Thus, I fail to reject the null hypothesis.

Table 4.24 Jaundice in first month of life by birth weight

Birth weight	Jaundice in first month		Total
	Yes	No	
Low birth weight	7 (43.75%)	9 (56.25%)	16 (100%)
Normal birth weight	7 (10.14%)	62 (89.86%)	69 (100%)
Total	14 (16.47%)	71 (83.53%)	85 (100%)

Odds ratio 6.89 (1.67 < Odds ratio < 29.43)

Source: Field Survey, 2009.

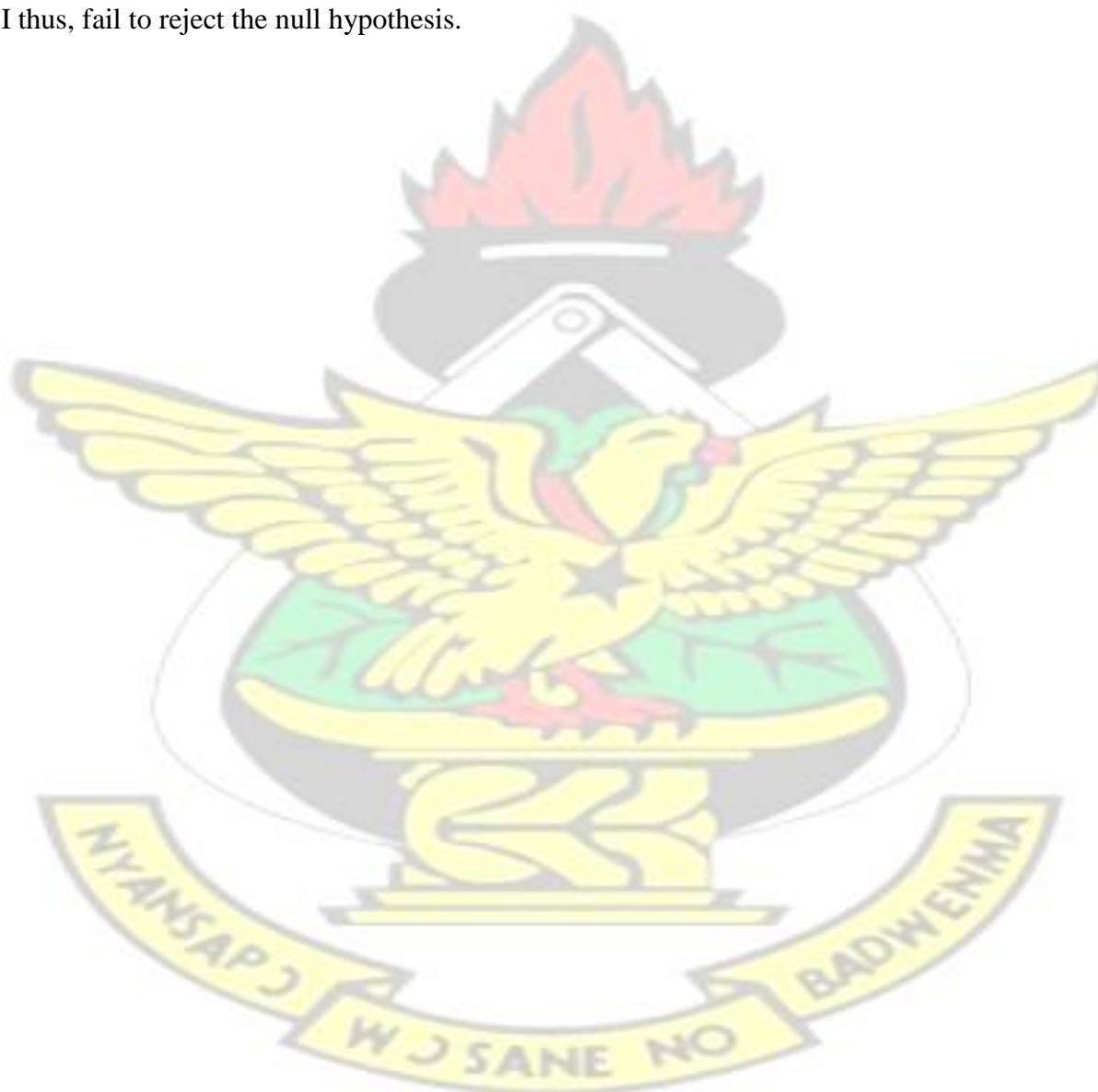
Table 4.25 Herbal practises by birth weight

Birth weight	Herbal practise		Total
	Yes	No	
Low birth weight	2 (12.50%)	14 (87.50%)	16 (100%)
Normal birth weight	11 (15.94%)	58 (84.06%)	69 (100%)
Total	13 (15.29%)	72 (84.71%)	85 (100%)

Source: Field Survey, 2009.

Herbal practise was not significantly different between the two groups ($z = 0.344$, $p = 0.7338$).

I thus, fail to reject the null hypothesis.



