Mothers’ Breastfeeding Practices and Attitudes toward Exclusive Breastfeeding in Adamawa State, Northeastern Nigeria

By

HAFSAT AMINU ADHAMA
A00017343

Submitted in partial fulfilment of the requirements for the degree of Bachelor of Science 2018
AMERICAN UNIVERSITY OF NIGERIA

DEPARTMENT OF NATURAL AND ENVIRONMENTAL SCIENCES

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Signature                                                                 Date
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HAFSAT AMINU ADHAMA
A00017343

Approved by

Research Supervisor: Jennifer Tyndall, Ph.D.
Associate Professor, Department of Natural and Environmental Sciences

__________________________________________  ________________
Signature                                      Date

Second Reader: Hayatu Raji, PhD
Assistant Professor, Department of Natural and Environmental Sciences

__________________________________________  ________________
Signature                                      Date
DEDICATION

I dedicate this work to my parents (Ummah and Abba). I pray that Allah (SWT) grant you good health and wealth. May you live long to see me at the peak of success.
ACKNOWLEDGEMENTS

All thanks and praises are due to almighty Allah for His endless blessings and guidance throughout this research and as well, throughout my stay in AUN. Thanks to my parents for their support and guidance.

My sincere appreciation goes to Dr. Jennifer Tyndall for helping me through this project. You are such a wonderful advisor. Thank you for your time and the energy you put toward the success of this research.

To Dr. Hayatu Raji (my second advisor) and Dr. Lynne Baker (the research coordinator), this project would have never been a success without your unbending support and guidance. Thank you so much for all the time and energy you sacrificed for this work.

To the women at Fofure IDP camp, Nana Asma’u Health Center and the AUN Community Service Center, I say a big thank you for your time and cooperation. Thanks to the camp manager as well, Mr. Terry, and all the camp members that helped me through this research.

To the amazing team that assisted me during this research, Mr. Mukhtar Muhammad, Miss Patience Okene, Rukayya, Aisha Mukhtar and Muhammad; this piece would be incomplete without acknowledging your support, help and assistance that you offered me in this research. Additionally, it is necessary for me to acknowledge my gratitude to Dr. Olumoh for his ceaseless support toward this research, especially in the aspect
of result analysis and sampling. Finally, Thanks to Prof. Brian Reed for helping me to edit the write-up of this thesis. You owe me gratitude sir!
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HAFSAT AMINU ADHAMA
AMERICAN UNIVERSITY OF NIGERIA, 2018

Major Professor: Jennifer Tyndall, PhD
Co-Supervisor: Hayatu Muhammad Raji, PhD
Natural and Environmental Sciences

ABSTRACT

Exclusive breastfeeding (EBF) practice have been a serious public health concern, not only in Nigeria but in the world at large. It have severally been reported that there is low practice and awareness of EBF in Nigeria. I evaluated the variation in the level of knowledge of exclusive breastfeeding between mothers in Yola and those in Fufure IDP camp as well as their perceptions towards its practice. I also assessed the most effective medium of awareness for the knowledge of exclusive breastfeeding among the respondents. I used a targeted study design and convenience sampling method, which is a non-probability sampling technique. My total sample size was 220. The results showed that respondents have high degree of awareness of EBF (90.9%) and thus most of them practice it (70.4%). Clinical sessions appeared to be the most effective source of promoting EBF awareness as most of the respondents (60.1%) learned about it there. Finally, the result of this study have contradicted many other relevant studies because it revealed that there is so much knowledge and awareness of EBF among mothers in Adamawa state. Although, there is already a
great deal of awareness of EBF in Adamawa state that are developed by the state health care units through antenatal and postnatal sessions, media would also be a great medium to promote EBF awareness in the state.
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CHAPTER ONE
INTRODUCTION

Given the high prevalence of malnutrition in Africa, Exclusive Breastfeeding (EBF) offers a fool proof method to deter stunted growth and development in the African subcontinent. Malnutrition has been identified to be the direct cause of about 300,000 deaths every year and indirectly the cause of about half the deaths among young children in Africa (Müller et.al, 2005). Hence, the need for exclusive breastfeeding as the first stage of nutrition is the as a way to prevent malnutrition.

The early first years of a child’s life is the most vital and delicate period of development. It is the stage at which a healthy child goes through rapid development, psychologically and physically. A child at this stage needs good nutrition for his or her physical, mental, and immune system development. Moreover, it is at this stage that the comprehension and sensation potentials of a child begin to develop, as well as the base of intellectual, social, and emotional competencies of the child (Michaelsen et al, 2003). Sadly, due to the level of poverty in sub-Saharan Africa, most children at this stage in the region are prone to poor nutrition (Bain et al., 2013).

Poor nutrition, or malnutrition, results in growth abnormality and easy contraction of infectious diseases due to a weak immune system that is caused by the disease. It also causes problems such as deficiency in learning, lack of development of social skills, behavioral abnormality, and defects in educational achievement (Michaelsen et al., 2003).
Malnutrition is defined as the lack of enough, too much, or unbalanced energy and/or nutrients in a person’s diet (WHO, 2017). There are three types of malnutrition: undernutrition, micronutrient related malnutrition, and overweight/obesity (WHO, 2017).

Undernutrition is the deficiency or lack of energy and nutrients in the body which results in stunted growth, wasting, or underweight. Wasting is having severe low weigh for height of the body. It indicates lack of enough food or reoccurrence of diarrhea (WHO, 2017). Stunted growth is having low height for the age of a person. It indicates persistent undernutrition and it is often related to deficiency in maternal health, recurrent illness or poor feeding during infancy.

Stunting deprives children from attaining their deserved physical size. Studies have shown that stunting is prevalent in sub-Saharan Africa and Asia.
Figure 2: Stunting prevalence is highest in sub-Saharan Africa and south Asia. Map shows percentage of children under age 5 who are moderately or severely stunted (credit: UNICEF Global Nutrition Database, 2012).

About 25 percent of children in the world are stunted, and most of them are from sub-Saharan Africa. This region is reported to have about 38 percent world’s reported incidence of stunted growth (UNICEF, 2016). However, the Multiple Indicator Cluster Survey (MICS) and Demographic and Health Survey (DHS) reported that the nutrition status of Nigeria’s children had been gradually improving over the past few decades, reducing from 41 percent in 2008 to 36 percent in 2011 (DHS, 2013). The target of WHO is to reduce or eliminate the percentage of the stunted growth cases to 3.9 percent by 2025 (UN, 2012).

