MATERNAL EMPLOYMENT, CHILDCARE AND NUTRITIONAL STATUS OF CHILDREN 0-2 YEARS OF AGE IN THE KASSENA-NANKANA DISTRICTS IN THE UPPER EAST REGION OF GHANA

UNIVERSITY OF GHANA

BY

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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PHILOSOPHY (M.PHIL) DEGREE IN NUTRITION

JULY, 2017
DECLARATION

I, Gabriel Azoewine Akasise hereby declare that, this work is the result of my own research work in the Department of Nutrition and Food Science, University of Ghana, Legon and that no previous submission of this dissertation has been done to this University or elsewhere. All references of people’s works which served as sources of information to this research have been duly acknowledged by making references to the authors.

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DEDICATION

I dedicate this piece of work to the Holy Virgin Mary Mother of God, my brother Samuel Awinepanga Akasise and my entire family members. I am so grateful for your love, instruction, inspiration, guidance and your blessing upon my life. I love you all with a passion.
ACKNOWLEDGEMENT

I am so grateful to the almighty God for taken me to where i could not have reached on my own. I say all glory and honour is thou Most Holy Name.

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I would like to acknowledge my hard working research assistant Mr Cletus Amengabuno Amiziah and all participants for their immense contributions during my data collection.

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To all I say “God’s unceasing blessings be upon you”.
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<td>Ghana Demographic Health survey</td>
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<td>GHS</td>
<td>Ghana Health Service</td>
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<td>GSS</td>
<td>Ghana Statistical Service</td>
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<td>HAZ</td>
<td>Height for age z-score</td>
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<td>KND</td>
<td>Kassena-Nanaka District</td>
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<td>NHIS</td>
<td>National Health Insurance Scheme</td>
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<td>SPSS</td>
<td>Statistical Package for the Social Scientist</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>United Nations Children’s Fund</td>
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ABSTRACT

Background: Child undernutrition and poor childcare still remain a great concern in Ghana. Maternal employment has increased rapidly due to the demand of increased household income thus giving mothers a double burden of responsibility as income earners and primary child caregivers. These multifaceted roles by mothers could adversely affect the nutritional status and the overall health status of the child.

Objective: To assess the relationship between maternal employment, child care and nutritional status of children 0-2 years in Kassena- Nankana districts in the Upper East Region of Ghana.

Methods: A cross-sectional mixed methods study was conducted with 128 mothers-child pairs in the Kassena-Nankana Districts in the Upper East Region of Ghana. A semi-structured questionnaire was used to gather quantitative data from the participants. Anthropometric measurements and dietary intake data (24 hours and 7 days food frequency tools) were taken from the children for nutritional status assessment. Focus group interview guide was also used to gather qualitative data from mothers. Logistic regression was used to predict factors for child nutritional status (stunting, underweight and wasting) and childcare practices indexes (infant and child feeding practice index and preventive health seeking index) and Data gathered from focus group discussion were transcribed and translated into English. Content analysis was used in the data analysis where data were organised into main themes and sub themes.

Results: The mean age of the mothers and children were 26.9±6.7 years old and 10.4±6.7 months old respectively. Majority of employed mothers (60%) worked for 4-8 hours a day and 82.7% of employed mothers worked 4-6 days in a week. All (100%) children had ever been breastfed, 78.9% were introduced to breastmilk within one hour of birth and almost all (93.8%) of mothers breastfed on demand. The mean age of cessation of breastfeeding was
16.6 months and 88.9% of mothers introduced complementary feeding at six months. Prevalence of wasting, underweight and stunting among the study children were 24.2%, 22.7% and 15.6%, respectively. Maternal employment was associated with child feeding practices such as snacking (Adjusted OR = 7.94; 95% CI: 2.25-27.94), bottle feeding (AOR = 7.38; 95% CI: 2.02-27.04) and no prelacteal feeding (AOR = 16.09; 95% CI: 1.10-219.8). Maternal employment was also associated with underweight (AOR = 0.16; 95% CI: 0.04-0.86) but not wasting, stunting, child feeding index and preventive health seeking index. From the focus group discussion, challenges of child feeding practices as reported by mothers included, poverty, no feeding places at offices, traditional food beliefs and taboos.

**Conclusion:** Prevalence of malnutrition still persists among children in the study area. Maternal employment status was associated with underweight and some feeding practices among children 6-24 months in the two Kassena-Nankana districts. There is the need to develop a comprehensive nutrition intervention programme due to the high prevalence of malnutrition in the districts.
CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Maternal employment refers to mothers who are part of the workforce and earn wages or salaries (Mulu, 2014). There have been remarkable changes in employment patterns globally, with a significant increase in employment rates among women (Dunifon, Hansen, Nicholson and Nielsen, 2013). Several studies also indicated that the increase in women employment in developing countries is largely informal such as petty trading and peasant farming (Mehra and Gammage, 1999; Goldin, 2006). Currently women represent 39.8 % of the global labour force (Mulu, 2014). Sub-Saharan Africa is among the top two regions globally with high women’s employment (Chen, 2008). According to (Dunifon et al., 2013), mothers’ employment has increased rapidly due to increased household income demand as a result of increased prices of food. Thus apart from household responsibilities, many women are now employed outside the home to earn income for their families.

However, the multifaceted roles women play in their families can influence the health and wellbeing of the entire family members especially childcare. Most societies around the world, assign women the traditional or customary role as the primary caregivers to their children (Oppong, 1993). This role includes; breastfeeding, preparing food, fetching water and health seeking which are fundamental to the survival, healthy development and growth of children. However due to the time constraints women normally face because of their labour force participation, their customary primary roles as care-givers could clash with income generation activities, resulting in various consequences for their children. The effect of maternal employment on child care, in specific, has been an issue of public pragmatic
deliberation for the past decades (Perner, Frith, Leslie, and Leekam, 1989; Glick and Sahn, 1998).

Some scholars are of the view that, employed mothers may have insufficient time to satisfactorily breastfeed and prepare nutritive meals for their children considering their increased burden of work. They believe that, although there may be market substitutes such as; infant formula, ready foods, employed house help, the added expense may be too expensive for most mothers (Al-Binali, 2012).

On the other hand, maternal employment could be beneficial to the child’s nutritional status and health care if mothers earn enough income and show strong preference for spending the income on the welfare of their children. Although income is the major resource required to pay for medical care, food, water and housing that a child’s health depends on, time spent in child care including that by the mother and other household members, hours spent in breastfeeding, supervision of the child, preparation of bottles feeds and complementary foods, taking them to health clinics and so on are also of great importance to the optimal health of the child (Smith, 2002).

The conflict of childcare and income arises greatly when the household requires absolute or additional income, and the woman is forced to work outside the home. Whether the child’s health is improved or not depends on the quality of the substitute childcare giver and the efficiency with which the extra income is used (Baker and Gruber, 2005). Children of working mothers may benefit more than children of non-working mothers if the income is used to buy more food of better quality for the infant. The income effect could also be reflected in improved medical care, better floors, shelter, toilet facilities, piped in water and
the like. On the contrary, an employed mothers working presumably have less time to take care of their children; mothers breastfeed less and may leave the child in the care of older siblings for longer periods during the day.

These circumstances could jeopardize or compromise the child’s health. For a household in which the mother is the sole income earner, the balance between time for childcare and work is quite obvious. Children in this household seem particularly vulnerable to poor care since their mothers frequently work for long hours, leaving little time or energy to prepare complementary food properly and to breastfeed (Badasu, 2004).

Again, some customs and traditions also play critical roles in childcare practices since they mostly contradict some of the modern approved childcare practices. These include taboos on certain foods given to children, taboos on male children helping in childcare and feeding (Awumbila, 2003). All these could contribute tremendously to increasing poor childcare problems in Ghana. Hence, it is also imperative to evaluate maternal employment and its effects on childcare and nutritional status in the Ghanaian context.

1.2 Rationale

Undernutrition is still a major public health challenge in Ghana. Ghana still has a national prevalence of stunting at 19%, with the prevalence in Upper East at 17.9%, wasting at 10.4% and underweight at 13.3% for children under five while about half (48%) of children less than six months old are not exclusively breastfed in Ghana (GDHS, 2014). World food programme has initiated food supplementation in the Kassena-Nankana districts to help address this problem. Various Non-governmental organizations have also given financial
support and vocational training to women in the districts to empower the women to help reduce extreme poverty in the district and hence improve nutrition.

However, currently there is no study in the districts to assess how the improved employment status of mothers resulting from these interventions related to the optimum health status of children who are primary beneficiaries of these programmes.

Child feeding practices such as snacking according to a study by Gaina, Sekine, Chandola, Marmot and Kagamimori (2009) showed that children of employed mothers were more likely to be snacking compared to children of unemployed mothers. Another study by Khanal, Adhikari, Sauer, and Zhao (2013) in Nepal reported that non-working mothers were more likely to practice prelacteal feeding than working mothers. Also in terms of nutritional status of the children, previous studies showed associations with maternal employment. Stunting was associated with maternal employment as revealed by Willey, Cameron, Norris, Pettifor and Griffiths (2009), Ajieroh (2010) in Nigeria and Brhane and Regassa (2014) in North Ethiopia. Another study by Sethuraman, Lansdown and Sullivan (2006) in India found that children of employed mothers (maternal employment) were less likely to be underweight compared to their counterparts because employed mothers were able to meet the nutrient requirement of their children.

Notwithstanding previous studies done on the relationship between maternal employment and childcare and nutritional status of children among different locations, there is limited information on studies that have used more comprehensive way of assessing childcare practices. Childcare indexes in this study were used to assess the overall performances of mothers in childcare practices and assess how the shift in pattern of maternal employment
relates to nutritional status of children in a community where traditional roles of women are still a priority.

1.3 Main objective

The overall objective of the study was to assess the relationship between maternal employment, child care practices and nutritional status of children 0-2 years in Kassena-Nankana districts in the Upper East Region of Ghana.

1.3.1 Specific objectives

1. To assess the relationship between maternal employment and child health care seeking.
2. To assess the association between maternal employment and child feeding practice.
3. To assess the relationships between maternal employment and nutritional status of children
4. To assess child feeding practices, related beliefs and their challenges in the Kassena-Nankana districts.
CHAPTER TWO

2.0 Review of Literature

2.1 The global and local nutrition situation of children

There is a universal consensus and recognition that the future of any country depends on its children. Children will be a burden to society if their nutritional needs are not met during their early developmental stages. It is thus important to develop children’s wellbeing from their youngest years so as to improve their potential for growth and development in future. Thus, several commitments and efforts have been shown both on international and national levels to improve child nutrition especially the first 1000 days of life. For example, United Nations Convention on Child’s right, of 1989 states that, “The child by reason of his physical and mental immaturity needs special safeguards and care including appropriate legal protection before as well as after birth” (Brownlie and Goodwin-Gill, 2010). The main objective of the convention is to promoting healthy lives. It aims at breaking the intergenerational cycle of malnutrition and poor health by providing a safe and healthy start in life for all children.

Despite these efforts and commitments, global malnutrition still exist among children with data from the 2016 “State of the World’s Children Report” (UNICEF, 2016), indicating that each year nearly 9.7 million children less than five years die of malnutrition of which over 3.2 million preventable deaths are attributed to child undernutrition. The UNICEF (2016) report also indicated that wasting was at 7% globally and 10% in sub-Saharan African. According GDHS (2014) report, in Ghana, 11% of children under five are underweight, 19% are stunted, and 5% wasted.
2.2 Maternal employment and childcare

Traditional and customary patterns of life and gender roles are changing, and there is now an increasing desire of mothers to engage in employment to earn money for better living everywhere. Thus, maternal employment profiles are moving along with the changes in social responsibilities (Coltrane, 2000). More women are now employed as compared to men even though with less educational qualification and skills than their male counterparts (O’Connell, 1994; Hill, Hawkins, Mårtinson and Ferris, 2003). Mothers who engage in the working force do not have time to breastfeed exclusively compared to those who do not work which may deny the child of the nutritional benefits of exclusive breastfeeding (Setegn et al., 2012).