Chapter 5

DISCUSSION

5.1 Maternal perception of low birth weight babies

In the study, 18.2% of mothers had a positive perception of low birth weight babies whilst 82.1% had a negative perception of low birth weight babies. There was no significant difference in perception of low birth weight based on education, employment or marital status. This finding is different from the findings of Youngblut and others (1998) who found that employed mothers had a positive perception of low birth weight babies. Mothers less than 30 years had a positive perception than women of 30 years and older ($p= 0.0359$) and mothers who had one child had a positive perception than those with two or more children ($p= 0.0122$). A woman less than 30 years was nearly three times likely to have a positive perception of low birth weight baby than a woman 30 years and older. Similarly, a woman with one child was nearly three times more likely to have a positive perception of low birth weight baby than a woman with two or more children.

In the study, 45.5% of mothers with a positive perception would like to have a low birth weight baby so as to be able to care for them adequately. This supports the work of Raines (1998) who found that mothers had the desire to parent low birth weight babies. However, 59.6% of mothers with a negative perception did not desire to parent a low birth weight baby because they needed much care and are not healthy enough.

It was found that 18.4% of mothers with a negative perception attributed the cause of low birth weight baby to supernatural factors. A 26 year old woman with one child responded:

'God arranged that women should give birth after nine months not before nine months'.

Another woman 25 years old with two children responded:

'I don't like such children at all. It means something is wrong somewhere'.

A 37 year old woman with parity seven exclaimed:

'Ah! What! Why should I give birth to such a baby? I can't explain but I don't like it'. These findings are different from that of Collins and others (2000) who found that mothers perceived the causes of low birth weight to be from racial discrimination, poor residential

environment and stress. According to O'Campo and others (1997) and Roberts (1997) however, multiple factors were directly associated with low birth weight.

In the study, 92.6% of mothers perceived low birth weight babies to be vulnerable. The perception of vulnerability was not associated with maternal age, education, marital status, occupation or parity. According to Allen and others (2004), the negative perceptions of vulnerability were associated with worse developmental outcomes of low birth weight babies.

Mothers perceived feeding (85.7%) and accessing health care (85.7%) as important to the survival of low birth weight babies. Mothers' perceived immunization (58.9%) and warmth provision (55.4%) as less important to feeding and access to health care. Low birth weight babies are at increased risk of death from hypothermia and vaccine preventable diseases than normal birth weight babies (Behrman et al, 2006).

Interestingly, mothers recommended formula feed and less importantly 'koko' in addition to breast milk for low birth weight babies. 26.5% of women perceived herbs as good for low birth weight babies for reasons including treating and preventing diseases and growth enhancement. This supports the work of Adejuyigbe and others (2008) who found that herbs believed to accelerate growth were given to low birth weight babies. There was a significant difference in the perceived importance of herbs with maternal education ($p=0.0008$) and age of mother ($p=0.027$) with higher proportions in uneducated mothers and mothers less than 30 years.

5.2 Care of the neonate

Breastfeeding was universal as all mothers breastfed their children. In Hong Kong however only 50.9% were breastfed (Lee et al, 2006). The proportion of mothers that breastfed within the first day (82.6%) was not significantly different from the national average of 75% obtained in the Ghana Demographic and Health Survey 2003 ($p=0.0524$), despite an increase in the proportion. However, the proportion was significantly greater than the Western regional average of 67 percent, ($p<0.0001$). The proportion of mothers that initiated breastfeeding was also significantly different from that found by England and others (2003) and al-Mazroui and others (1997) which was 51% in both studies ($p<0.0001$). In the study, the reasons for failure to breastfeed within 24 hours which include lack of breast milk, perineal pain and child refused sucking were different from that found by England and others in 2003. England and others (2003) found that HIV and cocaine use were hindrances to breastfeeding initiation.

As noted in the GDHS 2003, breastfeeding standards do not conform to those set by WHO and UNICEF, which is, exclusive breastfeeding for the first six months of life. In the study, approximately 82.6 percent of mothers exclusively breastfed in the first month. There was no significant difference in exclusive breastfeeding proportions based on maternal education, marital status, occupation or parity supporting the work of Scarlett and others (1996) who found that there was no significant association between pattern of breastfeeding and employment or union status. A mother 30 years and older was more than two times likely to exclusively breastfeed than a younger mother. This also supports the work of Scarlett and others (1996) who found that maternal age and multiparity favoured exclusive breastfeeding. An unemployed mother was three times more likely to introduce water in the first month of life than an employed mother. As evidenced by al-Mazroui and others (1997) and Adejuyigbe and others (2008), some mothers gave water, semi solid food preparations and herbs during the first month of life.

