SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA LEGON

BREASTFEEDING BEHAVIOUR AMONG FIRST TIME MOTHERS VISITING SELECTED HEALTH FACILITIES IN GA EAST DISTRICT OF GREATER ACCRA REGION

BY

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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTER OF PUBLIC HEALTH DEGREE

JULY 2015

DECLARATION

I Theodora Nortey confirm that this work submitted for review is my own words. Any uses made of other authors work in any form are properly acknowledged at the point of their use. A full list of the references employed has been included.

Signed…… Date……

Theodora Nortey

(Student)

Signed…….. Date……

Dr. Richmond Aryeetey

(Supervisor)

DEDICATION

I dedicate this study to the Almighty Lord for His grace and mercy during the past year on the Masters of Public Health programme. I am grateful Lord, thank you.

ACKNOWLEDGEMENT

I want to acknowledge my husband for his support and encouragement and also Dr Richmond Aryeetey for his expertise and guidance during the study. I am indebted to you Dr. Aryeetey, God richly bless you.

ABSTRACT

BACKGROUND: Timely breastfeeding initiation is critical to child survival and development. First-time mothers are particularly vulnerable to poor breastfeeding practice. Although studies have been conducted on breastfeeding initiation, first time mothers have not been prioritized.

OBJECTIVE: To determine prevalence of timely breastfeeding initiation, and the associated factors of breastfeeding initiation and suboptimal child feeding practices during first six months among first time mothers in Ga East District of Greater Accra.

DESIGN: A facility-based cross-sectional study was carried out in postnatal and Child Welfare Clinics (CWC) in Ga East district from May to July 2015. Quantitative data were collected from 220 randomly selected first time mothers attending CWC, by self-administered questionnaire and interviewer-administered based on literacy status. Chi-square analyses were used to identify factors associated with timely breastfeeding initiation. Multiple logistic regression analyses identified the independent factors associated with timely breastfeeding initiation.

RESULTS: A total of 48.2% first time mothers initiated timely breastfeeding at birth compared to 51.8% who did not initiate breastfeeding. A total of 34.1% mothers' gave prelacteal foods to their children the first few days after birth. More mothers between the ages 21 to 30 reported giving prelacteal food (76%). Mothers who initiated breastfeeding within one hour were less likely to use any prelacteal food (AOR=0.25, 95% CI 0.14-0.46, *P*value <0.0001) compared to mothers who did not initiate breastfeeding at birth. Also mothers who practiced prelacteal feeding were 2.1 times more likely to give water before

the child is six months (OR=2.1, 95% CI 0.98-4.4, *P*value <0.0001) compared to those who did not practice prelacteal feeding. The factors that were significant in predicting timely breastfeeding initiation were prelacteal feeding (AOR=0.25, 95% CI 0.14-0.46, *P*value <0.0001), obstetric outcome (AOR=0.43, 95% CI 0.24-0.77, *P*value 0.005) and maternal intention to breastfeed exclusively (OR=0.36, 95% CI 0.20-0.64, *P*value 0.001).

CONCLUSION: Timely breastfeeding initiation rates among first time mothers were low (48.2%) but similar to general population of mothers in Ghana (45.9%). There is a need to focus strategies in improving optimal breastfeeding early among first time mothers.

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LIST OF ABBREVIATIONS

CHPS: Community Health Based Planning Services

CWC: Child Welfare Clinic

DDNS: Deputy Director of Nursing Service

ERC: Ethics Review Committee

GDHS: Ghana Demographic Health Survey

GHS: Ghana Health Service

IRB: Institute Research Board

MICS: Multiple Indicator Cluster Survey

NHS: National Health Service

UNICEF: United Nations Children Fund

WHO: World Health Organization

DEFINATIONS OF TERMS

Breast milk: The milk produced by the breasts of a human female for her infant.

Breastfeeding: The feeding of an infant or young child directly from the mothers' breast.

Formula: Formulas are food products given to infants under 1 year old.

Initiation: The first breast milk fed to the infant the first hour after birth.

Mixed feeding: The feeding of breastmilk and other foods and fluids.

Mothers: The mother with infants below six months of age.

Predominate breastfeeding: Breastfeeding with occasional feeding of non-breastmilk foods and fluids.

Prelacteal: The food given to the newborn before breastfeeding is established.

Suboptimal: Below the best standard.

Supplementary feeding: The additional food given to children.

Timely: Initiating breastfeeding within the first hour after birth.

APPENDICES

CHAPTER ONE

1.0 INTRODUCTION

This chapter attempts to orient the reader to the study by giving the background to the study. A summary of the relevance of breastfeeding and timely initiation of breastfeeding in public Health is made, followed by the statement of the problem, justification and objectives for the study. This chapter ends with the study's conceptual framework.

1.1 Background

Breastfeeding benefits the child, mother, and society by reducing risk of illness and death. This benefit is also associated with reduced cost in health care, and a decrease in the burden of diseases linked to poor infant feeding practices (Horta, Bahl, Martines & Victora, 2007 & Lamberti, Fischer Walker, Noiman, Victora, & Black, 2011). In the long term, breastfeeding contributes to a healthy population which is a key ingredient to economic growth and development (Black, Allen, Bhutta, Caulfield, de Onis, Ezzati, Mathers, & Rivers, 2008; Pollard, 2012). As a preventive public health measure, breastfeeding is associated with reduced ill-health among young children. This evidence has been reported by various studies conducted in low and middle income countries and Horta et al. (2007) suggests optimally breastfed infants have reduced risk of mortality from infectious diseases up to the age of two years. Kramer and Kakuma's study (as cited in Horta et al., 2007) explains exclusively breastfed infants have lower morbidity to gastrointestinal and allergic diseases with little difference in growth rates to non-breastfed children. Over the life course, the exclusively breastfed child has a lower risk of childhood obesity, diabetes and hypertension (Prentice & Moore 2005; Horta et al., 2007). And women who breastfeed appropriately have delayed return of menses, more rapid loss of weight gained during

pregnancy, reduced risk of diabetes, osteoporosis, breast, and ovarian cancers (Pollard, 2012).

Breastfeeding is promoted globally by the World Health Organization (WHO) and the United Nations Children Fund (UNICEF). Governments in various countries, including Ghana, have also adapted breastfeeding promotion as a key public health intervention. The key recommendations for breastfeeding is for the child to be put to the breast within the first hour after birth, exclusive breastfeeding for six months, and appropriate complementary feeding introduction from six months with continued breastfeeding until the age of 24 months. Unfortunately adherence to the recommendations are poor. According to UNICEF (2015) breastfeeding initiation for Chad and Montenegro was 29% and 14% respectively. In Ghana the number of children put to the breast within the first hour after birth are 46 %, whilst 84% breastfeed within a day (MICS, 2011). Apart from the reduced initiation rate mentioned above, exclusive breastfeeding has also decreased from 63% (GDHS, 2008) to 46% (MICS, 2011) below the 50% goal set by WHO (International Food Policy Research Institute, 2014). This is the evidence that breastfeeding initiation and continuation is currently reducing in Ghana. Breastfeeding promotion and support of mothers to breastfeed is necessary to achieve optimal breastfeeding practices in Ghana especially among first time mothers.

This statistic is important because timely breastfeeding initiation is linked with successful breastfeeding in subsequent childhood (Renfrew, McCormick, Wade, Quinn & Dowswell, 2012). Current evidence shows that exclusive breastfeeding is short in Ghana and only 63% of children under six months benefit far below the 100% recommendation (DHS, 2008). Breastfeeding is essential in reducing health inequalities and achieving millennium

development goals in Ghana (International Food Policy Research Institute, 2014). Also important is the variation in breastfeeding initiation rates across locations. Both the Ghana Demographic Health Survey (GDHS) and the Multiple Indicator Cluster Survey (MICS) confirm that children in urban areas are less likely to be breastfed compared to their counterparts in the rural areas (GDHS, 2008 & MICS, 2011). In Ghana Greater Accra had the lowest breastfeeding initiation within one hour after birth (28.6%) and one day after (67.9%) in 2011. As a result, children are deprived of the benefits of good feeding practices (Nguyen, Keithly, Nguyen, Nguyen, Tran, Hajeebhoy, 2013 & Pollard, 2012). Edmond, Zandoh, Quigley, Amenga-Etego, Owusu-Agyei (2006) observed a 2.4 increased risk of mortality in children who had delayed breastfeeding initiation compared to children who were fed within the first hour in rural Ghana.

An important determinant of timely breastfeeding initiation is prelacteal feeding during the first few days postpartum, which is characterized by the administration of fluids other than breastmilk (Nguyen et al., 2013). Culturally, some tribes in Ghana feed the child with water, honey and herbs (Tawiah-Agyemang, Kirkwood, Edmond, Bazzano & Hill, 2008). This practice is common in Ghana and has the potential to expose children to diseases (Edmond, Kirkwood & Tawiah, 2009; Kubreziga, 2012). Greater Accra Region recorded the highest prelacteal feed (26.6%) in Ghana in 2011 (MICS, 2014), followed by children delivered at home (25.3%) and private health facilities (24.2%). Bottle feeding is becoming common in Ghana especially in urban areas (MICS, 2011). Lee et al., (2009) affirms that unlike mothers who have had children in the past, first time mothers are less likely to initiate breastfeeding at birth. This may predispose first time mothers' to prelacteal feeding.

Factors such as socioeconomic status and available support is needed to empower her initiate breastfeeding at birth and continue breastfeeding as recommended.

1.2 Statement of the Problem

There is a gap in knowledge of breastfeeding initiation and exclusive breastfeeding among first time mothers in Ghana. Women generally lack adequate support to initiate and continue breastfeeding in Ghana. This is due to the belief breastfeeding is a natural process so women will adapt comfortably without support. And where available women lack access to existing support. Distance, cost, work and lack of knowledge to the source of help can prevent breastfeeding support. The case of first time mothers is especially critical regarding the need for support. Little is known about experiences and initiation behavior of first time mothers' in Ghana. Not much progress will be made with first time mothers if they are not prioritized and support directed at them. Such support requires evidence which does not exist but the study aim to make available.

1.3 Justification

The study will yield evidence on barriers to first time mothers' initiation of breastfeeding and exclusive breastfeeding in Ghana. The study will focus breastfeeding initiation among first time mothers. This will be useful to health system managers, nurses, breastfeeding counsellors in intervention strategies to support first time mothers initiate breastfeeding at birth. The outcome will also be useful for employers in identifying opportunities to best support their female workers in the workplace.

1.4 Objectives

i. General objective:

- To determine the prevalence of timely breastfeeding initiation among first time mothers in the Ga East District.

ii. Specific objectives:

- Determine the prevalence of timely breastfeeding initiation.
- Identify the factors associated with timely breastfeeding initiation.
- Identify suboptimal feeding practices (prelacteal feeding, formula feeding, and bottle feeding) among first time mothers'.
- Identify factors associated with breastfeeding initiation among first time working mothers.

iii. Hypothesis

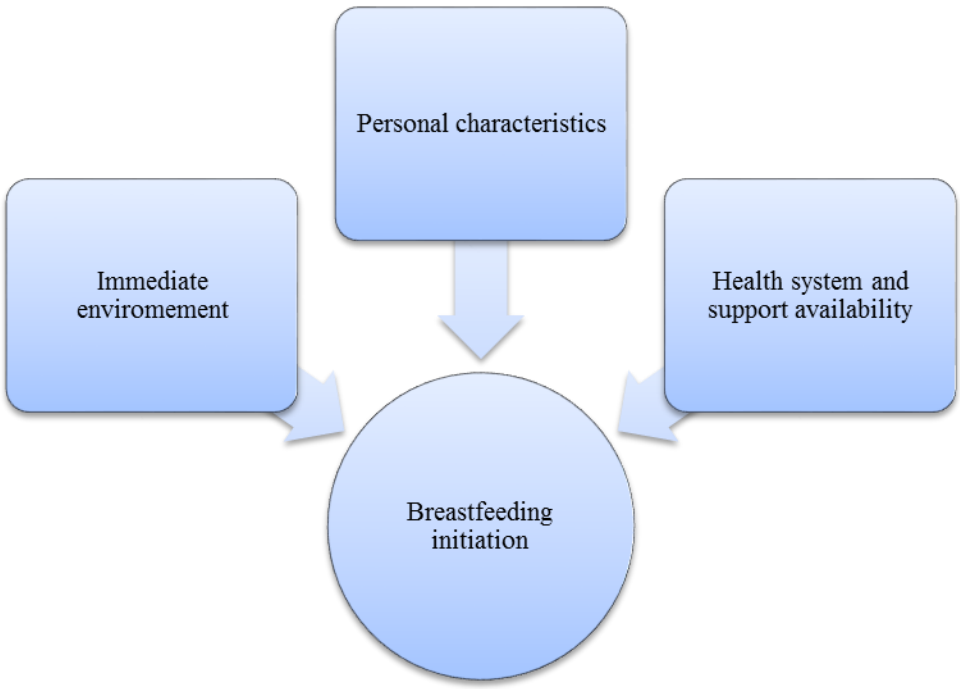
- First time working mothers with high sociodemographic status are less likely to initiate breastfeeding.
- First time working mothers are less likely to initiate and continue breastfeeding if their environment is not supportive.