On the other hand, underweight is having low weight for the age of a person or child and it can be caused by wasting, stunting or both of the diseases (WHO, 2017). The figure below shows the physical characteristics of children with undernutrition malnutrition looks like. It has the image of how a normal child is expected to look like and as well how children with the diseases look like.
Micronutrient related malnutrition is defined as having insufficient vitamins or minerals in the body. Micronutrients such as iodine, vitamin A, zinc, iron and calcium are crucial substances that the body uses to produce enzymes and hormones for growth and development (WHO, 2017). Thus, lack of these nutrients in the body stops the body from proper growth and causes diseases such as scurvy (deficiency of vitamin C) and rickets (deficiency of vitamin D).

Overweight/obesity is defined as having weight that is heavier than is healthy for the height of the body. An overweight or obese child has excess fat accumulated in his or her body and this leads to cardiovascular diseases and type II diabetes amongst other diseases. However, there is a slight difference between overweight and obesity and this can be determined only by measuring the body mass index (BMI). The BMI is generally used for adults; it is a number that is calculated to find a person’s weight with his or her length and height. When plotted in a graph, it is commonly used as a
growth indicator against a child’s age. BMI is calculated by dividing the weight in kilograms by the squared height in meters, i.e. Weight (kg) / Height² (m) (WHO, 2008).

Despite the rapid economic development and concerted efforts to curb malnutrition among infants and mothers, little or no progress has been observed in the developing countries (Gillespie et al., 2003). However, the first stage of ensuring a child’s good nutrition is the ability of the child to be well breastfed. Breastfeeding is the feeding of babies and young children from a woman’s breast, which gives the child the maximum benefits of breast milk (Tyndall et al., 2016). Breast milk is milk that is highly nutritious, which helps a child maintain healthy growth.

**BREASTFEEDING**

Breastfeeding is the first stage and the most effective level of primary nutrition. Breastfeeding improves the four aspects of health: mental, spiritual, physical, and social (Bonomi et al, 2000). It not only improves infants’ health, but it is also beneficial to the mother. It delays the menstrual cycle of a mother, which protects her from early pregnancy (Tyndall et al., 2016).

Early breastfeeding of an infant helps in improving the child’s psychological and physical health, as well as improving the child’s immune system (National Resources Defense Council, 2001). The benefits of breastfeeding are numerous. The human milk glycans contain oligosaccharide, which helps in the formation of natural immunological mechanism. This helps to protect children against infectious diseases (Lamberti et al, 2011). Breast milk also helps decrease the level of contact with
contaminated foods and drinks that might result in the contraction of diseases. However, in order for an infant to get maximum benefits of breast milk, the mother must have an adequate diet. Malnutrition in mothers increases the level of risks that a mother would face during pregnancy and delivery. Such risks include high level of and maternal infant mortality and morbidity, insufficient provision of breast milk, and premature birth (Ransom and Elder, 2003).

The use of contaminated water can lead to serious infections and gastrointestinal diseases. It has been reported that drinking water is the primary cause of microbial pathogens in developing countries. Additionally, gastrointestinal diseases are also more frequent in the countries due to lack of intervention strategies and under-nutrition (Ashbolt, 2004). It has also been reported that poor water quality, hygiene and sanitation account for the death of 1.7 million people worldwide and it is mainly through diarrhea (Ashbolt, 2004). However, nine out of each death is among children and almost all the death incidence happens in developing countries (Ashbolt, 2004).

In Nigeria, 5.5 percent of reproductive women are malnourished, while about 2.5 percent of them are extremely malnourished. As a result of the high level of poverty in the northeastern part of Nigeria, the highest percentage of the malnourished women are from the northeastern region of the country, whereas the southeastern region has the lowest percentage of the malnourished women (DHS, 2013). Due to the extreme importance of breastfeeding to both a mother and her baby, WHO recommends that children are breastfed from the first hour of life to at least six
months without introducing any supplement, not even water; this is a practice called exclusive breastfeeding (WHO, 2012).

EXCLUSIVE BREASTFEEDING

According to the World Health Organization (2001), “Exclusive breastfeeding is defined as the exclusive breastfeeding of infants for the first six months of life without the introduction of any food supplement, not even water, apart from Oral Rehydration Solutions (ORS) drops or syrup that may be required for medication.”

Exclusive breastfeeding (EBF) has reduced child mortality by eliminating or reducing the incidences of gastrointestinal diseases (Huffman & Combest, 1990; Young et al., 2011), ear infections, and respiratory diseases amongst children that were breastfed exclusively up to six months (Tyndall et al., 2016). It also speeds up maternal weight loss and delays the return of the menstrual cycle (WHO, 2011).

From 2006 to 2010, on average, only 37 percent of mothers globally practiced exclusive breastfeeding (UN, 2012). Also, only 17% of mothers practiced EBF in Nigeria. By 2025, WHO’s target is to have countries increase the rate of exclusive breastfeeding up to fifty percent of the general population (UN, 2012).

WHO suggests that all children are required to be exclusively breastfed for the first six months of age and at least for the first four months of life (WHO, 2012). In 2001, the effects of exclusive breastfeeding for 6 months vs. 3-4 months were studied in order to find out the difference between EBF for 6 months and months less than 6. The research resulted in endorsement for supporting and encouragement of exclusive breastfeeding up to six months of age. This is because the study found out that
children that are exclusively breastfed turned out to be more healthy and energetic (Lamberti et al., 2011). The study also found that morbidity and mortality are also related to partial exclusive breastfeeding (WHO, 2001).

In countries with high levels of infectious diseases, it is recommended that a child should be breastfed for two years (WHO, 2011). This is because children in the regions are vulnerable to infectious diseases due to the unhealthy conditions of the environment they live in, but if the children are breastfed up to two years, the risk of them contaminating disease is lower. WHO also recommends that every country should support and promote breastfeeding by achieving the four targets that are outlined in the Innocenti Declaration. The four targets are having a national coordinator of breastfeeding, practicing the Baby-Friendly Hospital Initiative, initiating the international code of marketing breast milk and a law to protect breastfeeding mothers (UNICEF, 1990). Innocenti Declaration was produced and adopted by participants at the WHO/UNICEF policymakers' meeting on breastfeeding in the 1990s, which is a global initiative, co-sponsored by the US Agency for International Development (A.I.D) (UNICEF, 1990).