The proportion of exclusive breastfeeding would probably increase if emphasis is placed on kangaroo mother care. Kangaroo mother care has been found to promote exclusive breastfeeding (Bier et al, 1996; Cattaneo et al, 1998; Ramanathan et al, 2001; Suman et al, 2008), was acceptable to mothers (Cattaneo et al, 1998; Ibe et al, 2004; Darmstadt et al, 2006; Suman et al, 2008), and could be practised at home (Gupta et al, 2007; Suman, 2008). The KMC level of knowledge was 61.2%. In this study, KMC knowledge was associated with maternal age ($p= 0.004$), education ($p= 0.017$) and occupation ($p= 0.017$). A woman 30 years and older was two to three times more likely to know of KMC than a woman less than 30 years. A woman with at least a primary education was nearly four times more likely to practise KMC than an uneducated woman. Similarly, an employed woman was three times more likely to practise KMC than an unemployed woman. Sadly however, Lincetto and others (2000) found that resistance to change by health staff, cultural problems and managerial difficulties were obstacles to successful implementation of KMC. This resistance according to Charpak and Ruiz-Pelaez (2006) was often related to local cultural practises.

In the study 97.5% of babies had started the vaccination schedule. This was significantly higher than the targeted 80% proposed by the Ghana Health Service in the 2007 Annual Report ($p < 0.0001$). However 61.2% received BCG in the first seven days of life. The reasons for the delay in start of immunization were unclear. There was no association or significant difference in immunization practises with respect to maternal age, marital status, occupation or parity. There however was a significant difference, $p= 0.028$, in educational status of the mother as the

proportion of babies immunized in the first week of life was significantly higher in the educated than the uneducated women. This is different from the work of Langkamp and others (2001) who found that low birth weight babies received immunization significantly later than normal weight babies.

The proportion of mothers using methylated spirit for cord care was very high, 92.6%. A few mothers however used herbal and local preparation for cord care and this was more common in women who delivered at home or attended to by traditional birth attendants. The use of herbs other than for cord care for various reasons was a worry as 15.7% of mothers used herbs. The reasons for herbal use are different from that found in Nigeria by Adejuyigbe and others (2008), or that found by al-Mazroui and others (1997) in the United Arab Emirates. Adejuyigbe and others (2008) found that herbal preparations believed to accelerate growth were given to neonates. In the study it was found that more than 25% of uneducated mothers and unemployed mothers used herbs. There was however, no significant difference in herbal practises in relation to mothers education ($p= 0.12$) and occupation ($p= 0.078$).

The proportion of neonates with neonatal jaundice was 15.7%. Practises to treat neonatal jaundice included the following; some mothers practised phototherapy using the sun as the light source whilst others fed their babies with glucose solution. As found by May and Hu (2000), mothers sought advice from different sources when their children were sick. Mothers also varied with respect to the importance they attached to sick children (Dettwyler, 1986).

5.3 Test of hypothesis

The proportion of low birth weight babies in the study was 18.8%. This was not statistically different from the UNICEF- WHO estimates for developing countries of 16.5% ($p= 0.562$), or the estimates for sub- Saharan Countries of 15% ($p= 0.322$). The proportion was however different from the estimate for Ghana of 11% ($p= 0.021$). This indicated that there was a significant increase in the incidence in the study population.

From the study results, there was no significant difference in the care of low birth weight and normal birth weight babies with respect to the following; breastfeeding initiation, exclusive breastfeeding, KMC practise, immunization or herbal practises. The finding on immunization between the two groups supported the work of Davis and others (1999) who found that low birth weight babies were vaccinated at levels approaching the general population. According

to Langkamp and others (2001) however, low birth weight children received their first doses of immunization significantly later than normal birth weight babies.

In the study, 75% of low birth weight babies were exclusively breastfed. This is significantly greater than that found by Scarlet and others (1996) which was 37.6% ($p < 0.001$). The proportion of mothers that exclusively breastfed their babies, was significantly lower in the low birth weight group than the normal birth weight group ($p = 0.0344$). A mother of a low birth weight baby was three and half times more likely to give her child water during the neonatal period than a mother of a normal weight baby. This supported the results of Adair and Popkin (1996) who found that low birth weight mothers were less likely to initiate breastfeeding and if they did, they were less likely to exclusively breastfeed.

There was however a significant difference in the proportion of mothers who introduced semi-solid and/ or liquid food between the two groups ($p = 0.0308$). A low birth weight mother was nearly ten times more likely to give her child semi-solid food in the first month of life than a normal birth weight mother.

The practise of KMC was also significantly lower in the low birth weight baby ($p = 0.0455$). The mother of a normal birth weight baby was nearly two and half times likely to practise KMC than the mother of a low birth weight baby.

Low birth weight babies were at risk of neonatal jaundice than normal birth weight babies ($p = 0.001$). This finding corresponds with the general theory that low birth weight babies are at increased risk of neonatal jaundice than normal birth weight babies (Behrman et al, 2006). Maternal practises to treat neonatal jaundice were similar in both groups.

Herbal practises were similar in both groups ($p = 0.73$). This was different from the findings of Adejuyigbe and others (2008) who found that herbal preparations believed to accelerate growth were given to low birth weight babies.

The above findings are worrying, and reflected poor maternal knowledge and care giving for low birth weight babies. As noted by Eriksson and Pehrsson (2005), the birth of a low birth weight baby comes with a lot of stress. Mothers therefore could resort to all manner of practises to enhance the weight and survival of their babies. The practises chosen depended to a large extent on the mother's knowledge of low birth weight, its complications and care for these infants and also on the society in which the mother found herself.