1.5 Conceptual Framework

The work of Nguyen at al. (2013), Horii, Guyon, & Quinn (2011), Lee, Elo, McCollum, Culhane (2009) and Hector, King, Webb (2005) were adapted to determine breastfeeding initiation at birth. The adapted framework examined the factors associated with first time mothers' initiating breastfeeding at birth. The outcome variable is breastfeeding initiation

and the independent variable are the three identified dimensions associated with breastfeeding initiation. Three dimensions identified were 1) the personal characteristics, 2) the immediate environment and 3) the health service. For personal characteristics factors include socioeconomic status, occupation, educational background and obstetric history. The immediate environment considers the supportive network such as family and friends, midwives, community health workers and a culture of breastfeeding. The health system considers the type of health facility and the support available for mothers to initiate breastfeeding at birth.

Figure 1.1: Conceptual framework for determinants of breastfeeding initiation



Source: Adapted from Nguyen at al. (2013), Horii et al. (2011), Lee et al. (2009) & Hector et al. (2005).

CHAPTER TWO

2.0 LITERATURE REVIEW

The previous chapter provided an orientation to this study. This chapter presents relevant literature in consideration to the objectives of the study. The areas considered were importance of breastfeeding, global recommendation of breastfeeding, initiation of breastfeeding, epidemiology of breastfeeding initiation, prelacteal feeding, and breastfeeding initiation and work.

2.1 Importance of Breastfeeding

Appropriate feeding in infancy and early childhood is vital to safeguard growth, health and development of children to their full potential (UNICEF, 2013). This is important because poor feeding in early childhood increases the risk of disease and death among children under five years. Edmond et al. (2006) and Garcia, Mullany, Rahmathaullah, Katz, Thulasiraj, Sheeladevi, Coles, & Tielsch (2011) found that infants whose mothers delayed breastfeeding initiation beyond one hour postpartum had 2.4 and 3.9 increased risk of death respectively, compared to early initiators. Timely breastfeeding initiation and exclusive breastfeeding are associated with optimal development in childhood (Black et al., 2008). Compared to other types of infant feeding, breastfeeding protects the infant from infections (Edmond et al., 2006; Lamberti et al., 2011). Breastfeeding has been found to improve cognition and performance in children during educational period with consequent long-term future implications (Kramer, Aboud, Mironova, Vanilvic, & Platt, 2008; UNICEF, 2013; Dewey & Begum, 2011). The mother benefits from breastfeeding through immediate post-delivery release of oxytocin that prevent postpartum hemorrhage if timely initiation

occurs. There is also a long term protection against osteoporosis, breast and ovarian cancer in the mother (Pollard, 2012; WHO, 2009).

World Health Organization (WHO) Infant and Young Child Feeding Strategy emphasizes the action countries and their institutions need to embark to ensure appropriate infant and young child feeding practices are protected, promoted and supported globally (WHO, 2003). This is because adequate infant and child nutrition is critical in the under two year's group. And suboptimal feeding practices can be reversed at this point beyond which little can be done. The strategy portrayed and revived the world's attention to best practices to stop poor nutrition, facilitate growth and development, and survival in infants and young children. Four operational targets identified in this framework are the appointment of a national coordinator and a coordinating body for infant and young child feeding, supportive health systems, implementation of the code of marketing breastmilk substitutes, supportive employment laws and efficient information, education and communication of good feeding practices in children. Additionally the presence of effective policies are necessary to regularly monitor, update and ensure supportive environment such as community and worksite support base. Solution to suboptimal infant and child feeding begins from the mother, than the child and the environment. Breastfeeding initiation is one of the key areas of infant and child feeding which is the focus of this review. Initiation of breastfeeding maximizes the benefits of overall breastfeeding in infant and young child and promote longer duration in breastfeeding (UNICEF, 2013). The first milk called colostrum contains antibodies that protect the infant from infections and diseases. The follow-on milk also contains the nutrients needed by the growing infant, although Kramer and Kakuma (Kramer & Kakama, 2012) found reduced iron stores in exclusively breastfed children in

developing countries and suggested iron supplement may be needed in exclusive breastfeeding in this region. But overall this recommendation may not be necessary in the first six months of exclusive breastfeeding, however the admonition is to look at every child individually.

The consequence of poor feeding is undernutrition which contributes largely to child disability, morbidity and mortality (UNICEF, 2013). It also reduces intellectual capacity with long-term poor academic achievement resulting in low income and productivity (Dewey & Begum, 2011). Due to fetal programming the child is at risk of non-communicable diseases which is an emerging health problem globally with developing countries being the hardest hit (Kiani & Nielsen, 2011). Programmes tackling infant and child undernutrition in Ghana are Focused Antenatal Care, Baby Friendly Hospital Initiatives, Child Growth Monitoring and Management of severe acute malnutrition in infants and young children. Globally initiation of breastfeeding is below the 50% target of WHO, with developing countries having the highest rates. Mothers who are multigravida have been identified to initiate breastfeeding compared to primigravada (Esteves, Daumas, Couto de Oliveira, de Ferreira de, & Leite, 2014; Nguyen et al., 2013). And in situations where first time mothers initiate breastfeeding, challenges in lactation and attachment may lead to early cessation (Esteves et al., 2014).

Although there are numerous studies on breastfeeding initiation (Edmond et al., 2006; Tawiah-Agyemang et al., 2008; Fosu-Brefo & Arthur, 2015), little literature exists on experiences of working first time mothers. Factors that influence breastfeeding among first time mothers are sociodemographic characteristics, antenatal care, delivery, condition in the postnatal period, supportive network and health facility accessed (Esteves et al., 2014

; Nguyen et al., 2013). The first time mother is most likely to be influenced by family and friends because she has no previous experience in breastfeeding. Therefore compared to an older mother may be at risk of delayed timely breastfeeding initiation. The antenatal care given to a mother is important because of the strong desire to learn and provide good care to their young during pregnancy especially the first time. Therefore focused antenatal care can equip the first time initiate and continue breastfeeding compared to poor or absence of education during this period. Also the type of delivery the mother had, for instance use of epidural in normal delivery and caesarean section can be an impediments to successful breastfeeding. The postnatal period can also influence a first time mother because she require support in learning to breastfeed her child successfully. Some of the breastfeeding difficulties encountered by first time mothers are attachment and positioning, tiredness and loss of personal space.

2.2 Global Recommendations of Breastfeeding

In 2002 the World Health Assembly (WHA) and United Nation Children's Fund (UNICEF) formulated the Global Strategy for infant and young child feeding (WHO, 2003). The strategy recommended initiation of breastfeeding within the first hour after birth, followed by exclusive breastfeeding for six months and complementary feeding after six months with continual breastfeeding until the child is two years old. The infant is not given any other food for six months except prescribed medicine and supplements. Responsive feeding is advocated in the strategy and forced-feeding was discouraged. This guide has been adopted by most countries, globally, to improve breastfeeding practice. Ghana has also adopted the recommendation and instituted measures to address the lapses

in infant and child feeding in the country. Some of the challenges are discarding of colostrum, delayed initiation, perception of inadequate milk hence the use of formula which is encouraged by the older mothers, poor implementation and monitoring of breastfeeding policies and inadequate knowledge and practices of health workers. But despite the efforts made there are more to be done to support first time mothers in breastfeeding. The main areas of concern are breastfeeding initiation at birth and exclusive breastfeeding (Fosu-Brefo & Arthur, 2015). The short maternity leave and absence of supportive working environment for the first time mother may prevent breastfeeding continuation: thus increasing the risk of morbidity and mortality in their infants. There is a need to look at the current policy for working mothers in Ghana.

2.3 Initiation of Breastfeeding

Initiation of breastfeeding is putting the infant to the breast immediately or within an hour of birth. This is important because the infant is protected from neonatal morbidity and mortality due to the properties derived from the first breastmilk (Edmond et al., 2006) (Garcia et al., 2011). Colostrum is the first milk and it has protective antibodies and nutrients (WHO, 2009). There are literature on the protective properties of colostrum which build the child's immune system: thus guards the child from diseases (Edmond et al., 2006; WHO, 2009; UNICEF, 2013). Recent cross sectional study suggested initiation of breastfeeding is significant and critical to child growth and development in Ghana (Fosu-Brefo & Arthur, 2015). Most of the mothers in this study were in informal employment and initiated breastfeeding late compared to mothers in formal employment: it could be a case of early return to work or inadequate education of appropriate infant and child feeding

practices. This literature shows fewer mothers initiate breastfeeding in Ghana, which is consistent with developing countries (Garcia et al., 2011; UNICEF, 2013).

The factors associated with delayed breastfeeding initiation are varied. Some of the reasons given by mothers are post birth activities, rest of both baby and mother after birth or baby not crying (Tawiah-Agyemang et al., 2008). Other factors identified by literature are low maternal education, skilled attendants, employment, low income parity and absence of antenatal education (Esteves et al., 2014). Mothers in developing countries predominately breastfeed however child mortality is high so initiation of breastfeeding is the main focus to help reduce the high mortality (Edmond et al., 2006). Recent literature identified delayed initiation of breastfeeding as critical to promotion of child health in Ghana (Fosu-Brefo & Arthur, 2015).WHO recommends a 50% breastfeeding initiation rate (UNICEF, 2013), so there is a need to identify whether first time working mothers contributes to this group since multigravidas normally initiate breastfeeding according to literature (Esteves et al., 2014). Some of the reasons given for the delay are parity, being a first time mother, fatigue in mother and infant post-delivery and routine hospital protocols. The World Health Organization (WHO) and UNICEF have set targets to address some of these concern. One of the standards for the global community is at least a 50% prevalence rate of breastfeeding.

2.4 Epidemiology of Breast Feeding Initiation

Mothers are influenced by different factors when it comes to breastfeeding initiation globally. These factors have contributed to differences in breastfeeding initiation rates. Developing countries are known for high breastfeeding initiation rates, whilst developed countries have low breastfeeding initiation rates with exception of Scandinavian countries

(UNICEF, 2013). However not all developing countries have high breastfeeding initiation rates with most below the benchmark set by WHO (Tawiah-Agyemang et al., 2008; UNICEF, 2013; Waite & Christakis, 2015). WHO and UNICEF recommends a 50% minimum prevalence rate in breastfeeding initiation globally (UNICEF, 2013). Eastern and Southern African countries have achieved the benchmark with 56% breastfeeding initiation rate compared to the rest of Sub-Saharan Africa which has a 48% breastfeeding initiation rate (UNICEF, 2013). The rate is further reduced to 35% in Western Africa a part of Sub-Saharan Africa (UNICEF, 2013). Additionally, most countries in Sub-Saharan Africa are low resource countries and improved breastfeeding initiation will reduce the high infant morbidity and mortality in the region (Edmond et al., 2006; Fosu-Brefo & Arthur, 2015). Ghana's breastfeeding initiation rate is 46% according to the Multiple Cluster Survey (2011). And a need to improve this has been identified recently by Fosu-Brefo and Arthur (2015) in order to improve child health in the country.