A research done in urban Honduras on breastfeeding relationship with maternal employment revealed that due to limited time employed mothers have for childcare, they were more likely to seek alternative means to take care of their children than unemployed mothers. This is an indication of how maternal employment affects the quality of childcare and thus an overwhelming barrier to childcare because child care from alternative caregiver cannot be compared to mother’s care. Child feeding and other childcare activities were thought to be a burden on mothers which deprived them of time from other tasks at workplace. Thus, it resulted in the introduction of supplements, cessation of breastfeeding and introduction of breast milk substitutes by employed mothers earlier than non-employed mothers. The study overall found that, mothers’ availability to breastfeed their children is affected by their work demands and as such mothers resorted to other childcare alternatives (Smith, 2002).

Also maternal employment according to Nkwank (2009) has impacted negatively on children’s lives, such as health, education, and personality because employed mothers may have lesser amount of quality time available for childcare. On the contrary, other researchers
have argued that maternal employment can impact positively on children’s lives if the
incomes earned are used to champion childcare activities, by increasing households’
purchasing power on childcare necessities like, foods, health care, educational material and
shelter (Smith, 2002). Thus it is imperative to balance the change in gender roles to
accommodate mothers’ employment without compromising childcare and their nutritional
status.

2.3 Effect of working mothers on children’s wellbeing

During early 1980s, the world acclaimed opinion was that the mere mother’s absence from
home as a result of employment would have adversely affected children especially female
children’s vocational orientation in later life (Hoffman, 1989). However, later studies
admitted that maternal employment was correlated with the vocational interest of their
children. This indicated that the employed mother positively influenced the development of
career aspirations as their children appreciate and aspire to emulate their mothers thus,
making the children independent, self-reliant, and ambitious than the children of unemployed
mothers do (Barak, Feldman and Noy, 1991) Once women are empowered economically,
there is a transformation and implication on their social, economic, and political level thus,
impacting on the nutritional status of children and the entire household (Sethuraman et al.,

Despite this increasing rate of women involvement in the labour force, gender inequality still
exists. Mothers are not still relieved of their customary domestic duties but rather are double
burdened with the job and their domestic responsibilities as; primary parent, caregiver and
housekeeper. Hence, it is obvious that the mix of employment and childcare for women does
not only affect both the mother’s work and the quality of childcare, but apparently maternal
employment is negatively associated with mother’s health as well (Chatterji Markowitz and Brooks-Gunn, 2013).

A research findings by Schindehutte, Morris and Brennan (2003) on South African women as entrepreneurs showed that there are numerous occasions at which work and domestic roles intermingle, resulting in undue pressures and family conflicts. Most mothers indicated that owning a business interrupted family peace but had a positive influence on their children with regard to the financial benefits which allowed children to make more and better choices about their diet and future.

2.4 Conceptual framework for the study

According to the UNICEF conceptual framework care is one of the three main determinants of malnutrition. The analytical framework further expands to differentiate care into care practices and maternal resources for care as factors of child nutritional well-being (Engle, Menon and Haddad, 1999). Childcare practices of critical importance for optimal nutritional status and healthy development include; feeding practices, hygiene practices and health seeking behaviour of mothers for children. Therefore, mothers’ employment status may be associated with potential effects for almost all phases of children’s development and growth, including childcare and cognitive development of children (Bernal, 2008).

The quality of children’s diets, care and thus their overall health depend considerable on how much time mothers devote to supervise their children’s activities and meals preparation besides working. Long hours of work by mothers could limit mother’s time to prepare healthy food and thus the childcare and nutritional status of children (Hawkins, Cole and Law, 2008). A study by Anderson, Butcher and Levine (2003) on maternal employment and
overweight children reported of a more likelihood of child overweight for mothers who worked more hours per week than hours spent on taking care of the child. Additionally, income gained from work is highly associated with child nutritional status. This means income from mothers may have benefits for the child as the income could be used to purchase food to ensure stable supply of high quality food, seek proper medical care, live in good hygienic environment and probably hire well trained caregivers to compensate for their absence (Engle, 1993).

However, with all these the overall effects on children are likely to vary depending other factors such as; support from family members, net household income, maternal education and nutritional knowledge of mother (Pongou, Ezzati and Salomon 2006).
Figure 2.1: Relationship between maternal employment, child care and nutritional status
2.5 Child feeding practices

Nutrition adequacy during infancy and early childhood is fundamental to the development of a child’s full human potential (Dewey, 2002). The child’s first 1000 days of life period is a “window of opportunity” for the promotion of optimum growth, health and cognitive development. Therefore any circumstances that undermine the adequacy of quantity and quality of child feeding practices could have irreversible consequences on the children’s growth and health in later life. (Pongcharoen et al., 2012).

Maternal employment status has a strong influence on child feeding practice and thus influences child nutritional status and healthy development. Feeding practice plays a critical role in child health and food choices in later life and thus nutritional status. According to Miller and Han (2008), mothers who worked irregularly were associated with poor meal preparation. Thus children of employed mothers were at higher odds of developing poor dietary habits relative to children of unemployed mothers (Hawkins, Cole and Law, 2009).

In the fundamental background of undernutrition, one key underlying cause of child undernutrition is childcare (UNICEF, 1994). Fundamentally, the childcare practices that influence child nutritional status in the first 1000 days of life are breast feeding and complementary feeding (Arimond and Ruel, 2002) which include exclusive breast feeding followed by optimum complementary feeding practice which are very important childcare actions to obtaining optimal child nutritional status (Arabi, Frongillo, Avula and Mangasaryan, 2012).
Appropriate complementary feeding consists of timely introduction of solid-foods and liquids other than breastmilk to children at six months with continuous breastfeeding to at least two years. During complementary feeding, the practice of recommended feeding frequency for age and dietary diversity is capable of preventing 6% of child mortality annually (Jones et al., 2003).

### 2.5.1 Breastfeeding

A combined cohort study conducted in three countries including Ghana, India and Peru revealed non-breastfed infants to be 10 times more likely to die and 3 times more likely of falling sick compared to breastfed infants (Korir, 2013). According to Venneman et al. (2009), several researches have established that optimal health, social and economic benefits were associated with breastfeeding especially exclusive breastfeeding. Again, a study in Bangladesh showed that infants who were exclusively breastfed were associated with reduced risks of acute respiratory infection than infants who were not breastfed exclusively (Henkle et al., 2013). Several conditions such as food allergies, obesity, diabetes and other chronic diseases were negatively associated with breastfed infants (Leon-Cava, Lutter, Ross and Martin, 2002).

A study by Ulak, Chandyo, Mellander, Shrestha, and Strand (2012) revealed that, about 99.7% of children were ever breastfed, 17% given prelacteal feed, 57% initiated breastfeeding within 1 hour after delivery and 88% initiated breastfeeding after 1 hour of delivery. Researches have showed that social variables such as maternal employment could influence breastfeeding practice among women. A previous study by Khanal et al. (2013) in Nepal reported that non-working mothers were more likely to practice prelacteal feeding than working mothers. Research finding by Hawkins, Griffiths, Dezateux and Law (2007) also established that employed mothers were
less likely to initiate breastfeeding compared to unemployed mothers. Previous research also indicated that fewer employed mothers were breastfeeding their children at six months (39%) compared to unemployed mothers (56%) and employed mothers were less likely to continue breastfeeding after six months (Cooklin, Donath and Amir, 2008).

Maternal employment especially away from home is an important factor that potentially influences the duration of breastfeeding. According to a study conducted in United States by Berger, Hill and Waldfogel (2005), the author reported that several mothers ceased breastfeeding after returning to paid work, and this was affirmed by other research findings of a negative relationship between breastfeeding and mothers working (Rea and Morrow, 2004). A study by Scott, Binns, Oddy and Graham (2006) found mothers who resumed work less than six months after giving birth to be less likely to breastfed exclusively and still breastfeeding the child at twelve months of age. Moreover, the total time a mother devotes to work definitely affects breastfeeding. Mothers working full time were associated with decreased duration of breastfeeding compared to mothers not working (Taveras et al., 2003).

2.5.2 Exclusive breastfeeding

Feeding the child with breast milk only during the first six months of life is very critical and vital in the development of the child (WHO, 2008). Breast milk contains all necessary nutrients requirement during the first 6 months of life and is appropriate and beneficial for their nutrition (UNICEF, 2008). Thus, not exclusively breastfeeding denies the child from several benefits hence exposing the child to risks of illness like diarrhoea. Current data trend indicate that there have been improvement in exclusive breastfeeding in developing counties from 33% in 1995 to
39% in 2010 (Cai, Wardlaw and Brown, 2012). This improvement in trend was observed mostly in Western African and Central Africa. A study by Hasnain, Majrooh and Anjum (2013) revealed that about 79.6% mothers exclusively breastfed their children and 84% continued breastfeeding along with complementary feeding. Although 99% of children are ever breastfed in Ghana, nearly 52% of the children are exclusively breastfed which still needs improvement (GDHS, 2014).

Despite the well acclaimed importance of exclusive breastfeeding, the practice is still much to be desired due to mothers’ involvement in active labour market and the unfriendly breastfeeding environment at work place making the developing world still at a an unsatisfactory level. A study by Setegn et al. (2012) revealed that maternal employment was associated with exclusive breastfeeding. The authors reported that unemployed mothers were ten times more likely to practice exclusive breastfeeding compared to their employed mothers. This finding is also confirmed by other research results by Scott et al. (2006), that mothers who resumed work before 6 months were less likely to be exclusively breastfeeding at 6 months. Child nutrition programs internationally should therefore stay focus on investing and committing to improving child feeding practices especially exclusive breastfeeding so as to attend child’s good nutrition and optimal health.

2.5.3 Complementary feeding

Complementary feeding per the WHO (2003) recommendation begins at six months. It is very important and sensitive to timely introduce complementary food to cater for the increased needs for children during the first 1000 days of life which is a critical period of growth and
development. Appropriate complementary feeding consists of timely introduction of solid-foods and liquids other than breast milk to children of age 6 months with continuous breastfeeding to at least 2 years when children can eat family food (WHO, 2003). Thus a period of which breast milk is supplemented by other foods to meet infant’s increased nutritional needs (WHO, 2003).

The nutritional adequacy of the complementary food to meet both in quantity and quality the child’s nutritional requirement, still remains a major challenge globally today (Korir, 2013). In Ghana for instance, the proportion of children 6-8 months old who met their minimum acceptable diet was 6% whiles 6-23 months of age was 13% with highest been the ages 12-17 months which was 18% (GDHS, 2014).

Previous studies indicated that, inadequate time for childcare by working mothers could influence the complementary feeding initiation and practices of mothers. A study by Shumey, Demissie and Berhane (2013) in northern Ethiopia revealed that housewives (unemployed mothers) were more likely to initiate timely complementary feeding compared to employed mothers, which is consistent with a finding by Barbara, Martina, Ursula, Berthold and Hermann (2009) Bavaria, Germany. Other studies on maternal employment and nutrition in Japan showed that the likelihood of children snacking was more for children of employed mothers compared to children of unemployed mothers (Gaina et al., 2009). Winikoff and Castle (1988) also found that employed mothers were more likely to practice bottle feeding compared to their counterparts.
2.5.4 Minimum dietary diversity

An essential component of dietary intake is dietary diversity score (DDS). Dietary diversity is a recommended approach to achieving nutritional requirement and a proxy measure for macronutrients and micronutrients adequacy of the diet during complementary feeding (FAO, 2011). According to Arimold and Ruel (2004) increased dietary diversity score was associated with height for age. For children 6–23 months old to meet their minimum dietary diversity, they should consume from 4 or more of the food groups daily (WHO, 2010). This also provides an improved diet to complement breast milk for the children (Daelmans, Dewey and Arimond, 2009).

According to Sawadogo et al. (2006) who conducted a study in Burkina Faso, he observed an ascending increased trend in dietary diversity as the child ages. Also study by Konyole (2014), in Kenya, revealed very low dietary diversity score in animal products. Arimond and Ruel (2004) also reported that dietary diversity score was associated positively with nutritional status. Thus it is imperative to note that dietary diversity score in developing countries in the various specific food groups vary from country to country and over time because of the differences in geographical regions and seasons.

