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FACTORS INFLUENCING EXCLUSIVE BREASTFEEDING AMONG MOTHERS WITH INFANTS IN KINTAMPO-NORTH MUNICIPALITY

BY

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DECLARATION

I, JOANA YINPAAB DUUBON hereby declare that except for the precise references of work belonging to other people which have been appropriately acknowledged, this is my own work. As much as I am aware of, it contains no material previously presented by another person nor material which has been accepted for the award of any other degree in this University or elsewhere.

Signature …… **Date…….**

Joana Yinpaab Duubon

(Student)

Signature..... **Date……..**

Dr. Franklin Glozah

(Supervisor)

DEDICATION

I dedicate this work to my mother Mrs. Alice Duubon who works and prays so hard. God bless you for being an awesome mother.

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ABSTRACT

Background: Exclusive breastfeeding is essential for optimal survival, development and growth of infants. World Health Organization and United Nations Children's Fund recommend that infants are exclusively breastfed from birth up to six months of age to achieve its benefits. However, exclusive breastfeeding rates across the world and in Ghana are below the recommended targets. This study's aim was to investigate the socio-demographic factors, socio-cultural factors as well as identify attitudes mothers have that influence breastfeeding exclusively in the Kintampo-North Municipality.

Methods: A cross-sectional study design was carried out among 357 women of reproductive age (15-49 years) with infants zero to six months attending child welfare clinic in Kintampo. Data were collected using a structured questionnaire with closed ended questions. Logistic regression analysis was conducted to test for strength of association of socio-demographic characteristics, socio-cultural characteristics and attitudes of participants with exclusive breastfeeding.

Results: The proportion of participants that practiced exclusive breastfeeding was 68.6%. Participants who had tertiary education were 3.32 times more likely to exclusively breastfeed compared to participants with no formal education. Participants who were semi-skilled and skilled were less likely to exclusively breastfeed. Being a professional and other government employee were associated with the likelihood of breastfeeding exclusively. Again, participants who relied on Midwife/Nurse for breastfeeding information were more likely to exclusively breastfeed compared to those who relied on their mother in-law. Participants with cultures that had beliefs of giving baby water to drink before/during bathing were more likely to breastfeed exclusively compared to those

with no belief of giving water. An association was found between participants whose culture indicated that breastfeeding is good with the likelihood of exclusive breastfeeding. Furthermore, participants who said it was difficult for them to breastfeed exclusively for six months and those who said it was difficult to breastfeed on demand were less likely to exclusively breastfeed.

Conclusion: Exclusive breastfeeding practice is sub-optimal in Kintampo-North Municipality. Exclusive breastfeeding practice is influenced by participants' level of education, most usual occupation source and most relied source of information on breastfeeding. Health staff should intensify awareness of exclusive breastfeeding and its benefits to mothers, their spouses, families, traditional leaders and influential persons in community. Furthermore, health staff should build mother's confidence by teaching appropriate techniques in expressing, storing and cup/spoon feeding.

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LIST OF ABBREVIATIONS

AAP:	American Association of Pediatrics
ANC:	Antenatal Clinic
BFHI:	Baby Friendly Hospital Initiative
CWC:	Child Welfare Clinic
C-IYCF:	Community-Infant and Young Child feeding
DHSS:	Demographic and Health Surveillance System
EMBRACE:	Ensure Mother and Baby Regular Access to Care implementation research
EBF:	Exclusive breastfeeding
FAO:	Food and Agriculture Organization of the United Nations
GDHS:	Ghana Demographic and Health Survey
GHS:	Ghana Health Service
GSS:	Ghana Statistical Service
MICS:	Multiple Indicator Cluster Survey
NICU:	Neonatal Intensive Care Unit
LAM:	Lactation Amenorrhoea Method
KAP manual:	Knowledge, Attitude, Practice manual
KHRC:	Kintampo Health Research Centre

SDGs:	Sustainable Development Goals
UN:	United Nations
UNICEF:	United Nations Children's Fund
WHO:	World Health Organization

DEFINITION OF TERMS

Colostrum: the first fluid, often yellowish in color that comes from the breast immediately after birth. It is high in nutrients such as protein and anti-bodies which serve as the new born's first immunization

Exclusive breastfeeding: feeding an infant only breast milk, no water, other liquids and solid foods except mineral, vitamin or medicine syrups/drops and oral rehydration solution (ORS). It is a process and recommended to be practiced for the first 6 months of life

Infant: a baby 0 up to 6 months of age

Mother: a woman in the reproductive age group 15-49 years with an infant below 6 months of age

Weaning: process of gradually introducing other foods to an infant leading to the cessation of breastfeeding

Wet Nurse: a woman who breastfeeds another woman's baby. She also cares for and nurtures the baby for a fee

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

Breastfeeding is a natural practice beneficial to both infant and mother. Breast milk contains all the nutrients needed by infants to grow and develop and as such, infants who are breastfed are given the opportunity to have a good start in life. Infant feeding therefore should be viewed both as a lifestyle decision as well as a public health concern that is needed especially in developing countries to reduce morbidity and mortality among infants (WHO, 2016; American Academy of Pediatrics, 2012). According to WHO/UNICEF (2014), giving an infant only breast milk is exclusive breastfeeding. This infant is not given any liquid, water or solid except medicines, vitamins, mineral syrups and/or drops as well as oral rehydration solution. This practice is a process and is recommended from birth till when infant is six months old. The longer the period of breastfeeding exclusively, the better the child is able to grow and develop. Mothers who are provided with information and supported by their families, societies, communities and health systems will be in a better position to exclusively breastfeed.

There are significant benefits associated with exclusive breastfeeding to infants, mothers and the society at large. When mothers exclusively breastfeed their infants, they are protected from being exposed to harmful pathogens that may be found in other breast milk substitutes or feeds given to babies resulting in diarrhea and other infections and subsequently death (Emmanuel & Oyewole, 2012; Tadele, Habta, Akmel, & Deges, 2016). In the long term, children who are exclusively breastfed become more intelligent,

are able to further their education thereby becoming productive to themselves, the society in which they live in and the country at large (Wanjohi et al., 2017).

Many infants unfortunately are denied the chance to start well in life as a result of not being exclusively breastfed. Studies have shown that only 38% of infants are exclusively breastfed globally, a decrease from 43% from previous years (Asare, Preko, Baafi, & Dwumfour-Asare, 2018). This situation is not different in developing countries including Ghana. The GDHS (2014) reported that 52% of infants are breastfed exclusively.

Infants who miss the opportunity of being breastfed are fourteen times more likely to die as compared to those who are fed breast milk only from birth till their sixth month (UNICEF, 2017; Asare et al., 2018). Exclusive breastfeeding is crucial in the early part of life as infants who are one and two months old and not exclusively breastfed are six times more prone to dying due to diseases that are infectious such as diarrhoea. The risk of dying they say is about four times when the infant is between 2 to 3 months of age as compared to infants that are breastfed (Tadele et al., (2016).

Studies have shown that starting early and exclusively breastfeeding can prevent more than 800,000 deaths which represent about 13% of all deaths in children who are below the age of five years in less developed countries including Ghana (Tadele et al., 2016).

Maternal level of education, age, socio-economic status, religion, ethnicity, occupation, marital status, cultural beliefs, knowledge as well as attitude have been cited in previous studies to contribute to the fewer number of infants who are breastfed exclusively (Mogre, Dery, & Gaa, 2016; Tampah-Naah & Kumi-Kyereme, 2013).

1.1 Problem Statement

Although exclusive breastfeeding is vital for infant development and health, its practice is low across the world. Studies have shown that the number of infants who are exclusively breastfed have seen a general decline (Asare et al., 2018). Ghana's 52% exclusive breastfeeding rate (GDHS, 2014) falls short of the 80% national target stipulated in the GHS (2016) annual report as well as the recommended 90% rate set by UNICEF (2017) for developing countries. Despite the 70% exclusive breastfeeding rate reported in the MICS (2011) for Brong Ahafo Region, the rate still falls below the targets for both national and developing countries with variations across districts and communities within the same region. Several studies that have been conducted to determine factors that influence exclusive breastfeeding were carried out in urban areas. As such, there is limited evidence of the factors that pertain to the practice of exclusive breastfeeding among mothers with infants in rural areas such as Kintampo resulting in less understanding and ineffective strategies to help improve the practice.

1.2 Research questions

The research questions of this study are:

1. What is the proportion of mothers with infants who practice exclusive breastfeeding?
2. What socio-demographic factors influence exclusive breastfeeding among mothers with infants in Kintampo?
3. What socio-cultural factors influence exclusive breastfeeding among mothers with infants in Kintampo?

4. What is the attitude of mothers with infants towards exclusive breastfeeding in Kintampo?

1.3 Research objectives

1.3.1 General objective

The main aim of this study was to identify factors influencing exclusive breastfeeding among mothers with infants in Kintampo.

1.3.2 Specific objectives

The specific objectives of this study are:

1. To determine the proportion of mothers with infants who exclusively breastfeed in Kintampo.
2. To identify the socio-demographic factors that influence exclusive breastfeeding in Kintampo.
3. To identify the socio-cultural factors that influence exclusive breastfeeding in Kintampo.
4. To examine attitudes of mothers with infants towards exclusive breastfeeding in Kintampo.

1.4 Significance of the study

The study will aid in further understanding the problem of low practice of exclusive breastfeeding in Kintampo as well as help to refine strategies to support mothers, infants, families and communities improve exclusive breastfeeding in the Kintampo North

Municipality. Furthermore, findings will add to literature and serve as vital information for future studies.

1.5 Conceptual Framework

From the conceptual framework in Figure 1.5 exclusive breastfeeding among mothers is influenced by three main factors. The dependent variable is exclusive breastfeeding whiles the independent variables are factors that influence exclusive breastfeeding which include socio-demographic characteristics, socio-cultural factors and attitude of mother towards exclusive breastfeeding. Under socio-demographic characteristics, age, education, ethnicity, socio-economic status, marital status, occupation and religion of the mother play a crucial role in determining whether or not a mother with an infant practices exclusive breastfeeding. Some socio-cultural factors such as lifestyle, customs and values that characterize the society where the mother lives also drive her decision to give only breast milk from birth till when her infant is up to six months old. The way a mother feels and thinks is important in determining if she will exclusively breastfeed or not. A mother's socio-cultural characteristics influence her attitude. There is also an interaction between mother's socio-demographic characteristics and her attitude. All these independent variables interact and influence one another to affect exclusive breastfeeding.