5.4 Intervention

Interventions designed to prevent neonatal death need to consider the traditional set up of the society. Thus different societies may require different strategies or approaches or even different interventions altogether. UNICEF recommends that every neonate be visited by a community health worker during the neonatal period. This is effective as demonstrated by Bang and others (1999; 2005) in India. However the cost implications are enormous and could serve as a barrier in resource poor developing countries. Issues such as cost of training of community health workers and cost involved in maintaining this intervention are what developing countries have to deal with. Usually in developing countries with donor support, the intervention is feasible but not sustainable.

Developing countries could learn from the Bolivian and Nepal strategies where women were encouraged to participate in groups (The World Health Report, 2005). As Ghanaians are predominantly Christian or Moslem and belong to one church or mosque, there could be the strengthening of already existing groups and/ or creation of new women groups to promote knowledge in child care practises buttressing that received from health personnel. These groups could be stratified based on age and socioeconomic status. Similarly men's groups and fellowships should be encouraged. All such groups should be registered with the District Health Administration and sponsorship for health programs should be both the responsibility of the group and government through the District Health Administration and District Assembly. The District Health Administration should provide resource persons and where possible materials for health education and promotion, whereas the group should deal with issues of organization and entertainment. The advantages of this approach would be as follows:

1. Promoting unity and bonding between group members.
2. Ciphering of health message with clearing of doubts on issues pertaining to health.
3. Health message directed and targeted at audience.
4. Ongoing discussion of health issues within members enhancing their understanding on health issues.
5. The control of all health education from a central point which is the district health administration.
6. The use of local health personnel as resource personnel enhancing their development and improving their knowledge.
7. The creation of a much more vibrant and effective district health system meeting the health needs of the district.

Resource poor communities could use such a strategy to organize ‘mother clubs’ at antenatal clinics or in the community to promote maternal and child health.

Districts with radio stations could use these media to promote health by making announcements on impending meetings and also use these media to give talks on general health issues.

This strategy could then be modified to meet the needs and aspirations of each community in the district and country, the mode of which would differ from community to community even within the same district.

Chapter 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

In the study, 82.2% of mothers had a negative perception of low birth weight babies. The negative perception was common in mothers 30 years and older and in women with two or more children. 18.4% of mothers with a negative perception associated low birth weight babies with supernatural factors. 92.6% of mothers perceived that low birth weight babies were vulnerable. Vulnerability was not associated with background characteristics of mothers. Mothers perceived immunization and warmth provision as less important to feeding and access to health for low birth weight survival. Mothers recommended breast milk and formula feed for low birth weight babies.

82.6% of mothers initiated breastfeeding within 24 hours after delivery. Breastfeeding initiation was not associated with birth weight or maternal characteristics. 82.6% exclusively breastfed their babies within the first month of life. There was no significant difference in exclusive breastfeeding in terms of maternal background characteristics or birth weight. There was however a significant difference in the introduction of semisolid food between low birth weight and normal birth weight babies with higher proportions in low birth weight babies.

The knowledge and practise of kangaroo mother care were significantly lower in uneducated and unemployed mothers, women less than 30 years and mothers of low birth weight babies.

Despite the high proportion of reported vaccination which was 97.5%, 61.2% of babies received BCG immunization within the first week of life. Immunization practises were similar with respect to maternal age, marital status, occupation, and birth weight. However, babies of uneducated mothers received BCG significantly later than babies of educated mothers.

Neonatal jaundice was more common in low birth weight babies than normal birth weight babies. However, maternal practises to correct jaundice were similar. Herbs were used by 15.7% of mothers. There was no significant difference in herbal practises during the neonatal period by maternal background characteristics or by birth weight. .

6.2 Recommendation

From the results of the study, recommendations are divided into short, medium and long term.

6.2.1 Short term recommendation

In the short term, the Metropolitan Health Administration and Metropolitan Assembly should embark on a massive campaign to create awareness of the dangers neonates but especially low birth weight babies face. This should target all women of child bearing age in the metropolis, health facilities including private maternity homes and private clinics, and traditional birth attendants. The need for exclusive breastfeeding, early immunization, warmth provision and management of jaundice especially for low birth weight babies should be stressed during such educational campaigns.

Health personnel especially, those involved in the direct care of pregnant women and neonates should be adequately trained to deliver special counseling services to mothers of low birth weight babies at birth and during the neonatal period.

6.2.2 Medium term recommendation

In the medium term, efforts should be made to encourage ‘mother and baby’ women groups that would have the sole aim of improving the level of knowledge of women on maternal and child health issues. This initiative can be undertaken by the Metropolitan Assembly and Health Administration, non-governmental organizations and bilateral and multilateral agencies. The supervision of such women groups should solely be the responsibility of the Metropolitan

Health Administration. Negative perceptions of low birth weight and negative practises influencing child survival could be corrected effectively in such groups.