2.5.5 Infant and child feeding index (ICFI)

Infant and young feeding index explains and summarizes different child important feeding practices in one composite variable. The infant and child feeding index is created based on recent recommendations for six months old children to three years old children (Brown, Dewey, and Allen 1998). The infant and child feeding index is a scoring system that allocates marks for good
feeding practices based on each age category (Ruel & Menon, 2002). Five child feeding practice variables that constituted the index included; breastfeeding, bottle feeding, dietary diversity, food group frequency and meal frequency. Previous studies have shown that infants and child feeding index influences nutritional status of their children. For instance, studies conducted in Burkina Faso and China by Sawadogo et al. (2006) and Zhang et al. (2009) respectively revealed that child nutritional status was associated with infant and child feeding index (ICFI).

However, studies by Ntab et al. (2005) and Moursi et al. (2009) in rural Senegal and Madagascar respectively found no relationship between child feeding index and nutritional status. A study by Armar-Klemesu et al. (2000) reported that maternal employment was not related to infant and child feeding index. Maternal employment not being a constraint to composite child feeding index was a bit unexpected in the study considering the age of the participants.

### 2.6 Preventive health seeking index (PHSI)

The general well-being of every child in terms of nutrition, growth and development is not dependent on only adequate food intake, but also on adequate health seeking behaviours and proper care behaviours (UNDP, 1990). The ability of a household to carry out the care responsibility is largely dependent on the resources available to the household, quality time for the child and the accessibility of health facilities in the communities. Immunization against childhood diseases is a basic universally recommended, cost-effective health preventive health practice, which is universally approved and accepted. A study by Armar-Klemesu et al. (2000) reported a high coverage (91%) of immunization against DPT in Greater Accra, Ghana
demographic health survey (2014) reported of 97% coverage of polio immunization in Ghana. Another key preventive care practice is postnatal care for the mother and child. This so important because many maternal and neonatal deaths occurs during this period if complications arising from delivery is not detected early and prompt actions taken. Safe motherhood programmes recommend that mothers attend postnatal check up to for health assessment and information on child care practices (GDHS, 2014).

Preventive health seeking index which is a comprehensive summary of child immunization into a single variable to assess composite performance of mothers in health care seeking behaviours (Armar-Klemesu et al., 2000). Three variables critical to child preventive health was used construct an index which include; polio immunization of child, DPT immunization of child and postnatal attendance by mothers. A Previous study indicated that the composite health seeking index was not associated with maternal employment but associated with the age of the child (Armar-Klemesu et al., 2000).

2.7 Nutritional status

The health and nutritional status of children are fundamental elements in assessing the quality of life of children and the development of a nation (Pandve and Singru, 2012). Nutrition includes all the processes that occur to food from the time it is eaten until it is utilised by the body (Srilakshmi, 2006). Access to healthy diet and optimum nutrition are crucial to good health. Child malnutrition is an international public health concern that has international consequences because good nutrition is an essential determinant for their well-being. Child malnutrition reflects a number of intermediary processes such as household access to food, food safety, access
to health services and childcare practices.

Nutritional status is the condition of health of an individual influenced by how nutrients are used, that is the balance between nutrients intake and expenditure of these consumed nutrients during the processes of growth, maintenance of health and reproduction (Mudambi, 2007). Adequacy of nutrients intake with respect to the expenditure is very important in maintaining optimal health. As children go through the developmental milestone, there is rapid growth and nutrient requirements especially energy increase and therefore must be met. However because of the small gastric of children, meal frequency is very necessary in enabling them meet their nutrient requirement since they cannot consume much at one meal. Nutritional status assessment of children is therefore essential in monitoring the growth and thus implementing interventions where necessary.

According to the GDHS (2014) report, infant mortality rate in Ghana was 41/1,000 live births during the five years period preceding the survey. Under- five mortality rates was 60/1,000 live births and about 68% of all under-five deaths occur before the child’s first birthday. Of all children aged 12-23months, 77% of them had received ball basic vaccinations. About 2% of children in Ghana had not received any vaccination at all (GDHS, 2014). Nutritional status assessment of children involves anthropometry, biochemical investigations, clinical evaluation and dietary intake based on the world health organization cut-off for growth assessment of children (WHO, 2008).
2.8 Maternal knowledge of child feeding practices and their challenges

Mothers are considered customarily as the principal care providers for the family especially children and therefore the quality of care provided by mothers is fundamentally dependent on their knowledge of nutrition and health (LeVine, Levine and Keefer 1996). The mother’s poor knowledge of child feeding practice could comprise the understanding of the kind of child feeding practices that are critical at each stage of the child’s developmental process most especially during the first 1000 days of life (Pagui, 2015).

World health organisation reported that maternal knowledge of optimal child feeding practices such as; prelacteal feeding, initiation of breastfeeding, exclusive breastfeeding, continued breastfeeding and timely transition to adequate complementary food are key determinants of child health during the early stages of the child’s life (WHO, 2010). Maternal knowledge in child feeding practice and thus nutritional knowledge is a strong weapon for women against malnutrition. Increase in knowledge level of mothers about nutrition will empower them to make better conscious food choices for the child which can influence the child’s health (Pagui, 2015). For instance in Ethiopia, about 57% of deaths of children under-five years of age were associated with abrupt cessation of breastfeeding and infectious diseases, which resulted from poor maternal knowledge of appropriate feeding (Tamiru, Belachew, Loha and Mohammed, 2012).

Notwithstanding the benefits mothers may derive from maternal knowledge of child feeding practice, certain challenges could impede the practical applications of this knowledge. Findings from the study of Salami (2006) indicated that factors such as; income level, age of mother, marital status, education of mother, proximity to baby have influence on breastfeeding practices.
Complementary feeding is also challenged with factors such as; maternal employment, lack of health education and lack of family support (Champagain, 2013). These challenges may therefore undermine the knowledge acquired by mother and thus may not necessarily be translated into practice.

According to a study conducted in Bawku East District of Ghana by Awumbila (2003), one fundamental challenge in promoting appropriate child feeding practice in the developing world especially rural communities is the socio-cultural factors regarding child feeding practice. Cultural and religious taboos of foods are complex beliefs; norms and values with are so inclined to societies and could vary from different societies and are sometimes barriers to the achievement of universal child health. Generally, culture, religion and the entrenched traditional knowledge are key determinants of what and how we eat (Counihan and Van, 2013). Thus the biological and nutritional necessities of food have now become a secondary meaning to the cultural and religious symbolic values of foods in communities (Briones, 2015).

Cultural and religious reasons of food taboos still undermine scientific recommendations. For instance, WHO and UNICEF (2003) recommend that children should be exclusively breastfed for the first six months after birth and continued breastfeeding for two years and above with timely initiation of nutritious complementary foods however, this recommendation is been defeated in several communities by the view that breastmilk alone is insufficient for children to grow stronger and hence incomplete without giving the child water (Kerr, Dakishoni, Shumba, Msachi and Chirwa 2008). A study conducted in Cameroon revealed that mothers introduced early commentary feeding because the wanted to comply with the pressure from elders of the
families to obey the tradition that, every member of the family should have a fair share of the farm produce especially during new harvesting seasons (Kakute et al., 2005). The other reason was that it was a taboo to have sex while the child is only feeding on breast milk so in order to satisfy their sexual desires they had to introduce complementary feeding before the recommended time. A study by Adams et al. (2005) reported that new-born babies were fed butter to confirm the bond with family members and provide spiritual protection.

In some rural communities colostrum is discarded because it is considered impure and delaying the period of breast feeding (Martínez and Pascual, 2013). All these practices of early cessation of breastfeeding or introduction of complementary food have adverse health implications for the child such as vulnerability to infections and many complications in future. Food taboos are therefore actions to restrict the consumption of certain food based on causal explanations which are backed by superstition and are respected and observed in Africa (Gadegbeku et al., 2013).
CHAPTER THREE

3.0 Methodology

3.1 Study Area:
The study was conducted at Navrongo the capital of Kassena- Nankana East Municipal (KNEM), Paga the capital of Kassena-Nankana West District (KNWD) and Sirigu also located at KNWD in the Upper East Region of Ghana. The two capitals are 10km apart and about 30km away from Sirigu. The Kassena Nankana West District shares boundaries with Burkina Faso, Bongo District, while Kassena Nankana East Municipal, shares boundaries with Builsa District and Bolgatanga Municipal. The study area is part of the inland climatic zone of Ghana characterized by two farming seasons; dry (November-April) and wet (May-October). The area also experiences dusty and dry harmattan from the Sahara desert (late November – early February). GSS (2010).

Figure 3.1 Map of Kassena-Nankana Districts; Source: Google map
3.2 Study design

The study was a cross sectional study that applied both quantitative (survey) and qualitative (focus group discussions) to determine the relationship between maternal employment, childcare and the nutritional status of children.

3.3 Sample size determination and sampling procedure

The study involved mothers with children (0-24 months).

The sample size was determined using the following formula by Lwanga, Lemeshow and World Health Organization (1991)

\[ n = \frac{Z^2 \cdot (1 - \alpha)}{p_1 (1 - p_1) + p_2 (1 - p_2)} \]

Where;

Anticipated population = p1 (9.4%) and p2 (12.4%), thus detecting a difference of 3% in wasting between employed and unemployed mothers’ children.

Confidence level = 100 (1-\(\alpha\)) %

Absolute precision required on either side of the true value of the difference between the proportions (in percentage points) = d

\( Z \) is the statistical certainty chosen to be 1.96 at a confidence level of 95%

The calculated sample size was 116 and adding an attrition of 10%, a total of 128 mother-child pairs were recruited consisting of 75 employed mother-child pairs and 53 unemployed mother-child pairs based on the weighted average of the total number of mothers recruited in each group.
In all three communities were purposely selected, Navrongo, Paga and Sirigu. These communities were selected because of the busy economic activities in these communities. Data on number of mother-child pairs with children 0-2 years was collected at the various child welfare clinics in these communities. Simple random sampling technique was used to select participants for the study using SPSS software.

3.3.1 Inclusion criteria

1. Mother-child pairs who lived in the study area for at least three months preceding the study
2. A mother with a child 0-24 months old

3.3.2 Exclusion criteria

A child who was on hospital admission or was diagnosed of chronic diseases or conditions such as HIV, tuberculosis, sickle cell disease was excluded.

3.4 Recruitment and training of research assistants

Two research assistants who were fluent in English language as well as Frafra and Kassem (local languages) were recruited to assist in data collection. Researcher organised a three day training session for research assistants. The training comprised of teachings and demonstrations on how to use the UNICEF uni-scale to measure weight, infantometer to measure recumbent length, how to record readings of measurements and on how to administer the questionnaire.
3.5 Ethical considerations

Ethical clearance was obtained from the Ethics Committee of the College of Basic and Applied Sciences (ECBAS) at the University of Ghana. Participants’ consent was sought after the study methodology and objectives had been explained to them.

3.6 Data collection

3.6.1 Interviews (Quantitative)

A semi structured questionnaire was developed and administered to each mother to gather relevant data. The questionnaire was administered to the mothers in face-to-face interviews (self-reporting) and anthropometric measurements (weight and length) were taken during a one-time visit to the household or work place.

The questionnaire for the quantitative data consisted of four sections, including: socio-demographic characteristics (age, sex, religion, ethnicity, educational status and marital status, type of occupation, income level), child health care practices such as; where to attend for treatment when a child is sick, postnatal attendance, possession of NHIS card and child immunization, child feeding practices such as; timely breast feeding initiation, prelacteal feeds, continuous breastfeeding, breast feeding on demand and timely introduction of complementary foods and dietary assessment such as 24 hour recall and 7 days food frequency.

3.6.1.1 Dietary assessment

3.6.1.2 Twenty-four hours food frequency

A 24-hour recall was used to collect dietary information on the different types of food groups the child had eaten for the previous 24-hour period preceding the interview. Mothers were asked to
recall if their children ate foods and drinks from any of the food groups for the past 24-hours. Where a mother was not able to recall the food, the researcher noted the name of the participant and revisited her within the week to take the 24-hour recall.