Eastern and Southern African countries have high breastfeeding initiation rate as established above. The question is, are there factors within countries that contributes to the differences in breastfeeding initiation rates across. Recent literature from Ethiopia an Eastern African country reports an 88.5% breastfeeding initiation rate (Wolde, Birhanu, & Ejeta, 2014). Initiation of breastfeeding in this study was strongly associated with breastfeeding advice during antenatal care, good child attachment, feeding colostrum and family planning. Attitude and practice of mothers assessed showed that although 85.5% of mothers found breastfeeding frustrating, majority affirmed that colostrum is important and perceives child receives enough milk from breastfeeding. This may explain the higher in this region. Tawiah-Agyemang et al. (2008) in a similar study found that although mothers

received antenatal advice they delayed initiation of breastfeeding because of the perception that breastmilk was absent and discarded colostrum as well. This is in contrast with Wolde, Birhanu & Ejeta (2014) as antenatal advice contributed positively in Ethiopia. Unlike Ghana Ethiopia has Health Extension Workers deployed in the community so women are educated and supported to breastfeed. Both studies identified culture as a factor in breastfeeding initiation. Culture delayed initiation of breastfeeding in Ghana (Tawiah-Agyemang et al., 2008) and promoted initiation in Ethiopia (Wolde, Birhanu, & Ejeta, 2014). Therefore the different cultures in Sub-Saharan African may have contributed to the different breastfeeding initiation rates in the region. This was affirmed by another study in the same region (Alemayehu, Abreha, Yebyo, Zemichael, & Gebremichael, 2014). Another contrast to Tawiah-Agyemang et al. (2008) was more first time mothers initiated breastfeeding in Ethiopia (Wolde el al., 2014), and again Health workers may have been influential in this. Child positioning and attachment contributed to late initiation (Wolde et al., 2014): first time mothers are most at risk of this difficulty.

The framework used to assess breastfeeding initiation in this cross sectional study was adopted from Nguyen at al. (2013), Horii et al. (2011), Lee et al. (2009) and Hector et al. (2005). Breastfeeding initiation are determined by factors beyond her control. Three dimensions associated with breastfeeding initiation among working first time mothers were identified. These were personal characteristics, immediate environment and the available health service delivery system. Oakley et al. (2014) acknowledged that although the factors that affect initiation and continual breastfeeding may be similar but there is a difference between the two. The two are associated with prenatal feeding intention and attitudes, socio-demographic factors, age, maternal education, socio-economic status, maternity care

and hospital infant feeding practices. However breastfeeding initiation is associated with labour and birth factors whilst this is not significant in breastfeeding continuation. The first dimension is personal characteristics which involves the personal attributes that may promote or limit the mother's ability to initiate breastfeeding at birth. And they are socioeconomic status, occupation, educational background and obstetric history. The second dimension is the immediate environment of the mother comprising her support system, the society and alternatives to infant feeding. And the last dimension is the health service accessed and health professionals.

It has been established that personal characteristics of a first time mother can greatly influence breastfeeding initiation (Esteves et al., 2014). The sociodemographic background comprises age, educational status, occupation, income, parity, knowledge of breastfeeding and maternal breastfeeding intention (Esteves et al., 2014; Horii et al., 2011; Galianoa & Rodríguez, 2013; Kronborg, Harder & Hall, 2015; Leahy-Warren, 2014; Selegn et al., 2011; Tawiah-Agyemang et al., 2008 and Wang, Lau, Chow, & Chan, 2014). Younger mothers have been found to be less likely to initiate breastfeeding (Esteves et al., 2014). This may be related to their inexperience in motherhood and little information on the process (Tawiah-Agyemang et al., 2008). They are also likely to have low educational status and lower income (Esteves et al., 2014). Although a higher socioeconomic status is an advantage in initiation of breastfeeding, other studies have shown that it does not always positively influence initiation among mothers especially in low resource countries (Hazir, Akram, Nasir, Kazmi, Agho, Abbasi, Khan, & Dibley, 2012). Oakley et al., (2014) found prenatal intention to breastfeed influenced mothers more than sociodemographic characteristics. So a first time mother's non-intention to breastfeed in the antenatal period

may prevent timely initiation and promote early cessation if the environment is unsupportive. Vieira et al. (2010) affirms this but reports that parity is a key determinant apart from supportive environment. The first time mother is thus at a disadvantage because of null parity, therefore a supportive environment may not necessarily ensure timely initiation of breastfeeding at the birth of her infant. They found fewer first time mothers' initiating timely breastfeeding compared to multiparous mothers.

The immediate environment comprises of support system, the society and alternative practices of infant feeding. The source of breastfeeding support could be professional and or peer support. Both have been identified as effective in increasing any breastfeeding rates among mothers. Oakley et al. (2014) found that women who had no advice on breastfeeding from any source stop breastfeeding by ten days post-delivery. Numerous studies have also observed how focused support can improve breastfeeding initiation and continuation among low income first time mothers in particular (Simonetti et al., 2012; Agostino et al., 2012; Olson et al., 2010; Craig & Dietsch, 2010). Continual access of the first time mother to breastfeeding support increased any breastfeeding rates above 50% according to Agostino et al., (2012). Craig & Dietsch (2010) added that although mothers' knowledge and skill were equipped to initiate breastfeeding their fear and anxiety level did not changed. Obstetric interventions like caesarean section has been reported to negatively influence first time mothers not to initiate breastfeeding at birth (Esteves et al., 2014). Antenatal education may be may be limited in Ghana because of the absence of continuous access to skilled health care professionals after discharge from hospital. Galiano & Rodríguez (2013) did a study of first time mothers and found that any form of maternal education increases timely initiation and duration compared to absence of maternal

education. This may be good for first time mothers however they need immediate advice and education on breastfeeding and any form of education may not be adequate. Existing conventional supportive intervention in Ghana may not adequate in meeting the peculiar needs of first time mothers who return early to work after childbirth (Simonetti et al., 2012; Agostino et al., 2012; Olson et al., 2010 & Craig & Dietsch, 2010). However, the small sample size implies generalization has to be done with caution. Easy access to alternative types of infant feeding serve as a deterrent to breastfeeding initiation (Viele & Kramer, 2014). This problem may be facilitated in health facilities that are not baby friendly and thus encourage infant formula in the facility. Chantry et al. (2014) identified hospital supplementation with formula as a major determinant of not fully breastfeeding or cessation of breastfeeding among first time mothers who intended to breastfeed in the prenatal period. The reasons given by the mothers were perceived insufficient milk supply, baby taking inadequate amount and poor latch. Unlike first time mothers with high sociodemographic characteristics in Ghana, most first time mothers in Ghana may not be able to sustain formula supplementation even if the health facilities encourage it.

Most public health facilities in Ghana are baby friendly so are likely to promote and support mothers to initiate and continue breastfeeding compared to privately owned facilities. Perrine et al. (2012) asserted that Baby Friendly Health Facilities are essential to promoting breastfeeding initiation. The health facility determines the health professional available to support mothers. The global Baby Friendly Hospital Initiative consists of the existence of a model breastfeeding policy, staff competency assessment, prenatal breastfeeding education, early initiation of breastfeeding, teaching breastfeeding techniques, limited supplementation of breastfeeding infants, rooming-in, teaching feeding cues, limited use

of pacifiers, and post discharge support. This is important because the policy serve as a guide to direct best practice and ensure that the health professional is available to support mothers (Belay et al., 2013).

2.5 Prelacteal Feeding

McKenna & Shankar explained that "Prelacteal feeds are those foods given to newborns before breastfeeding is established or before breast milk "comes in," usually on the first day of life" (McKenna & Shankar, 2009, p. 78). Prelacteal foods include water, formula, honey, light porridge (koko) and herbs to mention a few. The type of prelacteal used may be associated with the mothers' ethnic background or choice. Prelacteal feeds within the immediate postnatal period is the focus of this study because it may affect a mother's exclusive breastfeeding intention. Prelacteal feeding is the introduction and feeding of non-breastmilk foods to infants early in life (Nguyen, 2013). This activity does not only prevent initiation of breastfeeding and reduction of exclusive breastfeeding, but also increases the risk of morbidity and mortality in infants. Nguyen et al. (2013) reports that 73.3% of newborns were fed non-breastmilk like cow milk and formula the first three days of life instead of breastfeeding with colostrum. And of these 53.5% were formula, whilst 44.1% were fed with water. This findings are consistent with Guigliani et al. (2007) observations of Brazilian mothers. However, Guigliani et al. (2007) established feeding breastmilk substituent was associated with non-first time mothers compared to first time mothers. They mentioned that first time mothers were rather prone to influence by maternal grandmothers to introduce water and tea instead of formula. This has been confirmed by studies such as Tawiah- Agyemang et al. (2008) in Ghana. Surprisingly, first time mothers

were not likely to introduce formula feeds, however reduction in the duration of breastfeeding may eventually lead to reduced breastmilk supply. This reduced supply may lead to introduction of formula supplement in first time mothers (Nguyen et al., 2013). The result of this practice is a society with both predominate breastfeeding and prelacteal feeding among mothers (Edmond et al., 2006). Key determinants for prelacteal feeding are poor maternal breastfeeding knowledge, maternal misconceptions about breastfeeding, social norms and maternal beliefs about behavior control. Similarly, obstetric intervention can be a contributing factor in the rising prevalence of prelacteal feeding in developing countries. Prelacteal feeding rate according to the Demographic Health Survey is 36.1% in Ghana (GHS, 2008). Kubreziga (2012) and Sika-Bright (2014) reports infants in Northern Ghana fed early with water and food are exposed to high levels of nitrite: predisposing them methemoglobinemia. Musa et al. (2009) found a strong association between diseases and prelacteal feeding.

2.6 Breastfeeding Initiation and work

According to Waite & Christakis (2015) mothers' positive perceptions of workplace lactation support are associated with job satisfaction. Anderson et al. (2015) confirmed the importance of this support but alleged that effective interpersonal relationship is essential to access the support even when there is an existing policy for mothers. They defined interpersonal communication as interactions where people dynamically exchange information and build relationships. So the lack of interpersonal skills needed to access the support may render first time mother unsupported at the workplace (Anderson et al., 2015). Hirani and Karmaliani (2013) found that mother' breastfeeding knowledge, tenacity to

continue breastfeeding, good planning skills and effective communication: assisted in breastfeeding continuation. This is because the workplace can have facilities like lactating room and short breaks that mothers can be access. More mothers in the study initiated and continued breastfeeding after returning to work. So the intention and tenacity of the mother played a major role in developing the attitude that overcome breastfeeding challenges: successfully combining work and breastfeeding. In contrast, Mandal, Roe and Fein (2010) associated full-time employment to a decreased overall breastfeeding initiation and duration compared to part-time work or not working. Part-time work of less than 20 hours weekly, had the highest initiation rate of 88.8% which may be of help to first time mothers. But unfortunately most jobs may not permit this in Ghana. First time mothers may also initiate breastfeeding because of the absence of previous parity and or breastfeeding experience emphasizing the importance of education and support for first-time mothers in their infant feeding decisions. Other studies have shown however, that this is a limitation to initiation of breastfeeding in first time mothers (Esteves et al., 2014) Finally, the working environment of a mother influence her breastfeeding behavior (Waite & Christakis, 2015 & Esteves et al., 2014) and so workplace support is needed for first time mothers.

CHAPTER THREE

3.0 METHODOLOGY

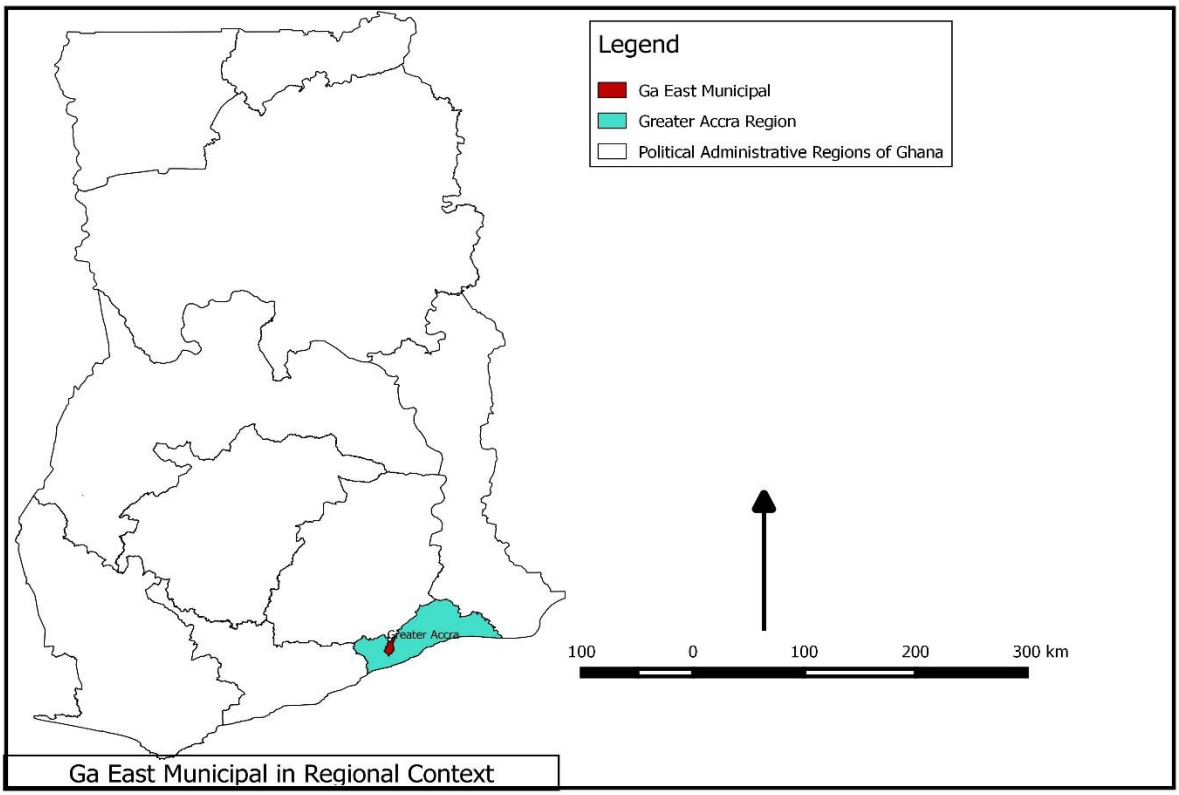
3.1 Introduction

This chapter trails from the summary of existing evidence about breastfeeding initiation globally and developing countries in particular. The factors that facilitates and delays first time mothers from breastfeeding initiation explored in three dimensions namely personal characteristics, immediate environment and health facility used. This chapter presents the systematic procedure employed in the study. The study sites, study design and field procedures, ethical consideration, analyses and quality assurance of the study.