Exclusive breastfeeding between the first day to six months is a key child survival support (Lamberti et al., 2011). Children who are breastfed for 2 years of age have a lower risk of diarrheal infections and death (Lamberti et al., 2011). However, despite the extreme importance of the practice of breastfeeding or specifically exclusive breastfeeding, the percentage of this practice is very low all over the world and most especially in the developing nations (Lamberti et al., 2011). Forty seven to fifty seven percent of babies who are less than two months and 25-31 percent of babies
who are between 2-5 months in developing countries are exclusively breastfed, whereas all other babies that are above 6 months of age receive any kind of food supplement apart from breast milk (Black et al., 2008).

Factors such as culture, beliefs and perceptions, and lack of awareness are influencing or hindering the practice of EBF. Religious beliefs are one of the factors that hinder most people from practicing exclusive breastfeeding. Muslim and Hindu followers are an example of societies that, despite possibly having knowledge of the importance of exclusive breastfeeding, still consider feeding their babies honey, dates, and zamzam (a spiritual water that is believed to be from mekkah) (Chagan, Fayyaz, & Aamir, 2016).

Prelacteal feeds (PLF) are one of the major factors that hinder mothers from exclusively breastfeeding their babies. PLFs are food supplements that are administered to babies at the early hour of birth as a result of religious beliefs, cultural traditions, or lack of breast milk from the mothers’ breast at the early hours of birth (Chagan et al., 2016). In the Pakistan Muslim societies, for example, the tradition of administering PLF is called tahneek, which is the process of introducing a softened date to a baby before taking the first breast milk. This practice is done by a respected member of a family, and it is believed that the child will be raised to have the same character as the family member (Chagan et al., 2016). Other reasons for PLF among these societies include purification of the tummy, lessening of aches, making excretion easier for the baby, and provision of moisture to the mouth of the baby before the arrival of milk (Chagan et al., 2016).
Studies have shown the harmful effects of practices of PLFs hamper the early initiation of breastfeeding (Fidler & Costello, 1995). As such, these practices are harmful to infants unless they are medically prescribed by a doctor (Hossain et al., 1995).

However, in rural Egypt, PFL use was found to be higher among mothers who attended clinics and obtained modern training (Hossain et al., 1995). This may be because health care professionals suggested the introduction of glucose water and formula milk to the infants for the prevention of hypoglycemia (low blood sugar levels), and this is done in many parts of the world (Fidler & Costello, 1995). Additionally, some doctors promote the practice of PLF to prevent or treat dehydration and newborn jaundice. However, professionals argue that introducing PLF to avoid disease or dehydration is not sound advice because babies do not need PLFs, as breast milk is fully sufficient for them (Isenalumhe & Oviawe, 1987). Insufficient breast milk production by the mothers is, however, one valid reason for PLF practice (Hossain et al., 1992).

In Nigeria, late commencement of breastfeeding is frequently practiced and is associated with PLF practices (Cunningham et al., 1991). Almost all mothers (99.8 percent) in southern Nigeria give water to their neonates from the early hour of birth, and 75.2 percent of them give their neonates glucose water (Nwankwo & Brieger, 2012). However, the influence of health workers, family members, culture, and personal interests were the major reasons for the introduction of prelacteal foods to the neonates in the region. Health workers were mainly responsible for recommending glucose water, whereas grandmothers often recommended herbal tea.
Giving babies plain water is mostly due to the belief that the neonates are thirsty (Nwankwo & Brieger, 2012).

The table below shows the percentage of liquids that are given to infants in the south and the level of whom the administer it to the infant at each stage of life.

**Table 1:** Plain water is the liquid that is given to infants in the first four months of life even much more than breastmilk.

<table>
<thead>
<tr>
<th>Type of fluid</th>
<th>Point/period in time (per cent giving)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At birth</td>
</tr>
<tr>
<td>Breast milk</td>
<td>86.9%</td>
</tr>
<tr>
<td>Plain water</td>
<td>99.8%</td>
</tr>
<tr>
<td>Glucose water</td>
<td>75.2%</td>
</tr>
<tr>
<td><em>Agbo</em> (herbal tea)</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Data source: Brief report journals credit

The table below shows the types of prelacteal liquids that are given to children and the people that recommend each type of liquid.

**Table 2:** Health workers are the primary reason why mothers give their infants glucose water and other PLFs

<table>
<thead>
<tr>
<th>Types of fluids recommended (percent)</th>
<th>People who recommend breast milk</th>
<th>plain water</th>
<th>glucose water</th>
<th><em>Agbo</em> (herbal tea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health workers</td>
<td>71.5%</td>
<td>80.8%</td>
<td>93.7%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Grandmother</td>
<td>1.0%</td>
<td>0.5%</td>
<td>0.6%</td>
<td>50.5%</td>
</tr>
<tr>
<td>Culture</td>
<td>5.3%</td>
<td>3.9%</td>
<td>0.0%</td>
<td>12.3%</td>
</tr>
<tr>
<td>Husband</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.6%</td>
<td>10.2%</td>
</tr>
</tbody>
</table>


Moreover, most of the mothers who were involved in the study did not have the knowledge of exclusive breastfeeding; only 45 percent of the mothers had ever heard of exclusive breastfeeding. Their sources of EBF knowledge were mostly from primary health care workers, their mothers or mothers-in-law, friends, husbands, and
radio/television campaigns. Primary health care workers are the primary recommenders of EBF. About 94.7 percent of mothers heard about the practice of EBF from them. The media is the less effective way of informing the mothers about EBF because mothers that respond to the study who heard about EBF on the radio were very few. Additionally, the mothers who knew of other mothers practicing EBF were only 7.5 percent of the total mothers (Nwankwo & Brieger, 2012).

More than half the women involved in the study understood EBF to be of good effect to their children, whereas most who heard about it for the first time felt it was a bad idea–believing that children who undergo EBF would not grow well and would be unhealthy. They believed even if a child were be exclusively breastfed, the child must also be given agbo (herbal tea) for protection from diseases (Nwankwo & Brieger, 2012).