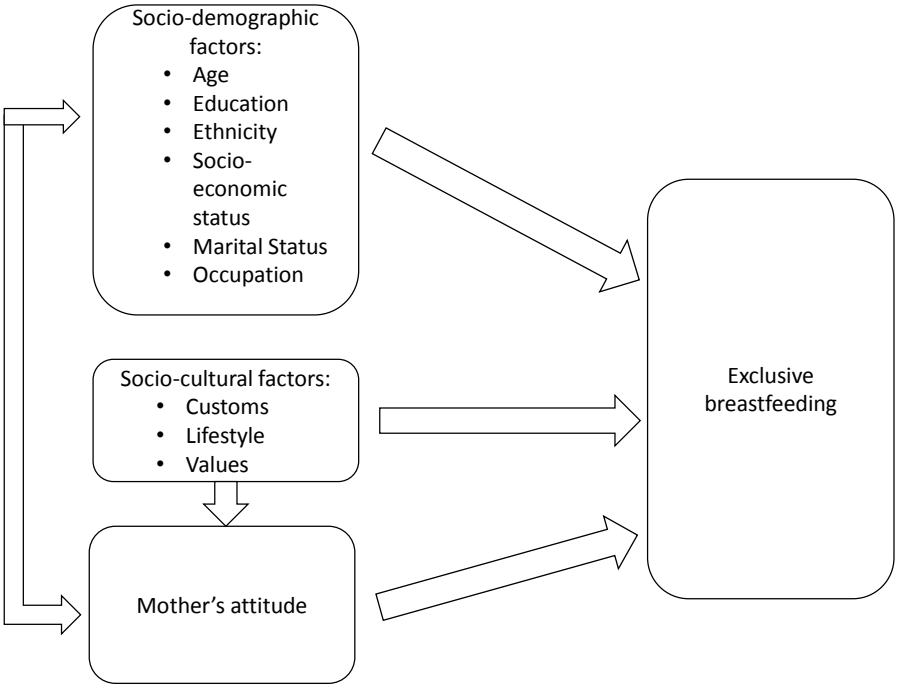

Figure 1.5: Conceptual framework of factors influencing exclusive breastfeeding. Adapted from Nguyen et al., (2017).

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter takes a look at various studies that have been carried out in the area of exclusive breastfeeding. It looks at the SDGs, history of breastfeeding, the situation in the global context, in Africa and Ghana, what benefits are derived by infants, mothers and exclusive breastfeeding practices. Furthermore, this chapter entails a review of studies conducted in the areas of socio-demographic characteristics, socio-cultural characteristics and mother's attitude towards breastfeeding exclusively. The rest are interventions to improve breastfeeding exclusively as well as consequences that follow if mothers do not breastfeed their infants.

2.1 Sustainable Development Goals (SDGs) and SDG 3

The SDGs according to the UN (2017), are a set of goals put together to propel countries to work towards reducing and ultimately ending poverty, protect the planet as well as make sure that all people enjoy peace and prosperity by the year 2030. The SDGs which is also called Global Goals has 17 broad areas that are interconnected with area specific targets. Coming into effect in 2016, 193 countries including Ghana have adopted the SDGs and are working to achieve its targets.

Sustainable Development Goal 3 seeks to ensure that lives are healthy as well as promote the well-being for all and at all ages. Poor nutrition from birth up to six months of an infant result in malnutrition which leads to diseases and death. In order to achieve SDG 3,

countries must start right by exclusively breastfeeding infants and doing so for the first six months of the infant's life.

2.2 The history of breastfeeding

Feeding practices of infants have evolved over the years to include wet nursing, the use of feeding bottles as well as formula feeds (Stevens, Patrick, & Pickler, 2009). As far back as 2000 BC, breastfeeding was seen to be the best and as such a religious necessity for every child (Papastavrou et al., 2015). People saw the childhood period to be a period where children were weak and at risk of falling sick and being malnourished thus, breast milk was believed to contain all the infant needed to grow and develop both physically and psychologically. Mothers who were unable to breastfeed due to the inability to produce milk or resulting from death resorted to the use of wet nurses for provision of breast milk for their babies. A wet nurse is said to be any woman who breastfeeds another woman's child. To be a wet nurse means that one should have given birth and lactated before. In ancient Egypt, Greece and the Roman Empire era, both women whose social status was high as well as ordinary women and their families resorted to the use of wet nurses when they faced challenges with breastfeeding.

It was during the 16th century that wet nursing became a matter of concern. Many people started advocating for mothers to breastfeed their own children unless they are ill or unable to breastfeed. This was because they realized that infants bonded with whoever breastfed, cared for and nurtured them (Papastavrou et al., 2015; Stevens et al., 2009).

The industrial revolution's emergence from late 18th century to 19th century saw the relocation of many families from rural to urban areas. Women in these low-income

families had to work for longer hours to contribute financially to the upkeep of their homes which made them unable to breastfeed. They resorted to the use of wet nurses and that in turn increased infant mortality (Stevens et al., 2009).

Artificial feeding dates far back to ancient times where all sorts of bottles were used to feed infants. The difficulty in cleaning these feeding bottles as well as poor storage of milk and sterilization led to bacterial infections resulting in one third of all infants who were fed artificially in the first twelve months of their life dying (Weinberg, 1993). Justus Von Liebig, who was a German chemist invented the very first breast milk substitute in the 19th century followed by a fellow German scientist named Henri Nestle who also innovated a breast milk substitute called 'farinelactee' when he arrived in Switzerland. Farinelactee was a cereal flour with milk. It was after the modification in the 19th century of the feeding bottle that artificial feeding begun to replace wet nursing (Ndekugri, 2017).

In recent times, animal milk which was fed to infants dating as far back as 2000 BC as well as synthetic formulas are used to feed infants. This practice was widely spread because of many campaigns and advertisements. This affected exclusive breastfeeding practices even though there were visible differences observed between breastfed infants and those who were fed with artificial formula (Wolf, 2003).

Although breast milk substitutes have undergone series of refinement over the years to make it better and a replacement for infants when breast milk is not available, the risks of morbidity and mortality are huge in artificially fed infants compared to their counterparts who are breastfed (Ndekugri, 2017).

2.3 Exclusive breastfeeding

Global exclusive breastfeeding rates of 140 countries was looked at by Cai, Wardlaw, & Brown (2012) over a 15-year period to understand the trend of performance. Analysis of the rates among infants aged five months and below showed a general increase from 33% to 39% in 1995 and 2010 respectively in developing countries. From 12% in 1995 to 28% in 2010, Central and West Africa recorded more than a hundred percent increase while Eastern and Southern Africa recorded 35% to 47% in 1995 and 2010 respectively. South Asia however recorded 40% in 1995 to 45% in 2010.

According to UNICEF (2017), 40% of infants have been reported to be breastfed exclusively from birth up to 6months. Of the 60% exclusive breastfeeding rate target set for countries to achieve by the year 2030, only 23 out of 129 countries with available data have achieved the target. Countries in the Americas are not performing well as the scorecard shows only 6% of these countries having exclusive breastfeeding rates of 60%. Similarly, the situation is not any different in some parts of the African region as countries show disparities in exclusive breastfeeding rates. According to Tampah-Naah & Kumi-Kyereme (2013), low exclusive breastfeeding rates have been recorded in countries such as Cote d'Ivoire (4%), Chad (2%), Gabon (6%), Sierra Leone (8%), Benin (70%) and Rwanda (85%).

The GDHS (2008) report estimated exclusive breastfeeding rate for Ghana to be 63% which declined to 46% in 2011 and then increased to 52% in the year 2014 (GDHS, 2014). Though there was an increase and records of steady increases have been noted across Africa as a result of interventions, it still falls below the 90% exclusive

breastfeeding rate recommended by WHO to improve the health and wellbeing of infants. This calls for a look into other factors that may be causing declines and small increases in order to reposition and find workable strategies to improve exclusive breastfeeding practices (Mogre, Dery, & Gaa, 2016; Tampah-Naah & Kumi-Kyereme, 2013).

2.4 Benefits of exclusive breastfeeding

2.4.1 Benefits to infant

The benefits of exclusively breastfeeding infants are enormous. The longer an infant is exclusively breastfed, the more benefits derived. Breast milk contains all nutrients required by an infant to grow and develop (WHO, 2016). Exclusive breastfeeding works to prevent morbidity and reduce mortality among infants thereby making them survive (Brülde, 2011).

Studies have shown that putting infants on the breast early, within the first sixty minutes of birth and breastfeeding exclusively helps in the process of bonding and brain development. The suckling reflex stimulates the production of colostrum and subsequently, breast milk. The first yellowish milk called colostrum produced by the breast in the early few days after childbirth contains high amounts of fats, carbohydrates, proteins and antibodies that the mother passes on to her infant. This serves as the first immunization and protects baby from childhood diseases including pneumonia and diarrhoea. As a result, the chances that an infant will fall sick and/or die from these diseases within the first few days of life are drastically reduced. It has been estimated that infants not totally breastfed or not breastfed at all are five times more prone to die from

infections and diarrhoea than those who receive only breast milk (GHANA-RAPID, 2017; Beyene, Geda, Habtewold, & Assen, 2017).

Recent studies conducted by Beyene, Geda, Habtewold, & Assen (2017) in Ghana, Ethiopia, Madagascar and Bolivia revealed that breastfeeding alone could prevent deaths of neonates by about 20% to 22%. When exclusive breastfeeding and breastfeeding practices as a whole are improved, lives of many under five year-olds could be saved. As many as 823,000 infant lives could be saved as well as a reduction in the occurrence of other infant diseases. It is estimated that about one-third of respiratory infections and up to half of diarrhoea diseases are prevented when mothers breastfeed in developing countries (WHO, 2018).

Exclusively breastfed infants according to American Academy of Pediatrics (2012) during the first six months after birth are protected from all sort of diseases that plague children like diarrhoea, allergies, diabetes, obesity, gastrointestinal tract infection, leukemia in children, lymphoma bowel as well as inflammatory diseases. The American Academy of Pediatrics (2012) also reported that about 72% of hospitalization due to infections of the lower respiratory tract in the first 12 months after birth is reduced in children who are exclusively breastfed. For preterm infants, the short as well as long term benefits of exclusively feeding with human milk cannot be overemphasized as it helps in strengthening the preterm's less developed immune system thereby reducing the rates of necrotizing enterocolitis and sepsis. It also reduces their reoccurrence thereby reducing long term growth failure, neurodevelopmental disabilities and mortality. It was also realized that, the rate of readmission to the hospital due to diseases was lower during the first 12 months after they were discharged from NICU.

The intelligent quotient of an infant is increased with longer practice of exclusive breastfeeding. This improved cognitive and motor development translates into the ability to start and stay in school resulting in better jobs with higher incomes for them later in adult life. Again, exclusively breastfed infants have lower risk of becoming overweight and obese as they grow into childhood and adolescence (UNICEF, 2017; The Lancet, 2016)

2.4.2 Benefits to mother

The general well-being and mother's health are associated with breastfeeding exclusively in the few moments after birth and the future. The AAP (2012) reported an association between exclusively breastfeeding and a reduction in blood loss during postpartum as well as the quick return of the uterus to its initial and normal state.

According to Stevens et al., (2009) and Papastavrou et al., (2015), mothers who engaged in breastfeeding exclusively share a bond with their infants and this reduces the chances and episodes of postpartum depression. Prospective studies in the United States show that mothers who do not breastfeed or who stop breastfeeding too early suffer increased depression during postpartum. Reports of child neglect and abuse by mothers were also found to be high in mothers who failed to breastfeed as compared to those who did breastfeed (American Academy of Pediatrics, 2012). It has been shown that mothers recover faster when they exclusively breastfeed and weight that was gained during pregnancy is lost. They can also plan and space pregnancies using a natural birth control, Lactation Amenorrhoea Method (LAM) when they breastfeed exclusively for six months from birth as well as protect them from aneamia resulting from iron conservation. Those who breastfeed longer have advantages such as a reduction in the risk of ovarian as well

as breast cancers. As stated by The Lancet (2016), about 20 000 deaths due to cancer of the breast can be averted annually if mothers breastfeed for longer periods.

Healthier mothers and infants mean less time and money will be used to treat diseases thus resulting in economic gains to families, communities and the nation (Danso, 2014; WHO/UNICEF, 2018). Bartick and Reinhold (2010) examined diseases in United States of America alongside the AHRQ (2017) report on breastfeeding and its effects on diseases and realized that if majority of women (90%) in the United States breastfeed exclusively from birth till six months, a savings of up to $13 billion would be accrued each year.