Other interventions can be designed to improve the level of knowledge of mothers on low birth weight and neonatal care taking into context the societal and traditional norms of the society.

6.2.3 Long term recommendation

In the long term, there should be the formulation and effective implementation of policies aimed at improving knowledge of low birth weight at all training institutions especially health and social training institutions.

6.2.4 Areas of research

Research on the reasons for introducing water and food during the neonatal period in the metropolis could be carried out to understand neonatal feeding practises from the mother's perspective. This would help identify beliefs and perceptions that influence exclusive breastfeeding.

Research on the delay of immunization has to be carried out to ascertain the causes of the delay. A monitoring scheme can then be instituted to monitor the progress of exclusive breastfeeding and immunization.

To achieve MDG4, there should be concerted efforts to improve the level of knowledge of mothers on neonatal care, which thus may help change wrong perceptions of low birth weight and improve home care practises of neonates.

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APPENDIX I

Consent Form

RESEARCH NUMBER:

Name of mother:

Address of mother:

Telephone number:

TOPIC: ASSESSMENT OF NEONATAL CARE IN THE SEKONDI TAKORADI METROPOLIS

Low birth weight (birth weight less than 2500g) is a major challenge to the health system of a country. Low birth weight baby could be at risk of the following: feeding difficulties, severe cold, infections and yellow eyes. Owing to the poor health system, the care of these infants is mainly by the parents, family and community. The study seeks to assess the maternal perceptions of low birth weight babies and to find out the home care practises during the first month of a child's life. The findings of this study could be used to plan health interventions to improve the care and survival of these infants at home.

Researcher: **Dr. Samuel Ayamba** is pursuing an MPH in Population and reproductive Health at SMS- KNUST. You can freely reach him on ayamba@doctor.com or 0244885942 with questions/ suggestions etc or contact any of the research assistants.

INTRODUCTION AND CONSENT

Hello. My name is and I am working with Dr Ayamba. We are conducting a survey to find out the maternal perceptions of low birth weight babies and the home care practises of babies during their first month of life. The information will help us make recommendations to the government and stakeholders to plan and draw up programmes that will improve the health of all children but especially low birth weight infants. Participation in this survey is voluntary and refusal to participate (or discontinue participation) will involve no penalty or loss of medical benefit to you and/ or your family. We would however appreciate your participation in this survey. The survey will last between 20-30 minutes to complete. The information you provide will be kept confidential and will not be shown to other persons. Please, you can stop the interview at any time.

“I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any question I have asked have been answered to my satisfaction. I consent voluntarily to participate as a subject in this study and understand that I have the right to withdraw from the study at any time without it in any way affecting my further medical care”.

Do you agree to be interviewed? Yes [☐] NO [☐] **if no do not proceed**

Signature of interviewer Date

Thanks for your participation in this research.

APPENDIX II

Questionnaire version I

A. BACKGROUND INFORMATION

101. Age of mother (*in completed years*):

102. Have you ever attended school? Yes ☐ No ☐ ***If no proceed to 104***

103. If yes (*in 102*), what is the highest formal education attained (*please indicate number*):
[]

1. Primary
2. Junior secondary/ middle school
3. Senior secondary/ technical/ vocational
4. Postsecondary
5. Tertiary

104. Occupation of mother:

105. Marital status (*please indicate number*): [] (*if 2, 3 or 4 proceed to 109*)

1. Married/ living together
2. Single
3. Divorced
4. Widowed

106. Has the child's father ever attended school? Yes ☐ No ☐ Don't know ☐

107. If yes (*in 106*), what is the highest formal education father attained (if married/ living together) (*please indicate number see 103*): []

108. Occupation of father

109. Type of housing: []

1. Self contain/ semi-detached
2. Compound

110. Source of water:

111. Total number of children born (*including current delivery*): 112. Number of children alive:

113. If any child is dead, at what age did he/ she die:

	IUFD/ SB	0-1 month	2mth-1year	>1 year

IUFD- intrauterine fetal death; SB- still birth (born dead); mth- month

114. Religion []

1. Christian
2. Moslem
3. Traditional

4. Other (please specify)

B. PERCEPTION OF CHILD BORN

201. Did you encounter any pregnancy related problem? Yes [] No [] *if no ► 203*

202. If yes (*from 201*), what were the problems

.....
.....

203. How old was the pregnancy when you gave birth? (*in months*)

204. Were there any problems during delivery? Yes [] No [] *if no ► 206*

205. If yes (*from 204*), can you describe the nature of the problem

.....
.....

206. Were you educated on child care when discharged? Yes [] No []

207. Were you happy that you gave birth to this child? Yes [] No [] (*if no ► 209*)

208. (*from 207*) How happy were you? []

1. Not at all happy
2. Happy
3. Very happy
4. Indifferent

209. Did you want the child to be bigger, smaller or the size was okay? []

1. Bigger
2. Smaller 3. Same size

210. (*from 209*) Why?

.....
.....