**EARLY INITIATION OF EBF**

The introduction of prelacteal feeds is the reason breastfeeding is not initiated at the early hour of birth. This practice deprives a lot of babies of the most important nutrient in breast milk, known as the colostrum. Colostrum is the first breast milk that is produced immediately after giving birth and it lasts for about two to four days of the perinatal lactation period (Godhia & Patel, 2013). It is thicker than the normal breast milk, and contains many nutrients, including protein, growth factors, immunoglobulin, vitamin K (Kries et al., 1987). Colostrum has twice the nutrients that normal breast milk has (Tyndall et al., 2016). Many mothers in Adamawa State, northeastern Nigeria, consider colostrum as stale milk and hence avoid giving it to their children (Tyndall et al., 2016). Another factor hindering the practice of EBF in
this region was that mothers believe the weather of the region makes EBF inappropriate for their children because the children will become dehydrated (Tyndall et al., 2016). Adamawa State is a tropical dry land region with average annual temperatures of 35 degrees Celsius and maximum temperatures of 41 degrees Celsius between February and May (Bidinger, 1990).

FACTORS/FACILITIES THAT WILL PROMOTE EARLY EBF; BABY FRIENDLY HOSPITALS

In 1991, WHO and UNICEF instigated the Baby-Friendly Hospital Initiative (BFHI). The purpose of the initiative is to improve and protect breastfeeding practices. The initiative took all measures in ensuring that infants are exclusively and well breastfeed, with about 156 countries implementing the idea (WHO, 2009). The major target of this initiative is to develop hospitals where the staff will be well trained so as to train mothers how to breastfeed their children well. One such hospital in Ile-Ife, Nigeria, found that mothers who had the baby-friendly training breastfed their children in better ways than those who did not (Ojofeitimi et al., 2000). The initiative is meant to reach all mothers so that its aim will be achieved, but in Nigeria, the BFHI program is restricted to tertiary health care units and thus the program does not reach a large number of families (Ogunlesi, 2004).

Nigeria, with 15 percent level of EBF, is one of the countries with lowest rate of exclusive breastfeeding (UN, 2012). However, UNICEF has recently reported that the rate of exclusive breastfeeding is now 25 percent in Nigeria, which is still low because despite the increase over 5.4 million children are still not getting sufficient benefits of exclusive breastfeeding. In comparison to Ghana, Nigeria’s increase in
the rate of exclusive breastfeeding is extremely slow. In 1994, Nigeria and Ghana were both at the rate of 7.4 percent EBF but by 2013, Ghana sped up to 63 percent while Nigeria has remained at 25 percent up to this year (2017) (UNICEF Nigeria, 2016).

Nigeria has the largest population of any African nation and a rapidly growing population with about 195,510,982 people (DHS, 2018). Considering the many benefits of EBF and its underuse in Nigeria, I investigated mothers’ knowledge and attitudes toward EBF in clinics in Yola-Jimeta, Adamawa State, northeastern Nigeria. I also evaluated the role of awareness programs on affecting attitudes and opinions toward exclusive breastfeeding. The findings of this study will be shared with the community, and recommendations will be made to health care facilities in Yola-Jimeta to increase outreach on exclusive breastfeeding.

The internally displaced people (IDP) are immigrants that are mostly from Maiduguri who migrated to Adamawa state as a result of the Boko Haram crisis. They are mostly Kanuri by tribe and they speak both Hausa and Kanuri language. Majority of the IDPs are Muslim women, young children and old men. There are 390 women in the camp in which 54 are and 252 are lactating. The total number of children in the camp is 759. Additionally, most of the IDPs are from Damboa, Gwoza, and Ngala local government of Maiduguri state.
HYPOTHESES

NULL HYPOTHESIS:
There will be no difference in the level of knowledge of EBF between mothers in Yola and those at Fofure IDP camp.

RESEARCH HYPOTHESIS:
Mothers in Yola have higher level of knowledge of exclusive breastfeeding than mothers in Fofure IDP camp.

AIMS AND OBJECTIVES

AIMS:
To evaluate the variation in the level of knowledge of exclusive breastfeeding between mothers in Yola and those in Fufure IDP camp as well as their perceptions towards its practice.

To evaluate the most effective medium of awareness for the knowledge of exclusive breastfeeding among mothers in Adamawa State.

OBJECTIVES:

1. To test mothers’ knowledge on exclusive breastfeeding.
2. To determine mothers’ opinions and attitudes toward exclusive breastfeeding.
3. To compare the variation in the level of knowledge of EBF between mothers in Yola and those at Fufore IDP camp.
4. To find the most effective medium of awareness of EBF towards the practice of EBF in Adamawa State.
5. Based on my findings, to make recommendations to health care facilities within Yola and Fufure IDP to increase outreach on exclusive breastfeeding through the most effective medium that was found from the result of the research.
CHAPTER TWO

MATERIALS AND METHODS

Study site

Geographical areas of study: Yola and Fofure Adamawa state

Institutional based study: Nana Asma’u primary health center, Yola

Community service center, Bako ward, Yola and Fofre IDP camp.

Figure 4: Map of Nigeria showing the location of Adamawa State in the northeastern region. Credit: Nigeria Galleria

I conducted the study at the Nana Asma’u Health Center, AUN Community Service Center and Fofure IDP Camp, all in Adamawa State, northeastern Nigeria. Nana Asma’u Health Center and AUN Community Service Center are located at Yola south. The health center is behind the emir’s palace and most of the women are Fulani and Hausa speakers.
Adamawa State, formed in 1991, is one of the largest states of Nigeria. It occupies a land of about 36,917 square kilometers (Nigeria galleria, 2014). To the northwest, it is bordered by Borno, to the west by Gombe, to the southwest by Taraba, and to the east by the Federal Republic of Cameroon (Nigeria galleria, 2014). The state is a mountainous state that is surrounded by rivers: Benue, Gongola and Yedsarem. Most of the citizens in Adamawa State are farmers, herders and fishermen. However, the modern people in the state are mostly office workers (Nigeria galleria, 2014).

Yola is the capital of Adamawa State and it is divided into the old town and the new town. The old town is where the emirate palace is located and the Lamido (the king) resides there, surrounded with most of the local people of the state. The new town is called Jimeta and it is the administrative and commercial center of the state.