2.5 Exclusive breastfeeding practices

Breastfeeding practices lead to improved health, development and nutrition of infants, the reason why WHO/UNICEF advocate for breastfeeding infants exclusively for longer periods, that is for their first six months after delivery. The longer the period, the greater benefits derived. Few women according to Meedya, Fahy, & Kable (2010) breastfed exclusively up to six months in Western countries which is undesirable for the development as well as growth of the infant. Introducing other liquids, feeds, substitutes of breast milk and using bottles compromise exclusive breastfeeding practices. These practices occur globally, in Africa as well as Ghana which negatively influence exclusive breastfeeding thereby affecting infants, mothers, and the larger population (Meedya et al., 2010).

Studies carried out by Arts et al., (2011) among mothers of infants younger than six months in Mozambique reveled that generally, there was acceptance of the importance

and benefits of exclusive breastfeeding however, mothers gave other foods such as traditional medicines, water and porridges to their infants before they turned six months. Reasons for introducing these feeds ranged from the fact that infants need water to grow well, traditional medicines to cure or prevent certain childhood diseases sometimes caused by spirits and porridges at about months four to six so that the child can learn how to eat as well as help in child growth as breast milk alone is not sufficient.

Findings of Aborigo et al., (2012) in rural Northern Ghana also showed that though mothers know how important it is to exclusively breastfeed, their traditional practices regarding the general feeding of the infant resulted in the introduction of water and other feeds which are consistent with the above findings. Another study in South Africa by Goosen (2013) showed that mothers introduced water, formula feed and other foods to infants below the age of six months thereby hampering breastfeeding exclusively. Again, reports from studies conducted in a Military barracks in Nigeria showed that the recommended practice of breastfeeding exclusively from birth till six months was not being followed. Breastfeeding mothers introduced other feeds as well as used bottles to feed infants below six months (Akinyinka, Olatona, & Oluwole, 2016).

2.6 Factors influencing exclusive breastfeeding

2.6.1 Socio-demographic factors

Marital status, education, age and income level have been shown in studies to affect whether a mother with an infant will breastfeed or not and for how long. A literature review conducted by Meedya et al., (2010) on studies carried out around the world found that being married, being well educated, older age and receiving income that is higher

were associated with breastfeeding for longer periods. Similar results by Asare et al., (2018) were consistent with studies by Meedya et al., (2010). Breastfeeding exclusively among mothers was reported to be influenced by educational status, age as well as ethnicity and recommended that the socio-demographic factors should be looked at when strategizing to address issues of exclusive breastfeeding.

According to Diji et al., (2017), socio-demographic characteristics like age of the infant, marital status, level of education, age of mother as well as occupation type determine breastfeeding exclusively. Mogre et al., (2016) found that maternal educational level was associated with the practice of exclusive breastfeeding and Onah et al., (2014) also found that mothers with low educational levels were less likely to exclusively breastfeed compared to mothers with higher education.

According to Danso (2014) in a study conducted to know barriers to breastfeeding exclusively among professional mothers who were working in Kumasi, majority (90.5%) of the respondents said that their working status made them unable to exclusively breastfeed. The study revealed that professional mothers who work had to go back to work after their maternity leave of three months thereby compelling them to leave their infants with family members. These mothers then went home to breastfeed during break time or had relatives bring infants to them at their places of work for breastfeeding. For some mothers, their work was so demanding resulting in their inability to have breaks for breastfeeding while other mothers reported that their working environment was not conducive as it did not have a proper place for breastfeeding.

Adewuyi & Adefemi (2016) found positive association between high educational level and exclusively breastfeeding in their systematic review conducted in Nigeria. The review however revealed that mothers with high socio-economic status tended not to practice exclusive breastfeeding. It was revealed that the older the infant, the less likely mothers will exclusively breastfeed. It also reported that every mother who came to deliver were successfully breastfeeding when they were leaving a hospital in South-East Nigeria. The rate however changed and stood at 81.4% during post natal at six weeks and 74.7% during post natal at 14 weeks which then took a nosedive to 3.9% at about six months.

Diji et al., (2017) found significant associations between age of mother, education, status of employment including age of infant and exclusive breastfeeding in their study conducted at the CWC in Kumasi South hospital. Findings showed that the age of infant as well as a mother being self-employed determined exclusive breastfeeding. Further analysis of study data showed a unit increase in infant's age in months resulted in an 18% reduction whether the mother will exclusively breastfeed whereas self-employed mothers were reported to be 2.60 times more prone to breastfeed exclusively compared to those without employment. Mothers who are in the public sector recorded increased exclusive breastfeeding at the early ages of infants, this however was reduced as they had to return to work resulting in the addition of other feeds or weaning infants before their due age. Older mothers who were well educated however tended to practice exclusive breastfeeding.

2.6.2 Socio-cultural factors

Cultural practices and beliefs of various ethnic groups influence exclusive breastfeeding in Ghana (Asare et al., 2018). Studies carried out in Ghana showed that compared to mothers in other regions, mothers who were residing in the Volta Region were more likely to breastfeed exclusively. This disparity was associated with cultural beliefs pertaining in those regions that affected exclusive breastfeeding negatively. As part of their belief, infants were given con-coctions and water because relatives and mothers of these infants thought that infants were thirsty and therefore they needed it to quench their thirst or welcome them into the world. The study concluded that the less beliefs that negatively affect exclusive breastfeeding practices, the greater the chance a mother will practice it (Tampah-Naah & Kumi-Kyereme, 2013).

Influence of family members on mothers to follow their old way which is usually their traditional way of breastfeeding involving giving water and other food supplements was recorded to be the second reason why mothers failed at exclusively breastfeeding in a study in Kumasi (Danso, 2014). According to Arts et al., (2011), the decision to give water and other foods involves key people within the family such as the grandmother of the infant who is well versed in the culture and traditions.

In the findings of Diji et al., (2017), the major determinant of breastfeeding exclusively is the belief of mothers that only breast milk is not sufficient for infants to grow and properly develop. They were torn between what their culture says about exclusive breastfeeding as against what health staff tell them in a study conducted by Okafor, Agwu, Okoye, Uche, & Oyeoku (2018) in Nigeria. Their cultural belief promoted

breastfeeding but at the same time permitted and encouraged giving infants water as they believe infants need more water of which the breast milk falls short of.

The source of information regarding breastfeeding practices, most especially exclusive breastfeeding is vital if breastfeeding exclusively is to be done by mothers of infants. Previous studies show that mothers who relied on health facilities and qualified health staff for information on breastfeeding were more likely to exclusively breastfeed their infants compared to those who relied on other sources (Danso, 2014; Asare et al., 2018).

2.6.3 Mother's attitude

According to Meedya et al., (2010), whether a woman exclusively breastfeeds or not is shaped by her personal attitude towards it as well as of those around her. In a longitudinal study of mothers in the United States, they found a link between a mother's attitude in terms of making up her mind to exclusively breastfeed and actually breastfeeding at home. It was found that those who made up their minds to breastfeed during antenatal periods were able to breastfeed longer compared to those who did not make up their minds as a result of negative attitudes. At the least problem relating to breastfeeding, such mothers are quick to stop exclusively breastfeeding their infants.

Studies conducted in Nigeria also show that mothers with low or no education are marginalized in terms of what they know hence have negative attitudes towards exclusive breastfeeding (Jacdonmi, Suhainizam, Suriani, Zoakah, & Jacdonmi, 2016). The research also found that ethnicity and culture had a paramount part to play in a mother's decision to breastfeed exclusively. The small proportion of mothers in Hausa ethnic groups who practiced exclusive breastfeeding was attributed to beliefs that mothers are not supposed

to expose their breasts in public. Infants were therefore not breastfed in public affecting exclusive breastfeeding negatively. Researchers in this study noted that African societies are culturally inclined, therefore, infant feeding is influenced by these cultures.

Mother's emotional stress level was also seen by Diji et al., (2017) to be impeding breastfeeding exclusively. The absence of support from significant people around mother such as members in her family, the society as well as health professionals combined with shyness and breastfeeding difficulties go a long way to influence her attitude in a negative way concerning breastfeeding.

Generally, attitude of mothers was positive towards breastfeeding exclusively in a study among lactating mothers residing in Tuna, Ghana (Mogre et al., 2016). However, many mothers did not feel confident when it came to expressing, storing and cup or spoon feeding infants with the expressed breast milk. For mothers who had to be away and separated from their infants, exclusive breastfeeding was compromised as other feeds were fed to their infants during these periods.

2.7 Exclusive breastfeeding interventions

As part of efforts to improve exclusive breastfeeding practices as well as increase its resultant gains, implementation of several interventions have taken place globally, in Africa and Ghana. Notably among these is the Baby Friendly Hospital Initiative (BFHI). In 1992, Nigeria introduced BFHI to educate as well as encourage mothers to exclusively breastfeed. Results from studies show that those who delivered in baby-friendly hospitals are more prone to start to breastfeed their infants including continuing for an extended time period compared to mothers who had no knowledge of BFHI and did not deliver in a

baby-friendly hospital (Jacdonmi et al., 2016; Onah et al., 2014). In 1991, Ghana started implementing BFHI. The BFHI Authority was set to train and see to it that trainings were carried out in hospitals for health workers to enable them educate and support mothers in the area of exclusive breastfeeding when they come to deliver. There have however been challenges surrounding its implementation because of negative influences from families and communities relating to exclusive breastfeeding.

The Ghana Breast-feeding Promotion Regulation 2000 also called Legislative Instrument [LI] 1667 was introduced to promote breast feeding in the country by prohibiting the aggressive marketing of breast milk substitutes. Unfortunately, Food and Drugs Board of Ghana reports that this intervention has not yielded much (Tampah-Naah & Kumi-Kyereme, 2013).

Community-based infant and young child feeding (C-IYCF) introduced by UNICEF (2015) in Ghana focuses on appropriate feeding practices including exclusive breastfeeding for infants below 6 months for adequate nutrition for improved growth and development. Other interventions include those implemented by Kintampo Health Research Centre (KHRC) aimed at improving health of mothers, neonates and infants in Kintampo and within the middle belt of Ghana. Notably are the Ensure Mother and Baby Regular Access to Care (EMBRACE) implementation research where it looked at continuum of care as well as how it strengthens outcomes of maternal, neonatal and child health (Kikuchi et al., 2015) as well as the Newhints trial where home visits were conducted to improve child survival (Kirkwood et al., 2013).

2.8 Consequences of not exclusively breastfeeding

Breastfeeding has great implications for the future prosperity of a country. Countries however are not protecting, promoting, and supporting breastfeeding adequately through funding and/or policies. Malnutrition has been found to increase the chances of a child having to die from numerous diseases such as diarrhoea, pneumonia and measles. About 70% of neonatal deaths can be prevented when they are exclusively breastfeed (Onah et al., 2014). The global burden of diseases, injuries and risk factors reported that the second largest factor in the world regarding children below five years is sub-optimal feeding and this accounts for a financial loss of 47.5 million. African countries that are in the south of the Sahara however are the most terribly affected recording the highest rates of burden of disease associated to breastfeeding sub-optimally (Mogre et al., 2016). Sudden infant death syndrome is also associated with non-breastfed infants (Danso, 2014). The benefits of breastfeeding exclusively derived by mother and infant as well as the consequences of not practicing it translate to families, communities and the nation at large. Less time and money will be used to treat diseases thus resulting in economic gains if exclusive breastfeeding is practiced and for longer periods otherwise, huge sums of monies and time will be spent on medicines and in the hospitals to treat diseases that could have been prevented (WHO/UNICEF, 2018; Danso, 2014).