3.6.1.3 Seven days food group frequency

Information on the frequency of consumption of food from a particular food group during the past seven days was also collected using food group frequency questionnaire (FAO, 2011). The food groups included; starchy staples, meat and fish, legumes, nuts and seeds, eggs, milk and milk products, vitamin A rich fruits and vegetables, other fruits and vegetables, dark green leafy vegetables, and organ meat. Mothers were asked to recall the number of days in a week that children were fed with each of these nine food groups.

3.6.2 Anthropometry

The length of the infants and young children was measured using the seca infantometer, weight of the children was measured using the UNICEF uni-scale and recorded. The ages of children were determined using their birth certificates and child health cards.

3.6.2.1 Weight measurement (Child)

The weight of the child was measured using the UNICEF uni-scale. The UNICEF uni-scale was placed on a flat ground and the mother made to stand on the scale. The scale was tarred to zero and the child given to the mother for the child’s weight to be measured and recorded. Measurements were taken twice and recorded to the nearest 0.1kg (WHO, 2008).
3.6.2.2 Length measurement (Child)

The infantometer was placed on a hard flat surface while the assistant knelt on the right hand of the child with both knees behind the base of the board on the floor. With the support of the mother, the child was lain flat on the board with the child’s head straight upwards against the fixed headboard, compressing the hair. While holding the child’s knees firmly on the board, the footboard was pulled against the child’s flat feet. The measurement was taken twice to the nearest 0.1 cm (WHO, 2008).

3.6.3 Focus group discussion (Qualitative)

Mothers who participated in the study were asked to indicate their willingness to be recruited for the focus group discussion and out of the total 128 mothers, eighty three (83) showed interests and willingness to take part in the focus group discussion comprising of fifty six (56) employed mothers and twenty seven (27) unemployed mothers. Simple random sampling method was implored using SPSS Software to select fourteen mothers comprising of eight (8) employed mothers and five (5) unemployed mothers to seek their views on child feeding practices and beliefs related to these practices. Two focus group discussions were held using an interview guide to gather information on food beliefs and taboos that affect child feeding practices as shown in the appendix II. The first one comprised of seven mothers from Sirigu where the language spoken by the mothers was “Frafra”. The second focus group discussion was made up seven mothers from Navrongo and Paga where the language spoken was “Kassem”. Mothers were the only participants and everyone was encouraged to present her views on how food beliefs and taboos affect child feeding practices without fear.
3.6.4 Quality control measure

Field research assistants were adequately trained on how to administer the questionnaire and on the use of the measuring instruments. The questionnaire was pretested in Bolgatanga Municipal Assembly. Filled questionnaires were reviewed daily by the researcher and measuring instruments were calibrated daily to reduce errors.

3.6.5 Data analysis

Data entry and analysis was done using SPSS (version 22.0, Chicago, Illinois, USA). Frequencies and percentages were used to describe categorical variables while means and standard deviations were used for continuous variables.

Anthropometric data on weight and length was analysed using the WHO, 2011 version of WHO Anthro software packages (Version, 3.2,2 January, 2011). Results of measurements were translated into indicators of malnutrition, which included; underweight, stunting and wasting for children. The cut-off points that were used for the classification of children’s malnutrition were based on WHO classification (WHO, 2008). Children with Z-scores below-2SD of the median reference of weight-for-age (WAZ), height-for age (HAZ) and weight-for-age (WHZ) were classified as underweight, stunted and wasted respectively.

Individual dietary intake was translated into those who met the minimum dietary diversity and those who did not met the minimum dietary diversity. Individuals who consumed foods from four or more of the seven food groups within 24 hours preceding survey were classified to have
met the minimum dietary diversity and those who consumed food from less than four groups were considered not to have met the minimum dietary diversity.

Bivariate analyses were conducted between maternal employment and socio-demographic characteristics, child feeding practices, nutritional status (stunting, wasting, underweight and minimum dietary diversity), and preventive health seeking variables using Pearson chi-square test at significance of p<0.05.

Multiple logistic regressions analyses were conducted to determine factors associated child feeding index (dependent variable: child feeding index and independent variables: maternal employment, sex of the child, age of child, age of mother and education of the mother), preventive health seeking index (dependent variable: preventive health seeking index and independent variables: maternal employment, sex of the child, age of child, age of mother, education of the mother, family system and distance from home to health facility) and maternal employment and nutritional status of children (dependent variables: stunting, wasting and underweight and independent variables: maternal employment, sex of the child, age of child, age of mother, education of the mother, infant and child feeding index and preventive health seeking index).

Data gathered from focus group were transcribed and translated into English. Content analysis was used in the data analysis where data were organised into main themes and sub themes. Various quotes were categorised under the themes identified (Patton, 2005).
3.6.5.1 Construction of the childcare practices indexes

Developments of childcare practices indices were constructed based on the principle proposed by (Moursi, Trèche, Martin-Prével, Maire and Delpeuch, 2009; Ruel and Menon, 2002) and were based on current feeding recommendations on infant and child feeding (ICF). These were used as composite index to investigate the association between infant and a young child care practices and the nutritional status of children aged 0-2 years.

3.6.5.1.1 Infant and young child feeding index (ICFI)

Child feeding index was formed from the scoring of five child feeding practices namely; breastfeeding, feeding bottle use, 24-hour minimum dietary diversity, frequency of feeding solids/semisolid foods and seven-day food frequency (Table 3.1).

<table>
<thead>
<tr>
<th>Table 3.1: Variable and scoring system used to construct ICFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>Breast feeding</td>
</tr>
<tr>
<td>No =0</td>
</tr>
<tr>
<td>Bottle feeding</td>
</tr>
<tr>
<td>No =1</td>
</tr>
<tr>
<td>Dietary diversity(24-hour)</td>
</tr>
<tr>
<td>2 = 1</td>
</tr>
<tr>
<td>3+ =2</td>
</tr>
<tr>
<td>Food group frequency (past 7 days)</td>
</tr>
<tr>
<td>3-4 =1</td>
</tr>
<tr>
<td>5+ =2</td>
</tr>
<tr>
<td>Feeding frequency</td>
</tr>
<tr>
<td>1=1</td>
</tr>
<tr>
<td>2+=2</td>
</tr>
<tr>
<td>Total score Min./Max.</td>
</tr>
</tbody>
</table>
Scores were allocated to breastfeeding and bottle feeding practices based on current recommendations that children should be exclusively breastfed for the first six months of birth and continued up to two years.

Bottle feeding is a practice that is not encouraged at any age of life of children from birth to two years because it can interrupt breastfeeding and increase risk of infection. The score were allocated as shown in Table 3.1. A score of +2 is allocated to children of ages 6-8 months and 9-11 months breast feeding because breast feeding is critical at those ages.

Another indicator used was 24-Hour Minimum Dietary Diversity and was used based on the current recommendation of minimum dietary diversity which is at least a child should consume four of the seven food groups daily. The cut-off was used because it is associated with better quality of diet for both breastfed and non-breastfed children (Daelmans at el., 2009). The methodology was that, first the sum of the number of food groups eaten by the child in the previous 24-hours was calculated and then secondly, the scores were allocated based on age-specific distribution as shown in Table 3.1.

A seven day food frequency was used to assess the number of days a child consumes a particular food group in a week. Each food group was scored zero if not eaten at all by a child the previous seven day, scored 1 if eaten 1-3 days and score 2 if eaten 4-7 days. The scores were summed making a total score range of 0-14 and this formed the intermediate variable. The score were also assigned based on age distribution as shown in Table 3.1.
Feeding frequency of complementary foods indicator was also used a proxy of energy intake apart from the breast milk and based on current recommendations. The scores were allocated based on the age distribution as shown in Table 3.1.

In the creation of the ICFI, feeding frequency, dietary diversity and 7-day frequency were divided into terciles in each age group and scores of 0, +1, +2 and +3 were allocated based on current recommendations (Sawadogo et al, 2006). The total score was obtained by adding up all the scores of the variables used.

\[(Breastfeeding \text{ } \text{score}) + (\text{bottle use score}) + (24\text{-hour diversity score}) + (frequency \text{ } \text{of feeding score}) + (seven-day \text{ } quasi-food \text{ } frequency \text{ } \text{score}).\]

The ICFI was grouped into three categories based on the total scores ranging from 0-9

A score of 0-5 was grouped “Low”; a score of 6-7 was grouped “Average” and a score of 8-9 was grouped “High” (Ruel and Menon, 2002).
3.6.1.1.2 Preventive health care seeking index (PHSI)

Table 3.2: Variable and scoring system used to construct preventive health seeking index (n=119)

<table>
<thead>
<tr>
<th>Variable</th>
<th>0-5 months</th>
<th>6-8 months</th>
<th>9-11 months</th>
<th>12-23 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPT immunization</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
</tr>
<tr>
<td></td>
<td>No = -1</td>
<td>No = -1</td>
<td>No = -1</td>
<td>No = -1</td>
</tr>
<tr>
<td>Polio immunization</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
</tr>
<tr>
<td></td>
<td>No = -1</td>
<td>No = -1</td>
<td>No = -1</td>
<td>No = -1</td>
</tr>
<tr>
<td>Post natal attendance</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
<td>Yes = 0</td>
</tr>
<tr>
<td></td>
<td>No = -1</td>
<td>No = -1</td>
<td>No = -1</td>
<td>No = -1</td>
</tr>
</tbody>
</table>


Preventive health seeking index was adopted from Armar-Klemesu, Ruel, Maxwell, Levin and Morris (2000) study and was created from three variables which included; whether child had received DPT immunization, Polio immunization and attendance of post natal care. Although the PHSI was adopted, the variable measles immunization was replaced with polio immunization to form the preventive health seeking variables because by age distribution, 61(47.7%) of the study children were below 9 months which means about half of the children could not have been considered since children below 9 months are not eligible to take the measles immunization and hence the inclusion of polio immunization which had 119(93%) children eligible.

A score of 0 was awarded for those who had received DPT immunization, received Polio immunization and attended post natal care for the previous month and a score of -1 for those who failed to do so. The total score ranged from 0 to -3. Score values of -3 to -2 were grouped as “Poor health seeking” group, score value of -1 formed “Average health seeking” group and a score value of 0 was grouped “Good health seeking” group (Armar-Klemesu et al., 2000).
CHAPTER FOUR

4.0 RESULTS

4.1 Socio-demographic characteristics of children and mothers

The study involved 128 mother-child pairs with 53.9% of mothers having male children (Table 4.1). The mean age of the children was 10.4±6.5 months and there was no statistical difference (p= 0.490) based on employment status of mothers. The mean age of the mothers was 26.0±6.7 years with the youngest mother being 14 years old and the oldest mother being 42 years old.

In terms of marital status of mothers, higher proportion of employed mothers were married compared to unemployed mothers who were married (80% vs. 58.5%, p=0.001), higher proportion of employed mothers lived in nuclear family system compared to unemployed mothers (37.3% vs.7.5%, p<0.001) and higher proportion of employed mothers had attained formal education level of secondary and above compared to unemployed mothers who attained formal education level of secondary and above (73.3% vs. 9.4%, p<001). Higher proportion of unemployed mothers were with the age of 18 and below compared to proportion of employed mothers within the age of 18 years and below (30.2% vs. 5.3%, p<0.001). There was no statistical difference between employed vs. unemployed mothers in terms distance to a health facility (p=0.63) and source of drinking water (p=0.12).

Majority of the employed mothers (82.7%) worked for a period of 4-6 days a week but less than 10% worked every day of the week as shown in Figure 4.1. Also 60.0% of the employed mothers worked from four to eight hours daily and 40.0% more than eight hours daily. More than half (58.4%) of employed mothers received child care support from grandmothers, 23.3% from hired
caregiver and 18.3% from child’s older siblings as shown in Figure 4.2. More than three quarters of the employed mothers (88.0%) earned up to the minimum wage level and above (≥GHC240.0) and had family support (80.0%).