Additionally, I conducted the study at Fufore IDP Camp, which is located at the Fufore local government, which is adjacent to Yola and Jabali local governments. Most of the occupants of the camp are IDPs that migrated from Maiduguri, where Boko Haram insurgencies had frequently occurred. The total population of people of at the IDP camp is about 1,500.

*Sampling*

In order to get information about the role of awareness programs on the attitudes toward exclusive breastfeeding among mothers within Yola-Jimeta, I used a targeted study design and convenience sampling method, which is a non-probability sampling technique. I went to Nana Asma’u Health Center, Fofure IDP camp and the community service center at Bako ward primary school and met with mothers during
antenatal al sessions and requested their permission for interview using
questionnaires. My total sample size was 220; I interviewed 100 mothers at the IDP
camp, 60 from Nana Asma’u Health Center and 60 from the community service
center as well.

Data Collection
I used a structured questionnaire to collect my data (Appendix I). The variables of
my questionnaire involve age, education, location, number of living children, and
religion. The questionnaire focused on getting information on the knowledge of EBF
among the mothers, the impact of awareness programs on them and their sources of
information such as media, friends, health care workers, and family members. It also
involved both open and closed questions. However, I first pilot-tested the
questionnaire at the IDP camp and revised it before administering the final version to
the study population.

Data Analysis
In order to assess the level of knowledge among my respondents and as well the most
effective source of their knowledge, the data that was received from the interviews
was analyzed using the Statistical Package for the Social Science (SPSS) software.

Ethical Guidelines
Before starting the research, I successfully completed the U.S. National Institutes of
Health training for “Protecting Human Research Participants” (Certificate number:
2551005, Appendix II). Moreover, I also obtained the American University of
CHAPTER THREE

RESULTS

Demographics

The mean age of the respondents of this study is 29.74 (SD = 7.94, range = 17-60). Majority of the respondents were Muslims (203; 92.3%) and the remaining (17; 7.7%) were Christians. The average number of living children of the study population is 3.88 (SD = 2.23), the minimum number of children is 1 (37; 16.8%), and maximum number of children is 12 (1; 0.5). About one hundred and five respondents lost their children which is 47% of the study population (105; 47%). Seventy-eight of the respondents (35%) obtained some level of formal education while the remaining 65% do not.

Most of the respondents (64.8%) lost at least one child before the age of 1 (Fig. 8). Forty percent lost a child between age 1 to 3, 16.3% lost children between 3 and 5, and 14.3% lost a child 5 five years.

Figure 5: The frequency of the respondent’s children that died at different age category. Children that died below the age of one are much higher.
Most of the respondents that obtained formal education completed primary or secondary school (Fig. 9). Of the respondents, 9.2% have started primary school but did not complete it, 32.1% of them have completed primary school, 12.8% of them have completed junior secondary school, 30.8% completed senior secondary school and only 5.1% completed tertiary institution.

![Bar Chart](chart.png)

**Figure 6**: The level of education among the study respondents and the graph is showing that most of the respondents obtained primary school level education.

The mean age of the respondents of this study is 29.74 (SD= 7.941). The average number of living children of the study population is 3.88 (SD=2.226), the minimum number of children is 1 (37; 16.8%), and maximum number of children is 12 (1; 0.5). Majority of the respondents skilled based workers. Thirty five percent of them are skilled based workers, 27.7% of them are house wives, 23.2% are farmers, 11.8% of them are traders, and 2.3% are civil servants.
Most respondents were skill-based workers or housewives.

Intake of pre-natal vitamins
About 204 (92.7%) of the respondents take pre-natal vitamins during pregnancy, and only 16 (7.3%) do not take pre-natal vitamins.

Intake of incorporate food
About 178 (80.9%) of the respondents eat incorporate food in their meals and the remaining 42 individuals (19.1%) do not.

Access to kitchen garden
Fifty percent of the respondents (110) have a kitchen garden and the remaining 50% (110) does not have access to a kitchen garden. Out of the 50% of the respondents that have an access to the kitchen garden, 89.1% (98) grow leafy green vegetables in the garden and the remaining 10.9% (12) respondents do not grow the vegetables in the garden. However, 92.7% (204) respondents of the general study population
include leafy green vegetables in their daily meals, while only 7.3% (16) respondents do not use it in their daily.

Knowledge of EBF

Two hundred (90.9%) of the participants in this study reported to have knowledge about EBF while the remaining 20 (9.1%) were never exposed to the knowledge of EBF before this study.

Additionally, the respondents were asked about the accurate definition of EBF. This was done in order to determine they were conversant on this matter. Almost 6% of respondents (12 individuals) answered EBF as feeding babies with only milk and water., 85% (188) of them responded that EBF is feeding babies with only breast milk for certain months, none of the respondents defined EBF as feeding babies with breast milk and some light food.

Moreover, the sources of their knowledge of EBF was also evaluated and the options attached to the question regarding the sources of their knowledge of EBF a. family and friends b. antenatal sessions c. media. The table below has shown the frequency and percentage of the respondent’s responses towards the options.

Practice of EBF

One hundred and forty (70.4%) respondents have practiced EBF, 29.6% (59) have not practiced EBF, while 21 individuals (9.5%) of the study population have neither practice nor refuse to practice it because they are not aware about it, so their frequency is a missing value.
Table 3: This table has shown that respondents of this study largely learned about EBF during antenatal sessions at the clinics.

<table>
<thead>
<tr>
<th>Where respondents learnt EBF</th>
<th>media * FAF Antenatal sessions</th>
<th>media and FAF</th>
<th>media and Antenatal sessions</th>
<th>media</th>
<th>Antenatal sessions and FAF</th>
<th>Antenatal sessions</th>
<th>FAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>12</td>
<td>2</td>
<td>17</td>
<td>14</td>
<td>2</td>
<td>144</td>
<td>8</td>
</tr>
<tr>
<td>Percentage</td>
<td>6%</td>
<td>1%</td>
<td>8.6%</td>
<td>7%</td>
<td>1%</td>
<td>72.4%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Support for EBF

In this question, the respondents were asked if they are in support of EBF or not. 80.5% (177 individuals) of the respondents are in support of EBF and 19.5% (43 individuals) do not support EBF.