According to UNICEF (2017), when there is commitment from countries in support of policies and programs relating to exclusive breastfeeding, the rates go up.

2.9 Summary of Literature Review

Studies have shown that there are efforts made globally to improve exclusive breastfeeding because it has become more than just a lifestyle decision but has become a public health concern (American Academy of Pediatrics, 2012). Although increases in exclusive breastfeeding rate have been recorded over the years, these increases still fall short of recommendations set by WHO to afford infants the basic nutrients they need to grow and develop.

Factors shown to influence exclusive breastfeeding among mothers with infants in different locations across the world in the above literature are socio-demographic factors, socio-cultural factors and mother's attitude towards the practice. Information on these factors as well as how they influence breastfeeding exclusively is however inadequate in Ghana and in Kintampo most especially.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the research methodology employed in this study. It also includes design of the study, study area, methods, population, sampling procedure, techniques for collecting and managing data as well as considerations for ethics.

3.1 Study design

A descriptive cross-sectional study design was used. Quantitative data were collected to examine how exclusive breastfeeding was influenced by the mother's socio-demographic characteristics, socio-cultural characteristics as well as her attitude towards exclusive breastfeeding.

3.2 Study area

This study was conducted in Kintampo, capital of Kintampo-North Municipality, Brong Ahafo Region of Ghana. The Brong Ahafo Region is made up of 27 districts of which Kintampo-North Municipality is part. Geographically, the municipality is situated between latitudes 8°10' and 8°65' north of the equator and longitudes 1°35' and 2°00' west of Greenwich meridian. The Kintampo township is the mid point between southern and northern parts of the country.

Bounding the municipality to the north is Central Gonja District in Northern Region and to the south by Kintampo South District in Brong Ahafo Region. To the West, it is bounded by Wenchi and Tain districts in the Brong Ahafo Region and Bole District in

Northern Region. To the east, it is bounded by Pru and East Gonja Districts of the Brong Ahafo and Northern Regions respectively.

Covering an area of about 5108km^2, Kintampo Municipality represents 12.9% of the total land area of the Brong Ahafo Region with a population of 105,935 per the Population and Housing Census conducted in 2010 at 2.3% growth rate. Females constitute 53,454 whereas males constitute 52,482 of the total population (USAID, 2017). According to USAID (2017) Feed the Future Ghana District Profile Series, the population is relatively young with about 62% being in the age range 0 to 17 years with 5.1 members as the average household size. The inhabitants of Kintampo are from different ethnic groups with diverse culture, religious affiliations and are predominantly farmers with two major indigenous ethnic groups, the Bono and Mo who live in their respective traditional communities. The Bono are situated in the eastern and south-eastern parts of the municipality whiles the Mo live in the western side. Along the Black Volta River are the Ewes, Dangbes who fish for a living. 'Akan' language is commonly spoken amongst inhabitants. The main crops grown here include yam, maize, cassava and plantain. The prevalence of poverty stands at 26.8% (USAID, 2017).

Majority (53.2%) of the population are Christians, 36.1% Muslims, 6.4% with no religious affiliation, 4.1% Traditionalist and the remaining 0.2% belong to other religions. When it comes to education, majority of the population have no education. The municipality has been ranked with the lowest level of secondary school education in the Brong Ahafo Region. Kintampo-North Municipality is predominantly rural with bad roads that are hard to use especially in the rainy season (USAID, 2017).

For improved health administration and supervision, Kintampo-North Municipality is divided into seven sub-municipals namely Kadelso, Gulumpe, Dawadawa, New Longoro, Busuama, Kunsu and Kintampo. A total of 54 health facilities comprising government and privately owned are spread across these sub-municipals. Of the total, 18 are located in Kintampo Sub-municipal, 16 health facilities are within Kintampo township out of which 11 health facilities provide CWC services. Located also in Kintampo are the Kintampo College of Health and Well-being (CoHK) and Kintampo Health Research Centre (KHRC), where Ghana Health Service (GHS) runs its Health and Demographic Surveillance System (HDSS) sites. KHRC conducts major research within Brong Ahafo Region and middle belt to improve neonatal, child and maternal health including that of the general public.

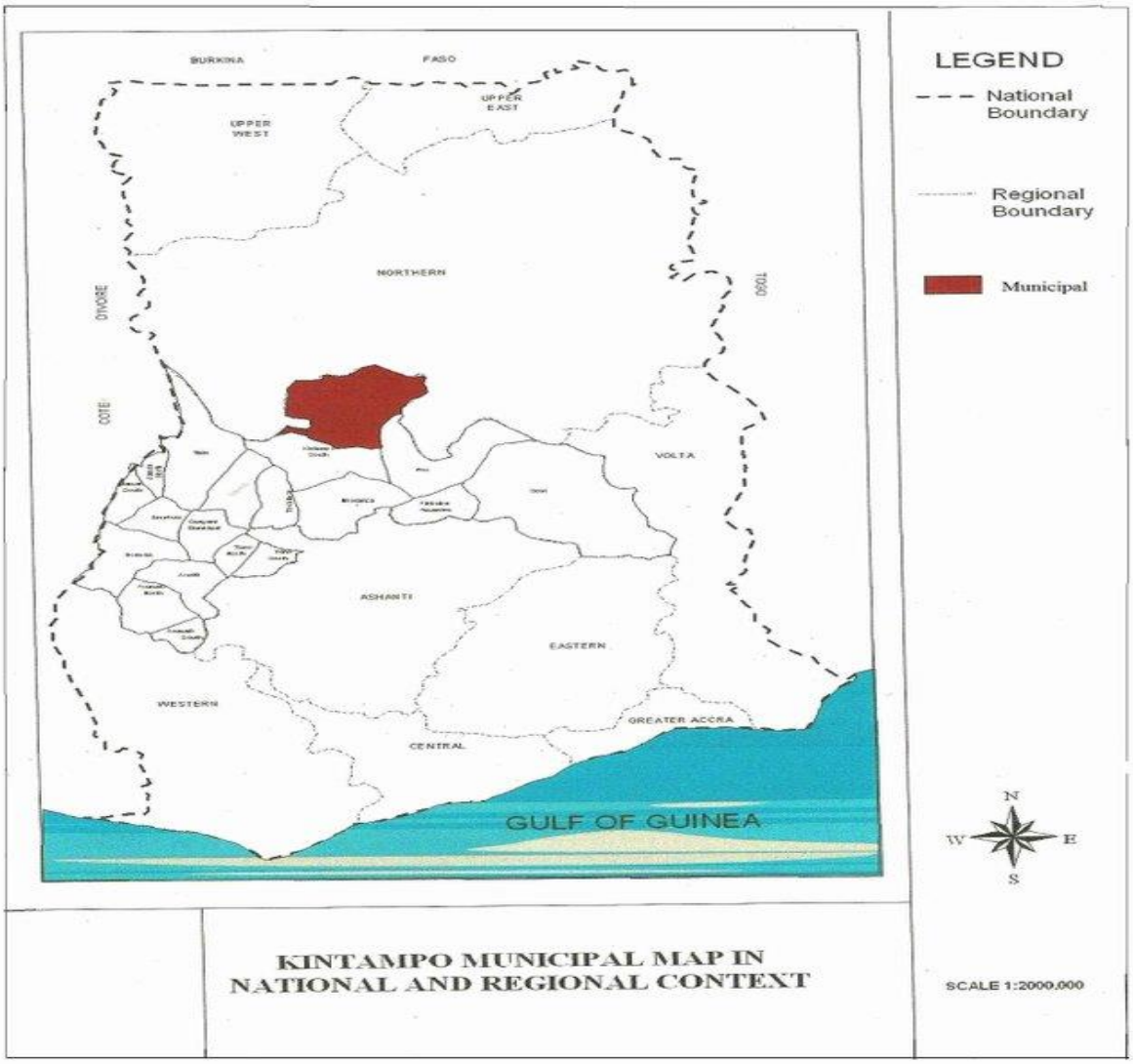

Figure 3.2: Map of Ghana showing regions and Kintampo-North municipality in shaded portion (Adjei, Forkuor, & Frempong, 2013)

3.3 Target Population

Mothers with infants living in Kintampo were involved in this study. An infant as defined in this study was a child from zero up to six months of age whereas a mother was a woman in the reproductive ages 15 to 49 years old (World Health Organization/United Nations Children's Fund, 2018). This target group was selected for the study because

they were in the reproductive period where women gave birth and infants zero up to six months because exclusive breastfeeding was practiced within this age range. This target group afforded the researcher the opportunity to identify factors that influenced their exclusive breastfeeding practices.

3.3.1 Inclusion criteria

All mothers with infants zero up to six months of age who were residing in Kintampo and visited the CWC without any chronic or acute illness were eligible to take part in the study.

3.3.2 Exclusion criteria

Mothers with infants zero up to six months of age who attended the CWC with any acute or chronic illness as well as mothers with infants zero up to six months who did not live in study area were excluded from the study.

3.4 Research Variables

3.4.1 Dependent variable

Exclusive breastfeeding was the dependent variable of the study.

3.4.2 Independent variables

The independent variables of the study included age, education, ethnicity, marital status, occupation, socio-economic status, religion, customs, lifestyle, values as well as mother's attitude towards exclusive breastfeeding.

3.5 Sampling procedure

All health facilities that held CWC sessions during the data collection period were purposively selected to take part in the study. Nine out of 11 health facilities providing CWC services in Kintampo conducted CWC during that period and were therefore selected.

Mothers with infants who lived in the study area and attended CWC in the nine selected health facilities were consecutively sampled to participate in the study. On the day of interview, the first participant was the first mother with an infant who had successfully gone through the CWC process and met the inclusion criteria at the time interviewers were ready to commence. Subsequently, any mother with an infant who had just finished the CWC process when interviewers were ready to conduct the next interview was screened by interviewers using the inclusion and exclusion criteria before conducting the next interview. This process continued in all nine health facilities until the desired total sample size was achieved. Interviews were conducted outside but close to health facility and under a tree or shed where interviewer and respondent were comfortably seated. This provided the necessary privacy for participants to respond to questions without any form of intimidation.

3.6 Sample size calculation

Based on the GDHS (2014) Brong Ahafo Regional prevalence of exclusive breastfeeding of 70%, a sample size for the study was calculated using the Cochran (1977) formula: $n = (z^2 * pq) / d^2$

Where n is the required sample size, z is the standard normal deviate whose value at 95% confidence level is 1.96, p is the exclusive breastfeeding rate 0.7 and q = 1-p = 0.3 and d, the margin of error (absolute precision), 0.05.

The sample size n was calculated as follows:

$$n = (z^2 * pq) / d^2$$

$$n = [(1.96)^2 * (0.7) * (1-0.7)] / (0.05)^2$$

$$n = 323$$

In order to cater for non-response and errors due to recording, a 10% adjustment was calculated. A total sample size of **357** of participants were interviewed.

3.7 Data collection instrument

3.7.1 Questionnaire

The KAP manual, adapted from FAO (2014) was adapted to collect quantitative data from sampled participants to determine factors influencing exclusive breastfeeding practice among mothers with infants in Kintampo. Breastfeeding practices were assessed based on feeding practices in the last 24 hours prior to the interview. Questions covered areas of socio-demographic characteristics, socio-cultural characteristics and mother's attitude towards exclusive breastfeeding with options to choose from. After training research assistants, the questionnaire was pre-tested in K-Line, a suburb of Kintampo and among mothers with similar characteristics as target population a day to the commencement of collecting data. This allowed the researcher examine how reliable the questionnaire was and validate its appropriateness. Questions were asked in English and

the local language 'Akan' which was commonly spoken in the study area during the pre-testing. Akan responses were translated back to English by interviewers and ticked appropriately on the questionnaire. Lessons learned such as techniques in asking questions were discussed with research assistants in preparation for the main data collection.