3.2 The study sites

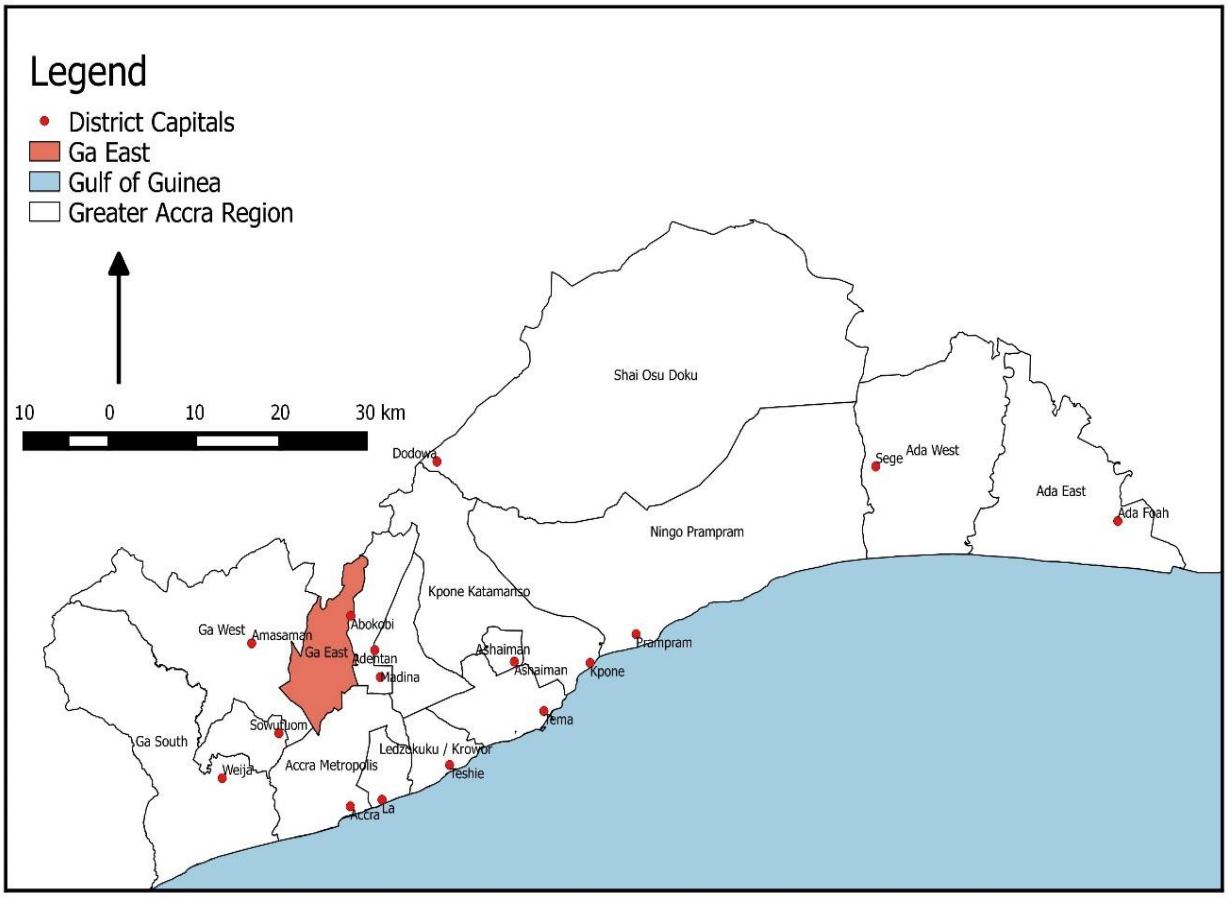
This research was conducted in Child Welfare and Postnatal Clinics of three health facilities in the Ga East district of the Greater Accra Region of Ghana. Ga East District is fast growing with development of new township and these study sites were chosen because of their high delivery rates. The facilities were Abokobi Health Centre in Abokobi, Community Hospital in New Ashongman Estates, and Pentecost Hospital in Madina.

Figure 3.1: Ga East Municipal in National Context



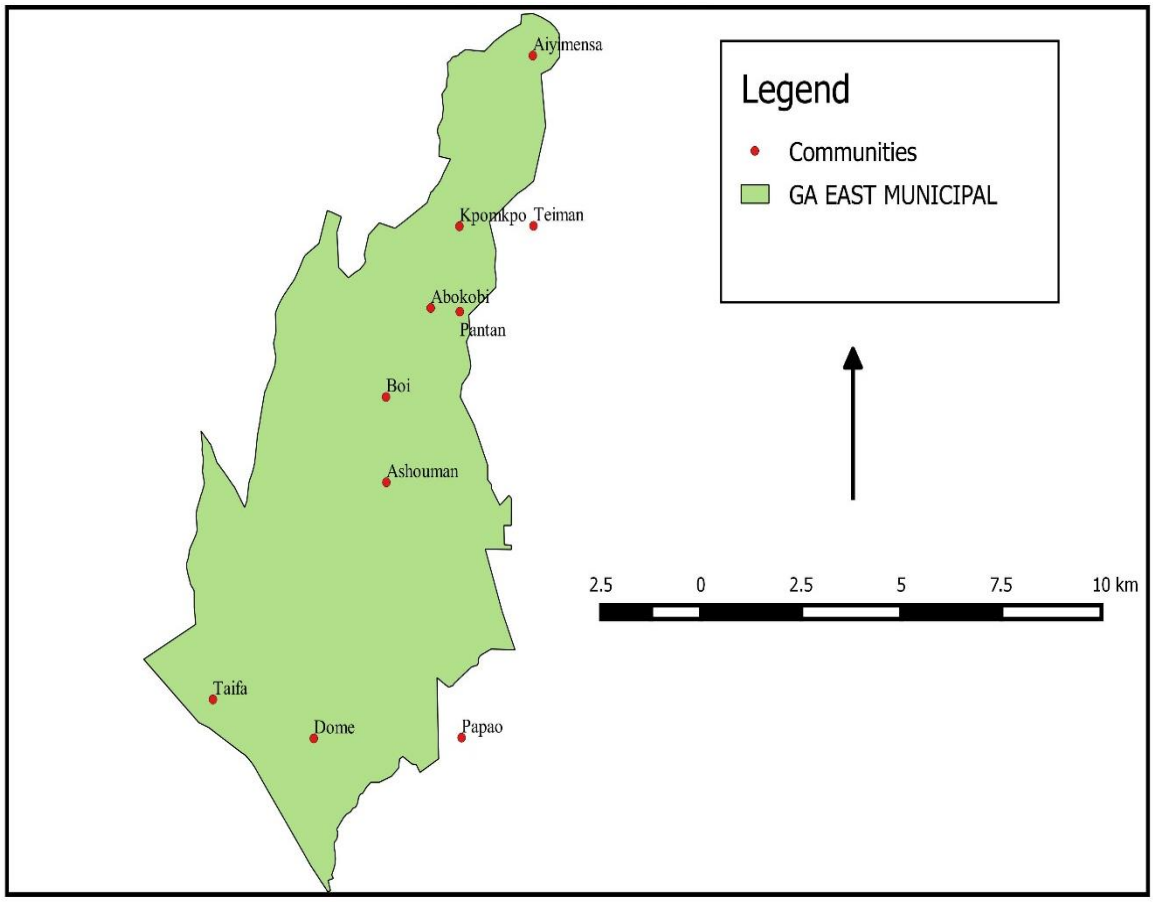
Source: Ga East Municipal Assembly

Figure 3.2: Ga East Municipal in Regional Context



Source: Ga East Municipal Assembly

Figure 3.3: Ga East Municipal Map



Source: Ga East Municipal Assembly

3.2.1 The Ga East Municipal Assembly

Ga East district is one of the 16 District Assemblies in the Greater Accra Region. It is located at the northern part of Greater Accra Region and covers about 96 square kilometers of land. Abokobi is the capital of the district. It is bordered by Ga West Municipal Assembly on the west, La - Nkwantanang Municipal Assembly on the east, Accra Metropolitan Assembly on the south and the Akuapim South District Assembly on the north. According to the 2010 population census the total population of the district is 259,668 (Ghana Statistical Service, 2012).

3.2.2 Topography, climate and vegetation

The district's landscape consist of slopes that are interspersed with plains in the west. The Western end is harbored by the Akuapim range which steeply rises above the Western end North of Aburi, between 375-420 meters North of Aburi and fall to 300 meters Southward (Ga East Municipal Assembly, 2015). Few rivers and seasonal streams in the district are Sisami stream at Sesemi and the Dakubi at Ajako. The shrub occur mostly in the Western borders and in the North towards Aburi Hills (Ga East Municipal Assembly, 2015).

3.2.3 District health services

Ga East district was entirely rural but is rapidly urbanizing in areas bordering Accra and Tema where there is a spread of urban settlements. The district has one functional CHPS compound located in Taifa, one health centre and one small Maternal and Child Health Clinic in Abokobi and one polyclinic in Taifa (Ghana Health Service, 2015). There are no public hospitals in the district. There are few small private facilities in the urbanized parts such as the Community Hospital in New Ashongman Estate (Ga East Municipal Assembly, 2015; Ghana Health Service, 2015). As a result of the absence of public hospitals cases are referred to hospitals outside the district (Ga East Municipal Assembly, 2015). There is a quasi-government health facility at Atomic. It serves workers of the Atomic Energy Commission and the surrounding community (Ga East Municipal Assembly, 2015). The Pentecost Hospital which was curved to the La Nkwantanang district when the district was formed in 2012 currently serves as a municipal hospital in the district (Ghana Districts, 2015).

3.3 Study design and summary of field procedures

The current study made an enquiry into first time mothers' breastfeeding practices by collecting data from those attending Postnatal and Child Welfare Clinics for the period of five weeks in selected health facilities in Ga East District of Greater Accra Region. Self-administered questionnaires where used to ask questions about their sociodemographic status, pregnancy, delivery, breastfeeding practices and their intention of breastfeeding or feeding practices at birth and after return to work. Questionnaires were also administered to mothers who preferred and those who were not literate. The study explored the factors that determined timely breastfeeding initiation at birth and feeding practices after return to work. The prevalence of breastfeeding initiation and prelacteal feeding was determined among first time mothers in the selected Ga East District in Greater Accra.

3.3.1 Dependent variable

The dependent variable is initiation of breastfeeding. Colostrum is the first breastmilk a child receives after birth. The total number of children put to the breast within the first one hour after birth divided by the total number of children born, represents the initiation rate (WHO, 2002). This question is based on recall from the past six months of a live birth. And in order to understand maternal feeding choices analyses were conducted to examine these two outcome: breastfeeding initiation, prelacteal feeding and employer support. Emphasis were put on these variables in order to determine whether the working first time mother is likely to use prelacteal feeding to help cope with work demands on return to work after childbirth.