Promoting the awareness of EBF

Table 4: Of the respondents in this study, most believed that clinical sessions were the best place in which to promote EBF awareness.

<table>
<thead>
<tr>
<th></th>
<th>Clinical sessions and media</th>
<th>Clinical sessions</th>
<th>Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>41</td>
<td>117</td>
<td>19</td>
</tr>
<tr>
<td>Percentage</td>
<td>23.2%</td>
<td>66.1%</td>
<td>10.7%</td>
</tr>
</tbody>
</table>

Cross Tabulations

In this study, I did not find a statistically significant relationship between mothers who take prenatal vitamins and their knowledge of EBF ($\chi^2 = 1.9$, df = 1, p = 0.16).
Table 5: of the respondents in this study, most of those that support and have EBF knowledge are from Fofure IDP camp. However, the result was insignificant ($\chi^2 = 1.04$, df = 2, $p = 0.59$)

<table>
<thead>
<tr>
<th>Location of interview</th>
<th>Support for EBF + Knowledge of EBF [Frequency]</th>
<th>Support for EBF + Knowledge of EBF [percentage]</th>
<th>Chi square Value: 1.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community service center</td>
<td>34</td>
<td>20.6%</td>
<td>P-Value: 0.59</td>
</tr>
<tr>
<td>Nana Asma’u</td>
<td>38</td>
<td>23%</td>
<td>Df: 2</td>
</tr>
<tr>
<td>Fofure IDP camp</td>
<td>93</td>
<td>56.4%</td>
<td></td>
</tr>
</tbody>
</table>

The above table has shown comparison between support for EBF and the study locations. The comparison was done in order to find out which location has the highest level of respondents that support the practice of EBF. However, the p-value has shown insignificance of the result.

Table 6: The result below was significant ($\chi^2 = 5.8$, df = 1, $p = 0.01$) and it has showed that knowledge of EBF have significant influence over supporting its practice

<table>
<thead>
<tr>
<th>Knowledge of EBF + Support for EBF</th>
<th>Having knowledge of EBF but does not support it</th>
<th>Support EBF after short explanation of the importance of EBF</th>
<th>Refuse to support EBF after telling them about its importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>165</td>
<td>35</td>
<td>12</td>
</tr>
<tr>
<td>Percentage</td>
<td>75%</td>
<td>15.5%</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

The above table shows a comparison between the respondents’ knowledge of EBF and their level of supporting it. It also shows the frequency of respondents who have the knowledge of EBF but do not support it. It also shows the frequency and percentage of respondents who did not know about EBF but after receiving a short
explanation of its importance they support it as well as those that refuse to support it even after receiving a short explanation about EBF.
CHAPTER FOUR
DISCUSSION

This study shows that there is high level of the awareness of exclusive breastfeeding in both Yola and Fofure. This is contrary to a similar study that was carried out in Adamawa state in 2016 which stated that most of the study respondents refuse to practice EBF because they believe colostrum is stale milk (Tyndall et. al, 2016).

Mrs. Hauwa Zoaka, who is the Adamawa state nutrition officer have made it clear that “there is generally high awareness on EBF in Adamawa state. This is because infant and young child feeding practice of was rolled out in all the 21 Local Government Areas (LGA) of the state and the IDP camps as well. However, it is particularly high in Fofure IDP camp because of intensive supervision by health providers to see that women deliver in health facilities and participation of all international NGOs & local NGOs in promoting EBF. Fofure LGA also piloted Nigeria State investment Project (NSHIP) which is improving access to quality maternal and child care services. This project has also strengthened EBF in the entire LGA including the IDP camp”.

The outcome of this research could be explained as the result of improvement of primary health care policies which includes not only awareness on EBF but how to practice it in this state within this past few years (2016-2018) under the leadership of Dr. Belel, who is the executive chairman of Adamawa state primary healthcare agency.

In the study, I asked the mothers to tell me about their beliefs and cultures of breastfeeding, with some follow up questions like: when do they start and stop
breastfeeding their babies? When do they start giving their babies water and food supplement? And do they think colostrum is stale milk?

Sixty three point six percent of the respondents said they exclusively breastfed their children, 20.9% of the respondents said that they give only water and breast milk to their children immediately after birth, 8.6% of the respondents said that they give water and pap to their children, and 6.9% give their children zamzam water, dates and qur’anic washings. This shows that majority of the respondents practice EBF and as stated earlier in this text, that is what is expected.

In contrast to Tyndall et. al’s study, the result has shown that the respondents are now aware that colostrum is not stale milk and mothers do not hesitate to give it to their children immediately after birth (Tyndall et. al, 2016). Although, the percentage of mothers that give their children zamzam water, dates and qur’anic washings is low, the result has shown that there are still mothers who give their children qur’anic washings, dates and zamzam in the study locations that are in Yola (Nana Asma’u and the community service center).

A similar study that was carried out in local Egypt as shown that the major factor that hinder mothers from practice EBF is the culture of giving their children pre-lacteal foods (PLFs) which includes dates and zamzam (Hossain et al., 1992). However, most of the women (16.6%) that practice or introduce PLFs to their children in this study are local women from Yola that I interviewed at the community service center not the hospital. This could be because they have never been exposed to any hospital sessions before.
Although, most of the respondents (89%) of this study do no face any constraints during breastfeeding that hindered them from the practice of EBF, some of them (2.3%) complained they insufficient breast milk is the problem they face during breastfeeding, 1.4% of the respondents complained that hunger is the challenge they face during breastfeeding, 5% of the respondents complained about sickness during breastfeeding which force them to give their children milk, and 1.8% give occupation as the challenge they face which hindered them from exclusively breastfeeding their children. This shows that some of the respondents are having constraints which are mostly maternal health and occupation related. Studies have shown that successful completion of EBF can improve maternal health. However, mothers often find it difficult to breastfeed their children in work place due to lack of lactation rooms where they would find it more comfortable to breastfeed their children (Tyndall et. al, 2016). Also, in order to provide solution to breastfeeding problems, the baby-friendly health care initiatives were developed by WHO and UNICEF (see introduction).