3.8 Data Management and Analysis

Collected quantitative data were cleaned, coded and entered into Microsoft Excel. Analyses was carried out using STATA version 15 (STATA, 2017). Descriptive statistics was used to summarize socio-demographic characteristics, socio-cultural characteristics and mother's attitude toward exclusive breastfeeding. Categorical variables were summarized as proportions whiles mean and standard deviation were used to summarize continuous variables. Statistically significant variables were then selected and Logistic regression analysis applied to examine the strength of association of socio-demographic characteristics, socio-cultural characteristics and attitudes of participants with exclusive breastfeeding among mothers with infants.

3.9 Ethical Clearance

Ethical clearance was obtained from Ghana Health Service Ethics Review Committee (GHS-ECR027/01/19) for this study before data collection commenced. Permission was also sought for in writing from the Kintampo-North Municipal Health Directorate of the Ghana Health Service.

3.9.1 Informed consent

The nature, purpose, risk as well as study benefits were read and explained to participants and voluntary consent obtained by endorsing a written consent form. The endorsement was in the form of a signature for those who could read and write or a thumbprint for those who could not read and write. Copies of the participant information sheet and consent forms were given to participants before the commencement of interview for their personal records.

3.9.2 Anonymity

Interviews were coded by assigning unique identifiers with no names attached to ensure anonymity of respondents.

3.9.3 Confidentiality

Participants were assured of confidentiality before interviews began. Interviewers told participants that the information being sought for was going to be used solely for research purpose and the findings communicated to them through health facilities that the study was conducted in. No names were recorded, responses were coded to ensure confidentiality and anonymity.

3.9.4 Data storage and security

Collected data were stored in files and locked in a cabinet where the PI alone could access. After data entry, the computer was pass worded and only the PI had access to the password.

3.9.5 Risks and benefits

There were no psychological or emotional discomfort resulting from the interviews. Research assistants were trained and asked questions in a manner that minimize these effects.

Participants had no personal benefits deciding to participate in this study. However, their precious time and personal information given has contributed to knowledge to enable health staff at local and national levels better strategize to promote exclusive breastfeeding practices among mothers with infants especially those in Kintampo.

3.9.6 Compensation

The study did not provide compensation to participants.

3.9.7 Conflict of interest

No conflict of interest issues were observed.

3.9.8 Voluntariness and right to withdraw

Being part of the study was completely voluntary therefore a participant could decide not to participate in it and at any stage in the study, participants who felt uncomfortable had the right to stop the interview with no consequences whatsoever. Interviewers gave participants the chance to ask questions at any point in the study and the interviewer clarified any aspect that was not well understood.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents results of this study. Presentation of results are in the following order: socio-demographic characteristics of mother, socio-cultural practices and mother's attitude towards exclusive breastfeeding.

4.1 Socio-Demographic Characteristics of participants

Results showed that 51.5% of participants were interviewed in outreach CWC and 48.5% enumerated in static CWC. Participants had a mean age of 27.3 ±5.4 years with minimum age of 15 years and maximum age of 42 years. Most (52.6%) participants were within 26-35 age range. Regarding marital status, 69.8% were married with 0.3% being separated and widowed respectively. Most (37.8%) participants had their most usual source of income to be semi-skilled (farmer, food vendor, trader), majority (35.1%) were religiously affiliated to Pentecostals, 48.2 % attained primary/JHS and a majority (24.1%) were from the Akan ethnic group. See Table 4.1 for detailed results.

Table 4.1: Socio-Demographic Characteristics of Participants

Variables	Frequency (N=357)	Percent	Mean	SD
Child welfare clinic site				
Static	173	48.5		
Outreach	184	51.5		
Age of respondent (years)				
			27.3	5.4
15-25	143	40.1		
26-35	188	52.6		
36-42	26	7.3		
Marital status				
Single/Never Married	56	15.7		
Married	249	69.8		
Separated	1	0.3		
Widowed	1	0.3		
Cohabitation	50	14.0		
Most usual source of income				
Unemployed	76	21.3		
Student	24	6.7		
Semi-skilled (farmer, food vendor, trader)	135	37.8		
Skilled (seamstress, hairdresser)	78	21.9		
Professional (Nurses, administrators, teachers)	39	10.9		
Other government employees (receptionist, clerks, messengers)	5	1.4		
Religious affiliation				
Catholic	56	15.7		
Protestant	65	18.3		
Pentecostal	125	35.1		
Muslim	105	29.5		
Other	5	1.4		
Highest level of education				
None	65	18.2		
Primary/JHS	172	48.2		
SHS/Vocational	70	19.6		
Tertiary	50	14.0		
Ethnicity				
Akan	86	24.1		
Mo	58	16.3		
Dagarti/Frafra	71	19.9		
Fulani	8	2.2		
Ga/Adamgbe	4	1.1		
Gonja/Dagomba/Mamprusi	37	10.4		
Kokonba/Basare	40	11.2		
Bimoba/Chokosi	10	2.8		
Sisala/Wala	11	3.1		
Zabrama	12	3.4		
Banda/Pantra	4	1.1		
Other	16	4.5		

4.2 Breastfeeding practices influencing exclusive breastfeeding

In determining the proportion of mother's with infants who exclusively breastfeed, results showed that majority (68.6%) of participants breastfed their babies during the day and night prior to the day of interview. Most (96.9%) of participant's babies did not consume breast milk by spoon, cup, bottle or breastfed by another woman and 57.1% of babies were not fed anything in addition to breastfeeding the day before the interview. Majority (84.8%) of participants reported that no one feeds the baby when they are not home or cannot feed baby and more than half (78.3%) of participants indicated that their babies were not fed anything if they are not there to feed their babies. See Table 4.2 for detailed results.

Table 4.2: Breastfeeding practices influencing exclusive breastfeeding

Variables	Frequency (N=357)	Percent
Was baby breastfed yesterday during the day or at night?		
Breastfed	245	68.6
Not breastfed	112	31.4
Did baby consume breast milk by spoon, cup, bottle or breastfed by another?		
Consumed	11	3.1
Did not consume	346	96.9
***Apart from breastfeeding, what type of food was your baby fed with yesterday during the day or at night?**		
Breast milk by spoon, cup or bottle	7	1.9
Infant formula by spoon, cup or bottle	77	21.2
Porridge by spoon, cup or bottle	71	19.5
Other	1	0.3
Nothing	208	57.1
***When you are not home or cannot feed the baby yourself, who does it?**		
Father	14	3.9
Grandmother	29	8.1
Other children	9	2.5
Other	19	5.3
No one	289	80.3
***If you are not there to feed the baby, what type of food is the baby fed?**		
Breast milk by spoon, cup or bottle	28	7.6
Infant formula by spoon, cup or bottle	22	6.0
Porridge by spoon, cup or bottle	30	8.1
Other	2	0.5
No one	288	77.8

*Variable with multiple response. In some cases, totals will be more than total sample size 357

4.3 Socio-demographic characteristics influencing exclusive breastfeeding

Regarding socio-demographic characteristics that influence exclusive breastfeeding, results of a univariable logistic regression analysis revealed that, participants with tertiary education as their highest level of education, being skilled (seamstress, hairdresser) and being other government employee (receptionist, clerks, messengers) as a most usual occupational source were associated with breastfeeding exclusively among mothers with infants below six months. Participants with tertiary education as their highest educational

level were 1.94 times more likely to exclusively breastfeed their infants compared to participants with no formal education ($p < 0.05$, 95% CI=1.10-4.50). Skilled (seamstress, hairdressers) were 13% less likely to exclusively breastfeed compared to unemployed participants (OR=0.87, $p < 0.05$, 95% CI=0.48-0.95) and other government employees such as receptionist, clerks and messengers were 1.73 times more likely to practice exclusive breastfeeding compared to unemployed participants ($p < 0.05$, 95% CI=1.10-16.39).

Also, results from a multivariable logistic regression analysis revealed that, having tertiary education, having a skilled occupation and being other government employee stayed significantly associated with practicing exclusive breastfeeding. However, having semi-skilled occupation (farmer, food vendor, trader) and being a professional (Nurse, administrator, teacher) were also found to be significantly associated with exclusive breastfeeding. The odds of participants with tertiary education exclusively breastfeeding was three times more compared to those without formal education (AOR=3.32, $p < 0.05$, 95% CI= 1.51-6.63). Participants with semi-skilled occupation were 22% less likely to exclusively breastfeed (OR=0.78, $p < 0.05$, 95% CI=0.41-0.91). The odds of having skilled occupation and practicing exclusive breastfeeding remained almost the same (0.86) times compared to unemployed participants ($p < 0.05$, 95% CI=0.42-0.88). For participants who were professionals, they were 37% more likely to practice exclusive breastfeeding than unemployed participants (AOR=1.37, $p < 0.05$, 95% CI=1.09-3.53). The odds of being other government employee increased to two and half times compared to unemployed participants ($p < 0.05$, 95% CI=1.56-8.68). See Table 4.3 for detailed results.

Table 4.3: Socio-demographic characteristics influencing exclusive breastfeeding

Socio-Demographic Characteristics Variables	Unadjusted estimates			Adjusted estimates		
	UOR	**95% CI**	***P***	**AOR**	**95% CI**	***P***
Age (years)						
15-25	1			1		
26-35	1.10	0.69-1.75	0.696	1.13	0.63-1.94	0.732
36-42	1.33	0.52-3.38	0.551	1.43	0.51-3.99	0.495
Marital Status						
Single/Never Married	1			1		
Married	0.97	0.52-1.83	0.934	0.99	0.48-2.09	0.997
Cohabitation	0.85	0.37-1.91	0.688	0.89	0.38-2.09	0.787
Widowed	-	-	-	-	-	-
Separated	-	-	-	-	-	-
Highest Level of Education						
None	1			1		
Primary/JHS	1.16	0.64-2.12	0.619	1.23	0.65-2.27	0.536
SHS/Vocational	1.11	0.55-2.28	0.757	1.29	0.59-2.80	0.520
Tertiary	1.94	1.10-4.50	0.002	3.32	1.51-6.63	0.032
Most Usual Occupation Source						
Unemployed	1			1		
Student	2.17	0.66-7.06	0.198	1.69	0.47-6.08	0.422
Semi-Skilled	0.84	0.46-0.96	0.031	0.78	0.41-0.91	0.002
Skilled	0.87	0.48-0.95	0.022	0.86	0.42-0.88	0.001
Professional	0.98	0.42-2.26	0.955	1.37	1.09-3.53	0.025
Other government employees	1.73	1.10-16.39	0.001	2.50	1.56-8.68	0.001

4.4 Socio-cultural practices influencing exclusive breastfeeding

Regarding socio-cultural factors that influence exclusive breastfeeding, results showed that more than three-quarters (78.1%) of mothers with infants zero to six months relied mostly on Midwife/Nurse for breastfeeding information. About half (49.6%) of participants belonged to a community group/association and a little over half (50.6%) of these groups/associations gave information on breastfeeding. Giving water to drink before/during bathing was stated by most (30.3%) mothers as a belief of their culture that made practicing exclusive breastfeeding difficult. Regarding what the culture of mothers

said about breastfeeding infants 0-6 months, majority (89.4%) of mothers stated their culture indicated that it was good for the infant. See Table 4.4 for detailed results.