Table 4.1: Socio-demographic characteristics of participants (N=128)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total sample (N=128)</th>
<th>Employed (N=75)</th>
<th>Unemployed (N=53)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>69(53.9)</td>
<td>39(52.0)</td>
<td>30(56.6)</td>
<td>0.607</td>
</tr>
<tr>
<td>Female</td>
<td>59(46.1)</td>
<td>36(48.0)</td>
<td>23(43.4)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5 months</td>
<td>30(23.4)</td>
<td>19(25.3)</td>
<td>11(20.8)</td>
<td>0.268</td>
</tr>
<tr>
<td>6-8 months</td>
<td>31(24.2)</td>
<td>22(29.3)</td>
<td>9(17.0)</td>
<td></td>
</tr>
<tr>
<td>9-11 months</td>
<td>22(17.2)</td>
<td>11(14.7)</td>
<td>11(20.8)</td>
<td></td>
</tr>
<tr>
<td>12-23 months</td>
<td>45(35.2)</td>
<td>23(30.7)</td>
<td>22(41.5)</td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nankana</td>
<td>27(21.1)</td>
<td>14(18.7)</td>
<td>13(24.5)</td>
<td>0.481</td>
</tr>
<tr>
<td>Kassena</td>
<td>99(77.3)</td>
<td>59(78.7)</td>
<td>40(75.5)</td>
<td></td>
</tr>
<tr>
<td>Talasi</td>
<td>2(1.6)</td>
<td>2(2.7)</td>
<td>0(0.0)</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>93(72.7)</td>
<td>55(73.3)</td>
<td>38(71.7)</td>
<td>0.243</td>
</tr>
<tr>
<td>Islam</td>
<td>30(23.4)</td>
<td>19(25.3)</td>
<td>11(20.8)</td>
<td></td>
</tr>
<tr>
<td>ATR&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5(3.9)</td>
<td>1(1.3)</td>
<td>4(7.5)</td>
<td></td>
</tr>
<tr>
<td>Family system</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Nuclear family</td>
<td>32(25)</td>
<td>28(37.3)</td>
<td>4(7.5)</td>
<td></td>
</tr>
<tr>
<td>Extended family</td>
<td>96(75.0)</td>
<td>47(62.7)</td>
<td>49(92.5)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>31(24.2)</td>
<td>10(13.3)</td>
<td>21(39.6)</td>
<td>0.001*</td>
</tr>
<tr>
<td>Married</td>
<td>91(71.1)</td>
<td>60(80.0)</td>
<td>31(58.5)</td>
<td></td>
</tr>
<tr>
<td>Widowed/divorced</td>
<td>6(4.7)</td>
<td>5(6.7)</td>
<td>1(1.9)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>No education</td>
<td>17(13.3)</td>
<td>6(8.0)</td>
<td>11(20.8)</td>
<td></td>
</tr>
<tr>
<td>Below secondary</td>
<td>51(39.8)</td>
<td>14(18.7)</td>
<td>37(69.8)</td>
<td></td>
</tr>
<tr>
<td>Secondary and above</td>
<td>60(46.9)</td>
<td>55(73.3)</td>
<td>5(9.4)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>≤18 years</td>
<td>20(15.6)</td>
<td>4(5.3)</td>
<td>16(30.2)</td>
<td></td>
</tr>
<tr>
<td>&gt;18 years</td>
<td>108(84.4)</td>
<td>71(74.7)</td>
<td>37(69.8)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>ATR; refers to Africa Traditional Religion, * indicates values significant at p<0.05
Figure 4.1: Duration of working period of employed mothers

Figure 4.2: Sources of support for child care of employed mothers
4.2 Child preventive health seeking characteristics

Table 4.2 below shows some of the preventive measures that the study mothers were involved in. These practices are expected to promote healthy child growth and development. The variability of the total numbers for the different activities is due to the differences in the age at which a child is eligible to take part in an activity. All the eligible children of unemployed mothers had received the DTP, Measles and Polio immunization. There was no statistical difference in child preventive health seeking characteristics with maternal employment status.

Table 4.2: Preventive health seeking characteristics by maternal employment

<table>
<thead>
<tr>
<th>characteristics</th>
<th>Total sample N(%)</th>
<th>Employed N(%)</th>
<th>Unemployed N(%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DPT immunization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>117(98.3)</td>
<td>65(97.0)</td>
<td>52(100.0)</td>
<td>0.504</td>
</tr>
<tr>
<td><strong>Measles immunization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>64(98.5)</td>
<td>33(97.1)</td>
<td>31(100.0)</td>
<td>1.000</td>
</tr>
<tr>
<td><strong>Polio immunization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>117(98.3)</td>
<td>65(97.0)</td>
<td>52(100.0)</td>
<td>0.504</td>
</tr>
<tr>
<td><strong>Postnatal attendance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>73(61.3)</td>
<td>40(59.7)</td>
<td>33(63.5)</td>
<td>0.676</td>
</tr>
<tr>
<td><strong>NHIS card</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>107(91.5)</td>
<td>61(92.4)</td>
<td>46(90.2)</td>
<td>0.745</td>
</tr>
<tr>
<td><strong>Medical care Centre</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>2(1.7)</td>
<td>1(1.5)</td>
<td>1(1.9)</td>
<td>0.721</td>
</tr>
<tr>
<td>Health facility</td>
<td>116(97.5)</td>
<td>66(98.5)</td>
<td>50(96.2)</td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>1(0.8)</td>
<td>0(0.0)</td>
<td>1(1.9)</td>
<td></td>
</tr>
</tbody>
</table>

*Numbers differ because of the differences in age of immunization of children, significance at p<0.05, NHIS refers to National Health Insurance Scheme*
4.3 Association between maternal employment and preventive health seeking index

Maternal employment was not associated with preventive health seeking index. However, age of child and distance to health facility were statistically significant. Younger children were more likely to have experienced good PHSI. Mothers who lived closer (2km) to health facilities were six times more likely to practice preventive health seeking behaviour compared to mothers who lived farther away from the health facility.

Table 4.3: Factors associated with preventive health seeking index (PHSI), based on a multiple logistic regression model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Good PHSI OR(95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>0.32(0.08-1.32)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1.01(0.39-2.64)</td>
</tr>
<tr>
<td>Female</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>0-5 months</td>
<td>31.41(5.61-175.95)*</td>
</tr>
<tr>
<td>6-8 months</td>
<td>19.50(5.37-70.86)*</td>
</tr>
<tr>
<td>9-11 months</td>
<td>6.24(1.88-20.74)*</td>
</tr>
<tr>
<td>12-23 months</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Mother’s age</strong></td>
<td></td>
</tr>
<tr>
<td>≤ 19 years</td>
<td>0.57(0.12-2.84)</td>
</tr>
<tr>
<td>≥ 20 years</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>0.42(0.08-2.09)</td>
</tr>
<tr>
<td>Below secondary</td>
<td>0.96(0.26-3.55)</td>
</tr>
<tr>
<td>Secondary and above</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Family system</strong></td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>1.29(0.78-4.44)</td>
</tr>
<tr>
<td>Extended</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Distance to Health facility</strong></td>
<td></td>
</tr>
<tr>
<td>≤ 2km</td>
<td>5.71(1.10-29.58)*</td>
</tr>
<tr>
<td>&gt;2km</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Indicates values that are significant at p-value <0.05, PHSI refers to Preventive Health Seeking Index.
4.4 Child feeding practices

Table 4.4 below describes the breastfeeding and complementary feeding practices in the study area. All the children who took part in the study had ever been breastfed (100%). However, there were some differences based on maternal employment status. Prelacteal feeding among children was relatively low but the proportion of prelacteal feeding of children of unemployed mothers was significantly higher than children of employed mothers (p=0.005). More than three quarters of the children studied were introduced to breastmilk within one hour after birth (78.9%) and 77.3% were still breastfeeding as at the time of the study. However, the prevalence of breastfeeding was higher among children of employed mothers compared to children of unemployed mothers.

The mean age of breastfeeding cessation of children among mothers was 16.6 months and there was no statistical difference (p=0.952). Almost all the study mothers (93.8%) reported that they breastfed their children on demand. About one-fifth (18.6%) of the children of unemployed mothers were introduced to complementary foods before six months compared to 5.4% of children of employed mothers (p=0.053). Also compared to children of unemployed mothers, snacking by children was significantly higher among children of employed mothers (p<0.001). The use of infant formula and bottle feeding was higher in children of employed mothers compared to children of unemployed mothers (p<0.001).
Table 4.4: Child feeding practices

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total sample N(%)</th>
<th>Employed N(%)</th>
<th>Unemployed N(%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breast milk initiation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 1-hour of birth</td>
<td>101(78.9)</td>
<td>61(81.3)</td>
<td>40(75.5)</td>
<td>0.423</td>
</tr>
<tr>
<td>After 1-hour of birth</td>
<td>27(21.1)</td>
<td>14(18.7)</td>
<td>13(24.5)</td>
<td></td>
</tr>
<tr>
<td><strong>Prelacteal feeding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8(6.3)</td>
<td>1(1.3)</td>
<td>7(13.2)</td>
<td>0.009*</td>
</tr>
<tr>
<td><strong>Ever breastfed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>128(100)</td>
<td>75(100)</td>
<td>53(100)</td>
<td>1.000</td>
</tr>
<tr>
<td><strong>Still breastfeeding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>99(77.3)</td>
<td>63(84.0)</td>
<td>36(67.9)</td>
<td>0.032*</td>
</tr>
<tr>
<td><strong>Bottle feeding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>43(33.6)</td>
<td>37(49.3)</td>
<td>6(11.3)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td><strong>Infant formula</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>84(64.8)</td>
<td>56(100)</td>
<td>28(65.1)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td><strong>Breastfeeding freq.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand</td>
<td>120(93.8)</td>
<td>69(92.0)</td>
<td>51(96.2)</td>
<td>0.468</td>
</tr>
<tr>
<td>2-4 times daily</td>
<td>8(6.2)</td>
<td>6(8.0)</td>
<td>2(3.8)</td>
<td></td>
</tr>
<tr>
<td><strong>CF initiation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>99(77.3)</td>
<td>56(74.7)</td>
<td>43(81.1)</td>
<td>0.456</td>
</tr>
<tr>
<td><strong>Timely initiation of CF</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;6 months</td>
<td>11(11.1)</td>
<td>3(5.4)</td>
<td>8(18.6)</td>
<td>0.053**</td>
</tr>
<tr>
<td>≥6 months</td>
<td>88(88.9)</td>
<td>53(94.6)</td>
<td>35(81.4)</td>
<td></td>
</tr>
<tr>
<td><strong>Feeding freq.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 times</td>
<td>16(16.2)</td>
<td>6(10.7)</td>
<td>10(23.3)</td>
<td></td>
</tr>
<tr>
<td>3 times</td>
<td>66(66.6)</td>
<td>44(78.6)</td>
<td>22(51.2)</td>
<td>0.016*</td>
</tr>
<tr>
<td>4+ times</td>
<td>17(17.2)</td>
<td>6(10.7)</td>
<td>11(25.6)</td>
<td></td>
</tr>
<tr>
<td><strong>Snacking</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>50(50.5)</td>
<td>42(75.0)</td>
<td>8(18.6)</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

* indicates values significant at p<0.05 and ** indicate tendency of significance at p<0.05

4.5 Intake of foods from food groups

Figure 4.3 shows the frequency in the consumption of food from the various food groups during the 24-hour preceding the study. The most food group consumed was starchy staple (100%) and the least consumed food group was organ meat (10.1%). Compared to children of unemployed mothers, there were higher frequency of consumption of vegetables and palm oil foods (62.5%) and vitamin A rich foods and vegetables (32.1%) by children of employed mothers than children of unemployed mothers. The consumption of other fruits and vegetables (p=0.005), organ meat
(p=0.040), eggs (p<0.001), legumes and nuts (p=0.005) and milk and milk products (p<0.001) were statistically different based on the maternal employment status (Figure 4.3).