3.3.2 Independent variables

Selection of the likely determinants of breastfeeding initiation were compiled using adapted conceptual framework (Figure 1.1). The questionnaire was made up of groups of questions in sections A, B and C. Questions in section A, inquired about the personal characteristics, whilst section B concentrated on pregnancy and birth and finally section C gathered data on the immediate environment of the first time mother. The personal characteristics of the first time mother are age, marital status, obstetric history, educational level and occupation. The immediate environment variables included distance to work, support at home, influence on choice of child feeding and introduction of prelacteal foods, return to work and support of breastfeeding in the workplace. The health facility used also provided insight into services available to support first time mothers' breastfeed successfully.

a. Personal characteristics of first time mother.

The questions in this category of the cross sectional survey focused on the sociodemographic characteristics of the mother. They influence mother's decision and action in early and delayed initiation of breastfeeding. The questionnaire in Appendix section show the section of questions asked (A, B & C).

b. Immediate environment

Some studies have established the importance of a supportive environment in enabling mothers initiate breastfeeding (Oakley et al., 2014; Simonetti et al., 2012; Agostino et al., 2012; Olson et al., 2010 & Craig and Dietsch, 2010). Oakley et al. (2014) established that breastfeeding is discontinued early when women receive no education in breastfeeding. A culture of predominant breastfeeding or formula feeding would inherently determine the

prevailing feeding practice in that environment (Chantry et al., 2014). However some studies have also contrasted that despite the support given some mothers may still not breastfeed (Buckles & Kolka, 2014). The set of questions in section B of the questionnaire (Appendix V) explored first time mothers' pregnancy and birth characteristics. Questions about antenatal attendance and whether first time mothers had education on breastfeeding initiation in particular. Sources of information about infant feeding practices such as self, family and friends, antenatal care, health worker and work were explored.

c. Health facility accessed

The type of health facility accessed by the women have been observed to largely contribute to initiation of breastfeeding at birth. A study in Ethiopia adversely found that delivery by health workers is associated with a delay in the initiation of breastfeeding (Horii et al., 2011). Tawiah-Agyemang et al. (2008) and Ghana Multiple Cluster survey (MICS, 2011) showed that delivery in a health facility facilitated initiation of breastfeeding at birth. This is in contrast with Horii et al. (2011). The MICS survey further identified that mothers are most likely to initiate breastfeeding in public facility compared to private facility.

3.3.3 Inclusion criteria

All first time mothers between the ages of 18 and 45 years presenting at the postnatal and Child Welfare Clinic were eligible to enroll in the study if their child is between the ages of six months to birth. Participants included in the study all consented to participate in the study.

3.4 Study population and participants

The study population were first time mothers with children under six months old seeking postnatal care and Child Welfare Clinic services from May 2015 to June 2015 at the Abokobi Health Centre in Abokobi, the Community Hospital in New Ashongman Estates and Alpha Pentecost Hospital in Madina. First time mothers over 18 years of age were selected from this population and those that consented participated in the study. No follow up data collection was made in the study. Few participants were, however, followed up for breastfeeding support on request at the clinic.

3.4.1 Sample size for the Cross Sectional survey

Current data shows a 35% breastfeeding initiation rate in sub-Sahara Africa including Ghana (WHO, 2014). This current initiation rate was used to inform the sample size calculation for breastfeeding initiation among first time mothers in the three health facilities.

The sample size needed to determine the proportion of infants' breastfeed the first hour after birth is as follows

$$n = \frac{Z\,(\alpha/z)^2 \quad p\,(1-p)}{d^2}$$

Where

n is the minimum sample size

p is the proportion of first time mothers who breastfeed their infants within the first hour after delivery

d is the absolute margin of error tolerated at 5%

Ƶ is normal deviation taken as 1.96 at 95% confidence interval

$\alpha = 5\%$

Therefore $n = (1.96)^2 \times 0.35\ (1-0.35) \div 0.05^2$

$= 3.8416 \times 0.2275 \div 0.0025$

$= 0.873964 \div 0.0025$

$= 349.58$

$=350$

The sample size is 350 with a 95% CI and an error margin of 5%.

3.4.2 Sampling Method

All first time mothers at the postnatal and Child Welfare clinics identified using daily attendance were approached to participate in the study. Data collection commenced from May 2015 to June 2015. Out of the 363 first time mothers approached in the study 220 of participated. As a result the minimum sample size was not attained because of low uptake of mothers in the study and limited time duration. The researcher and the two research assistants were aware of the inclusion criteria and the objective of the study. This was explained to each participant and questionnaire self-administered or interpreted to all who consented. Record of daily attendance was used to select first time mothers. Mothers' were numbered 1 to 10 and repeated. Research randomizer results of 5 sets of random numbers were used to select first time mothers to be included in the study. In total 70 sets of 5 numbers were generated (Appendix VI). Data collection took five weeks. First time

mothers who refused to participate unique numbers were nominated to the next first time mother in attendance. All attendants in the study site were informed about the study and it objectives. Consent was obtained from all the mothers who participated in the study. Data were collected by self-administration of questionnaires and a face to face interview through the use of structured questionnaire because of preference and mothers who were not literate. The questionnaire were prepared in English and self-administered. First time mothers who were not literate had the questionnaire translated to them in Twi or Ga depending on their preference as well. The response given for each question was translated back to English by the key researcher. Based on the framework adopted in figure 1.1, three dimensions were identified in breastfeeding initiation. These were personal characteristics, the immediate environment and the health service available.

3.5 Ethical consideration

The research procedure met the standard guidelines for research involving human subjects of the Ethical Review Committee of the Ghana Health Service in Accra. The initial study procedure was reviewed and vetted by the Proposal Review board of the School of Public Health for scientific relevance and content. Ethical clearance was obtained from the Ethical Review Committee of the Ghana Health after comments and suggestions made addressed (ID NO: GHS-ERC 99/02/15). A written informed consent was obtained from those who were literate. Participants who were not literate or mothers breastfeeding at the time of data collection give verbal informed consent. Contact details of the ethical review board secretariat and the key researcher were provided in the consent form to all participants. Participants were respected and their autonomy maintained during the study.

All participants enlisted in the study were given information about the study topic, aim and benefits of the findings. Participants were informed they are not obliged to answer all questions and or stay in the study if they do not want to participation to prevent potential harm of non-initiation of breastmilk at birth. No identifiable data was obtained from participants to ensure confidentiality and privacy. Data entry was made into excel spreadsheets. The excel spreadsheet was filtered, cleaned and imputed into Stata Analysis tool for analyses. Excel and Stata data management software were protected by a password accessible only by the key researcher

3.5.1 Clinic entry procedure

The head of Nursing and Midwifery department of the Abokobi Health Centre and the Community Hospital was met and the study topic and objectives discussed in detail. They supported the study and informed staff to assist the data collection process. The Human Resource Manager of Pentecost Hospital was met and same done. Study topic and objectives were communicated to the nursing and midwifery staff via the hospital memo and the key researcher was assisted in the data collection process in Pentecost Hospital.

3.5.2 Incentives for participants

Participants who consented to the study were educated on lactation and breastfeeding support after completion of data collection. One of the participants was followed up and given support for poor position and attachment.

3.6 Data collection technique

Study employed quantitative data collection techniques and tools. These are summarized below:

3.6.1 Techniques

Simple random sampling was used to select participants using Research Randomizer software. Some of the features of the software are how many numbers per set and number range. It generated 350 unique random numeric numbers (Urbaniak & Scott, 2015). It comprises 70 sets, each set made up of 5 numbers between the ranges of 1 to 10 totaling 350 (Urbaniak & Scott, 2015). Daily Postnatal attendance record book in the clinics were used to select the first time mother using the generated 350 numbers starting from the first set (See Appendix VI).

3.6.2 Instruments

A structured questionnaire was designed to collect data from participants. The questionnaire was formulated by the use of the conceptual frame work developed in chapter one and WHO (2002) guideline for Infant and Young Child Feeding practices. Current evidence of determinants of breastfeeding initiation was also considered in developing the questionnaire (Esteves at al., 2014; Nguyen et al., 2013). Reasons for non-compliance to breastfeeding initiation guideline are multifactorial in nature. The questionnaire focused on participants' sociodemographic, occupation, obstetric, health facility accessed, infant feeding history and supportive system (Appendix V).

3.6.3 Training

Prior to the field work the two research assistants were trained on how to ask questions to ensure all questions were comprehended and standards followed to record participants' responds adequately. There was a brief training session at two study sites on

- Rationale for the study
- Familiarization of data collection technique and tool
- Potential ethical issues that might arise during data collection

3.6.4 Pre-testing

The data collection technique was pre-tested at the postnatal ward in Abokobi Health Centre and needed modification and validation made before data collection begun.

3.6.5 Description of the study's data sets

One dataset collected from first time mothers attending postnatal and CWC during the research period were used for analyses. This was between the end of May, 2015 and June, 2015. The datasets was collected from randomly selected first time mothers in the three health facilities in the Ga East District of Greater Accra Region. These facilities are Abokobi Health Centre, Community Hospital and Alpha Pentecost Hospital. A total of 220 first time mothers were enrolled from the study area. No participant was lost to follow up because follow up was not conducted in this study. Details of the profile of participants were contained in Table 4.1.

3.6.6 Data analysis

Statistical analyses was done using STATA Version 13.0 (StataCorp, 2013). Prior to data analysis, the data were checked for missing values and outliers. The cleaned data were

converted from excel (xlsx) to comma delimited (csv) and saved before it was imported into STATA statistical software for analyses. A log file was created after the successful import to record the results. Variables in dataset were regenerated and recoded. Initial assessment of categorical data was done. Frequency of marital status, educational level, occupation, work location, antenatal visits, facility type, obstetric outcome, initiation of breastfeeding, influence, prelacteal food, return to work, support and exclusive breastfeeding.

Bivariate analysis was done for all the exposure variables (independent) to detect any association using Chi-square. Logistic regression (reporting odds) for significance was done on all Independent variables that had *P*-value of less than 0.05 and a confidence interval of 95% to determine the variable that is statistically significant in first time mother's initiation of breastfeeding. Frequency assessment was conducted on the continuous variable age and the measure of centrality (mean) and of dispersion (standard deviation) was done. Results from analysis were reported in tables.

Breastfeeding initiation and prelacteal feeding observations were assessed based on WHO guideline for breastfeeding (WHO, 2002). Breastfeeding initiation is when the child is breastfeed within the first hour after birth. Prelacteal feeding is when the child is given non-breastmilk foods when breastfeeding is not established usually in the first two days of life. Exclusive breastfeeding on the other hand is giving only breastmilk from birth to six months with the exception of medicines and multivitamin.

3.6.7 Quality assurance

Quality and validity of the study data and results were maintained by the following measures. The two research assistants were trained in the study aim and objectives.

Standardized guidelines for collecting data was also discussed prior to data collection. Visits to all study sites were made intermittently and any concerned addressed.

CHAPTER FOUR

4.0 RESULTS

Chapter three focused on study method and study site information. Other issues discussed were the procedure used, ethical issue, data collection technique and management, analyses and quality assurance clarified. The findings of the study is presented here under subthemes:

4.1 Background characteristics of first time mother and Infant Child

4.2 Breastfeeding initiation and prevalence among first time mothers

4.3 Prelacteal feeding among first time mothers

4.4 Factors associated with timely initiation of breastfeeding

4.1 Background characteristics of first time mother and Infant Child

A total of 220 first time mothers from the Community Hospital (85), Alpha Pentecost Hospital (71) and Abokobi Health Centre (64) participated in the study. Background characteristics of the mothers are presented in Table 4.1. Mothers' age in years range from under 20, 21 to 30 and 31 to 40 years. The standard deviation of participants' age in the three group is 0.50 years. The group with the largest number of mothers is 21 to 30 years (74.6%), followed by the under 20 years (15%) and lastly 31 to 40 years (10.5%). Majority of the mothers (52.7%) had secondary or more educational level, while about half of the mothers (41.8%) had primary education and the rest of the mothers' (5.5%) had no formal education. Over half of the mothers' (58.2%) engaged in informal occupation such as traders, caterers, shop attendants, dressmakers and hairdressers. Mothers' in formal

occupations were few (22.7%) compared to informal occupations whilst the rest of the mothers' (19.1%) were unemployed. Mothers' in formal occupations work as secretaries, teachers, nurses, students, accountants, insurance brokers and marketing officers. A total of 79.1% of the mothers' in the study were married, out of which 25.0% were cohabiting. The mothers in the single category are 20.9% of which 0.45% are divorced.