211. Did you anticipate that the child would live or die? []

1. Live
2. Die
3. Didn't think of it

212. (*from 211*) And why

.....
.....

213. Did you get the sex you wanted? Yes [] No [] Didn't care of sex []

If not married/ living together, proceed to 216

214. *If married/ living together*, what did your husband say about the child *i.e. any comments?*

.....
.....

215. Was your husband supportive in taking care of the child? []

1. Not at all supportive
2. A bit supportive
3. Relatively supportive
4. Very supportive
5. Indifferent

216. On the scale **(see 215)** were your relatives supportive? []

217. Did a health worker pass a comment you regard as negative when the child was born?

Yes [] No [] **if no ► 219** 218. *If yes (from 217), what was the comment*

.....
.....

219. Have health workers been supportive? Yes [] No []

220. Would you like to give birth to a little/ small baby? Yes [] No []

221. What do you think of giving birth to little/ small babies.

.....
.....

222. What advice will you give to women who give birth to little/ small babies?

.....
.....
.....

223. Can you mention some signs to look out for in taking care of small/ little infants? Yes [] No [] **if no ► 225**

224. What are the signs to look out for?

.....
.....
.....

225. What would you like to be done to improve the standard of care given to babies at health facility?

.....
.....
.....

C. CARE OF THE BABY

301. Was the baby bathed while you were at the health facility? Yes [] No [] **if no ► 304**

302. If yes (**in 301**) by whom: []

1. Health worker
2. Mother-in-law
3. Own mother

4. Other (specify please)
303. When was the bathing done? []
1. Immediately after delivery
 2. 1 day after delivery
 3. 2days or more
 4. I don't know
 5. I cannot remember
304. Was breastfeeding initiated within the first 24 hours after delivery? Yes [] (► 306) No []
305. If no (*in 304*), why:
306. Did the child receive injection after he/she was born? []
1. Yes
 2. No
 3. I don't know
307. Was the child admitted to a hospital immediately/ shortly after birth? Yes [] No [] (► 309)
308. If yes (*in 307*), where and why.....
- (*TRACE BACK TO BIRTH AND ADMISSION DATA- Principal Investigator*)
- Diagnosis.....
309. What was used to tie the cord after delivery at the health centre? []
1. Clips
 2. Thread
 3. Other (specify)
310. What was used to clean (apply on) the umbilical cord till it fell off (*at home*)?
-
311. Did the child have yellow eyes after birth? Yes [] No [] (► 314)
312. If yes (*in 311*), how old was the child when he/she had yellow eyes?
313. What did you do (*from 311-312*)?
-
-

Prevention of hypoglycaemia

314. Did you ever breastfeed the baby? Yes [] (► 316) No []
315. If no (*in 314*), what food did you give child (*in first month*)?
-
316. If you breastfed, how old was the child when you started giving water? []
1. Birth to 1 week
 2. 1 week to 1 month
 3. 2 – 6 months

4. Never (in first 6 months)- i.e started after 6 months

317. How old was child when you started liquid food (koko, or soup) - *see scale in 316*? []

318. Did you give the child any other thing other than food/breast milk or water (*during the first month of life*)? Yes [] No [] (► 320)

319. If yes (*in 318*) what was given and why?
.....

Prevention of hypothermia

320. Can you please describe how baby is kept warm?
.....
.....

321. Do you know of skin to skin attachment to provide warmth for the baby? Yes [] No [] (► 324)

322. If yes (*in 321*), have you ever practised it? Yes [] (► 324) No []

323. If no (*in 322*), why?
.....

324. Were you taught of the technique in doing skin-to-skin warmth provision at ANC or after delivery? Yes [] No []

Immunization and weighing

325. Do you have a card/ book where vaccination records are written? Yes [] No [] (► 330)

326. If yes (*in 325*), can I see it (*please indicate if card/ book is seen*) []

1. Seen
2. Not seen
3. No card/ book

CHECK/ INSPECT CARD/ BOOK (327- 329)

327. Is the date of birth written? Yes []/...../..... No []

328. Is the birth weight written? Yes []kg No []

329. Record all immunizations into the table below

Date of birth:		dd/ mm/ yy
At BIRTH- 1wk	BCG	
	OPV 0	
At 6 weeks	PENTA 1	
	OPV 1	
At 10 weeks	PENTA 2	
	OPV 2	

If vaccination after the stipulated time, ask why?

.....

.....
330. (*if no in 325*) Have you vaccinated your child? Yes [] No []

Health seeking behavior

331. (*from birth till 1 month*) Was the child ever sick? Yes [] No [] (► 337)

332. If yes, what did you do first when child was sick?
.....
.....

333. From whom did you seek advice from, when the child was sick? []

1. Relative
2. Friends
3. Health worker
4. Others (please specify)

334. Did you ever take the child to hospital when the child was sick? Yes [] No []
(► 337)

335. If yes, which health facility (*get records to health facility/facilities*).....

336a. Notes from Immunization book (indicate **nil** if treatment/ diagnosis not written) :

.....
.....