* indicates values significant at p<0.05

Figure 4.3 Dietary intakes of food from different food groups
4.6 Dietary intake of study children based seven days dietary recall

The Table 4.5 below shows the number of times children received foods from the food groups. The most frequent food group consumed by the children within the seven days was starchy staples (6.6±1.0). The least consumed food group was organ meat (0.6±1.2) and this was significantly higher for children of employed mothers than children of unemployed mothers (p=0.010). Consumption of legumes, nuts and seeds was higher in children of unemployed mothers compared to children of employed mothers. On the other hand, consumption of eggs, milk and milk products and other fruits and vegetables was significantly higher in children of employed than children of unemployed mothers.

Table 4.5 Frequency of consumption of food groups by children based on seven-day dietary recall.

<table>
<thead>
<tr>
<th>Food group</th>
<th>Total (n=128) Mean ± SD</th>
<th>Employed (n=75) Mean±SD</th>
<th>Unemployed (n=53) Mean±SD</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starchy staple</td>
<td>6.6±1.0</td>
<td>6.5±1.0</td>
<td>6.8±1.0</td>
<td>0.070</td>
</tr>
<tr>
<td>Vitamin A rich foods and vegetable</td>
<td>1.7±0.99</td>
<td>1.9±1.0</td>
<td>1.4±0.9</td>
<td>0.940</td>
</tr>
<tr>
<td>Dark green leafy vegetables</td>
<td>3.6±1.5</td>
<td>3.9±1.4</td>
<td>3.2±1.6</td>
<td>0.390</td>
</tr>
<tr>
<td>Other fruits and vegetables</td>
<td>5.2±1.7</td>
<td>6.3±0.9</td>
<td>3.8±1.5</td>
<td>0.001*</td>
</tr>
<tr>
<td>Meat and fish</td>
<td>3.9±2.0</td>
<td>4.8±1.8</td>
<td>2.8±1.6</td>
<td>0.067</td>
</tr>
<tr>
<td>Organ meat</td>
<td>0.6±1.2</td>
<td>0.8±1.4</td>
<td>0.3±0.9</td>
<td>0.010*</td>
</tr>
<tr>
<td>Eggs</td>
<td>2.0±2.0</td>
<td>2.8±2.1</td>
<td>0.8±1.0</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Legumes, nuts and seeds</td>
<td>3.1±1.2</td>
<td>2.8±1.3</td>
<td>3.4±1.1</td>
<td>0.367</td>
</tr>
<tr>
<td>Milk &amp; milk products</td>
<td>3.8±2.7</td>
<td>6.6±1.2</td>
<td>2.6±2.5</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

* indicates values significant at p<0.05
4.7 Associated between maternal employment and infant and child feeding index

Maternal employment status was not associated with Infant and ICFI. However, there was an association between ICFI and age of the child. For every increase in one month of age of a child, the odds of been scored high in infant and child feeding index increased by 0.67 (67%) units.

Table 4.6 Factors associated with infant and child feeding index (ICFI)

<table>
<thead>
<tr>
<th>Variable</th>
<th>ICFI(High) AOR(95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>0.63(0.11-3.50)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.88(0.25-3.08)</td>
</tr>
<tr>
<td>Female</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>0.27(0.03-2.28)</td>
</tr>
<tr>
<td>Below secondary</td>
<td>1.67(0.28-9.88)</td>
</tr>
<tr>
<td>Secondary and above</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Child’s age</strong></td>
<td>0.67(0.58-0.78)*</td>
</tr>
<tr>
<td><strong>Mother’s age</strong></td>
<td>0.99(0.91-1.08)</td>
</tr>
</tbody>
</table>

* Indicates values that are significant at p-value <0.05
4.8 Nutritional status of children

The proportion of children of employed mothers who met the minimum daily dietary diversity was significantly higher (92.9% vs. 79.1%, \( p=0.044 \)) compared to children of unemployed mothers (Figure 4.4). Also, children of employed mother had lower prevalence wasting and underweight compared with that the children of unemployed mothers and this difference was statistically significant (Figure 4.4). About 35.8% and 34.0% children of unemployed mothers compared with about 16.0% and 14.7% of children of employed mothers were wasted and underweight, respectively. There was higher prevalence of stunting among children of unemployed mothers (18.9%), although there was statistically difference.

* indicates values significant at \( p<0.05 \)

Figure 4.4 Minimum dietary diversity (MDD) and nutritional status of study children
4.9 Association between maternal employment and child nutritional status

Compared to children of unemployed mothers, children of employed mothers were less likely to be underweight (AOR=0.12; 95% CI: 0.02-0.75). In addition, underweight was associated with infant and child feeding index. Children who scored average in infant and child feeding index were less likely to be underweight (AOR=0.18; 95% CI: 0.35-0.95). Compared to children who scored high in preventive health seeking index, children who scored average in preventive health seeking index were more likely to be wasted (AOR=6.48; 95% CI: 1.73-24.26). Maternal education showed tendency (p=0.05) of association with stunting.

Table 4.7: Factors associated with child nutritional status

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stunting (&lt;-2HAZ-score) OR(95%CI)</th>
<th>Underweight (&lt;-2WAZ-score) OR(95%CI)</th>
<th>Wasting (&lt;-2WHZ-score) OR(95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>0.14(0.02-0.09)</td>
<td>0.12(0.02-0.75)*</td>
<td>0.64(0.15-2.75)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.89(0.22-3.60)</td>
<td>2.15(0.65-7.20)</td>
<td>2.07(0.69-6.25)</td>
</tr>
<tr>
<td>Female</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>PHSI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>0.68(0.10-4.70)</td>
<td>3.66(0.83-16.10)</td>
<td>6.48(1.73-24.26)*</td>
</tr>
<tr>
<td>Good</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>ICFI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>1.37(0.17-11.44)</td>
<td>0.18(0.35-0.95)*</td>
<td>0.33(0.07-1.49)</td>
</tr>
<tr>
<td>High</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Mother’s education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; secondary</td>
<td>0.14(0.02-1.04)**</td>
<td>0.39(0.07-2.23)</td>
<td>2.71(0.62-11.86)</td>
</tr>
<tr>
<td>≥secondary</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Child’s age</td>
<td>0.83(0.65-1.06)</td>
<td>1.07(0.93-1.23)</td>
<td>1.02(0.89-1.16)</td>
</tr>
<tr>
<td>Mother’s age</td>
<td>0.99(0.88-1.11)</td>
<td>1.01(0.94-1.10)</td>
<td>1.01(0.94-1.09)</td>
</tr>
</tbody>
</table>

* Indicates values that are significant at p-value <0.05, ** indicates values that show tendency of significance at p<0.05, multiple logistic regression adjusted for child’s age, sex of child, educational level of mothers, age of mothers, maternal employment, PHSI and ICFI.
4.10 Maternal views on child feeding practices.

All mothers who participated in the focus group discussion expressed that, they ever heard of child feeding practice and that they have practiced and are still practicing some of them. Mothers explained child feeding practice as giving breast milk and food to the child. However, the explanation was further broadened by a participant as.

*Child feeding practices are all the activities of feeding a child recommended by health professionals during antenatal sessions to be practiced to ensure a healthy life of your child* (FG1, *participant from Paga*). This explanation was supported by nine (64%) participants.

*Child feeding practices are all recommended child care practices including sanitation by health professional to keep your children healthy* (FG2, *participant from Sirigu*). Her view was similar to the views of five (36%) of the participants.

Mothers mentioned exclusive breastfeeding, complementary, continuous breastfeeding during complementary feeding up to two years, no prelacteal feeding, giving variety of foods and fruits (dietary diversity), tolerance when child refuses to eat and early initiation of breast milk within one hour after birth as some of the feeding practices in their communities.

*I refused to give my child herbal drop before initiation of breast feeding and when he has hiccough because i wanted to practice exclusive breastfeeding* (FG1, *participant from Paga*)

4.11 Challenges with child feeding practices

Challenges that confront them during child feeding were basically related to individual factors such as poverty and lack of feeding places at work places. The fundamental barrier to child feeding practice was cited as poverty. Participants repeatedly mentioned the negative influence of poverty on their purchasing power of food for children.
4.11.1 Poverty

The doctor advised me to give my child liver (organ meat), i started buying it at GHC2 but a month after the price increased to GHC5.00 so i had to stop because i could not afford and my husband also said he does not have money (FG1, participant from Navrongo).

I was advised to give my child fruits, green vegetables and eggs but when I informed my husband he said he cannot afford fruits and eggs (FG1, participant from Navrongo).

I run out of money so the only food i could give my 9 months old child was millet porridge with little sugar (FG2, participant from Sirigu). Poverty as a challenge was agreed by all (100%) participants in the focus group discussion.

Mothers also raised concerns on lack of property ownership, lack of transport systems to farms and lack of choice on the number children one should have and the time to have children as other challenges to child feedings. Concerns on the lack of decision making in when to expect a child was repeatedly reported by mothers.

4.11.2 Lack of property ownership and decision making

When i quarrel with my husband he punishes us by not giving us money and not giving us food from the barn or granary (participant from Navrongo).

I am married for five years and i have three children because my husband takes the decision on when to have a child and that he wants to finish giving birth quickly and rest (FG2, from Sirigu).

The practice of mothers giving birth within short interval has gained the phrase “one year, one child project”. Most of the mothers 11 (79%) supported the view that lack of property ownership and decision making was a challenge to child feeding practice. Only few 3(19%) of the participants were of the view that this was not a challenge if issues were explained to husbands and family members.
4.11.3 Beliefs and taboos related to child feeding practices

All mothers acknowledged that beliefs and taboos regarding child feeding practices exist in their communities. Mothers explained taboos and beliefs as follows.

*Taboos and beliefs are wicked laws set by our forefathers to restrict or forbid women and children from competing with men for the best food (FG1, participant from Paga)*

This definition was unanimously agreed by all participants as they all gave instances to support this definition. The main taboos that were of great concern to mothers were the taboos that prohibit children from eating certain foods. This was a matter of concern because it gives them limited options of food to feed their children Table 5.1.

*My child is now 22 months old but has never tasted chicken because her father said she was initiated by the gods of chicken and that she will become barren in future if she eats chicken (GF2, participant from Sirigu)*

*I was told by my mother-in-law not to give my child eggs because he will be a thief in future (GF2, participant from Sirigu).*


## Tale 4.8 Taboos and beliefs and their reasons

<table>
<thead>
<tr>
<th>Taboos and beliefs</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child not allowed to eat eggs</td>
<td>Child will become a thief</td>
</tr>
<tr>
<td>Child not allowed to eat pork</td>
<td>Pork contains unclean spirits which will be transferred to child</td>
</tr>
<tr>
<td>Male children should not eat okro</td>
<td>Child will not grow stronger</td>
</tr>
<tr>
<td>Colostrum not given to child</td>
<td>Colostrum is impure</td>
</tr>
<tr>
<td>Giving child water first before breast milk (prelacteal feed)</td>
<td>To cleanse the child</td>
</tr>
<tr>
<td>Not having sex until child starts complementary feeding</td>
<td>Sperms will mix with breast milk</td>
</tr>
<tr>
<td>Every first born of the family and all female children should not eat chicken</td>
<td>Reserved for future generation</td>
</tr>
</tbody>
</table>

Although all mothers agreed that presently some of these beliefs and taboos are not being practiced commonly in urban communities compared to the olden days, they were still prominent in remote villages. According to mothers, these beliefs still exist because some of the taboos and beliefs had spiritual consequences which could lead to death, so mothers are always compelled to obey these taboos without reporting to the appropriate authorities for necessary actions although they against them.
CHAPTER FIVE

5.0 DISCUSSION

5.1 Breastfeeding practices

Breastfeeding is very critical during the early stages of life of every child. World Health Organisation and Ghana Health Service recommend breastfeeding initiation within the first one hour after birth and exclusively breastfeeding the child for the first six months of life (UNICEF, 2008). Thus, it is important to breastfeed the child for the first six months of life and continuously breastfeed with appropriate complementary feeding after six months old for two years and above. A report from Ghana demographic health survey (2014) and a study conducted by Senarath, Dibley and Agho (2007) indicate that almost all children (97%) were reported to have ever been breastfed. These study findings agree with this study which all children are reported to have been ever breastfed.