4.1.1 Antenatal care and Attendance

A total of 94.1% of the first time mothers received antenatal care while 5.91% of them did not receive antenatal care. A total of 97.3% of those who received antenatal care met the minimum requirement of four antenatal attendance. And 2.73% of them had less than four antenatal attendance. Out of this number 77.7% of the first time mothers had education on breastfeeding initiation at birth, while 22.3% had no such education.

4.1.2 Facility Type and Obstetric outcome

A total of 61.4% mothers' received antenatal and delivery care from a private health facility and 38.6% of them used public facility. A total of 44.6% of the mothers had assisted delivery including caesarean section, whilst 55.5% had a normal delivery including episiotomy.

4.1.3 Support of First time mothers

Breastfeeding support at home and workplace had no influence on breastfeeding initiation in this study. A total of 75% mothers were supported with breastfeeding at home and 25% had no support. Mothers who return to work 66.8% have no support, whilst 13.6% are unemployed. A total of 5.9% of the mothers have short breaks to breastfeed, 2.7% will close early while 10.9% use nursery facilities.

4.1.4 Working first time mothers and Breastfeeding

A total of 38.2% of the mothers had between seven to twelve months of maternity leave. A total of 28% had about three month's maternity leave, while 24.1% had between four and six months. About 10% of the mothers are either unemployed or housewives. And 128 (58.2%) of the mothers work in the informal sector. Only 22.7% of the mothers work in the formal sector with 19.1% being unemployed. For the mothers working 48% of them work close to home and 31.1% work far from home, while 21.4% are unemployed.

Table 4.1 Background Characteristics of First time Mothers and The Characteristic of The Child in Ga East District

Characteristics	n	%
Maternal Age		
<20	33	15
21-30	164	74.6
31-40	23	10.6
Maternal Educational status		
None	12	5.45
Primary & Junior secondary	92	41.8
Secondary & Tertiary	116	52.73
Maternal Marital status		
Single	46	20.91
Married	174	79.1
Maternal Occupation		
Formal	50	22.7
Informal	128	58.2
No occupation	42	19.1
Distance to work		
Close to work	105	47.7
Far from work	68	30.9
Unemployed	47	21.4
Obstetric Outcome		
Normal delivery	122	55.5
Assisted delivery	98	44.6
Facility Used		
Public	85	38.6
Private	135	61.4
Education on Initiation of BF*		
Yes	171	77.7
No	49	22.3
Participants Child Age		
Under 3 months	129	58.6
3 to 6 months	91	41.4

4.2 Breastfeeding Initiation and prevalence among First time mothers

About half of the first time mothers (48.2%) initiated breastfeeding the first hour after birth. A total of 18.6% of the mothers initiated breastfeeding immediately after delivery and most (29.6%) did same within an hour. For the mothers' who delayed breastfeeding initiation at birth (51.8%), over half (34.9%) put the child to breast after 24 hours while the rest (17.3%) initiated breastfeeding days after. Majority of the mothers' who intend to breastfeed exclusively (75.6%) initiated timely breastfeeding at birth, whilst mothers who intend not to breastfeed exclusively (24.5%) also initiated timely breastfeeding at birth. For mothers who delayed timely initiation over half of them (52.6%) intend to breastfeed for six months, whilst almost three fourth (47.4%) did not intend to breastfeed for that long. The total number of mothers' who intend to breastfeed exclusively were 63.6%, whilst 36.4% planned to introduce other foods earlier than the six months recommendation for exclusive breastfeeding. The number of mothers in the three age groups that initiated timely breastfeeding were 15.00% for group one, made up of mothers in age range of less than 20 years, 74.6% for age group two made of mothers' age 21 to 30 years and 10.5% for age group three who are between 31 to 40 years old. Table 4.2 shows breastfeeding initiation and any breastfeeding in the three age group.

Table 4.2 Prevalence of Breastfeeding Initiation and Other Breastfeeding

Breastfeeding Initiation	**n**	**%**
Timely	106	48.2
Delayed	114	51.8
Breastfeeding behavior		
Exclusive Breastfeeding	132	60
Predominate Breastfeeding	6	2.73
Mixed feeding	20	9.09
Food Child Given in Last 24 Hours		
Water	17	7.7
Formula	45	20.5
Occasional koko/juice/herbs	6	2.7
Mixed feeding	20	9.09

*Footnote:

Timely-Putting the child to breast the first hour after birth.

Delayed- Putting the child to breast after the first hour of birth.

Food given in last 24 hours- Food child has been given the last 24 hours from the time of data collection.

4.3 Prelacteal Feeding Among First Time Mothers

McKenna & Shankar explained that "Prelacteal feeds are those foods given to newborns before breastfeeding is established or before breast milk "comes in," usually on the first day of life" (McKenna & Shankar, 2009, p. 78). Prelacteal foods include water, formula, honey, light porridge (koko) and herbs to mention a few. The type of prelacteal used may be associated with the mothers' ethnic background or choice. Prelacteal feeds within the immediate postnatal period is the focus of this study because it may affect a mother's exclusive breastfeeding intention.

Table 4.2 shows prelacteal feeding and other non-breast-milk used. The total number of mothers who give prelacteal foods were 34.1% in the immediate postnatal period. Non-breastmilk foods given were water, formula, koko (light porridge), herbs and sweetened sugar. Of the total the largest was formula (24.1%), followed by water (16.4%), koko (6.4%) and both juice and herbs (3.2%). At the point of data collection 19.1% of the mothers had given non-breastmilk the last 24 hours. Out of the 19.1% mothers majority practiced mixed feeding with non-breastmilk while still breastfeeding. The rest of the mothers in this category administrated 1.4% of water, 2.7% formula and 0.9% administer more than one non-breastmilk. For mothers who delayed timely breastfeeding initiation 23.68% give formula, 4.39% give more than one prelacteal and the remaining 0.88% give water. Some of the mothers who initiated breastfeeding on time give formula (5.66%), water (1.89%) and more than one type of prelacteal (0.94%). Mothers give less of the non-breastmilk (19.5%) compared to what they gave at birth (34.09%) as the child gets older. The process mothers' used to administer the non-breastmilk were cup, bowl and spoon and feeding bottle. Again more of the mothers' in the delayed breasting initiation category used

the highest number of feeding bottle (28.95%), with only a few mothers using cup, bowl and spoon. Few of the mothers' breastfeeding used feeding bottle (7.55%) or cup, bowl and spoon (4.72%). This clearly shows that children who had delayed breastfeeding initiation are at risk of infection.

Table 4.3: Prelacteal Feeding and other non-breastmilk foods

			Bivariate Analysis			Multivariate Analysis			Breastfeeding initiation			
Food type	**N**	**%**	**OR**	**95% CI**	**P value**	**AOR**	**95% CI**	**P value**	**Timely n**	**%**	**Delayed N**	**%**
Prelacteal	75	34.1	0.24	0.14-0.46	<0.001	0.25	0.13-0.41	<0.001	20	18.9	55	48.3
Prelacteal given based on MAG*												
<20	10	13.33										
21-30	57	76										
31-40	8	10.5										
Non-breastmilk	33	15	0.29	0.12-0.68	0.004	0.46	0.13-1.5	0.22	15	14.15	30	26.32
Formula	17	7.7							7	0.6	10	8.8
Water	3	1.4	0.53	0.04-6.1	0.61	0.71	0.05-9.50	0.1	1	0.94	2	1.75
Koko	1	0.5	1						1	0.94	0	0
Herbs	2	0.9	1						0	0	2	1.75
Other(honey,weanimix)	8	3.6	0.14	0.01-1,2	0.07	0.2	0.02-2.1	0.18	1	0.94	7	6.14
Water/koko	9	4.1	0.3	0.06-1.4	0.13	0.41	0.06-2.6	0.41	2	1.89	7	6.14
water/formula	3	1.36	0.5	0.05-6.0	0.61	0.71	0.05-9.4	0.8	1	0.94	2	1.72

*Footnote: MAG-maternal age group

4.4 Factors Associated with Timely Initiation of Breastfeeding

The factors associated with breastfeeding initiation are antenatal attendance, education on breastfeeding initiation, health facility, obstetric outcome, influence, prelacteal feeding, food supplementation, breastfeeding support, and maternity leave, intention of the mother to exclusively breastfeed and support in the workplace. Chi-square was used to detect any association between independent variables and the dependent variable: breastfeeding initiation at birth (Table 4.4). Logistic regression was applied to predict the likelihood of an outcome in timely breastfeeding initiation. Three factors identified were obstetric outcome, prelacteal feeding and exclusive breastfeeding.

Obstetric outcome showed a relationship with timely breastfeeding initiation at birth (*P*value 0.002). There were significant difference in the proportion of women who give breastmilk the first hour after birth and the type of delivery experienced. Majority (54.4%) of those who had assisted delivery delayed breastfeeding initiation compared to those who had normal delivery (46%). Most of the mothers who initiated breastfeeding timely had normal delivery (66%) compared to those who had assisted delivery (34%). The odds of initiating breastfeeding at birth is two times likely in mothers who had normal delivery compared to those who had assisted delivery.

Equally prelacteal feeding showed a relationship with breastfeeding initiation (*P*value <0.001). There were significant difference again in the proportion between mothers who give breastmilk as recommended and those who practiced prelacteal feeding. Majority of the mothers (81.1%) who initiated timely breastfeeding at birth did not administer prelacteal foods compared to mothers who delayed breastfeeding initiation. A total of 48.3% of mothers who administered prelacteal feed also delayed timely breastfeeding

initiation compared to the 18.9% who initiated breastfeeding at birth. The odds of using prelacteal feed is 2.8 times more likely in women who delayed timely breastfeeding initiation compared to those who initiated timely.

Exclusive breastfeeding was also found to have significance in the determination of timely initiation of breastfeeding at birth among first time mothers in the study (*P* value <0.001). Majority of the mothers who initiated timely breastfeeding (75%) continued with exclusive breastfeeding whilst over half of those who delayed (53%) practiced exclusive breastfeeding. Fewer of the mothers who initiated breastfeeding practiced suboptimal feeding (25%), compared to the most of the mothers who delayed timely initiation of breastfeeding (47%). It was found that the odds of practicing exclusive breastfeeding is 3.1 times more likely in mothers who initiated timely breastfeeding compared to those who did not achieve that. Multiple logistic regression of the three factors predicted prelacteal feeding as the most likely to determined timely initiation of breastfeeding at birth (AOR= 0.21, 95% CI 0.07-0.62, P value 0.005).

Table 4.4: Factors Influencing Breastfeeding Initiation Among First Time mothers in Ga East District

Factors	N	%	*P* value	OR	95% CI
Maternal age			0.15	1.7	0.96-1.84
<20	33	15	-	1	-
21 -30	164	74.6	0.08	2	0.91-4.41
31- 40	23	10.5	0.09	2.6	0.89-7.79
Educational Status			0.82	1	0.65- 1.61
None	12	5.45	-	-	-
Primary & Junior Secondary	92	41.8	0.78	0.84	0.25-2.79
Senior Secondary &Tertiary	116	52.7	1	1	0.30-3.28
Marital status			0.78	0.9	0.71-1.15
Married	174	79.1	-	-	-
Single	46	20.9	0.78	1.1	0.57-2.10
Occupation			0.51	0.9	0.58-1.31
Formal	50	22.7	-	-	-
Informal	128	58.2	0.73	1.1	0.58-2.10
Unemployed	42	19.1	0.47	0.73	0.32-1.68
Work location			0.62	0.8	0.56-1.11
Close to home	105	47.7	-	-	-
Far from home	68	30.9	0.85	0.94	0.51-1.73
Unemployed	47	21.4	0.13	0.58	0.29-1.18
Facility Used			0.35	1.9	1.11- 3.10
Private	135	61.4	-	-	-
Public	85	38.6	0.06	0.56	0.34-1.01
Antenatal attendance			0.66	1.9	0.3- 1.10
< 4	6	2.7	-		
> 4	214	97.3	0.47	1.9	0.34-10.5
Obstetric Outcome			0	0.43	0.25- 0.74
Normal delivery	122	55.5	-	-	-
Assisted delivery	98	44.6	0.003	2.31	1.34-3.99
Education(initiation)			0.41	1.8	0 .93- 3.84
Yes	171	77.7	0.39	1.31	0.69-2.49
No	49	22.3	-	-	
Influence			0.34	1.4	1.02- 1.84
None	64	29.1	-	-	
Family and friends	20	9.1	0.77	0.84	0.29-2.39
Antenatal care	135	61.4	0.04	1.89	1.03-3.46
Workplace	1	0.45	1	-	
Prelacteal			0	0.3	0.14- 0.46
Yes	75	65.9	0.000	0.25	0.14-0.46
Support			0.2	1.3	0.69- 2.35
Yes	165	75	-	-	-
No	55	25	0.44	1.3	0.69-2.35
Exclusive breastfeeding			0.001	0.4	0.20- 0.64

Yes	140	63.6	-	-	-
No	80	36.4	0.001	0.36	0.20-0.64
Resume of Work			0.98	0.9	0.70-1.20
< 3 months	61	27.7	-	-	-
4-6 months	53	24.1	0.83	0.92	0.44-1.9
7-12 months	84	38.2	0.70	1.13	0.58-2.21
Unemployed	22	10	0.16	0.48	0.17-1.35
Work support			0.26	0.9	0.61-1.27
None	147	66.8	-	-	-
Some support	43	19.6	0.80	1.09	0.55-2.20
Unemployed	30	13.6	0.37	0.69	0.31-1.54

Footnote: - variable used as reference in analysis

CHAPTER FIVE

5.0 DISCUSSION

This cross sectional study sought to provide data on prevalence of breastfeeding initiation and prelacteal feeding in a section of first time mothers. Table 4.2 show the results of breastfeeding initiation and other breastfeeding behavior in the mothers. The predictors of breast feeding initiation identified in the study were obstetric outcome, influence, prelacteal feeding and intention of exclusive breastfeeding.