All the respondents that complained about hunger are from the IDP camp; this is not surprising because most of the women there are malnourished due to the level of poverty they are experiencing unlike the other study sites who lives a better life than them. In an earlier study I reviewed, malnutrition is one of the major causes of mortality and morbidity in both mothers and their offspring (Ransom and Elder, 2003). However, the result of this study has shown that there is high child mortality, about 118% of the respondent has lost their child, most of which (48%) are between 0 to one year of age. The result has also shown that, the older a child grows, the
lower the risk of the child’s mortality. This is because the result of this study shows that child mortality rate is higher among children that are less than one year.

Nigeria was reported to have high infant mortality, lower life expectancy and population growth due to excess mortality as a result of AIDS (CIA, 2017).

Despite the fact that most of the study respondents are able to breastfed their children without any constraints, the complaints laid by other study participants are a food for thought in this study. There should be an alternative or a solution that would help those that are facing those challenges to scale through it and breastfeed their babies well. A similar study that was carried out in the southern part of Nigeria (Anambra state) has shown a similar result which states that the low level of the practice of EBF is a result of some constraints that mother face during breastfeeding. Fifty-one percent of the constraints are maternal health problems, while 24% is occupation (that they need to return to work) (Agunbiade, 2012).

One amazing finding in this study is that over 60% of the respondents did not obtained any form of formal education and even those that obtained formal education, most of them have only completed primary and secondary school. But despite this fact 90.9% of the respondents have known about EBF and only 9.1% of them were never exposed to the knowledge of EBF before. However, many past studies have shown that maternal education level is one of the factors that cause increase in the level of the practice of EBF. The result of a study that was carried out in Belgium has stated that maternal education has a strong positive effect on exclusive breastfeeding (Vanderlinden et. al, 2017).
However, the result of this study could be because most of the respondents attend antenatal and post natal sessions. Although, most of them did not obtain formal education, they still attend antenatal and post natal sessions where they learn about health related issues and how to take better care of their children.

The major sources of the knowledge of EBF that were evaluated in the study are: Antenatal sessions, media and family and friends. The result has shown that 6% of the respondents have learnt about EBF from Antenatal sessions and family and friends, 1% of the respondents learnt about EBF from family and friends, 8.6% of the learnt EBF from media and antenatal sessions, 7% learnt it from the media, 1% of them learnt EBF from antenatal sessions and family and friends, 8% of them learnt from family and friends and finally 72.4% of them learnt EBF from only antenatal sessions.

The result of this study also shows that the health care staffs have a lot of influence over the respondent’s decision to practice exclusive breastfeeding. Four percent of the respondents practice EBF just because a doctor in the hospital has told them to practice, they don’t even mind to be told or understand the exact purpose of practicing it; they are really faithful to the doctors. 74% of the respondents have practiced EBF. Eight point one percent (8.1%) of the respondents practice EBF because they learnt that it is good for their children’s health at the clinic; these respondents are unlike the other ones, they understand the importance of EBF practice on their children. Nineteen point one percent (19.1%) of the respondents practice EBF because they want to improve the health of their children. Five point five percent (5.5%) of the respondents practice EBF because they believe it is
important; these set of respondents believe EBF is important because they were told about its important but might not have clearly understood why it is important for their children. Of the respondents, 6.4% practiced EBF because they want to see its importance that the health practitioners are telling them.

Only 1% of the respondents practice EBF because of family support; most of which are suggestion from their husbands. In an earlier study, it was reported that one of the major reasons for low EBF level was due to lack of spousal support (Tyndall et. al, 2016).

A similar study has also shown that prenatal and postnatal education have a significant influence over the practice of EBF (Pediatr, 2017). This shows that clinical sessions are very crucial to the practice of EBF among mothers.

However, in order to evaluate the level of understanding of the knowledge of EBF among the respondents, they were asked to define EBF. Eighty five percent of the respondents were able to give the correct definition of EBF and 5.9% of the respondents have defined exclusive breastfeeding as giving their children breast milk and water only. This has shown that even though, most of the study respondents have defined EBF correctly, there are some who still does not clearly understand the definition of EBF; taken it as only avoiding the introduction of food but not water in the first six months of life. However, this could be because most of the mothers do not give food supplement to their children at that stage in life apart from water. Because, some of them believe that no one can live without water as the old adage
states that water is life. In a similar study, 61.1% of the respondents give water to their children, claiming that there is no life without water (Ogunba, 2015).

The results has also shown that 29.6% have never practiced EBF with any of their children. Five percent of the respondents do not practice EBF because they don’t believe in the practice, 4.1% of them refuse to practice because of intruding from family and friends, 2.7% of them refuse to practice EBF because they have insufficient breast milk, 7.3% of them responded to why they never practiced EBF because they recently heard about it and until then, they did not give birth to any child. Two point three percent of the respondents have complained of illness which is the major reason they were not able to practice EBF, 1.8% of the respondents have complained that the hot weather in Adamawa would not allow them to practice EBF, 6.8% of the respondents have no any reason for not practicing it, despite the fact that they are aware about it.

The results of this study also shows that, the total of 80.5% of the respondents support the practice of EBF and only 19.5% did not support the practice of EBF. Also, 81.8% of the respondents practiced EBF for six months. However, a similar study have shown that a lot of mothers that do not receive postnatal education do not practice EBF up to six months (Pediatr, 2017).

**Limitations**

The time that was spent for this study is quite limited which could be a reason why much data was not collected. Henceforth, the data for this result could not be generalized for all the members of the study locations. Most of the study respondents
are Muslims which could be the reason why some of them give their children PLFs. Another barrier for this study is that most of the women are in a setting (clinical and education sessions); so the places are crowded. This could be a reason why I got a lot of similar answers from the respondents. Another barrier is that some of the respondents think of me as a health professional or someone that might be able help them. So they tend to answer me in order to satisfy me. I have also noticed that some of the respondents, especially those that are at the primary health center at Yola, want to show me that they come to the hospital and they do what the health practitioners want, as in they are wise and civilized.