336b. **Principal investigator-TRACE TO HEALTH FACILITIES AND RECORD DIAGNOSIS AND TREATMENT:**

.....

Herbal practises

337. Did you ever use/ give herbs/ herbal preparation on/ to the child (*first month of life*)? Yes [] No [] (► 340)

338. If yes (*in 337*), how was it given? Tick all that apply

- [] Orally
- [] In vagina (if female)
- [] As enema (per rectum)
- [] Applied on the skin (which part of the body specify) []
- [] Into the ears and/ or eyes

339. Can you tell me the reason for giving the child herbs?

.....
.....

Others

340. What other things do you do to ensure that you child is healthy and well.

.....
.....
.....

D. CHILD

401. (Optional) Name of child:

.....

402. Sex: male ☐ female ☐

403. Is the child alive now? Yes ☐ No ☐ *if yes end interview, proceed to 500*

404. When did s/he die (how old was child)?

405. Can you explain what happened?

.....
.....
.....

406. Did child die in a health facility? Yes ☐ No ☐ (► 500)

407. If yes, where and when

(trace to facility- history and cause of death- **Principal investigator**)

.....
.....

500. THANK YOU VERY MUCH FOR YOUR TIME AND FOR PARTICIPATING.

We will give you feedback later. Feel free to contact us at any time. You are very much welcome.

APPENDIX III

Questionnaire Version II

A. BACKGROUND INFORMATION

101. Age of mother (in completed years):

102. Have you ever attended school? Yes ☐ No ☐ *If no proceed to 104*

103. If yes (*in 102*), what is the highest formal education attained (please indicate number):

[]

1. Primary
2. Junior secondary/ middle school

3. Senior secondary/ technical/ vocational
4. Postsecondary/ Tertiary

104. Occupation of mother:

105. Marital status (*please indicate number*): [] (*if 2, 3 or 4 proceed to 109*)

1. Married/ living together
2. Single
3. Divorced
4. Widowed

106. Has the child's father ever attended school? Yes [] No [] Don't know []

107. If yes (*in 106*), what is the highest formal education father attained (if married/ living together) (*please indicate number see 103*): []

108. Occupation of father

109. Type of housing: []

1. Self contain/ semi-detached
2. Compound

110. Source of drinking water:

111. Total number of children born (*including current delivery*): 112. Number of children alive:

113. If any child is dead, at what age did he/ she die:

	IUFD/ SB	0-1 month	2mth-1year	>1 year

IUFD- intrauterine fetal death (died in womb); SB- still birth (born dead); mth- month

114. Religion []

- 1) Christian
- 2) Moslem
- 3) Traditional
- 4) Other (please specify)

B. (I) PERCEPTION OF CHILD BORN

200. Place of delivery:

201. Did you encounter any pregnancy related problem? Yes [] No [] (*if no ► 203*)

202. (*If yes from 201*), what were the problems

.....

.....

203. How old was the pregnancy when you gave birth? (*in months*)

204. Were there any problems during delivery? Yes [] No [] (if no ► 206)

205. (If yes **from** 204), can you describe the problem

.....
.....

206. If delivered at a health centre, were you educated on child care when discharged?

Yes [] No []

207. Were you happy that you gave birth to this child? Yes [] No []

208. Did you get the sex you wanted? []

1. Yes
2. No
3. Didn't care of sex

209. Was your partner supportive (**money**) in taking care of the child? []

1. Not at all supportive
2. A bit supportive
3. Relatively supportive
4. Very supportive
5. Indifferent

210. Are/ were your relatives supportive (**physical/ emotional**) taking care of the baby? []

1. Not at all supportive
2. A bit supportive
3. Relatively supportive
4. Very supportive
5. Indifferent

211. Did a health worker pass a comment you regard as negative when the child was born?

Yes [] No [] (if no ► 213) 212. (If yes **from** 211), what was the comment

.....
.....

213. Have health workers been supportive? Yes [] No []

214. What would you like to be done to improve the standard of care given to babies at health facility?

.....
.....
.....

C. CARE OF THE BABY

Prevention of hypoglycaemia

301. Did you ever breastfeed the baby? Yes [] (► 303) No []

302. If no (**in** 301), what food did you give child (**in first month**)?

.....

303. After delivery, was breastfeeding initiated within the first 24 hours? Yes [] (if yes, ► 305) No []

304. If no (*in 303*), why:

.....
.....

305. Have you started giving the child water? Yes [] No [] (► 307)

306. (*If yes in 305*), how old was the child when you started giving water? []

- 1) Birth to 1 week
- 2) 1 week to 1 month
- 3) 2 – 6 months
- 4) after 6 months

307. Have you started liquid food (koko, soup)? Yes [] No [] (► 309)

308. (*if yes in 307*) How old was child when you started liquid food (koko, or soup)? []

- 1) Birth to 1 week
- 2) 1 week to 1 month
- 3) 2 – 6 months
- 4) after 6 months

309. (*during the first month of life*) Did you give the child any other thing other than food/breast milk or water? Yes [] No [] (► 311)

310. (*If yes in 309*) what was given and why?
.....