Timely initiation of breastfeeding is very important for the child because according to a study conducted in Ghana it can reduce infant mortality and save over one million infants lives (Edmond et al., 2006). In this study more than three quarters of mothers (79%) reported initiating breastfeeding within the first one hour birth. This could have been as a result of the health education and awareness given to mothers on the importance of timely initiation of breastfeeding during antenatal visits to the health facilities. This suggests that some infants’ lives could be saved based on the findings of Edmond et al., 2006. However, this finding is not in agreement with the findings of by Senarath et al. (2007) which had only about half (46%) initiating breastfeeding within the first hour of birth. The difference could as a result of the different methodologies used. This study used 128 participants from the same geographical location but
their study used 2162 participants in four different geographical areas in Timor-Leste, Asia. There was no association between maternal employment and initiation of breastfeeding. This means that maternal employment may not have been a constraint to initiation of breastfeeding thus, does not pose any threat to infant mortality and could save more infant lives (Edmond et al., 2006). This was consistent with previous studies conducted by Ong, Yap and Choo, (2005) in Singapore, Ryan, Zhou and Arensberg (2006) in US, Cooklin et al. (2008) in Australia and Ogbuanu, Glover, Probst, Hussey & Liu (2011) in US.

Prelacteal feeding is been discouraged because of the potential health threats it has on newborn babies and it a major challenge to exclusive breastfeeding. Less than 7% of mothers practiced prelacteal feeding in this study’s finding. The implication of this finding is that illness as a result early infections from the introduction of herbal drop or any fluid as prelacteal feed to infants could be reduced (Hajeebhoy, Nguyen, Mannava, Nguyen and Mai, 2014; Goldman, 2000). This differs from the finding by Ibadin, Ofili, Monday, and Nwajei (2013) in Nigeria which had prelacteal feeding prevalence to be 12%. The study reported of delayed lactation and the need to keep the body of the baby warm and the mouth moist as reasons for the high prevalence of prelacteal feeding by mothers. Cultural difference might have also been the reason for the difference in prevalence of prelacteal feeding. There was an associated between providing prelacteal feeding and maternal employment. This means employed mothers were less likely to practice prelacteal feeding compared to unemployed mothers. The negative association might have been as a result of more employed mothers having formal education than unemployed mothers.
Research findings in Uganda by Engebretsen et al. (2007) revealed that maternal education level was protective to the practice of prelacteal feeding. Mothers who had formal education increased the knowledge and awareness levels of mothers thus, making mothers adapt to recommended child feeding practices and did not adhere to the traditional reasons given for providing prelacteal feeds such as; cleaning the baby’s throat. This finding is corroborated by a previous study by Khanal et al. (2013) in Nepal which reported that non-working mothers were more likely to practice prelacteal feeding than working mothers.

The study findings indicate that almost all mothers were breastfeeding on demand. This implies that children feeding on demand will have it easier determining the quantity of intake of breastmilk needed (Tylka, Lumeng and Eneli., 2015) This high prevalence on breastfeeding on demand could also suggest that the education given to mothers during antenatal and postnatal visits on the importance of breastfeeding on demand has been taken seriously by mothers. This finding affirms a previous study conducted in Bibiani-Anhwiaso-Bekwai, Ghana by Gyasi (2008) which had almost all mothers breastfeeding on demand.

Continued breastfeeding with appropriate complementary is a child feeding practice that is of great concern and is always encouraged. It is a health concern when children stop breastfeeding in early stages of life. A previous study by Agboado, Michel, Jackson and Verma (2010) in Eastern Lancashire revealed that, the average duration of breastfeeding cessation is four months. This was attributed to the early introduction of infant formula by mothers as a substitute for breastmilk. This finding was contrary to our study which had average duration of cessation of breastfeeding at 17 months. The difference could be as a result of the health promotion education
on the need for continued breastfeeding during antenatal and postnatal visits to health facilities. The difference may have been seen also as a result the inability of mothers to purchase infant formula as substitutes for breastmilk.

The satisfactory performance of breastfeeding practices could be due to the introductions of pregnancy school initiative which enrols all pregnant women into the school until delivery and community outreach programmes. Mothers who are able to complete the course which includes teachings on childcares practices such as; breastfeeding and complementary feeding practices are awarded certificates and mothers who excelled are employed part-time to assist health worker in their community.

5.2 Complementary feeding

Timely introduction of complementary feeding at six months old of a child’s life is very important because at that age there is an increased in nutrient requirement of children which the breast milk alone is not sufficient supply (WHO and UNICEF, 2003).

The present study revealed a good proportion (88.9%) of mothers initiating complementary at six months and above. However, few mothers (11.1%) started complementary feeding before the recommended period. The reason could have been as a result of some mothers reporting that they had to travel far away from home to the farms to work which they could not carry children along for the six months. Another reason that resulted in the early introduction of complementary feeding could be the belief by some communities that mothers could only have sex with their husbands when the child starts complementary feeding as reported during the focus group discussion.
Bottle feeding is a child feeding practice that is discouraged at all age levels in child development. Maternal employment was positively associated with bottle feeding. This finding may have resulted from employed mothers’ having to express breastmilk or prepare infant formula for caregivers to be given to children during the day while they are at work. This finding is consistent with the study by Winikoff and Castle (1988) which revealed that employed mothers were more likely to practice bottle feeding compared to their counterparts.

Child snacking was reported to be associated with maternal employment in an earlier research conducted by Gaina et al. (2009), is similar to our study findings. This may have been as a result of income earned by working mothers being used to purchase snacks and/ mothers’ having to buy snacks for caregivers to be given to children while they (mothers) were at work. The study also revealed that infant and child feeding index was not associated with maternal employment. This could suggest that maternal employment was not a major challenge to childcare; probably mothers modified their work pattern to take care of the needs of their children. These strategies mothers may adapt such as; taking children along to work places, reducing working hours or breaking from work might be beneficial to the child but could reduce their incomes earned. Concurrent to an earlier finding by Armar-Klemesu et al. (2000) in Accra, maternal employment was not associated with young infant and a composite child feeding index in this study.

5.3 Nutritional status of children less than two years
Assessment of nutritional indicators of children within the first thousand (1000) days of life is very important because it helps identify early signs of malnutrition in children and appropriate
interventions implemented to achieve optimal health of the children (Bloss, Wainaina and Bailey 2004; Onis, 2006). In order to contribute financially to the family, many women seek for employment to gain income and combine the work with the childcare activities (Sivakami, 1997). Thus maternal employment may affect the nutritional status of the children positively or negatively.

Stunting which is a cumulative deficiency in growth and begins right from the utero (Martins et al., 2004) is a global public health concern. Prevalence of stunting in the study was about 16% which is in consistent with the findings of Gyasi’s (2008) study conducted in Bibiani-Anhwiaso-Bekwai, Ghana which had prevalence of stunting to be 17%. This means that stunting in the district is below the national prevalence of 19% and the set WHO level of 20% prevalence to be declared as a crisis. On the contrary, previous studies by (Kulwa, Kinabo and Modest, 2006 in Tanzania; Nnyepi, Bandeke and Mahgoub, 2006 in Botswana; Moestue and Huttly, 2008 and Agho, Inder, Bowe, Jacobs and Dibley, 2009 in India) findings had prevalence of stunting be above 25%. This difference could be as a result of the interventions programmes enrolled in Ghana as part of the millennium development goals targets such as growth monitoring promotion. Education on child care practices during antenatal care visits together with the introduction of free medical care for pregnant mothers and children could have contributed low prevalence stunting in this study. Mothers and children could now access health facilities whether they had money or not.

Maternal education especially maternal health education is very important because it helps mothers make informed choices for their children. Maternal education broadens the knowledge level of mothers, increases their confidence and awareness in order to make better choices for their children. Maternal education also empowers them to accept and adapt to new scientific recommendations
regarding childcare contrary to traditional beliefs. Previous studies by Begum and Sen (2009), Bose (2011); Ruel, Alderman and Maternal and Child Nutrition Study Group (2013) and Brhane *et al.* (2014) found that stunting was associated with maternal education. The finding is similar to this study that showed a tendency of negative association between stunting and maternal education.

Underweight is a nutrition indicator that reflects an acute or chronic undernutrition which can be reversible if prompt interventions are taken. Underweight does not distinguish between stunting and wasting and thus is a universal indicator for assessing the overall nutritional status of a population. About 22.7% of children are underweight. This suggest about a quarter of the child could not met their nutrient requirement. This study confirms finding by Kulwa *et al.* (2006) who also had prevalence of underweight to be 22%. Food security is a key factor in overcoming underweight. The study also revealed that maternal employment was associated with underweight. This means employed mothers were able to meet the nutrient requirement of their children compared to their counterparts which agrees with the findings of Sethuraman *et al.* (2006) in India. Previous studies conducted in Burkina Faso by Sawadogo *et al.* (2006) and in China by Zhang, Shi, Wang and Wang (2009) indicated that underweight was associated with infant and child feeding index (ICFI).

Wasting is always a critical nutrition indicator in children less than five years because it predicts child mortality and it is as a result of inadequate dietary intake and/or disease (UNICEF, 2008). The present study revealed that about 25% of children less than two years old are wasted. The prevalence was greater than the cut-off point of 15% indicated by the WHO to mean severity of malnutrition is critical. This finding is similar to a study conducted by Singh, Fotedar, Lakshminarayana and Anand, (2006) in India which had 28% of children wasted. However, the finding is also in contrast
with report from GDHS (2014) which had wasting to be 5% in Ghana. This could have been as a result of the extreme poverty nature of the study communities. This was reported by mothers during the focus group discussion who continuously complained of poverty as a major challenge to child feeding practice. This poverty situation in the communities was attributed to the one seasonal farming harvest for the whole year and lack of employment during lean season. Lack of storage systems could have also made some food products lost their nutritional value before consumption.

This study also found that wasting was associated with preventive health seeking index. The implication is that children who score low in preventive health seeking index were more likely to be wasted compared to children who scored high preventive health seeking index. This could have resulted because children who scored low in preventive health seeking index may have fallen sick of infection and disease that would have been prevented if mothers had children had received and completed all the immunizations.

5.4 Preventive child health seeking characteristics

Immunization against childhood diseases is a universally recommended, cost-effective public health concern, which is universally approved and accepted. A study conducted in Accra Ghana reported high coverage (91%) of DPT immunization among children in Accra (Armar-Klemesu et al., 2000). These authors also reported high (63%) post natal attendance by mothers. This is similar to our finding, 98.3% and 62% had received DPT immunization and had attended post natal the previous month respectively. The difference in prevalence may be due to difference in age group used (0 - 2 years versus 0 - 3 years) or due to the differences in the sample size used (128 versus 556). The study also revealed that 98.3% of children have received polio
immunization which is consistent with the report from GDHS (2014) which reported that 97% of children received polio immunization.

Preventive health seeking index which is a comprehensive summary of child immunization into a single variable documented by Armar-Klemesu et al. (2000) had no association with maternal employment, but was associated with the age of the child. That finding agrees with this current study’s finding. Preventive health seeking index was associated with mothers’ distance from home to the nearest health facility. This suggests that health service need to be nearer to the beneficiary for easy patronage. This is because the cost involved in travelling to the health facility and the bad road network could jeopardise the entire objective.

5.5 Strengths and limitations of the study

The study employed both quantitative and qualitative in order to really understand the quantitative outcome of the childcare practices in the Kassena-Nankana Districts. It is important to highlight that the study took into consideration the increasing rate of maternal employment and to see how mothers can balance work and childcare to the benefit of the child. The study as well evaluated other factors that could influence childcare practices and nutritional status apart from maternal employment.

The weakness of the study is that it could not assess the household income level of mothers and support from other sources. Recall bias could have also influenced the data for the 24 hour and 7 days food group frequency recall. The study could not also establish how much time unemployed mothers had in contact with their children though they were not working. The study design of
this study was cross-sectional which limits the study from establishing causation and generalising its findings.
CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

It is clear from the study that prevalence of malnutrition (15.6% stunting, 22.7% underweight and 24.2% wasting) among children less than two years old persists in Kassena-Nankana Districts and that maternal employment influenced their nutritional status of children. Maternal employment was associated with underweight but not wasting and stunting. Maternal employment was also associated with specific feeding practices such as; snacking, bottle feeding and prelacteal feeding but was not associated with composite feeding practice index. However, there was an association between underweight and the child feeding index, Preventive seeking index was also associated with wasting.