**Recommendations**

I recommend that more studies should be done in order to find suggestions to ill mothers and those that have more than one child on how to breastfeed their children better. Also, there is a need for more emphasis on the awareness of the benefits EBF such as maternal and infant health improvement, and prevention of diseases. I also recommend that more awareness about EBF should be done through media (social media outlets and traditional media i.e. radio, television etc), so that mother-in–laws, husbands, and other family members can also learn about its importance and support their respective daughter in–laws and wives to implement the practice it.
CHAPTER FIVE

CONCLUSION

This study has contradicts many relevant studies that were done in the past. It has shown than a lot of effort has made within the study locations in improving the outreach programs on the awareness of EBF. The result of this study does not support my hypothesis which states that mothers in Yola have more knowledge of EBF than those at Fofure IDP camp. Although the result is not significant, it has shown the frequency of mothers that practice EBF at Fofure IDP camp is higher than that of mothers in Yola.
APPENDIX I

QUESTIONNAIRE

Location  FMC (1)  FUFORE (2)  NANA ASMA’U (3)

Date……………………………….

Respondent number………………

DEMOGRAPHIC DATA

1. Religion:  Islam (1)  Christianity (2)  Others….(3)

2. Age (in years)? ………………..

3. How many living children do you have? ………………..

4. Have you lost any child?  YES (1)  NO (2)

5. If YES, how many? ………………..

6. At what age did they die? (TICK ALL THAT APPLY)
   0 - 1 year (1)  1 - 3 years (2)  3 - 5 years (3)  Above 5 years (4)

EDUCATION

7. Do you have any form of formal education?
   YES (1)  NO (2)

8. If YES, which level was successfully completed?
   PRIMARY (1)  JUNIOR SECONDARY (2)
   SENIOR SECONDARY (3)  TERTIARY (4)
   NONE (WENT TO PRIMARY BUT DID NOT FINISH) (5)
OCCUPATION

9. What occupation provides your primary or partial source of income? (TICK ONE)
   - FARMING (1)
   - TRADING (2)
   - CIVIL SERVICE (3)
   - HOUSEWIFE (5)
   - SKILL-BASED (TAILOR, CATERING, ETC) (4)
   - OTHER (5)

NUTRITION

10. During pregnancy, did you take any prenatal vitamins?
    - YES (1)
    - NO (2)

11. During breastfeeding, do you incorporate food like liver, kidney and vegetables in your food?
    - YES
    - NO (2)

12. Do you have access to a kitchen garden?
    - YES (1)
    - NO (2)

12(a) If YES, do you grow leafy green vegetables in the garden?
    - YES (1)
    - NO (2)

13. Do you include leafy green vegetables in your daily diet?
    - YES (1)
    - NO (2)

BREASTFEEDING

14. What are your beliefs and practices about breastfeeding?

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

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

37
15. What are the breastfeeding constraints you face during nursing?

………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

EXCLUSIVE BREASTFEEDING

16. Have you ever heard of exclusive breastfeeding?

☐ YES (1)  ☐ NO (2)

IF “NO,” THEN PROVIDE THE RESPONDENT A SIMPLE DEFINITION OF EBF AND JUMP TO QUESTION #21.

17. Please tell me what you think exclusive breastfeeding is.

☐ Feeding babies with only breast milk and water (1)
☐ Feeding babies with breast milk and light baby foods (2)
☐ Feeding babies with only breast milk for certain months (3)
☐ Other (4)

………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

18. Where did you learn about exclusive breastfeeding?

☐ Antenatal sessions at the hospitals (1)
☐ Friends or family members (2)
☐ Media (TV/radio stations, social media, etc.) (3)
☐ Other (4)……………………………………………………………………………………

19. Have you practiced exclusive breastfeeding with any of your children?

☐ ☐
YES (1)   NO (2)

19(a). If “YES,” why did you choose to use exclusive breastfeeding?
_______________________________________________________________
_______________________________________________________________
_______________________________________________________________
_______________________________________________________________

19(b). If “NO,” why did you choose not to use EBF?
_______________________________________________________________
_______________________________________________________________
_______________________________________________________________
_______________________________________________________________

20. For how long did you practice EBF?
_______________________________________________________________

21. Are you in support of EBF? YES (1)   NO (2)

22. If you answered #21 as “YES,” what would be the best way to make women aware of the effectiveness of EBF?

☐ Clinical sessions at the hospitals (1)
☐ Media (TV/radio stations, social media, etc.) (2)
☐ Other (3)
THANK YOU! MIYETTI!! NA GODE!!!
APPENDIX II

U.S. National Institutes of Health Certificate of Completion

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that Hafez Adhama successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 11/03/2017.

Certification Number: 2551005.
APPENDIX III

SCALING UP NUTRITION PROGRAM

In 2010, a program called Scaling Up Nutrition (SUN), headed by WHO, was initiated to support national governments to develop nutrition programs with a common goal (Reinsma, Nkuoh, & Nshom, 2016). In 2012, the World Health Assembly developed a plan for improved nutrition of young children, neonates and mothers. The plan was designed to focus on key issues such as reduction of child and maternal mortality, anemia, eradication of stunted growth, low birth weight, promotion of exclusive breastfeeding, and the control of obesity (Reinsma et al., 2016).

Cameroon is one of the low to middle income countries in sub-Saharan Africa that joined the Scaling Up Nutrition program in March 2013 (UNICEF, 2014). The government of the country also vowed to promote a policy that would diversify nutrition sectors, design nutrition programs that would diversify nutrition sectors, design nutrition programs that would provide a common result, and be more transparent in the speculation and budgeting of nutrition (UNICEF, 2014).

Countries involved in the SUN movement have an average rate of 42 percent exclusive breastfeeding practice. Rwanda, with 85 percent rate of exclusive breastfeeding, is the country with the highest level of exclusive breastfeeding.

Furthermore, Nigeria also joined the SUN movement in 2011 and pledged to specifically address poverty eradication, women’s empowerment, and women’s
involvement in development. Other policies that were implemented at the same time were mostly concerned with women’s welfare (UN, 2012).

The major objective of SUN is to address the abnormal growth in children characterized by stunted growth. Most of the SUN countries have about 30 percent incidence of stunting growth, and 13 countries have about 40 percent of its rate (UN, 2012). Notwithstanding these statistics, most countries that joined the SUN movement have effectively overcome stunting.

In Cameroon, officials are concerned with infant and maternal undernutrition so as to reduce child mortality and improve maternal health (Shrimpton et al., 2014). Like other African countries, Cameroon is challenged by having an insufficient number of healthcare workers and health institutions. This problem may be why the country continues to meet its malnutrition targets (Sodjinou et al., 2016; WHO et al., 2013).
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