Prevention of hypothermia

311. (*after delivery*) Was the baby bathed? Yes [] No [] *if no ► 314*

312. If yes (*in 311*) by whom: []

- 1) Health worker
- 2) Mother-in-law
- 3) Own mother
- 4) Other (specify please)

313. When was the bathing done? [] 1) Immediately after delivery

- 2) 1 day after delivery
- 3) 2 days or more
- 4) I don't know
- 5) I cannot remember

314. Can you please describe how baby is/was kept warm?

.....
.....

315. Do you know of skin to skin attachment to provide warmth for the baby? Yes [] No [] (► 318)

316. (*If yes in 315*), have you ever practised it? Yes [] (► 318) No []

317. (*If no in 316*), why?
.....

318. Were you taught of the technique in doing skin-to-skin warmth provision at ANC or after delivery? Yes [] No []

Immunization and weighing

319. Did the child receive injection immediately after he/she was born (*if delivered at health facility*)? []

- 1) Yes
- 2) No
- 3) I don't know

320. Do you have a card/ book where vaccination records are written? Yes [] No [] (► 325)

321. (*If yes in 320*), can I see it (*please indicate if card/ book is seen*) []

- 1) Seen
- 2) Not seen
- 3) No card/ book

CHECK/ INSPECT CARD/ BOOK (322- 324)

322. Is the date of birth written? Yes []/...../..... No []

323. Is the birth weight written? Yes []kg No []

324. Record all immunizations into the table below

Date of birth:		dd/ mm/ yy
At BIRTH- 1wk	BCG	
	OPV 0	
At 6 weeks	PENTA 1	
	OPV 1	
At 10 weeks	PENTA 2	
	OPV 2	

If vaccination after the stipulated time, ask why?

325. (*If no in 320*) Have you vaccinated your child? Yes [] No []

Health seeking behavior

326. Was the child admitted to a hospital immediately/ shortly after birth (*first week of life*)? Yes [] No [] (► 328)

327. If yes (*in 326*), (a) where

.....

(b) when/...../..... and

(c) why

.....

328. What was used to tie the cord after delivery? []

1) Rubber Clips 2)

Thread

3) Other (specify)

329. **At home**, what was used to clean (apply on) the umbilical cord till it fell off?

.....

330. Did the child have yellow eyes after birth? Yes [] No [] (► 333) 331. (If yes **in**

330), how old was the child when he/she had yellow eyes?

332. What did you do (**from 330-331**)?

.....

.....

333. (*from birth till 1 month*) Was the child ever sick? Yes [] No [] (► 339)

334. (If yes **in 333**), what did you do first when child was sick?

.....

.....

335. From whom did you seek advice from, when the child was sick? [] 1) Relative

2) Friends

3) Health worker

4) Others (please specify)

336. Did you ever take the child to hospital when the child was sick? Yes [] No []
(► 339)

337. If yes, which health facility (*get records to health facility/facilities*).....

338. Notes from Immunization book (indicate **nil** if treatment/ diagnosis not written) :

.....

.....

Herbal practises

339. Did you ever use/ give herbs/ herbal preparation on/ to the child (*first month of life*)? Yes
[] No [] (► 342)

340. (If yes **in 339**), how was it given? (*Tick all that apply*)

[] Orally (by mouth)

[] In vagina (if female)

[] As enema (per rectum)

[] Applied on the skin (which part of the body specify) [

] Into the ears and/ or eyes

341. Can you tell me the reason for giving the child herbs?

.....

.....

Others

342. What other things do you do to ensure that you child is/ was healthy and well.

.....

.....

D. CHILD

401. Sex: male ☐ female ☐

402. Is the child alive now? Yes ☐ (► 215) No ☐ (*sympathize with mother*)

403. When did s/he die (how old was child)?

.....

404. Can you explain what happened?

.....

.....

.....

405. Did child die in a health facility? Yes ☐ No ☐ (► 215)

406. If yes (*in 405*), where
and when

.....

B. (II) PERCEPTION OF LOW BIRTH WEIGHT

215. Would you like to give birth to a little/ very small baby/ premature baby? Yes ☐ No ☐

216. Why

.....

.....

217. Do you think very small/ premature babies need more attention (CARE) than other babies?
Yes ☐ No ☐ (► 219)

218. (*If yes in 217*) In what ways do they need more care? (*tick all that apply*)

☐ feeding

☐ warmth provision

☐ immunization

☐ going to hospital when sick

☐ giving herbs

☐ others (specify)

.....

219. What food will you recommend for small/ premature babies? ☐ breast milk

☐ formula feeds (lactogen, SMA, cerelac, etc) ☐

☐ koko

☐ others (specify)

220. Are herbs good for very small/ premature babies? Yes ☐ No ☐ (► 500)

221. (*If yes in 220*), why

.....

500. THANK YOU VERY MUCH FOR YOUR TIME AND FOR PARTICIPATING.

We will give you feedback later. Feel free to contact us at any time. You are very much welcome.

KNUST