Table 4.4: Socio-cultural practices

Variables	Frequency (N=356)	Percent
Source of information on breastfeeding		
Mother in-law	24	6.7
Friends	11	3.1
Midwife/Nurse	278	78.1
Mother support groups	3	0.8
Community based health volunteers	1	0.2
Other	39	11.0
Membership of community group		
Belong	177	49.6
Do not belong	180	50.4
Group giving information about breastfeeding		
Gives	89	50.6
Do not give	87	49.4
*** Beliefs/taboos and cultural practices that make breastfeeding difficult**		
Naming ceremony	112	25.7
Rituals (giving herbal water)	45	10.3
Water to drink before/during bathing	132	30.3
Other	46	10.6
Beliefs disallowed	100	23.0
What culture says about breastfeeding infants 0-6months		
Not good for infant	38	10.6
Good for infant	319	89.4

*Variable with multiple response. In some cases, totals will be more than total sample size 357

Initial logistic regression analysis found significant associations between most source of information on breastfeeding, belief of the mother's culture that make practicing exclusive breastfeeding difficult as well as what mother's culture indicated about breastfeeding infants zero to six months. Results indicated that participants who relied mostly on Midwife/Nurse were 1.60 times more likely to breastfeed exclusively than mothers who relied on their mother in-law for information on exclusive breastfeeding ($p < 0.05$, 95% CI= 1.52-4.57) and those who relied mostly on mother support groups were 1.89 times more likely to breastfeed exclusively compared to mothers who depended on their mother in-law ($p < 0.05$, 95% CI=1.20-12.75). The odds of exclusive breastfeeding practice among participants whose cultural beliefs allowed giving water to drink before/during bathing was found to be 1.36 times more compared to those whose cultural beliefs disallowed it ($p < 0.05$, 95% CI=1.12-4.18). Participants whose culture indicate breastfeeding infants zero to six months to be good for infants were found to be 1.49 times more likely to exclusively breastfeed compared to those whose culture indicate it was not good for infants.

Midwife/Nurse as main source of information on breastfeeding, baby given water to drink before/during bathing and breastfeeding being good for infant zero to six months remained significantly associated with practicing exclusive breastfeeding after a multivariable logistic regression analysis was performed. However, no significant differences were observed in their odds ratios [relying mostly on Midwife/Nurse for breastfeeding information (AOR= 1.55, $p < 0.05$, 95% CI=1.18-7.01), giving water to drink before or during bathing (AOR=1.18, $p < 0.05$, 95% CI=1.10-2.76) and

breastfeeding being good for infant zero to six months (AOR=1.59, p < 0.05, 95% CI=1.16-3.32)]. See Table 4.4.1 for detailed results.

Table 4.4.1: Socio-cultural practices influencing exclusive breastfeeding

Socio-Cultural Practices Variables	Unadjusted estimates			Adjusted estimates		
	UOR	**95% CI**	***P***	**AOR**	**95% CI**	***P***
Source of information on breastfeeding						
Mother in-law	1			1		
Friends	4.99	0.54-46.21	0.156	2.18	0.15-30.64	0.562
Midwife/Nurse	1.60	1.52-4.57	0.015	1.55	1.18-7.01	0.003
Mother Support groups	1.89	1.20-12.75	0.001	0.72	0.03-17.32	0.838
Other	1.27	0.42-3.82	0.667	1.95	0.26-14.67	0.517
Membership of community group						
Belong	1			1		
Do not belong	1.20	0.77-1.88	0.421	1.63	0.89-2.43	0.501
Group giving information about breastfeeding						
Do not give	1			1		
Gives	1.44	0.75-2.79	0.273	1.52	0.75-3.08	0.242
Beliefs/taboos and cultural practices that make breastfeeding difficult						
Beliefs disallowed	1			1		
Naming ceremony	1.02	0.63-1.66	0.912	0.92	0.38-2.22	0.860
Rituals (giving herbal water)	1.14	0.57-2.27	0.701	1.22	0.43-3.45	0.709
Water to drink before/during bathing	1.36	1.12-4.18	0.002	1.18	1.10-2.76	0.029
Cultural belief about breastfeeding						
Not good for infant	1			1		
Good for infant	1.49	1.09-2.98	0.042	1.59	1.16-3.32	0.021

4.5 Mother's attitude influencing exclusive breastfeeding

The third objective was to examine attitudes of mothers with infants towards exclusive breastfeeding. Results showed that majority (93.3%) of participants said they thought it was good to breastfeed exclusively for six months and most (78.7%) said it was not difficult for them to breastfeed exclusively for six months. Most (98.0%) participants said they thought it was good to breastfeed their babies on demand, anytime the baby wants to breastfeed and majority (89.1%) said it was not difficult to feed their babies on demand.

Regarding being confident, 95.0% of participants said they felt confident in breastfeeding their baby, majority (46.2%) stated they did not feel confident to express as well as store breast milk for themselves or someone else to feed their babies. Majority (63.6%) of participants said that they felt it was not good for infants to be fed formula from birth up to six months. See Table 4.5 for detailed results.

Table 4.5: Mother's attitude towards exclusive breastfeeding

Variables	Frequency (N=357)	Percent
Good to exclusively breastfeed baby for six months		
Not good	15	4.2
Not sure	9	2.5
Good	333	93.3
Difficult to exclusively breastfeed baby for six months		
Not difficult	281	78.7
Not sure	6	1.7
difficult	70	19.6
Good to breastfeed baby on demand		
Not good	2	0.6
Not sure	5	1.4
Good	350	98.0
Difficult to breastfeed your baby on demand		
Not difficult	318	89.1
Not sure	7	2.0
Difficult	32	9.0
Confident breastfeeding your baby		
Not confident	13	3.6
Not sure	5	1.4
Confident	339	95.0
Confident expressing and storing breast milk for someone else to feed the baby		
Not confident	165	46.2
Not sure	65	18.2
Confident	127	35.6
Good to formula feed your baby for the first six months		
Not good	227	63.6
Not sure	64	17.9
Good	66	18.5

A univariable logistic regression analysis on mother's attitude showed that difficult to exclusively breastfeed baby for six months and difficult to breastfeed baby on demand

were significantly associated with practicing exclusive breastfeeding. Participants who said it was difficult for them to breastfeed their babies exclusively were 42% less likely to breastfeed exclusively compared to those who said it was not difficult (AOR=0.58, $p < 0.05$, 95% CI= 0.34-1.00). Participants who said it was difficult to breastfeed their babies on demand were 51% less likely to breastfeed on demand compared to those who said it was not difficult to breastfeed their babies on demand (AOR=0.49, $p < 0.05$, 95% CI=0.23-1.02). See Table 4.5.1 for detailed results.

Table 4.5.1: Mother's attitude influencing exclusive breastfeeding

Attitudes towards exclusive breastfeeding Variables	Unadjusted estimates			Adjusted estimates		
	UOR	**95% CI**	***P***	**AOR**	**95% CI**	***P***
Good to exclusively breastfeed baby for six months						
Not good	1			1		
Not sure	0.62	0.11-3.41	0.587	0.31	0.05-2.05	0.226
Good	1.12	0.37-3.35	0.844	0.66	0.19-2.28	0.513
Difficult to exclusively breastfeed baby for six months						
Not Difficult	1			1		
Not sure	2.06	0.24-17.90	0.512	1.48	0.13-16.93	0.752
Difficult	0.58	0.34-1.00	0.050	0.67	0.33-1.33	0.248
Good to breastfeed baby on demand						
Not good	1			1		
Not sure	1.85	0.20-16.81	0.585	2.60	0.24-27.69	0.427
Good	1.21	0.32-12.35	0.250	1.26	0.23-1.31	0.263
Difficult to breastfeed your baby on demand						
Not Difficult	1			1		
Not sure	2.59	0.31-21.84	0.380	1.66	0.15-18.43	0.679
Difficult	0.49	0.23-1.02	0.057	0.55	0.23-1.31	0.177
Confident breastfeeding your baby						
Not confident	1			1		
Not sure	1.78	0.15-21.39	0.650	1.63	0.11-23.73	0.719
Confident	0.96	0.29-3.20	0.952	0.69	0.19-2.52	0.572
Confident expressing and storing breast milk so that you or someone else can feed your baby						
Not confident	1			1		
Not sure	1.66	0.87-3.17	0.126	1.69	0.87-3.29	0.123
Confident	1.27	0.77-2.08	0.346	1.34	0.80-2.26	0.270
Good to formula feed your baby for the first six months						
Not good	1			1		
Not sure	1.07	0.58-1.98	0.829	1.03	0.54-1.98	0.919
Good	0.60	0.34-1.07	0.083	0.63	0.34-1.15	0.131

CHAPTER FIVE

DISCUSSIONS

5.0 Introduction

Although exclusive breastfeeding is vital for infant development and health, its practice rate has been low across the world and observed at national, regional, and district as well as community levels in Ghana. This study identified factors influencing exclusive breastfeeding among mothers with infants in Kintampo. Factors examined included socio-demographic characteristics of mothers, their socio-cultural practices as well as attitude of mothers towards breastfeeding exclusively. The study revealed a lower than preferred exclusive breastfeeding level of the practice. Generally, cultural practices supported the practice in the midst of a positive attitude of the mother. There were however some gaps worth looking at. Findings from this study suggest that participant's level of education, most usual occupation source and main source of information on breastfeeding were some of the specific factors associated with exclusive breastfeeding. The rest include cultural beliefs that make practicing exclusive breastfeeding difficult, what culture says about breastfeeding infants zero to six months, difficulty in breastfeeding baby exclusively for six months as well as difficulty to breastfeed baby on demand. This chapter therefore is dedicated to the discussion of study findings compared to those from previous studies.

5.1 Breastfeeding practices influencing exclusive breastfeeding

The proportion of mothers who exclusively breastfed their infants prior to the day of interview was 68.6%. In line with the challenge of low (52%) rate of exclusive

breastfeeding across Ghana (GDHS, 2014) which is lower than the recommended 80% and 90% rates stipulated by FHD (2016) and UNICEF (2017) respectively, findings of this study come to further confirm that there is a challenge including variations in the rate across the country. The 68.6% of participants who breastfed their infants exclusively prior to the day of the interview in this study compares with 66.0% and 66.7% found in studies in Ghana by Asare et al., (2018) and Diji et al., (2017) respectively but higher than 58.0% found in Ghana (Mogre et al., 2016) and 33.5% in Nigeria by Onah et al., (2014). This rate is more than the 52% national figure that was reported by GDHS (2014) and slightly lower than the 70% recorded by Multiple Indicator Cluster Survey (MICS) (2011) for Brong Ahafo Region. All these rates however, fall short of the above recommended targets. The study's high rate compared to the national figure might be caused by implementation of interventions targeted at neonatal, child as well as maternal health in the study area by GHS, Ministry of Health (MOH), and partners. These include C-IYCF, BFHI, Newhints home-visits and Ensure Mother and Baby Regular Access to Care (EMBRACE) implementation research that resulted in the adoption of the combined maternal and child health record book (UNICEF, 2015; Onah et al., 2014; Jacdonmi et al., 2016; Kirkwood et al., 2013; Kikuchi et al., 2015). The rest include routine awareness creation at ANC, postnatal and CWC on the importance of breastfeeding exclusively.