5.1 Prevalence of timely Breastfeeding Initiation

Current data reports Ghana's prevalence of timely breastfeeding initiation rate as 46% (MICS, 2011). The study found a similar result among selected first time mothers in the Ga East Municipal area of Greater Accra Region. The total of 48.2% mothers initiated timely breastfeeding at birth. Most of the mothers mentioned lack of breastmilk at the time of delivery so delayed putting the child to breast: average duration to breastmilk flow was three days in the study. This is similar to Tawiah-Agyemang et al. (2008) report on mothers in Kintampo who mentioned lack of breastmilk, post birth activities and baby not crying as reasons for the delayed breastfeeding initiation. Over half of the mothers (52%) practiced suboptimal breastfeeding. Although 97.3% of the mothers attended antenatal clinic over four occasion and 78% were educated on timely breastfeeding initiation no association was found between timely breastfeeding initiation and timely breastfeeding initiation knowledge. Compared to other regions this rate is much lower, Wolde et al. (2014) reported 88.5% prevalence of timely breastfeeding initiation in Ethiopia. However, a lower rate is reported in Nigeria where 37% of the mothers initiated timely breastfeeding

at birth (Ogunlesi, 2009). Tawiah-Agyemang et al. (2008) used qualitative approach in his study thus the study design is different from this study. Wolde et al. (2014) used a cross sectional survey with cluster sampling which is different from this study. Ogunlesi (2009) also used a cross sectional survey but the sampling method was not reported, although the finding are similar to this study: below 50%.

5.2 Suboptimal feeding practices

A total of 75 (34.09%) first time mothers' gave prelacteal foods to children under six months old. Out of this 57 mothers in age group 21 to 30 give the most prelacteal food, followed by age group <20 and 31 to 40 (see Table 4.3 for details). Mothers who initiated breastfeeding at birth were less likely to use any prelacteal food the first six months after birth (OR= 0.25, CI 0.14-0.46, *P*value <0.001) compared to mothers who did not do same. Also mothers who practiced prelacteal feeding are 2.1 times (OR=2.1, CI 0.98-4.42) more likely to give water than those who did not practice prelacteal feeding. This is similar to Nguyen et al. (2013) results which indicated that mothers who introduced prelacteal feed at birth were most likely to give formula feed early and use two or more prelacteal foods.

After adjusting for obstetric outcome mothers who initiated breastfeeding at birth were less likely to give prelacteal foods at birth and before six months compared to those who did not initiate breastfeeding at birth (AOR= 0.47, CI 0.3- 0.8, *P*value 0.011). Similarly after adjusting for prelacteal foods and obstetric outcome, giving prelacteal foods at birth was a significant predictor of breastfeeding initiation in this group (*P*value 0.005). The adjusted odds ratio for giving prelacteal foods upon timely breastfeeding initiation however was not associated with obstetric outcome (AOR=0.47, CI 0.31-0.84, *P*value 0.011). This was an

important finding because not all mothers who has caesarean section give prelacteal food. One of the private facilities has a policy of initiating breastfeeding first five hours post caesarean section. This is an intervention that can be piloted to assess effectiveness in improving timely breastfeeding initiation among mothers who experienced assisted deliveries. After controlling for obstetric outcome and prelacteal feed before six months, the odds of mixed feeding before six months is less likely in mothers who initiate breastfeeding at birth (AOR=0.49,CI 0.16-1.5, *P*value 0.20). But this is not statistically significant with prelacteal feeding after initiating timely breastfeeding at birth.

In multiple logistic regression of each prelacteal food (water, formula, koko) and food given in last 24 hours showed no significance in breastfeeding initiation was observed (See Table 4.3). Food given in last 24 hours was divided into subgroups. They are two or more prelacteal feeding and two or more prelacteal feeding whilst breastfeeding, but this was omitted because few mothers responded to the categories. It was also find that mothers who initiated breastfeeding at birth are less likely to use bottle feeding after controlling for bowl and spoon, cup and breastfeeding than those who do not initiate breastfeeding at birth (AOR=0.42, CI 0.1-1.8, *P*value 0.24). This is not significant but it does show how breastfeeding initiation reduces the likelihood of prelacteal feeding among first time mothers. After controlling for utensils used: bottle, cup, bowl and spoon, mothers were found to be 2.4 times more likely to continue breastfeeding after initiation at birth compared to those who do not initiate breastfeeding at birth. This finding is consistent with literature on exclusive breastfeeding. Timely initiation of breastfeeding at birth is directly associated with exclusive breastfeeding (Esteves et al., 2014). Finally after controlling for bowl and spoon, bottle feeding and cup mothers who initiated timely breastfeeding at birth

are less likely to use prelacteal foods compared to those who did not (AOR= 0.03, CI 0.01-0.17, *P* <0.0001).

5.3 Predictors of timely breastfeeding Initiation

The study sought to identify the factors that influence breastfeeding initiation and continuation among first time mothers in Ga East District of Greater Accra. The data showed personal characteristics, immediate environment and facility used had little influence in this study population. Chi-square assessment on individual independent variable showed association between prelacteal feeding, exclusive breastfeeding, facility used, obstetric outcome and breastfeeding initiation. In multiple logistic regression (see Table 4.4) only prelacteal feeding was significant in influencing breastfeeding initiation among this group (AOR= 0.21, CI 0.07-0.62, *P* value 0.005).

Evidence shows that this is a likely occurrence in communities where prelacteal feeding is prevalent due to it negative effect on lactation and breastmilk supply (WHO, 2009). The results is similar to Hazir et al. (2012) study which showed no association on maternal age and breastfeeding initiation. The findings is consistent with Esteves et al. (2014) assertion that maternal age is significant only in extremes of age. The average age in this study is 25.4 years which is young. But Esteves et al. (2014) conclusion that marriage, higher education, and occupation are significantly associated with breastfeeding initiation was absent in this study group.

The factors identified in the study conceptual framework may have had little association or no association as a result of the cultural context and exposure of study participants to

some form of breastfeeding. According to Mussie et al. (2014) the cultural context of mothers influence breastfeeding initiation and it accounts for the differences in rates between countries and regions. Wolde et al. (2014) also reports there is a direct association of breastfeeding initiation (85.5%) and antenatal education on breastfeeding. This is in contrast to study findings. Antenatal education had no effect on breastfeeding initiation. The results in the study is consistent with Garcia et al. (2011) observation that high breastfeeding rate is high in developing countries, whilst breastfeeding initiation remained persistently. This may be due to poor education in the antenatal period in sample population in this study. Mothers are thus not aware of the crucial role breastfeeding initiation plays in continual breastfeeding. Unlike Ethiopia, Ghana does not have Health Extension workers deployed into communities to support women breastfeed. Oakley et al. (2014) found that initiation of breastfeeding at birth is associated to labour, however this was not significant in this study. There was association between three of the independent variables and breastfeeding initiation but upon further assessment with multiple logistic regressive the association was not significant except prelacteal feeding.

In this study group first time working mothers' had no influence on initiation of breastfeeding. Mandal, Roe and Fein (2010) reports that mothers in full time employment are less likely to initiate breastfeeding. Over half of the working first time mothers in informal employment delayed timely initiation of breastfeeding 63 (55.26%) and 65 (61.32%) initiated timely breastfeeding at birth compared to formal employment and unemployed mothers. After adjusting for unemployed women mothers in informal occupation are more likely to initiate breastfeeding at birth compared to those in the formal

occupation (AOR=1.12, CI 0.6-2.1, *P*value 0.74). This is not significant thus breastfeeding initiation has no association with the work of employed mothers.

Most of the mothers in this study group were below 25 years old (52%) yet there was no association between age and breastfeeding initiation (*P*value 0.15). Maternal marital status (*P*value 0.78), maternal educational level (*P*value 0.82), occupation (*P*value 0.51) and distance to work in terms of travel time (*P*value 0.51) all had no association with breastfeeding initiation in this group of first time mothers. Prevalence of timely breastfeeding initiation in the study group is consistent with current initiation rate in Ghana (MICS, 2011). More mothers' in age group 21 to 30 initiated timely breastfeeding and similar number delayed breastfeeding at birth compared to the other age groups (77.4% and 71.9% respectively). Similar occurrence exists between married and single mothers' in the same age group. This may have contributed to the null significance because more of the mothers are young in the study population and the sample size is small.

The odds of initiating breastfeeding at birth is more likely in mothers in age group 21-30 (OR=1.1, CI 0.61-2.1) and those in 31-40 age group (1.71-2.72). Although the association is not significant in this study population it shows that younger mothers are less likely to initiate breastfeeding at birth which is consistent again with Esteves et al (2014) and Tarrant, Younger, Sheridan-Pereira, White & Kearney (2009). It is important to note that a large proportion of the study participants are younger between ages 21 – 30. And this must be taken into consideration when interpreting the data. Esteves et al. (2014) argued that significance only occurs in extremes of ages which was absent in this current study. Marital status (OR=7.1, CI 0.4-1.3, *P*value 0.5), educational background (OR=1.0, CI 0.6-1.6, *P*value 0.9) and occupation (OR=0.9, CI 0.6-1.3, *P*value 0.51) had no significance on

breastfeeding initiation. Only prelacteal feeding had significance in determining breastfeeding initiation in first time mothers (AOR=0.28, CI 0.9-0.8, *P*value 0.02).

There are limitations with the study design that require considerations. Firstly the study is a cross sectional study therefore causal inference cannot be drawn from associations between outcome variable (timely breastfeeding initiation) and exposure variables (predictors of timely breastfeeding initiation). Suboptimal feeding practices identified need further rigorous research design to predict the likelihood of an outcome. The second limitation is the problem with recall bias. But this was minimized by the criteria set for first time mothers in this study. There was insufficient data for this study as the sample size quota was not met, thus the data may have been skewed towards young mothers as over 50% of the study population were below 25 years. Finally the study data collection tool was modified on the field because some mothers requested for interview with the self-administered questionnaire and mothers who were illiterate were also interviewed. This may have influenced participants' response. Despite these limitations the study provide valuable baseline data on first time mothers' breastfeeding behavior in Ga East District of Greater Accra Region.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The cross sectional study purposed to describe timely breastfeeding initiation and other feeding behaviour among first time mothers in selected health facilities in Ga East Municipal area of Greater Accra Region.

The findings from this study show that:

The number of mothers who breastfed their children the first hour after delivery (48.2%) was close to the 50% recommendation for breastfeeding initiation. Majority of the mothers who initiated breastfeeding (76 %) intent to breastfeed exclusively compared to those who delayed (53%).

Prelacteal feeding was found the most significant predictor of breastfeeding initiation (AOR 0.25, CI 0.13-0.41, *P*value <0.001). Most of the first time mothers who used prelacteal foods did not initiate timely breastfeeding at birth and continued with early supplementary food before their children were six months. Mothers who delayed timely breastfeeding initiation also used feeding bottles compared to those who initiated breastfeeding at birth.