6.2 Recommendations

Based on the findings of the study, the following recommendations are made.

- The Government and non-governmental organisations should intensify nutrition intervention programmes to manage child malnutrition in the districts.
- Detailed health promotion education should be intensively advocated with involvement of traditional authorities to eradicate the child feeding beliefs and taboos affecting child feeding. This should be done by qualified health professionals including nutritionists, dieticians and doctors.
- There is the need to organise maternal education on how to manage work with childcare. This will include employers putting up child feeding places at work places to assist mothers feed their children whiles at work.
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http://apps.who.int/iris/bitstream/10665/44306/1/9789241599290_eng.pdf

APPENDIX I- INFORMED CONSENT FORM

UNIVERSITY OF GHANA

COLLEGE OF BASIC AND APPLIED SCIENCES

Ethics Committee for Basic and Applied Sciences (ECBAS)

PROTOCOL CONSENT FORM

Section A- BACKGROUND INFORMATION

Title of Study: MATERNAL EMPLOYMENT, CHILDCARE AND NUTRITIONAL STATUS OF CHILDREN 0-2 YEARS IN THE KASSENA-NANKANA DISTRICTS IN UER

Principal Investigator: MR. GABRIEL AZOEWINE AKASISE

Certified Protocol Number

Section B– CONSENT TO PARTICIPATE IN RESEARCH

General Information about Research

The purpose of this study is to assess how maternal employment influence childcare and nutritional status outcome of children 0-2 years in Kassena- Nankana districts. Participants will be recruited by randomized sampling technique. The study will last for three months where mothers will be visited at their homes at appointed date where a face to face interview will be conducted and the anthropometry data of their children taken. Questionnaire pertaining to socioeconomic status, dietary frequency, childcare practices will be collected. Weights, heights,
MUAC will be taken and a focus group discussion will be conducted for selected mothers to seek views on the challenges of child feeding practices and food taboos.

**Benefits/Risk of the study**

There will be no direct benefit for participating in this study. However, the information obtained will enhance our understanding of your social, nutritional and health status, to guide authorities in making policies to improve the quality of life of children and women. The study does not expose participants to any risk but may experience private inconvenience whiles participating in this study.

**Confidentiality**

All the information that you would provide would be kept confidential and would not be made publicly available except the principal investigator and the supervisor. The completed forms would be kept confidential to the extent permitted by applicable laws and regulations.

**Compensation**

You will not have any costs from participating in this study. However, a bar of soap will be given to each mother who will participate in the study at a cost of GHC 1.50 as compensation.

**Withdrawal from Study**

Participation in this study is purely voluntary. You may refuse to participate or decide to withdraw from the study at any time. There will be no negative consequences if you should choose not to participate or leave.

**Contact for Additional Information**

If you have any questions at any time about this study, you may contact me on:

Gabriel Azoewine Akasise  
Sirigu Women’s Organization of Pottery and Art (SWOPA)  
P.O.Box 550  
Bolgatanga  
Tel: +233249057054  
Email: kasiseboyde@yahoo.com/kasisekboy@gmail.com

Administrator, Ethics Committee for Basic and Applied Sciences  
College of Basic and Applied Sciences  
University of Ghana  
P.O.Box 550
"I have read or have had someone read all of the above, asked questions, received answers regarding participation in this study, and am willing to give consent for me, my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records."

Name of Volunteer

________________________________________
Signature or mark of volunteer

Date

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

________________________________________
Name of witness

________________________________________
Signature of witness

Date

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

________________________________________
Name of Person who obtained Consent

________________________________________
Signature of Person who obtained Consent

Date
APPENDIX II- QUESTIONNAIRE
DEPARTMENT OF NUTRITION AND FOOD SCIENCE
UNIVERSITY OF GHANA, LEGON

TITLE: MATERNAL EMPLOYMENT, CHILDCARE AND NUTRITIONAL STATUS OF INFANT AND YOUNG CHILDREN (IYC) UNDER TWO YEARS OF AGE IN THE KASSENA-NANKAN DISTRICTS IN THE UPPER EAST REGION OF GHANA

QUESTIONNAIRE

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. What is the age of the child in months.................................?

2. What is the gender of the Child?

   (1) Male  □  (2) Female  □

3. Mother’s age.......................................................?

4. What is the mother’s ethnicity?

   (1) Nankana  (2) □ Assena  (3) Talensi  □  (4) others (specify)...................

5. What is the religious background of family?
6. What is the educational status of the mother?

(1) No education (2) Non-formal (3) Primary (4) J.H.S (5) S.H.S/Vocational (6) Tertiary

7. What is the occupational type of mother?

(1) Employed (2) Unemployed

8. What is the marital status of the mother?

(1) Single (2) Married (3) Widowed (4) Divorced

9. What is the monthly income level of the mother?

(1) Less than GH¢240 (2) Above GH¢240

10. What type of family system has been practiced?

(1) Nuclear family system (2) Extended family system

11. Do you have any support in caregiving when at work?

(1) Yes (2) No

12. If yes, who?

(1) Older siblings (2) hired caregiver (3) grandmother

13. How many hours do you work per day?

(1) Between 4-8 hrs (2) above 8 hrs
14. How many days does mother work per week?

(1) 1-3 days □  (2) 4-6 days □  (3) 7 days □

SECTION B: Hygiene Practice

15. Does child wash hands before and after eating?

(1) Yes □  (2) No □

16. Does caregiver wash hands before and after eating?

(1) Yes □  (2) No □

17. Where do you fetch drinking water for your household?

(1) Private/Public stand pipe □  (2) Borehole □  (3) Unprotected well □  (4) River/stream □

18. Do you treat water before drinking?

(1) Yes □  (2) No □

19. What do you do to the water before drinking/giving it to child to drink..................?
SECTION: C Health Seeking Behavior

Please ask for weighing card

20. Has the child received polio immunization?
   (1) Yes ☐ (2) No ☐

21. Has the child received DPT immunization?
   (1) Yes ☐ (2) No ☐

22. Has the child received measles immunization?
   (1) Yes ☐ (2) No ☐

23. Has the child attended postnatal the previous month?
   (1) Yes ☐ (2) No ☐

24. What do you when your child is sick?
   (1) Traditional ☐ (2) Hospital/Clinic ☐ (3) Pharmacist ☐

25. Does the child have an NHIS card?
   (1) Yes ☐ (2) No ☐

26. What is the distance from your home to treatment centre?
   (1) Less than 2km ☐ (2) 2km- 4km ☐ (3) Above 4km ☐
SECTION D Breastfeeding Practice

27. Has the child ever been breastfed?

(1) Yes □  (2) No □

28. Did you give the child any liquid or fluid before initiation of breastfeeding?

(1) Yes □  (2) No □

29. After delivery of the child, when did you breastfeed him/her for the first time?

(1) During the first hour after delivery □  (2) between 1-24 hours □  (3) More than 24 hours after delivery □  (4) The next day □  (5) Do not remember □

30. How often do you breastfeed the child?

(1) On demand □  (2) At free time □  (3) 2-4 times a day

31. What type of feeding methods is/did she practicing/practiced?

(1) Bottle feeding □  (2) Breastfeeding □  (3) Both □

32. Is the child still breastfeeding?

(1) Yes □  (2) No □

33. If no, when did you stop breastfeeding.................................?

34. Do you give your any fluid or soft food apart from breast milk?

(1) Yes □  (2) No □
35. If yes when did you start?

(1) Less than six months old  (2) From six months old and above

SECTION: E1 Complementary feeding practices:

36. When did you start complementary feeding…………………………

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

(1) 1 time   (2) 2 times   (3) 3 times   (4) More than 3 times

38. Do you normally give the child snack in between the main meals?

(1). Yes   (2). No

39. Do you give your child any infant formula?

(1) Yes   (2). No

40. Do you feed the child with a feeding bottle which has nipple?

(1). Yes   (2). No
E2 Food group frequency (within 24 hours and 7 days)

<table>
<thead>
<tr>
<th>FOOD GROUP</th>
<th>(41) Have you eaten this in the last 24 hours</th>
<th>(42) Have you eaten this in the last seven days?</th>
<th>(43) How many days in the last 7-day did you eat these?</th>
</tr>
</thead>
<tbody>
<tr>
<td>STARCHY STAPLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(cassava, yam, bread, porridge, corn/maize, rice, wheat, sorghum, millet, potatoes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DARK GREEN LEAFY VEGETABLES AND RED PALM OIL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(kontonmire, ayoyo, cassava leaves)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VITAMIN A RICH FRUITS AND VEGETABLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(carrot, ripe mango, ripe papaya)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER FRUITS AND VEGETABLES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Garden eggs, tomato, onion, other fruits, including wild fruits and 100% fruit juice made from these)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORGAN MEAT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(liver, kidney, heart or other organ meats or blood-based foods)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEAT AND FISH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(beef, pork, lamb, goat, rabbit, game, chicken, duck, other birds, fresh or dried fish or shellfish)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGGS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Eggs from chicken, duck, guinea fowl or any other egg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEGUMES, NUTS AND SEEDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dried beans, dried peas, groundnut, seeds or foods made from these (eg. peanut butter)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MILK AND MILK PRODUCTS</td>
<td></td>
<td></td>
<td>84</td>
</tr>
<tr>
<td>(Milk, cheese, yogurt or other milk Products)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION F: ANTHROPOMETRY

44. Variable measurement of Weight and Length

<table>
<thead>
<tr>
<th>Variable</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Measurement</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of child (kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recumbent length(cm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX III- FOCUS GROUP INTERVIEW GUIDE

Name of Moderator________________________ Date____________________

Introduction

My name is Gabriel Akasise Azoewine and this is my colleague Cletus Amiziah. Thank you for coming.

Purpose

We are here today to talk about food beliefs and taboos and challenges of child feeding practices. The purpose is to get your perceptions and views about these child feeding practices challenges in your communities. Your views are what matter. There is no right or wrong or desirable or undesirable answers. You can disagree with each other, and you can change your mind. I would like you to feel comfortable saying what you really think and how you really feel.

Discuss procedure

I will be taking notes and tape recording of the discussion so that I do not miss anything you have to say. I explained these procedures to you when we set up this meeting. As you know everything is confidential. No one will know who said what. I want this to be a group discussion, so feel free to respond to me and to other members in the group without waiting to be called on. However, I would appreciate it if only one person did talk at a time.

Participant introduction

Now, let’s start by everyone sharing their name, what work you do, and how long you have been working.

Interview

1. What do you know about child feeding practices?

   **Probe:** Do you practice them?
   * If not - Why not? If yes- mention some of them?

   Do you have problems practicing them?

   **Probe:** If yes? What are some of the problems?

   How do you cope with these challenges?

   **Probe:** Tell me more about that. How did those coping strategies work?
What do you think is the best way of overcoming these challenges?

**Probe:** Had anyone used these prior to this meeting? Tell me more about why you used them? Tell me why not.

Of these strategies, which have you found most useful?

**Probe:** Tell me more about why you have found this most useful?

Of the strategies mentioned to you through this meeting, which ones have you applied to your situation?

**Probe:** Tell me about how you have used this strategy.

2. Have you heard of food taboo and beliefs?

**Probe:** if yes? Tell me what you think about them.

Do you have some in your communities?

**Probe:** Tell me why they exist?

What problems do they pose to the child?

**Probe:** Tell me more about that.

Why should they be eliminated?

**Probe:** Tell me about what you think?

Give me measures you think can be used to eliminate them?

**Probe:** Tell me more about that. Tell me ways of eradicating them.

Mention some of the taboo and beliefs in your community.

**Probe:** How many of them do you practice? Which ones are still and often practiced?

Thank you so much for coming and sharing your thoughts and opinions with us.