Failure of mothers to express and cup/spoon feed babies because they either lack the necessary techniques, are not confident to express or as a result of both might be contributory factors to the low rate of breastfeeding exclusively. From this study, a handful of babies were fed expressed milk whereas many were fed with infant formula and porridge. Expressed breast milk can be fed to these infants in place of infant formula

and porridge which will foster exclusive breastfeeding. This finding is consistent with findings in similar studies carried out by Arts et al., (2011) in Mozambique among mothers with younger than six months old infants and Akinyinka et al., (2016) also among mothers of infants below six months at a Military barracks in Nigeria where infants were fed other foods such as porridge and formula.

Fewer women practicing exclusive breastfeeding implies poor nutrition to infants below six months resulting in malnutrition, diseases and ultimately death as stated by UN (2017). This situation stalls efforts towards the achievement of goal 3 of the SDG that seeks to make sure that lives are healthy and the well-being for all at all ages are promoted which include breastfeeding exclusively infants from birth up to six months. The low proportion of participants who engaged in breastfeeding exclusively from the study resonates with findings from previously conducted studies in Western countries by Meedya et al., (2010). It revealed that few women breastfeed their infants from birth up to six months resulting in poor growth that affects not only infants but also mothers and the entire population. Similar findings were recorded in South Africa by Goosen (2013) where mothers gave other foods to infants below six months thus affecting exclusive breastfeeding.

5.2 Socio-demographic factors influencing exclusive breast feeding

Findings of socio-demographic factors showed that out of the total 357 mothers with infants interviewed, few had their highest education level to be tertiary whiles the majority had up to primary/JHS level. It demonstrates a strong association between participants being well educated and exclusively breastfeeding as participants who were

well educated were found to be three times more likely to breastfeed exclusively compared to those who had no education at all. Mother's ability to understand literature and messages on how important and beneficial it is to exclusively breastfeed for both infant and mother including being motivated may be contributory factors to what we observe in findings (Onah et al., 2014). This finding resonates with similar studies by Asare et al., (2018), Meedya et al., (2010), and Mogre et al., (2016) who found that mother's with high educational status were more likely to breastfeed exclusively and mothers with low education, less likely to do so.

Another important factor that influenced exclusive breastfeeding was most usual occupation source. Participants who were semi-skilled (farmer, food vendor, trader) and skilled (seamstress, hair dresser) were negatively inclined towards practicing exclusive breastfeeding. Professionals (Nurse, administrator, teacher) and other government employees (receptionist, clerks, messengers) were however positively inclined towards breastfeeding exclusively. Most prominent in the results was that receptionists, clerks and messengers were most inclined to breastfeed their babies exclusively compared to participants who were unemployed. Suggestive of the factors contributing to this might be that these caliber of workers have flexible and less stressful work schedules. They may not be overly pressured and therefore have time to be with infants, breastfeeding them and for longer periods. Similarly, Adewuyi & Adefemi (2016) showed that those with low economic status were more likely to breastfeed. Public sector workers were also shown to be more inclined to breastfeed exclusively but this reduced when they resumed to their busy and tight schedules however, this was an exception for receptionist, clerks and messengers (Diji et al., 2017).

Nurses, administrators and teachers showed tendencies to exclusively breastfeed in the findings most likely because they lived in a rural area where workplace and home distance was short allowing frequent visits to breastfeed or a caretaker to bring baby to mother for breastfeeding even when they have resumed work after maternity leave. Again, there may be less strict enforcement of regulations that prohibit bringing babies to work and this gives mothers some liberty to be with their babies all through working hours and breastfeed. However, this finding contradicts findings from a study conducted by Danso (2014) in Kumasi metropolis among professional working mothers where majority of mothers did not breastfeed exclusively because they returned to work after their maternity leave.

Farmers, food vendors, traders, seamstress and hairdressers usually self-employed were found to be less likely inclined to breastfeed exclusively. This may have been so because they have to work longer hours, usually out of home which may involve having to leave their babies at home with relatives or caretakers whiles they engage in their work. This however contradicts similar findings by Diji et al., (2017) where strong associations was found between mothers who were self-employed and tendencies to breastfeeding exclusively.

5.3 Socio-cultural factors that influence exclusive breastfeeding

It was shown from findings of socio-cultural factors that influence breastfeeding exclusively that relying mostly on Midwife/Nurse for information on breastfeeding, cultural practice of giving water to drink before/during bathing as well as mother's culture indicating that it is good for infants to be breastfed exclusively from 0-6months

were associated with practice of breastfeeding exclusively. Similar to findings of studies conducted in Ghana by Asare et al., (2018) and Danso (2014), the reliance on health staff resulted in mothers being more likely to exclusively breastfeed. Contributing factors to this inclination may include the fact that mothers receive clear, concise and consistent information and advice on breastfeeding from trained health staff, taught appropriate breastfeeding techniques, supported and get help to prevent and manage breastfeeding complications. Again, during counselling, mothers could ask questions and find answers to their challenges regarding breastfeeding compared to other sources of breastfeeding information.

Mother's culture that allowed giving water before/during bathing to baby however did not prevent some mothers from breastfeeding exclusively in this study. This did not resonate with similar findings in Ghana by Tampah-Naah & Kumi-Kyereme (2013), Aborigo et al., (2012) and Mozambique by Arts et al., (2011) where mothers, due to cultural beliefs and practices resorted to giving water which hampered exclusive breastfeeding. Participants live within families and society shaped by culture with practices that everyone who wants to feel a sense of belongingness must try to follow and practice. Grandmothers and relatives assist in bathing baby especially in the first few months after delivery. Mothers and relatives who may want to follow cultural practices may give water. However, this was not the case in this study. Participant's reliance on Midwife/Nurse mostly for breastfeeding information may have contributed to mother's decision to exclusively breastfeed even though her cultural belief encourages giving water before/during bathing. Breastfeeding awareness including its benefits during counselling may have equipped participants to choose to exclusively breastfeed despite

what their cultural belief indicated. These mothers may have also explained its benefits to and/or told relatives insisting that their babies are not given water when it is time to take a bath.

Consistent with findings from studies in Nigeria by Okafor et al., (2018), results from this study indicated that how and what a mother's culture sees and says about exclusively breastfeeding infants 0-6 months influences whether a mother will practice it or not. Participants whose culture indicated exclusive breastfeeding was good were more likely to breastfeed exclusively compared to participants whose culture said it was not good for the infant. Cultures will put in mechanisms to get its people to practice what it sees and says to be good. Grandmothers, relatives and people held in high esteem will encourage mothers to exclusively breastfeed because it is culturally good to do that. Mothers on the other hand who would like to be seen as a part of the family and society will try to act by exclusively breastfeeding to conform to the cultural practice.

5.4 Mother's attitude towards exclusive breastfeeding

Mother's attitudinal factors found to be associated with breastfeeding exclusively included participants feeling it was difficult to breastfeed their babies exclusively for 6 months as well as they feeling it was difficult to breastfeed their babies on demand. Participants who felt this way were negatively inclined towards practicing exclusive breastfeeding. How a mother feels greatly impacts her decision and ability to carry out the desired practice. This is consistent with previous studies and literature reviews by Meedya et al., (2010) but differ from findings by Mogre et al., (2016) where few mothers did not feel confident to express and spoon or cup feed their babies. Factors that

contribute to mothers feeling the difficulty may entail lack of or inadequate support from family and community to encourage and help with household chores as well as inadequate information provided by health staff on breastfeeding, teaching the right breastfeeding techniques to prevent and manage breastfeeding difficulties as well as being available to listen to concerns of breastfeeding mothers and to build their confidence. Providing mothers with the necessary information to acquire knowledge and build their skills will boost their confidence to practice exclusive breastfeeding (Jacdonmi et al., 2016).

5.5 Limitations of the study

Due to the cross-sectional nature of the study, establishing causality becomes difficult. This study was conducted during CWC sessions which involved only mothers with infants who attended CWC that coincided with interview days. As a result, study findings may not be representative of the actual situation on the ground and therefore may not be used to generalize the state of exclusive breastfeeding within Kintampo. Recall bias as well as providing social desirability answers during data collection were some limitations.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.0 Introduction

This chapter presents conclusions of this study and recommendations for practice, policy as well as future research. Conclusions are made in the order of the study objectives.

6.1 Conclusion

The proportion of mothers with infants who exclusively breastfeed is sub-optimal. Educational level, occupation source, most relied source of information on breastfeeding, cultural beliefs and what culture indicates about breastfeeding exclusively also influence the practice of exclusive breastfeeding. Furthermore, how difficult it was for mothers to exclusively breastfeed their babies for six months and how difficult it was for them to breastfeed on demand influence the practice of exclusive breastfeeding.

6.1.1 Recommendation for practice

Health staff should intensify awareness of exclusive breastfeeding and its benefits to all stakeholders including mothers, their spouses, families, traditional leaders and influential persons in community.

Collaboration between health staff, women, spouses and family members to empower women through education and skills acquisition.

All stakeholders should team up to discuss and modify beliefs that hamper the practice of exclusive breastfeeding.

Health staff should build mother's confidence by teaching appropriate techniques in expressing, storing and cup/spoon feeding.

6.1.2 Recommendation for policy

The Ministry of Health (MOH) and Ghana Health Service (GHS) should scale up baby friendly hospital initiatives (BFHI) to cover all health facilities to ensure improved access, coverage and care including improved breastfeeding counselling and support for all mothers, families and communities.

The MOH and GHS should advocate and engage the National House of Chiefs to discuss avenues for the adoption, institutionalization and traditional/cultural support for exclusive breastfeeding.

6.1.3 Recommendation for future research

Further research into socio-cultural practices such as beliefs, taboos, norms and values that influence practicing exclusive breastfeeding should be conducted across Ghana and Africa to unearth and find ways to mitigate to improve its practice.

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APPENDICES

Appendix 1: Participant Information Sheet and Informed consent

Introduction

My name is Joana Yinpaab Duubon. I am a graduate student from the School of Public Health, University of Ghana, Legon in Accra. I am conducting a study to determine factors influencing exclusive breastfeeding among mothers with infants in Kintampo, Kintampo-North Municipal. You can reach me through telephone number, 0541708661 and email: joanad.cifs@gmail.com.

Background and purpose of research

Exclusive breastfeeding is important for improved growth and development of infants. It has therefore become not just a concern for mothers and families but a public health concern for everyone. Organizations into health such as the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommend that, infants are exclusively breastfed from birth up to six months of age to achieve the benefits. But this is not practiced across countries in the world including Ghana because infants are given water and fed other foods by mothers and well-meaning family members during this period when they should not be. This leads to infants not growing and developing as they should, diseases and death.

Nature of study and study procedure

The goal of this study is to investigate the socio-demographic factors, socio-cultural factors as well as identify attitudes mothers have that influence exclusive breastfeeding in

Kintampo in the Kintampo-North Municipal. The study will involve you answer questions to an interviewer who will use a questionnaire.

Duration / What is involved

The interview will entail answering questions regarding yourself, socio-cultural factors as well as your attitude towards exclusive breastfeeding practices. The entire study is expected to last for about a month but your participation will be for only today and will last for about 45 minutes.

Potential Risks

Some of the questions that you will be asked during the interview might sound personal and may result in psychological or emotional discomfort however, you will not be forced to respond to all questions if you are not willing to do so. Interviewers have been trained to ask questions in a way that will minimize these effects. In the case that you experience a discomfort, the interviewer will take a break to give you some time to recover before the interview continues. You however have the right to stop the interview with no consequences whatsoever when you feel you cannot continue.