The sociodemographic and working status of first time mothers had no influence in timely breastfeeding initiation. However, obstetric outcome, prelacteal feeding and exclusive breastfeeding intention does influence first time mothers' behaviour in timely breastfeeding initiation at birth.

6.2 Recommendation

Current maternal education strategy in the three health facilities has to be reviewed. Mothers need to be informed about the key role of timely breastfeeding initiation and it importance in achieving successful exclusive breastfeeding. This will directly increase the number of mothers who exclusively breastfeed their children in the study area. Equal attention must be given to timely breastfeeding initiation and exclusive breastfeeding.

There is a need to educate mothers in the three health facilities about the harmful effects of suboptimal breastfeeding early in the antenatal stage. Existing strategies on marketing and use of breastmilk substitute must be enforced in the health facilities to enforce the baby friendly initiative. This will empower mothers to adapt optimal breastfeeding practices.

Health professionals and the three health facilities should enforce the national breastfeeding policy to promote optimal breastfeeding practices among mothers in the study area.

Health facilities in the three health facilities should have a named health professional who is assigned to actively support mothers who undergo assisted delivery to initiate timely breastfeeding as soon as possible. This will establish and promote early lactation and prolong breastfeeding among these group of mothers.

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APPENDICES

1. Ghana Health Service Research Ethics Committee

Application for ethical approval for a research study

Dear Sir/ Madam,

I am a Masters of Public Health student in the University of Ghana. I submit an application for ethical approval to conduct a study. The proposed research is entitled 'Breastfeeding behaviour among women'. It is purely academic.

The aim of the study is to determine the prevalence and risk factors associated with breastfeeding initiation and practices of mothers in feeding their infants. The study is planned to commence at the proposed setting January 2015 and expected to be completed by May 2015.

The study design would be cross sectional study comprising of a self-completion questionnaire. The proposed study would take place at the CWC in the Ga East District. A sample group of 350 postnatal mothers in the Child Health Clinic will be sampled.

At the Child Welfare Clinics mothers consent will be sort. Once mothers agreed to participate in the study, a consent form will be given, with the questionnaire to self-administer. Mothers who are not educated will be assisted by the trained research assistants. Mothers will not be required to include identifiable features such as name, address, hospital number or phone numbers. This would ensure that confidentiality and anonymity is maintained at all times. **I will be grateful if any queries is channelled through my academic institution. My telephone number is 0540749333.**

Thank you for your time. I look forward to your response.

Signature of researcher: _____ Date: _____

II. Letter to Executive Manager of Hospital and Head of Midwifery

Dear Sir/ Madam,

I am a Masters of Public Health student in the University of Ghana. I submit an application for ethical approval to conduct a study. The proposed research is entitled 'Breastfeeding behaviour among mothers'. The aim of the study is to determine the prevalence and risk associated with breastfeeding initiation and practices of mothers in feeding their infants. The study is planned to commence at the proposed setting January 2015 and expected to be completed by May 2015.

The study design would be none experimental quantitative study design comprising of questionnaire. The study design would be a cross sectional study comprising of a self-completion questionnaire. The proposed study would take place at the Child Welfare Clinic in the Ga East District of Greater Accra. A sample group of 350 mothers in the Child Health Clinic will be sampled.

At the postnatal unit and child welfare clinics mothers consent will be sort. Once women have agreed to participate in the study, a consent form will be given, with the questionnaire to self-administer. Mothers who are not educated will be assisted by the trained research assistants. Mothers will not be required to include identifiable features such as name, address, hospital number and phone number. This would ensure that confidentiality and anonymity is maintained at all times. All information provided will be stored securely on an encrypted disk, with only the researcher having access. The findings will used to improve breastfeeding practices among mothers in the study areas**. Please do not hesitate to contact the Ethical Review Committee person Hannah Frimpong on 0243235225 or 0507041223 in case of any concern. You can also contact me on 0540749333 for further clarifications or concerns.**

Thank you.

Signature of researcher: _____ Date: _____

III. Participant information sheet

Dear participant,

I am a Masters of Public Health student in the University of Ghana conducting a study 'Breastfeeding behaviour among mothers'. There is no harm to yourself or your baby. Your participation will help identify the factors that promote breastfeeding initiation.

This will be a wonderful opportunity to discover at what time mothers first feed their infants and the feed given thereafter. Your participation can improve maternity services and the support given to women who chose to breastfeed their infants.

You are not required to include identifiable features such as name, address and hospital number. This will ensure that your confidentiality and anonymity is maintained at all times. All information provided will be stored securely on a disk, with access to the researcher only.

If you wish to participate in this study, please inform your community nurse or midwife at Child Welfare Clinic on attendance. They will provide you with a consent form. Please return your completed consent form to your community nurse, midwife or research assistance in the envelope provided. We will contact you and administer the self-completed questionnaire.

Please do not hesitate to contact the Ethical Review Committee person Hannah Frimpong on 0243235225 or 0507041223 in case of any concern. You can also contact me on 0540749333 for further clarifications or concerns. I look forward to your response and participation in the study. Thank you.

Signature of participants: _____ Date: _____

IV. Consent form for the participants in the research study

I have read and understood the information sheet provided. I give consent to participate in the proposed study.

I am aware that;

The study aims to find the 'Breastfeeding behaviour among mothers'.

My participation will cause no harm to myself or my baby.

I agree to a self-completed questionnaire to provide my experience with breastfeeding initiation and infant feeding practices to the best of my ability.

I can withdraw from the study at any time without explanation.

My confidentiality and anonymity would be maintained at all times.

I give permission for the information collected to be analysed by the researcher, and for the results to be published.

Please do not hesitate to contact the Ethical Review Committee person Hannah Frimpong on 0243235225 or 0507041223 in case of any concern. You can also contact me on 0540749333 for further clarifications or concerns. I look forward to your response and participation in the study. Thank you.

Signature of participants: _____ Date: _____

V. Questionnaire: Breast feeding behaviour among first time mothers with infants below six months. Please indicate date of interview

No	Questions and Filters	Coding Categories	
A	***Personal characteristics***		
1	**Mother's age in years**	**……|__|__|**	
2	**What is your marital status?**	**Single……..…0** **Married ……1** **Divorced……..…3** **Cohabiting……4**	
3	**What is your education level?**	**No formal education……0** **Primary ……1** **JSS……..2** **SHS……..…3** **Tertiary……..4** **Other specify_____ 5**	
4	**What is your main occupation?**	**_____**	
5	**Where do you work from?**	**At home…….....0** **Close to home (less than 30 minutes away)…1** **Far Away from home……..2**	
B	***I would like to ask you about your pregnancy and birth.***		
6	**Did you receive antenatal care?**	**Yes ……0** **No……..1**	
7	**Which of the following did you receive during antenatal care?**	**Tetanus injection** **Prenatal counselling on child feeding** **Weight taken** **Malaria medication** **Mosquito net** **Medication for worms** **You gave blood sample for Hb assessment**	
8	**Were you educated on initiation of breastfeeding at birth?**	**Yes ……0** **No……..1**	

9	**Can you tell me the total number of times you visited antenatal clinic before delivery?**	**_____times**	
10	**What type of health facility did you deliver your baby?**	**Government……..0** **Private……...1** **NGO……..2**	
11	**Did you have any difficulty at delivery and post-delivery?**	**Prolonged Prenatal admission…0** **Assistance with labour……....1** **Episiotomy ……...2** **Caesarean section……....3** **Others……...4**	
12	**How long did it take before your breastmilk come through?**	**Same day……..0** **I day……..1** **2 days……....2** **3 days……....3** **4+ days…….....4**	
13	**How did you know that your milk has started flowing**	**A full or heavy feeling in your breasts?** **Hardness in your breasts?** **Tingling in your breasts when the baby nurses?** **Swelling in your breasts?** **Milk leaking from your breasts?** **Breasts felt warmer than usual?**	
14	**Please what is the name of your child?**	**_____**	
16	**How old is your child?**	**----------**	

17	**What influenced your choice of feeding name of child?** **Multiple answers allowed**	**No influence……..0** **Family and friends……...1** **Antenatal care……..2** **Health worker……..3** **Work……....4**	
18	**How long after delivery did you put name of child at the breast to suckle?**	**Immediately ……0** |__|__| **OR** **Within an hour……...1** |__|__| **OR** **Hours …….....2** |__|__| **Days …….3** |__|__|	
19	**Did you give _name of child anything apart from breastmilk the first day after delivery?**	**No ……0** **Yes…….....1**	
20	**If yes please what did you give name of child?** **Multiple choice answers**	**Water……....0** **Sugar solution……..1** **Formula……2** **Koko…….....3** **Herbs/green leafy vegetables…..4** **Juice from fruits/vegetable…….5** **Others……..6** **Please specify _____**	
21	**In the last 24 hours, (i.e. from same time yesterday to current time today whether any of the food listed below were eaten/drank by** **_name of child__?**	**Breastmilk……...1** **Formula milk……..2** **Milk such as tinned, powdered or fresh animal milk…….....3** **Bottle……....4** **Prelacteal…….5** **Water……...6** **Juice……7** **Herbs……....8** **Medicine…….....9** **Thin porridge……10**	

22	**What utensil do you use to feed <u>name of child</u>?**	**Cup……0** **Bottle……1** **Bowl and spoon……2**	
23	**Did you receive help to breastfeed?**	**Yes ……0** **No……..1** **Other……2** **Please specify**	
C	***Immediate environment***		
24	**How long after delivery are you returning back to work?**	**_____**	
25	**How long do you intend to breastfeed exclusively?**	**_____**	
26	**If not breastfeeding exclusively, how long do you intend to breastfeed for?**	**_____**	
27	**Indicate which support your workplace provides for breastfeeding?**	**No support……..0** **Short breaks to breastfeed…1** **Close early……..2** **Nursery facilities……....3** **Child support allowance…...4**	

VI. Research Randomizer Results

70 Sets of 5 Numbers Per Set

Range: From 1 to 10 – No

Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 9
9	3	2	1	8	9	6	10	3
5	6	10	6	6	3	9	9	10
8	5	9	7	3	7	4	6	2
3	9	5	3	2	10	3	2	7
4	2	1	4	4	6	2	4	4

Set 10	Set 11	Set 12	Set 13	Set 14	Set 15	Set 16	Set 17	Set 18
2	2	8	6	7	6	10	7	3
7	1	7	8	4	2	6	3	6
1	8	9	2	2	10	3	4	8
9	4	4	3	8	5	2	1	1
4	5	3	7	1	1	9	9	7

Set 19	Set 20	Set 21	Set 22	Set 23	Set 24	Set 25	Set 26	Set 27
4	3	5	2	8	8	3	4	4
9	4	6	8	7	2	4	3	9
2	2	7	4	6	7	7	9	7
10	5	1	9	4	5	10	2	3
7	7	2	5	9	9	1	7	5

Set 28	Set 29	Set 30	Set 31	Set 32	Set 33	Set 34	Set 35	Set 36
1	6	7	4	2	1	3	1	3
9	5	4	9	4	9	8	4	8
2	3	2	10	6	6	10	5	5
4	9	1	3	7	8	9	2	4
3	1	9	8	9	3	5	8	9

Set 37	Set 38	Set 39	Set 40	Set 41	Set 42	Set 43	Set 44	Set 45
4	1	7	3	6	9	10	2	1
1	4	2	2	1	4	2	3	9
5	5	4	8	10	7	8	7	8
7	7	9	7	4	1	1	10	4
3	3	10	5	8	2	7	4	10

Set 46	Set 47	Set 48	Set 49	Set 50	Set 51	Set 52	Set 53	Set 54
7	9	2	4	1	9	2	6	3
6	6	4	8	10	8	8	7	9
2	5	5	10	3	7	7	8	5
3	3	3	9	9	6	9	1	7
4	7	6	7	7	4	3	2	6

Set 55	Set 56	Set 57	Set 58	Set 59	Set 60	Set 61	Set 62	Set 63
8	3	9	5	8	8	8	8	4
3	1	2	2	7	1	5	4	2
7	6	1	1	9	4	3	5	10
2	5	10	7	2	6	1	3	5
10	2	7	4	6	2	4	6	3

Set 64	Set 65	Set 66	Set 67	Set 68	Set 69	Set 70
9	9	7	1	4	9	2
1	4	4	3	1	5	7
8	1	10	7	9	2	1
7	5	3	9	5	6	10
6	7	2	10	3	8	6