Benefits

There will be no personal benefits to you should you decide to participate. However, the personal information that you will provide will contribute to knowledge to enable health staff at local and national levels better strategize to promote exclusive breastfeeding practices among mothers with infants especially those in Kintampo.

Costs

There will be no personal cost incurred by you except for your time to respond to questions should you agree to participate in the study.

Compensation

There will be no payments made to you for your time to participate in this study

Confidentiality

The information that will be collected from you will be used purposely for this study and not shared with any other person. However, the principal investigator may access the information. Responses will be coded to ensure confidentiality and anonymity. You will be given copies of participant information sheet and a signed or thumb-printed consent form for your personal records should you agree to participate. This will be given to you before the interview begins. Participants who cannot read have the right to bring an interpreter and a witness of their choice to translate as well as witness the consenting process.

Voluntary participation / withdrawal

Being part of the study is completely voluntary therefore you can decide not to participate in it. At any stage in the study when you feel uncomfortable, you have the right to stop the interview with no consequences whatsoever to you. You are entitled to ask questions at any point in the study and the interviewer will clarify any aspect that is not well understood for your understanding.

Outcome and feed back to participant

Data collected from the study will be analyzed. Findings will then be shared with health facilities where study will be conducted for it to be shared with mothers who attend child welfare clinics.

Funding information

This study is a self-funded study with no external funding from any donor.

Sharing of participant information/Data

Data generated from this study will be solely owned by the principal investigator and will not be shared with other organization or individual.

Storage of samples

Data will be stored for a period of five years after which it will be destroyed. During this period, if the principal investigator needs to use the data for a different purpose, ethical clearance from the Ghana Health Service Ethical Review Committee would be sought for before it is used.

Provision of information and consent for participants

A copy of the Information sheet and consent forms will be given to you after it has been thumb-printed or signed for your keep.

This research has been reviewed and approved by the Ghana Health Service Ethic Review Committee. For questions and enquiries about this study, you may contact the principal investigator or her supervisor through the following addresses:

1. Joana Yinpaab Duubon (Principal Investigator)

School of Public Health

University of Ghana-Legon

Email: joanad.cifs@gmail.com

Mobile number: 0541708661

2. Dr. Franklin Glozah (Supervisor)

School of Public Health

University of Ghana-Legon

Email: fglozah@hotmail.com

Mobile number: 0572000534

For clarification on ethical issues and rights as participants, please contact the following:

Hannah Frimpong

GHS-ERC Administrator

Office: +233-302681109

Mobile: +233 (0) 243235225 / 0507041223

Email: Hannah.Frimpong@ gmail.org

or

Nana Abena Kwaa

Assistant GHS-ERC Administrator

Mobile: 0244712919

Email: nanatuesdaykad@yahoo.com

PARTICIPANT STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participant's Information Sheet read and satisfactorily explained to me in a language I understand (English □ / Akan □). I fully understand the contents and any potential implications as well as my right to change my mind or withdraw from the research even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant…….. ID Code……..

Participants' signature……OR Thumb-print……OR Mark (Sepcify)……..

Date……..……

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the participants' Information Sheet to the afore named participant to the best of my ability in the Akan language to her proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to her satisfaction.

Name of Interpreter ……

Signature of Interpreter…… Date……

Contact Details……..

……

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language she understood (English □ / Akan □).

I confirm that she was given the opportunity to ask questions/seek clarifications and same were duly answered to her satisfaction before voluntarily agreeing to be part of the research.

Name ……..

Signature……OR Thumb Print…….OR Mark (Specify)……..

Date……

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name…….

Signature…….

Date…….

Appendix 2: Questionnaire

FACTORS INFLUENCING EXCLUSIVE BREASTFEEDING AMONG MOTHERS WITH INFANTS IN KINTAMPO, KINTAMPO-NORTH MUNICIPAL, GHANA

Form ID:…….. Respondent's ID code:…….

District/Municipal …… Health Facility…….

CWC site (Tick√): Static (1) [ ] Outreach (2) [ ]

Name of interviewer:……. Interview date:……/……./……

A. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF MOTHER

1. How old are you? [AGE] ……..

2. What is your marital status? [MARITAL] (Tick √ where appropriate)

Single/Never married (1)	Married (2)	Separated/Divorced (3)	Widowed (4)	Co-habitation (5)

3. What is your most usual occupational source? [OCUPAL] (Tick √ where appropriate only once)

Unemployed (1)	Student (2)	Semi-skilled (Farmer, food vendor, trader) (3)	Skilled (Seamstress, hair dresser) (4)	Professional (Nurses, administrators, teachers) (5)	Other government employees (receptionist, clerks, messengers) (6)

4. What is your religion? [REL] (Tick √ where appropriate)

Catholic (1)	Protestant (2)	Pentecostal (3)	Muslim (4)	Traditional African (5)	Other (specify) (6)

5. What is your highest level of education? [EDUC](Tick √ where appropriate)

None (1)	Primary school/JHS (2)	SHS/Vocational Training (3)	Tertiary (4)

6. What ethnic group do you belong to? [ETH] (Tick √ where appropriate)

Akan (1)	Mo (2)	Dagarti, Frafra, Kusasi (3)	Fulani (4)	Ga, Adangme, Ewe (5)	Gonja, Dagomba, Mamprusi (6)

Konkomba, Basare (7)	Bimoba, Chokosi (8)	Sisala, Wala (9)	Zabrama (10)	Banda/Pantra (11)	Other (specify) (12)

7. Is your baby male or female? [INFSEX] (Tick √ where appropriate)

Male (1)	Female (2)

8. What is the date of birth of your baby? [INFDOB] (Confirm from maternal and child health record book)

   Day……/Month……./Year……..

9. How old is your baby in completed months? [INFAGECOMPM] (calculate number of completed months) ……..completed months

10. Does anyone in your household own any of the following? [HHASST] (Tick √ for as many options as appropriate)

	Yes (1)	No (0)
Chickens or ducks? (A)		
Sheep or goats? (B)		
Cattle? (C)		
Donkey/Cart? (D)		
Other animals? (E)		
Table? (F)		
Sleeping mattress? (G)		
Cupboard, wardrobe, room divider? (H)		
Mosquito net? (I)		
Insecticide Treated Mosquito Net? (J)		
Radio? (K)		
TV? (L)		
Gas or electric cooker? (M)		
Fridge or freezer? (N)		
Bicycle? (O)		
Motorcycle? (P)		
Tractor? (Q)		
Telephone (fixed/mobile)? (R)		

	Yes (1)	No (0)
Store/shop/kiosk? (S)		
Commercial Vehicle? (T)		
Car? (U)		
Electric iron? (V)		
Fan? (W)		
Satellite dish? (X)		
Computer? (Y)		
Sewing machine? (Z)		

11. What materials are used in the construction of your house? [CONSMAT] (Tick √ for as many options as appropriate)

Floor of sleeping room (1)		Roofing (2)		Wall (3)	
Cement (A)	(1)	Metal/asbestos (A)	(1)	Cement (A)	(1)
Mud/clay (B)	(1)	Thatch/mud (B)	(1)	Mud (B)	(1)
Other (specify) (C)	(1)	Other (specify) (C)	(1)	Other(specify) (C)	(1)

B. BREASTFEEDING PRACTICES

12. Was your baby breastfed yesterday during the day or at night? [BFDAYNGHT] (Tick √ where appropriate)

1. Yes [ ] 0. No [ ]

13. Did your baby consume breast milk by spoon, cup, bottle, or breastfed by another woman yesterday during the day or night? [CONBMOTHER] (Tick √ where appropriate)

1. Yes [ ] 0. No [ ]

14. Apart from breastfeeding, what type of food was your baby fed with yesterday during the day or at night? [FOODFED] (Tick √ for as many options as appropriate)

Breast milk by spoon, cup or bottle (1)	Infant formula by spoon, cup or bottle (2)	Porridge by spoon, cup or bottle (3)	Other(specify) (4)	Nothing (5)

15. When you are not home or cannot feed the baby yourself, who does it? [WHOFEED] (Tick √ for as many options as appropriate)

Father (1)	Grandmother (2)	Other children (3)	Other(specify) (4)	No one (5)

16. If you are not there to feed the baby, what type of food is the baby fed? [FOODTYPE] (Tick √ for as many options as appropriate)

Breast milk by spoon, cup or bottle (1)	Infant formula by spoon, cup or bottle (2)	Porridge with spoon, cup or bottle (3)	Other(specify) (4)	Nothing (5)

C. CULTURAL PRACTISES

17. Who do you rely on mostly for information on breastfeeding? [BFINFO] (Tick √ where appropriate only once)

Mother in-law (1)	Friends (2)	Midwife/ Nurse (3)	Mother support groups (4)	Community based health promoters (5)	Others (specify) (6)

18. Do you belong to any community group/association? [COMGRP] (Tick √ where appropriate)

1. Yes [ ] 0. No [ ]

19. If Yes, does the group give information about breastfeeding? [GRPBFINFO] (Tick √ where appropriate)

1. Yes [ ] 0. No [ ]

20. What beliefs, taboos and cultural practices of yours make practicing exclusive breastfeeding difficult? [BFDIFF] (Tick √ for as many options as appropriate)

Naming ceremony (1)	Rituals (giving herbal water) (2)	Water to drink before/during bathing (3)	Other (specify) (4)	No belief (5)

21. What does your culture say about breastfeeding infants 0-6months? [CULBF] (Tick √ where appropriate)

It is not good for the infant (1)	It is good for the infant (2)

D. MOTHER'S ATTITUDE TOWARDS EXCLUSIVE BREASTFEEDING

22. How good do you think it is to breastfeed your baby exclusively for six months? [GOODEBF] (Tick √ where appropriate)

Not good (1)	Not sure (2)	Good (3)

23. How difficult is it for you to breastfeed your baby exclusively for six months? DIFFEBF] (Tick √ where appropriate)

Not difficult (1)	Not sure (2)	Difficult (3)

24. How good do you think it is to breastfeed your baby on demand that is when your baby wants to feed? [GOODDEM] (Tick √ where appropriate)

Not good (1)	Not sure (2)	Good (3)

25. How difficult is it for you to breastfeed your baby on demand? [DIFFDEM] (Tick √ where appropriate)

Not difficult (1)	Not sure (2)	Difficult (3)

26. How confident do you feel in breastfeeding your baby? [CONFBF] (Tick √ where appropriate)

Not confident (1)	Not sure (2)	Confident (3)

27. How confident do you feel in expressing and storing breast milk so that you or someone else can feed your baby? [CONFEXP] (Tick √ where appropriate)

Not confident (1)	Not sure (2)	Confident (3)

28. How good do you think it is to formula feed your baby for the first six months? [GOODFORM] (Tick √ where appropriate)

Not good (1)	Not sure (2)	Good (3)

Thank you for taking time to complete this questionnaire.

Appendix 3: Ethical Clearance

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted.

*MyRef. GHS/RDD/ERC/Admin/App*197040
Your Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
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Tel: +233-302-681109
Fax + 233-302-685424
Email: ghserc@gmail.com
7th February, 2019

Joana Yinpaab Duubon
School of Public Health
College of Health Science
University of Ghana
Legon-Accra

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	**GHS-ERC027/01/19**
Project Title	Factors Influencing Exclusive Breastfeeding among Mothers with Infants in Kintampo, Kintampo-North Municipal, Ghana
Approval Date	7th February, 2019
Expiry Date	6th February, 2020
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.
- Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra