IMPACT OF TABOOS ON DIET OF CHILDREN UNDER-FIVE: A CASE STUDY OF THE GONJA PEOPLE OF NORTHERN GHANA

A research project submitted to Van Hall Larenstein University of Applied Sciences in partial fulfilment of the requirements for the degree of Master in Management of Development, specialisation Food and Nutrition Security

By

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September 2020

ACKNOWLEDGEMENTS AND DEDICATION

My deepest appreciation first goes to God for providing me good health and protection to undertake this research. I am also grateful to the Government of the Netherlands and OPK for providing funds to support my studies at VHL University of Applied Sciences. I am also grateful to both the teaching (MOD lectures) and non-teaching staff for all they have done to make my stay and study impactful.

My special thanks goes to my supervisor Madam Batjes-Sinclair Karen. I appreciate your dedication, patience, encouragement and guidance. A big thanks also goes to my assessor Dr. Suzanne Nederlof. Thank you for all your inputs, comments and suggestions. I also thank the the Bole District assembly and all my respondent for their help during this study. Special thanks go Mr. Bashiru A. Seidu, my wife Faiza Abass, Mr. Saaka Adams, Fati Seidu, Kenneth Bodua-Mango, Toufiq Abdul Aziz, Ruth K Bodua Mango, and my research assistants; Dawuda Alhaji and Haruna Abdulai. A big thank you also goes to my Special friends and MOD 2020 group for being there when I needed. To all of you I say, *ani yɛ tuma.*

I dedicate this thesis to the (VHL MOD program) and lectures, for stimulating my interest in nutrition studies.

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COVID-19	Coronavirus Disease 2019
DDS	Dietary Diversity Score
DHS	Demographic and Health Survey
FGD	Focus Group Discussion
FTF	Feed the Future
GoG	Government of Ghana
GRN	Global nutrition report
HDDS	Household Dietary Diversity Score
HH	Household
KII	Key Informant Interview
LEAP	Livelihoods Empowerment Against Poverty Programme
METSS	Monitoring, Evaluation and Technical Support Services
MoFA	Ministries of Agriculture
N/GH	Northern Ghana
NGOs	Non-governmental organisation
PCGs	Primary Care Givers
RING	Resiliency in Northern Ghana
SDGs	Sustainable Development Goals
SPRING	Strengthen Partisanship Result Innovation in Nutrition Globally
UNICEF	United Nations Children's Fund
USAID	United States Agency For International Development
WFP	World Food Programme
WHO	World Health Organisation
WIAD	Women in Agricultural Development

Abstract

Over the two past decades, several nutrition related interventions have been implemented by both Government and its developmental partners with the view of addressing childhood stunting in Ghana and the Northern Region in particular. Despite these interventions the phenomenon is still prevalent in especially in the Northern Region. The prevalence of stunting has often be attributed to several factors including the observance of sociocultural practices such as food taboos. The study set out to investigate the impact of taboos on the diet of children under five with a view of recommending appropriate interventions needed to reduce stunting in the Bole District. Data for the study were elicited through a semi-structured instrument administered to twenty five lactating mothers/caregivers form Bole District, two focus group discussions, six key informant interviews, observation and review of secondary data. The findings of the study indicate an average frequency rates for stunting and severe stunting amongst children in Northern Ghana to be to be 31.1 percent and 15.4 percent respectively. The frequency for stunting and severe stunting in Bole is 21.8 percent and 9.2 percent respectively. The study established the existence of food taboos and most of these taboos were related to the intake of animal-derived proteins. The study shows that the observance of these taboos are motivated by several factors including religious affiliations, clan membership, prescriptions by traditional healers, and other personal reasons. The study on the basis of the availability of equally nutritious substitutes contend that food taboo are not the major driving force of stunting in the area. Instead, the study attributes the persistence of stunting to other factors including poor maternal care due to low levels of education of lactating mothers/caregivers, poor observation of WASH protocols, low consumption of vegetables coupled by the high intake of carbohydrates, high levels of poverty and the phenomenon of 'bad' breast milk. This study recommends a multi-sectorial approach to dealing with stunting where various bodies come together to complement each other's efforts. Also, the study advocates for a shift in the nation-wide implementation of programs and instead focus on community specific tailor-made solutions such as developing the area around the Black Volta in Manadri into a vegetable basket to feed the whole Bole District. Further, the strengthening of the (WASH) interventions as well as the revival of the community sanitation inspectorate to deal with the hygiene in households are proposed. Furthermore, the Ministry of Agriculture can promote the year round cultivation of vegetables in community based backyard gadding to supplement the low intake of vegetables. Again, the Government's school feeding program should be well monitored to ensure children are fed nutritious meals especially for the first two years of their lives. Also, the provision of hygienic and safe environments for children should be a priority especially in light of the COVID 19 pandemic.

Keywords: Dietary taboos, stunting, malnutrition.

1. BACKGROUND TO THE STUDY

1.1 Introduction

According to UNICEF (2019), one in three children globally under the age of five are malnourished. Also, a 2012 World Health Organization (WHO) report, estimates that globally, 25 per cent (about 162 million) of children under five years of age are stunted. The WHO projects this figure to rise to 127 million by 2025 if the current trend is not revered. This phenomenon is however alarming in developing nations of the global south. For instance, UNICEF (2019) reports that in sub-Sahara and central Africa, 33.1% of children suffer from malnutrition. This has often been attributed to a range of socio-economic factors including poverty, food taboos, education, food insecurity, improper food utilization practices, (Akosah-Sarpong, & Kofi 2007).

Malnutrition may manifest in several forms including stunting, wasting or obesity with the possibility of two or all occurring concurrently (WHO, 2016). Notwithstanding the various forms in which malnutrition may present itself, the study is particularly interested in stunting since it is the predominant manifestation of the phenomenon in Ghana (see Glover-Ameng, et al., 2016; Akosah-Sarpong, & Kofi 2007; Saaka et al., 2015). Although Ghana has made significant strides by meeting four of the five World Health Assembly (WHA) targets relating to child and maternal nutrition, the problem still persist with Northern Ghana being the most affected. For instance, an in-country survey by the Ghana Demographic and Health Survey in 2014 estimated that 19 % of children are stunted. The figure is even higher for Northern Ghana (33%).

Consequently, as part of efforts to realize the United Nation's sustainable development goals regarding stunting, the Government of Ghana in collaboration with its development partners (USAID, UNICEF, WHO etc) have initiated and implemented several interventions specifically targeted at populations in northern Ghana with the view of minimizing the impact of the phenomenon.

For instance, in 2015, the Government of Ghana instituted the Ghana School Feeding Program (GSFP) targeted at an estimated 1.6 million primary-school children across 170 districts. The program was designed to supplement food provided at home and improve schoolchildren's food intake (Gelli et al., 2019).

Another intervention in this regard is the joint program by the International Institute of Tropical Agriculture (IITA) in collaboration with the Ghana Health Service (GHS) and the University for Development Studies (UDS). This intervention combined agriculture and health strategies with the goal of promoting the consumption of locally accessible foods, vegetables, fruits and animal-sourced foods that are essential to the health of children and pregnant women (Saaka et al., 2015).

Also, SPRING Ghana initiated a five year USAID-funded programme in northern Ghana aimed at reducing aflatoxin – poisonous substances produced by certain kinds of fungi (moulds) that are found naturally all over the world; they can contaminate food crops and pose a serious health threat to humans and livestock. Aflatoxins also pose a significant economic burden, causing an estimated 25% or more of the world's food crops to be destroyed annually" (WHO, 2018). Not only does this program prevent the consumption of poisonous food, but also ensures food availability.

Additionally, the USAID sponsored (RING) project which is part of the larger Feed the Future initiative was instituted with the objective to reduce poverty and malnutrition through increased access to savings and loans, nutritional crop cultivation and good sanitation & hygiene practices etc. (USAID, 2019).

Notwithstanding the efforts being made, the problem of stunting still persists amongst children under five in Ghana and Northern Regions in particular. Although most of the interventions have focussed on inadequate intake of food, inadequate food diversity, poor personal and environmental hygiene as well as poor infant feeding practices (Yawson et al., 2017), there is seemingly no known interventions targeted as cultural beliefs and practices despite being the most pervasive and stable variable in jurisdictions across sub Saharan Africa (Akosah-Sarpong, & Kofi 2007; Chakona and Shackleton 2019).

Stunting is the failure to achieve the envisaged genetic potential of height for age, caused by long-term insufficient nutrient intake and frequent infection (Stewart et al., 2013b). It has been noted however that various factors including cultural beliefs and practices, have been implicated in the phenomena of stunting. As rightly observed in their study, Chakona and Shackleton (2019) reports that there is reduced consumption of nutrient-rich foods as a result of cultural beliefs and food (taboos).

1.2. Problem Description

Alonso (2015) suggest that cultural beliefs and practices regarding the nuances of food consumption (e.g. food taboos) influence the growth and developmental trajectory of children. He notes further that cultural practices such as food taboos play a crucial role in food choice and thus, influence nutritional intake of children under five. This is consistent with the report that in northern Ghana, cultural practices such as food taboo abound (Akosah-Sarpong and Kofi, 2007). They therefore contend that food taboos become impediments in the quest for sufficient nutrition. For example, foods rich in protein (eggs, milk, fish, chicken, etc.) and other micro-nutrients critical to the prevention of stunting are typically taboos for children and pregnant women. (See McNamara and Wood, 2019; Meyer-Rochow, 2009). Ironically these are phases in the life course where these nutrients are most critical for the rapidly developing tissues and brain cells WHO (2017).

Although it has been noted that food taboos are intended to safeguard the health of pregnant women and children, (Henrich and Henrich, 2010) the consequence of such food choices during this period are potentially lifelong and irreversible. For instance, Martins et al., (2011); Kariuki et al., (2017) note that undernutrition compromises the brain and the central nervous system which undermine academic achievement, physical activity, and productivity. Additionally, the effects of stunting as a consequence of under nutrition, have been noted in McNamara and Wood's (2019:8) report that ''the possibility of obstetric complications is higher for mothers who experienced chronic malnutrition during childhood that can lead to a small stature in adulthood''. They note further that, ''smaller placenta, uterus, and narrower pelvis accompany small body composition and increase the possibility of uterine rupture, obstructed labour and other serious problems''.

Thus, considering the above expositions, this study seeks to explore the contribution of food taboos to stunting in the northern part of Ghana. Besides the effect of food taboos on children under five, the diet and dietary habits of women of childbearing age may also be affected by food taboos. Consequently, the effects of food taboos may not only be postnatal, but also prenatal and perinatal as well McNamara and Wood's (2019).

Amugsi, Mittelmark and Lartey (2013), note that promoting healthy nutrition to deal with the problem of undernutrition among children is a shared responsibility. Accordingly, in addition to exploring and reviewing literature in this line of enquiry, this research will also take into consideration the perspectives of professionals from various sectors in society including government, NGOs, traditional and religious leaders, etc. Collectively, the information gathered from the aforementioned sources will assist enormously in investigating the topic of research, and contribute to the body of knowledge on the role of taboos in stunting.

The Ministry of Food and Agriculture (MoFA) the problem owner lacks knowledge upon several interventions on stunting, the problem of stunting among children under five in northern Ghana persist. MoFA in Bunkpurgu District in Northern Region of Ghana is a governmental organisation which has as part of its mandate to improve and develop the Agricultural sector in the district, MoFA is concerned that despite its role in promoting sustainable agriculture through research and technology development, effective extension and other support services to farmers, processors and traders for improved livelihood (MoFA, 2020), stunting is still an issue to deal with.

Even though, food production has increased in the Northern region as a whole, stunting in children under 5 years remains a problem with an estimated 2,353 children in the Bole district (study area) considered stunted (USAID/FTF project, 2017).

This study will particularly be important to the Women in Agricultural Development (WIAD) unit of the MoFA which has as its main focus the attainment of improved nutrition, food safety and resource management especially amongst women (MoFA, 2020).

There is little information on the role taboos play in contributing to stunting in the Bole District the reason this study is important

1.4. Objective of the Study

The research seeks to investigate the impact of taboos on the diet and dietary habits of children under five with a view to recommending to the commissioner, appropriate interventions needed to reduce stunting in the Bole District.

1.5. Main Research Question

The main research question that will be addressed in this study is:

What is the contribution of food taboos to stunting in Children under Five years of age among the Gonja people in the Bole District of Northern Ghana (N/GH)?

1. What is the extent of stunting in children under 5 in Bole?
2. What foods do children under 5 eat in Bole?
3. What are the dietary taboos/cultural practices among the Gonja people in Bole (N/GH) that influence feeding of young children?
4. What are the feeding practices of lactating mothers in Bole?
5. What other factors contribute to stunting in Bole?

2. LITERATURE REVIEW

2.1. Key Concepts and Operational Definitions

Stunting: is a form of malnutrition; a condition where a child under five years of age suffers impairment in growth. This is typically recognised by comparing a child's age and height. When a child is too short for his age compared to what is acceptably the standards among children in the nation. (De Onis and Branca, 2016). The most common indicator of undernutrition worldwide is growth impairment with a projected figure of 165 million children affected (Prendergast and Humphrey, 2014). Considering that a healthy population is a catalyst for economic liberalisation, it is imperative that adequate and targeted (including discriminatory policies if need be) measures be developed and implemented to address the phenomenon of stunting especially among children. As it would be shown, the effects of malnutrition transcends stunting to include problems associated with cognition, etc. In this study too short for age was what was considered

Taboos: a taboo is a belief that prohibits the association of a people with practices which make rational explanations seemingly untenable. These practices are often rooted in superstition (Aryeetey, Oltmans and Owusu, 2016; Ekwochi et al., 2016).

Food taboos: Food taboos are undocumented communal regulations associated with religious and historical reasons on foods may have cultural and religious connotations (Ekwochi et al., 2016). The existence of taboos and the fact that people believe and practice them underscores the need to investigate the taboos of the people of northern Ghana to better appreciate their role in stunting.

Food Practices: These are observable actions or behaviour regarding food consumption and can be classified as either good practices or poor practices (Nana and Zema, 2018b).

Malnutrition: occurs if food is not eaten in the right proportions, the right types or eaten more than the body needs (Amugsi, Mittelmark and Lartey, 2013). Consumption of food in the right quantity is so important to the liner growth of children. There are different types of malnutrition broadly categorised into undernutrition (stunting, wasting)) and overnutrition (overweight and obesity).

Nutrition: is a process whereby food is absorbed and stored in the body by been broken down into small parts (Amugsi, Mittelmark and Lartey, 2013). The ability of the body to use food properly is important to fight stunting in children below five years of age.

Sociocultural practices: Socio-cultural practices are the unique, spiritual, material, intellectual and emotional features that characterize a society or a social group (Akuoko, 2008).

2.2. Stunting in Northern Ghana

Despite occupying 60% of the world's arable land (growafrica.com), food insecurity and its associated malnutritional implications remain an enormous challenge in Africa (World Food programme, 2018). It is therefore telling when Chakona and Shackleton (2019) used the phrase ''hidden hunger'' to describe the insufficient consumption of micronutrients by especially, women and children in Sub-Saharan Africa. Correspondingly, Von Grebmer et al (2017) contend that such inadequate intake of essential micronutrients provides fertile grounds for various malnutritional associated complications including anaemia and stunting.

According to de Groot et al., (2020), malnutrition is a major problem in Ghana especially underweight and stunting. Data from the USAID/FTF Project (2016) shows clearly that stunting is prevalent in Northern Ghana with the average frequency rates for stunted and severely stunted children being 31.1 percent and 15.4 percent, respectively. Glover-Amengor et al., (2016) also provide statistics that indicate that 28 % of children under five years are stunted in Northern Ghana. The average rates for stunting and severe stunting in the Bole District (the study area) are 21.8 and 9.2 for stunting and severe stunting respectively. (USAID/FTF Project, 2016).

Northern Ghana is characterised by a short rainy season which is heavily relied on for farming. The short rainy season means farmers are unable to grow enough crops to last them a whole year. This thus results in poverty and hunger for three to five months of the year; thus serving as a catalyst for stunting (Glover-Amengor et al., 2016). According to De Groot et al. (2020), the underlying causes of stunting include poor nutritional intake, poor mother and childcare practices, hygiene and health. Manzour and Faramawy, (2019) indicates that malnutrition which includes stunting accounts for 60% of the 10.9 million yearly deaths and 50 to 70% of the burden of diarrhoea illness and breathing tract infections among children under five years. They further associate malnutrition with child disabilities and child underachievement in future (ibid).

According to Sienso and Lyford (2018) the causes of stunting in children under five in Northern Ghana include the age of the child, Region a household is located, access to safe drinking water among others. Bole is located in the Northern part of Ghana which is known to be the poorest most underdeveloped and with a high uneducated population. Bole has a largely low adult literacy rate with as much as 82.3%, having no education at all and 9.6% completing primary school (www.ghanalinks.org, 2017).

Climate change and its effects such as prolonged dry periods, floods and increase in pests and diseases which results in poor yields and the distraction of crops and animals is increasing the rate food insecurity in northern Ghana. These effects of climate change is seriously affecting the livelihood and economic fortunes of the people thus further increasing the poverty situation. This thus goes a long way to exacerbate the stunting situation in northern Ghana (Akudugu et al., 2012). It is in view of the above that many NGOs have rolled out nutrition sensitive programmes in the Northern Ghana in an attempt to remedy the problem (Glover-Amengor et al., 2016).

According to Akosah-Sarpong, and Kofi (2007); Alonso (2015), the Northern part of the country is bedevilled with some cultural practices, taboos concerning food utilisation. As will be shown in subsequent sections, cultural practices concerning food taboos have significant effects on food utilisation globally. Although food taboos are common and are practiced in very poor societies especially in Sub-Saharan Africa, there is however, little evidence available on the effect taboos on nutritional intake (Ekwochi et al., 2016). It is in view of this that study is important at this time.

2.3. Factors influencing taboos

There are several contributory factors relating to taboos which contribute to stunting. These include Culture, Gender, Religion, and the Other motivations for practising food Taboos.

2.3.1. Culture

Poor feeding practices resulting from the avoidance of certain foods because of food taboos in pregnancy and early childhood can affect the growth and development of a child. Among the 'Fulla' people pregnant women are not allowed to consume foods rich in protein and carbohydrates, (Ekwochi et al., 2016) also McNamara and Wood (2019) report that in rural Tajikistan children are not allowed to consume eggs as it is believed that giving children eggs would delay speech.

Indeed, my experiences growing up as a child in the Northern part of Ghana, children received little or no meat in their largely rich carbohydrate meal, whiles fathers received the greatest chunks of meat. This highlights how cultural practices impact children's intake of essential food nutrients. McNamara and Wood (2019) observed similar prohibitions of egg intake for children although the motivations for such prohibitions varied among participants in their study. For instance, a participant noted ''if [children] eat eggs, they have problems with their stomach''. Another remarked that ''babies who didn't start talking shouldn't eat eggs, because it will lead to them speaking very late'' (p.6). On the contrary however, Aguayo et al., (2016); Lannotti et al., (2017) have associated early introduction of eggs with lower rates of child stunting even though an association between acute diarrhoea and egg intake have equally been recorded (Lannotti et al., 2017). However, although Lannotti et al., notes that factors such as allegies, reporting bias and food borne illness, may have accounted for the latter association, it seemingly lends some support to the sentiments expressed by participants in for instance, McNamara and Wood (2019) study for not introducing children to eggs early.

2.3.2. Gender

Gender denotes the socially and culturally defined roles and values that are recognised to be roles of women and men in different societal settings. This is usually referred to the biological and social roles of men and women (Unicef, 2011).

Culturally, women and children are mostly affected by food taboos. McNamara and Wood (2019) report that in rural Tajikistan, children are not allowed to consume eggs as it is believed that giving children eggs would delay speech. Also, pregnant women are not allowed to consume eggs. Irrespective of the motivations for the prohibition of women and children from consuming eggs and meat at a point in the course of their life, others such as McNamara and Wood (2019), And Whitehead (2010) maintain that such prohibitions are subtle ways of maintaining male dominance and other forms of inequalities quintessential of patriarchal societies.

Amugsi, Mittelmark and Lartey (2013) assert that gender discrimination is a contributory factor to undernutrition in Ghana; they note that women have less access and control of land and other resources but the burden of meeting the nutritional needs of both mother and child lies on the shoulders of the women when men travel in search for greener pastures. Vir, (2016) notes that the underlining causes for poor nutritional intake of children is as a result of gender inequality and the little or no decision making power of women at family level. This goes a long way in contributing to stunting in children under five. However, because women are more concerned about food and nutrition of their households especially the feeding of the children, they are directly involved in home roles that influence their children's nutritional status (Vir, 2016).

In recognising the role of women and the contribution men can make in the care of children under five in Ghana, SPRING Ghana report (2014–2017) indicates how caregivers/mothers were educated and supported through training on best ways to provide to prepare and care for the nutritional needs of children through demonstration on good food preparation. The report identified the role that men can play in support of women. To this vain, the father-to-father support groups were established to help women attain the goal of ensuring good nutrition in their communities.

2.3.3. Religion

The main religions in Ghana are Christianity, Islam and African Traditional Religion. All three religions have their respective beliefs and practices including taboos. For instance, while consumption of pork and its products are prohibited in Islam, some Christians are also not allowed to consume animals which have no divided hoofs. Traditionalist are also prohibited from consuming certain food items and products for various reasons rooted in traditional beliefs. According to Alhassan (2011), Muslims in eating, drinking, must comply with the rules of God. Additionally, whereas Jews and Hindus

respectively prohibit the consumption of pork and beef, Islam further forbids the consumption of alcohol, blood from animals and animals slaughtered by non-Muslims. (Giyanti and Indriastiningsih, 2019). Evidently, religion plays a crucial role in determining what food items and products are consumed.

2.3.4. Other motivations for food taboos

The discourse on food taboos suggest that the most easily targeted groups of food taboos are pregnant women and children (Santos-Torres and Vasquez-Garibay, 2003; Ninuk 2005; Ogbeide, 1974). For instance, Meyer-Rochow (2009) reports that while in some parts of Nigeria, pregnant women refrain from snail consumption, in others, pregnant women avoid the intake of eggs and milk. The fear of children developing maladaptive behaviours i.e. stealing, dishonesty, etc., is the frequently stated reason for such avoidances (Ogbeide, 1974). In Ghana, snail consumption is prohibited among many ethnic groups during pregnancy (Gadegbeku et al., 2013). Similar restrictions have also been observed by Chakona and Shackleton (2019) in their study of food taboos among pregnant women in the Eastern Cape of South Africa. They note that some of the food that were tabooed included meat, fish, oranges, nartjies, pineapples, peaches, guava etc. The motivations for avoiding these items they noted range from phobias fear of having a deformed baby, a child with animalistic predispositions, a child with maladaptive behaviour – to protecting the child from various maladies including respiratory complications, eczema, boils, rashes, etc. Additionally, it has been reported (Zepro, 2015) that in Ethiopia pregnant women stay away from oranges, honey and pineapples for reasons associated with occasioning an abortion, having babies with discoloured skin, etc. Again, Cherkos et al., (2013) observed that women in Ethiopia also refrain from potato intake during pregnancy for fear of giving birth to big babies which occasion serious complications during labour.

Irrespective of the seeming scientifically unsustainable reasons for some food taboos considering the devastating effects of undernutrition, Henrich and Henrich's (2010) observation of how food taboos are used to safeguard the health of the pregnant mother and offspring is noteworthy. They reported that pregnant and lactating mothers in Fiji are not allowed to consume the most toxic marine species which effectively ensures protection from fish poisoning. They also note how medicinal plants are being used to support pregnancy (prenatal, perinatal, and postnatal) ((ibid).).

2.3.5. Effects of Food Taboos

Food taboos are undocumented agreed rules linked to religion and historical reasons to avoid some foods (Ekwochi et al., 2016).

In sub-Saharan Africa, food taboos are one of the most important factor contributing to maternal undernutrition (Ugwa, 2016). Besides the effect of food taboos on children prenatally, the post-natal consequences are also abound. It has been observed that children in developing countries (sub-Saharan Africa) are deprived via taboos nutrient rich foods needed for growth and development during this critical phase in the life course (See McNamara and Wood, 2019; Meyer-Rochow, 2009).

A survey of available literature suggest that the negative consequences of food taboos outweigh the positive consequences (at least for pregnant women and children). See Chakona and Shackleton (2019); McNamara and Woods (2019); Meyer-Rochow, (2009); Von Grebmer (2017) etc. Therefore, the need for education and awareness creation is critical to ameliorating the effects of food taboos. Interestingly, although socio-economic status, age, and level of education are reportedly mitigating circumstances on food taboos during pregnancy (Zepro, 2012), Chakona and Shackleton's (2019) study found no significant difference in the level of education and socio-economic status of women who adhered and those who failed to adhere. Notwithstanding, as have been echoed in McNamara and Woods (2019), the need to engage the services of practitioners (nutritionist) to undertake some form

of education and awareness creation is crucial to influencing the effects of food taboos, especially during childhood.

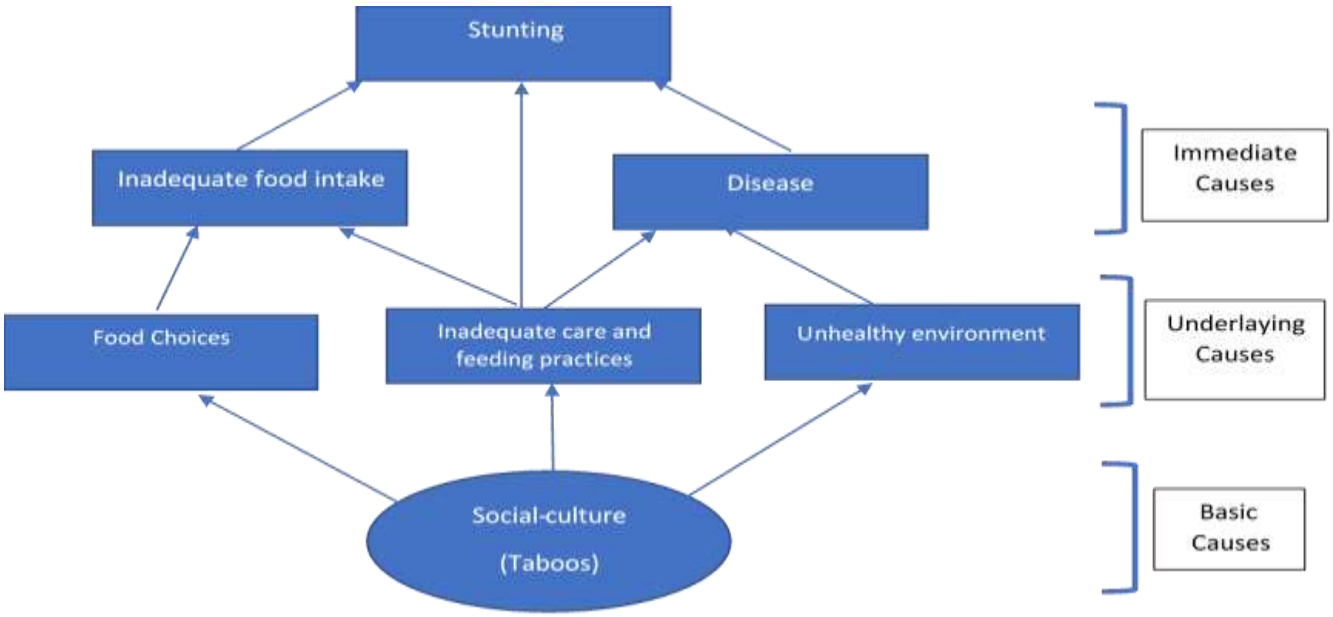
It has been noted for example that undernutrition compromises the brain and the central nervous system (Kariuki et al., 2017). This has inherent recurrent implications at different stages in the life course of children under five. Chakona and Shackleton (2019) assert that a compromised brain and central nervous system function undermine academic achievement, physical activity, and productivity.

An attempt has been in this review to examine the nuances of food taboos with a special emphasis on its effects on particularly children (during the prenatal and postnatal stages) considering the research problem being investigated on the consequences of food taboo. , of Food taboos (for the children) can have devastating consequences is great therefore the need for education, re-education and continuous education is crucial to mitigating the effects of food taboos on children. The importance of a well-balanced and healthy meal has been well documented. Fruits i.e., oranges, nartjies, pineapples, which are prohibited for pregnant women in some of the cited studies are rich sources of vitamin A and C. Vitamin C in particular is known to boost the body's immunity against diseases and in the wake of the COVID-19 pandemic, this has been re-echoed globally by the World Health Organisation. Likewise, foods i.e potatoes, rich in carbohydrates which are often broken down into simple sugars (glucose) to provide the much-needed energy to support the growth of a developing baby (Chakona and Shackleton, 2019).

2.10. CONCEPTUAL FRAMEWORK

The Conceptual framework based on the UNICEF framework for the determiners of child nutrition will be adopted for this research.

Figure 1 Conceptual Framework



Source: Adopted from UNICEF Framework

Considering the inadequacy of direct nutrition interventions to deal with the phenomenon of stunting, the concept of nutrition-sensitive development has been included in global advocacy for reducing malnutrition (C. P. Stewart et al., 2013). The UNICEF framework distinguished three key components; immediate causes of malnutrition (that is disease and nutrient intake); underlying causes (household food security; health, water and sanitation services; and maternal and child care); and basic level of causality or causes (these are resources available to household and the rules and regulations that oversee how those resources are distributed at the level of society).

It is worth noting that although individually, the three (3) distinguishing underlying causes are insufficient in their explanatory potential, collectively however, they provide a compelling case. However, in order to respond to the research questions, the study will focus on the socio-cultural aspect of the UNICEF framework with emphasis on the Socio-cultural causality of malnutrition associated with stunting. According to Stewart et al. (2013), cultural beliefs, knowledge and perceptions play a major influence on food behaviors to a certain degree. They note that some deeply held beliefs or cultural practices may exist about the types of foods or preparation methods that are healthy or unhealthy for young children, when and what types of corresponding foods should be first introduced, who can and should take care of feeding the young children, how to feed children when they are sick, how to feed a child who does not want to eat and how food will help a baby sleep or not (C. P. Stewart et al., 2013). These beliefs or taboos deeply influence the nutritional dynamics of children under-five and associated consequences thereof. As indicated by Madavi et al. (2015), traditional believes and taboos on what children ought to eat often leads to unsatisfactory balanced diet resulting in malnutrition.

The UNICEF framework is made up of various aspects which include socio-cultural, the political, economic as well, all have an important role to play positively or as a negative effect of stunting but for this study the socio-cultural aspect will be explored. In line with (Muoghalu, 2010), socio-cultural represents the way life of a group of people relating to gender roles, beliefs', religion, taboos education, language values and traditions, but for this study the focus is on taboos/beliefs, and religion of a group of people.

Table 1 . Summarising Conceptual Framework

UNICEF Framework	Measurements	The UNICEF framework
Social-culture	List of foods avoided or not consumed	The UNICEF framework will be drawn on to enable the researcher to answer sub- research questions for the study in an attempt to examine the impact of taboos on the diet of children under-5 years of age and the corresponding link to stunting.
Inadequate care and feeding practices and food choices	Care of the child and dietary diversity (women & children)	
Inadequate food intake	What children eat (exclusive breast feeding) (list of foods)	
Stunting	Height for age in children (Data from health facilities)	

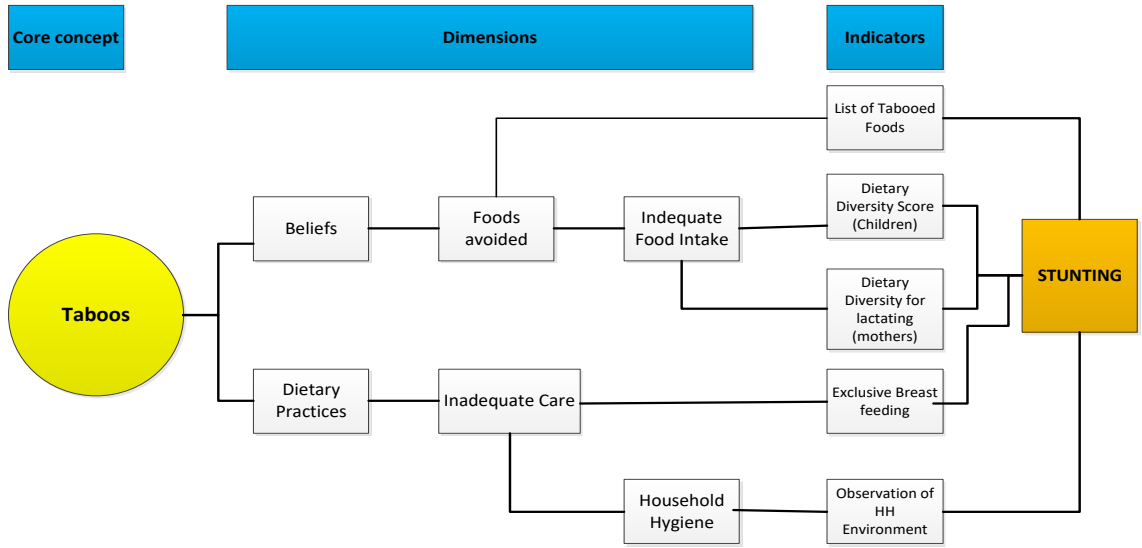
Other factors contributing to stunting and unhealthy environment and disease	Unknown factors and environmental hygiene

Source: Author own depiction, 2020

This study seeks to investigate the social-cultural dimension of the UNICEF framework. The research adopted this framework because its relevance in explaining the relationship between various socio-cultural factors (including religion, gender roles, traditional and cultural practices) and malnutrition and therefore stunting.

2.11. Operationalisation of Key Concepts

Figure 2. Operationalisation of Key Concepts



Source: Author own depiction, 2020

The diagram above shows the operationalization of the key concept which include core concept, dimensions and indicators. The study seeks amongst other things to find out the children's ages compared with their height for stunting, identifying the foods lactating mothers /care givers especially children avoid as a result of taboos, exclusive breastfeeding and the feeding practices of mothers and children as well as observe the hygienic practices in the households HH.

(i) the dietary diversity score for children under 5 years of age to show the variety of food intake, dietary diversity score DDs is a pointer to evaluate the quality of children's diet (Rakotonirainy et al., 2018).

(ii) the dietary diversity of lactating mothers to indicate the variety of food eaten in the household, this is to compare women quality of diet (Morales Ruán et al.,2018).

(iii) the prevalence of exclusive breastfeeding of children under the age of six months an indicator to know if the child is being or was exclusively breastfed, this is recommended by WHO in the first 6 months of from the first hour of life to meet infant nutrition to achieve optimal growth and development (Kimani-Murage et al., 2011). WHO recommends that to meet the nutrients requirement of a child, this should be done in the first six month of his/her life, from the very first hour after birth.

(iv) in formation on stunting in bole relating to child's (height compared to age) will be requested,

(v) questions on the dietary taboos that exist in the community would be asked to respondents to know the existence of dietary taboos,

(vi) observation of the environment around the household to see how hygiene in upheld,

(vii) information on other factors apart from the taboos that may be contributing to stunting will be asked. The above information would help better understand how well mother and child are doing but putting more emphasis on the child in line with the objective of the study.

Table 2 Indicators measured

What will be measured	How it will be measured and its importance
Stunting	Stunting is the proportion or percentage of children with height-for-age below -2 standard deviation (SD): secondary data to know the current position of stunting.
Height-for-age (HFA)	This indicator reflects skeletal growth (stature), and is used to indicate stunting, which occurs when children fail to grow to an appropriate height. Stunting reflects chronic malnutrition.
Infants and young children feeding / health practices	Mother or caregivers to respond to questions related to • Food and liquid consumption during the day • Breastfeeding • Types of food fed to children in a 24 hours before study and foods avoided: To know how the child is feeding.
Mothers feeding	Dietary diversity for women, a 24 hours recall: to know how the mother is feeding

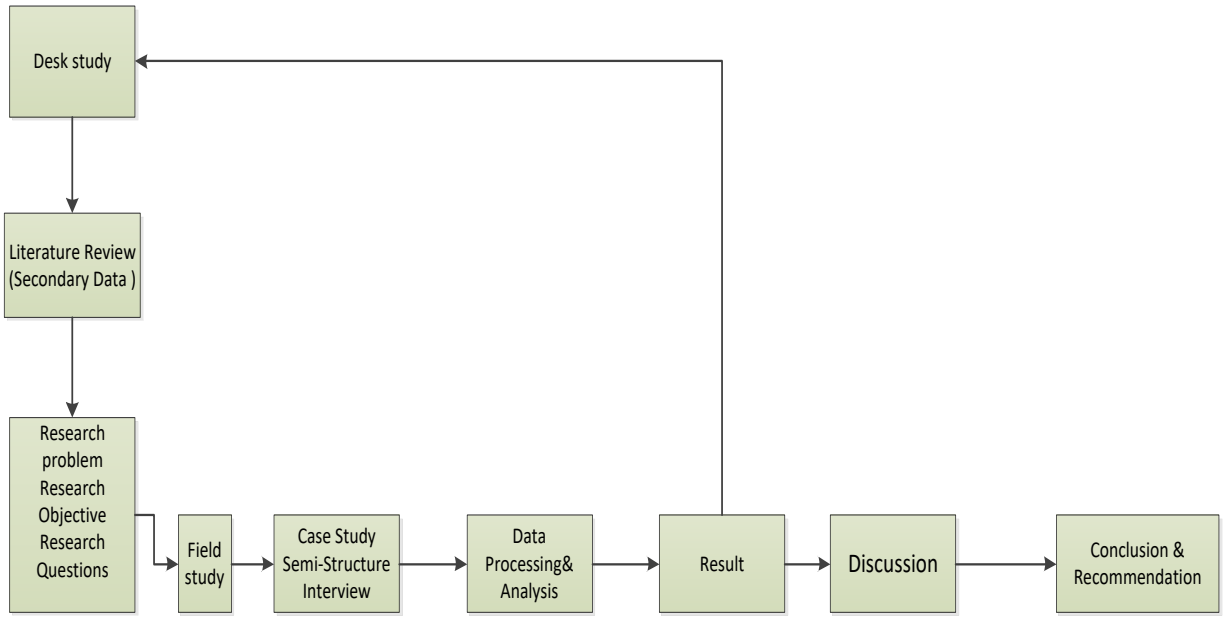
Source: Saaka et al., (2015).

3.0 METHODOLOGY

3.1. Research Design

The figure below explains the processes the research followed from start to finish. It made use of a desk study, interviews, data collection, data processing and analysis, results, discussion, conclusion, and recommendation.

Figure 3 Research Design



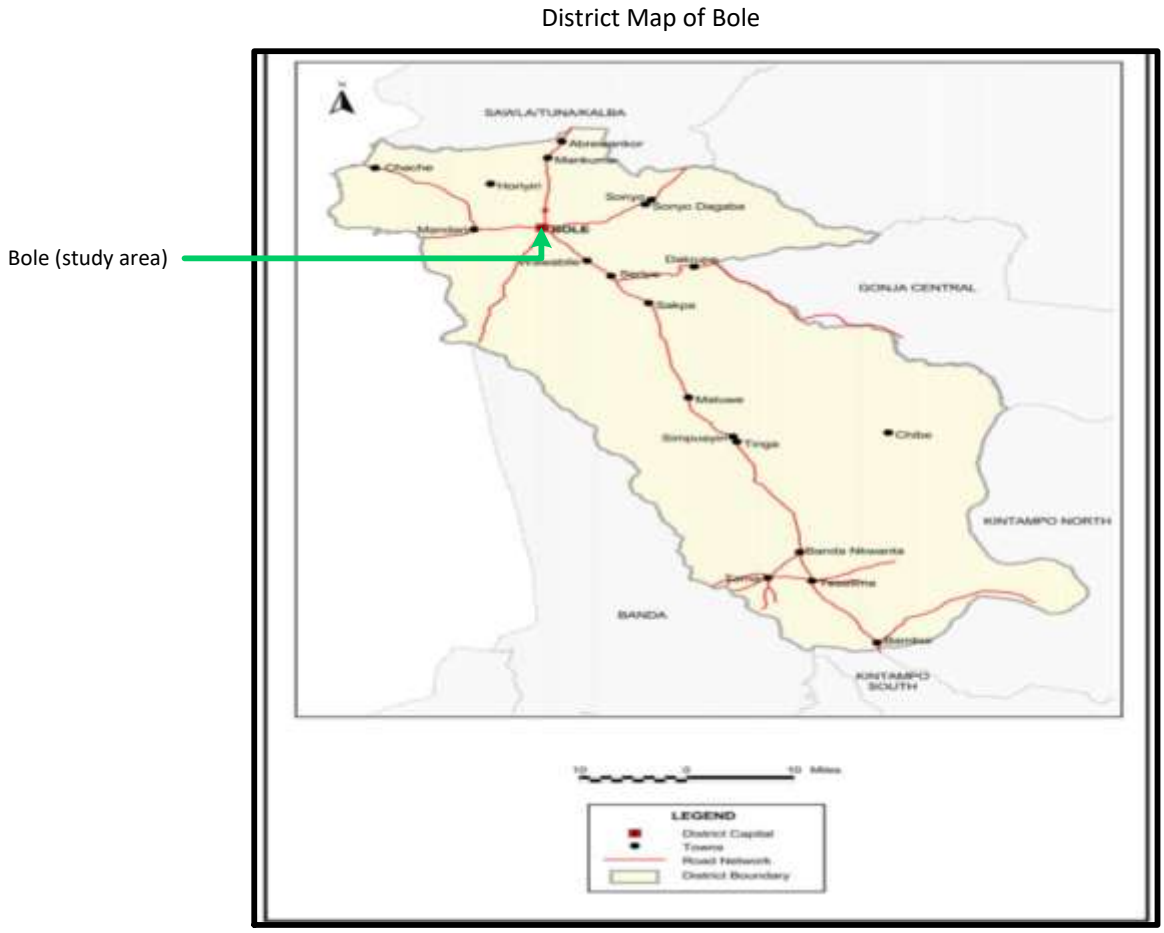
Source: author own depiction, 2020

3.2. Research strategy

This research is a case study which undertook an in-depth investigation on the Impact of dietary taboos on stunting in children under-five in Bole. It made use of the rich knowledge of the people to gauge their perspective in relation to dietary taboos. This study employed a qualitative data collection approach which mainly involved the use of semi-structured interviews.

3.3. Study Area

Figure 4 District map of Bole-Study Area



Source: GSS 2014

Source:GSS 2014

This study was conducted in two towns, Mandari and Bole located in the Bole District. Bole is one of the district capitals in the Northern Region. It shares boundaries with Sawla/Tuna/Kalba to the north, Gonja Central District and Kintampo North District to the east and Kintampo South District to the south. It also share boundaries with the Republic of Ivory Coast to the West with the Black Volta River serving as the border. It is important to note that the Black Volta River is about 20 minutes' walk from Mandari and can thus be used for irrigation purposes. The district has an estimated population of 69,610 - 34,252 females and 34,757 males. The total surface area of the district is 6,169.2 square km. Bole District has a relatively young population with 50% of the population falling between 0 to 17 years. Major towns include Bole, Bamboi, Maluwe, Tinga, Tasilma, Mandari and Banda/Nkwanta with the major ethnic groups including Gonja, Vagla, Safalba and Mo although there are also significant populations of Brifor, Lobi and Dagaaba (Www.ghanalinks.org, 2017).

With regards religious affiliation, 47% are Muslims and 47% are Christians, 6% traditionalists. The district has a low adult literacy rate 76.6% have received no formal education, 7.9% have primary school education and 14.6% have secondary school education (Www.ghanalinks.org, 2017).

Bole district is under the savanna belt with Agricultural Production mainly consisting of two main commodities: cassava and yam which are produced in large quantities with other commodities: maize, sorghum, groundnut, millet, cowpea are produced in much lower quantities. Apart from yam and cassava with yields within the range 12-14 MT/ha, the other commodities yields range between 1.2-1.6 MT/ha. There are low values especially for rice, maize and soybean, when compared with average yields of other districts (Www.ghanalinks.org, 2017).

The study is a case study and explored two communities in the district, and due to time allocated to this study and the context (Master's thesis) in which the study is being conducted, the researcher conveniently sampled the villages of Bole and Mandari as the sites for the study . The two communities were selected because they share similar characteristics including shared cultural practices and believes such as festivals (i.e. Yam festival and Damba). The two communities are part of the communities with stunted children in northern Ghana and have benefited from some interventions (including nutrition and income generation interventions) by GoG and its partners. Besides their proximity to each other, they share many other similarities including growing and eating the same food and speaking the same languages (Gonja, Vagla and Safalba). They have a combined estimated population of 12,000 (Www.ghanalinks.org, 2017).

To pave the way for the research, in Bole, the research assistant contacted the respective assembly men (local Political leaders) to inform them about the purpose and aims of the study and to solicit community buy-in. The community entry was followed by a visit to the Bole District Hospital for a discussion/interview with the nutritionist regarding the stunting situation of the district. The research assistant also visited the postnatal clinic to interview the nurse in charge about the nutritional status of children under five and to seek information (contact) about women with children under five. This information was used together with the snowball sampling technique as indicated below to get respondents. In addition to the household with children under five, an NGO worker and some religious leaders in Bole were located and visited for interviews.

The second phase of the data collection was at Mandari. Given the relatively small size of the community, and by way of community entry, the Chief ; Safali-Naa Kafinti II together with the assembly man to inform them about the study i.e. (purpose and objectives) and in the process solicit community buy-in. Permission of the Chief was sought to interview the chief priest (traditional leader). Further steps were taken to meet with the community health worker stationed in the community clinic as well as households with children under five to administer interviews.

At the end of the data collection process, the assembly men in both communities and the Chief of Mandari were visited to observe the community exit protocols. The chief of Mandari, the assembly men in both communities and other key informants were all given letters of appreciation. Households (HHs) whose views were sought were also given a token not exceeding GHC 5 in value as a token of appreciation.

3.4. Sampling and Data Collection

3.4.1 Sampling

A total of 43 respondents were purposively sampled. These respondents included lactating mothers/ caregivers, professionals in the field of health and nutrition community members (men & women) and religious and traditional leaders. This eclectic group of respondents provided the much required information to materialize the objectives of the study.

The number 43 was picked because it is captures both insider and outsider views in the community with a diverse group of people who have a role to play to reduce stunting in the community and to have a true representation of the two communities to give a balance information to the study.

To facilitate the identification of respondents for the household (HH) interviews and focus group discussions (FGDs), the researcher adopted the snowball sampling technique where respondents referred the researcher to other potential respondents they knew or met at antenatal or postnatal health facilities for lactating mothers and caregivers including men. Two focus groups (FGs) were conducted with six members for each group i.e. equal number of men and women since the researcher wanted to obtain views of both genders for the study. six key informants were also interviewed in this research because of the wealth of knowledge they possess in the subject area. .

Table 3 Research participants

Category		**Number of participants**
HH respondents	Lactating mothers and women with children under 5 years.	25
Focus group discussions	2 FGDs with 6 members each	12
Key informants	Community Health workers	1
	Nutrition officer	1
	NGO workers	1
	Traditional leaders	1
	Religious leaders	2
Total		**43**

Source: Author own depiction, 2020

3.4.2 Data collection

As regards data collection, a mixture of participatory tools, observation and literature review was used. These tools included open ended questionnaire interviews, focus group discussions, key informant interviews, observation and review of secondary data. The idea behind the use of such participatory methods of data collection was to provide the community an opportunity to share their knowledge and deliberate more on the cultural practices (dietary taboos) that exist. Additionally, due to the homogeneous nature of the community, interviews provide more in-depth information relevant to the study.

The review of secondary data on stunting was to bring vital information on similar work done which gave the researcher, the information to compare when analysing primary data that was collected from the field. Both governmental and non-governmental bodies in the district were contacted for information which was relevant to the study. The above mixed participatory tools were used to ensure that the researcher was able to triangulate the sources of information to make the study rich. Data on stunting in children was sourced from the hospital in Bole and the clinic in Mandari.

Questions on the prevalence of exclusive breastfeeding and dietary diversity for children under-5 were asked to lactating mothers/caregivers because they are the primary care givers (PCGs) and responsible for food preparation in households. The questions on a women's dietary diversity score were asked to the lactating mothers to determine the varieties of food they eat, using semi-structured

questionnaire. Lactating mothers were also asked questions on exclusive breastfeeding. There was an observation of the environment around the households to measure the hygienic situation, this included access to running pipe water, tank, public tap, borehole, river, etc. What kind of toilet the household use (inside/ outside toilet)? This was complemented by information from the focus group discussion and key informants.

Focus group discussions helped to answer sub-questions 2. What foods do children under five eat?, 3. What are the dietary taboos/cultural practices among the Gonja people in Bole (N/GH) that influence feeding of young children?, 4. What are the feeding practices of lactating mothers in Bole? and 5.What other factors contribute to stunting in Bole? The focus group discussions also helped to validate findings from the household interviews and extra information which was not captured by the household interviews while with Key informants helped to answer all sub-questions. The traditional leader and religious leaders responded to sub-question 3.What are the dietary taboos/cultural practices among the Gonja people in Bole (N/GH) that influence feeding of young children? and 5.What other factors contribute to stunting in Bole?. Information from FGD and key informants were compared to those collected from HH interviews for triangulation purpose.

Due to the fact that the researcher could not go to the field, data collection was done using two research assistants. The lead research assistant conducted the household interviews with lactating mothers and women with children under-five. He also arranged and conducted the two focus group discussions however, the researcher listened in and participated via WhatsApp. The second research assistant was involved in arrangements to meet respondents, recorded and took notes of the interviews. The researcher administered the interviews for the six key informants through the use of skype and WhatsApp calls where any of the two were applicable.

These research assistants were men who have worked with the researcher in a number of research works namely the baseline, midline and end line surveys of the feed the future project by USAID. They are experienced and reflected the views, values and attitudes of the researcher to do a good work. The lead researcher has a bachelor's degree in development studies from the University for Development Studies in WA in the upper west region of Ghana, and the second research assistant, also has a bachelor's degree in mechanical engineering (automobile option) from a technical university in HO in the Volta region of Ghana.

The research assistants spoke the language of the people of Bole and knew their way around the district due to the number of data collections they have participated in as enumerators. In addition to this, some funds were made available to enable them to stay and comfortably do a good job in the study area. Ensuring that the rules governing the regulations of the COVID19 were well adhered to, funds were made available to buy facemasks for all participants and ensured that the participants used them, the mandatory social distance of 1.5m was also observed strictly. Also, hand sanitizers and refreshments for participants were provided by the researcher.

3.5. Analysis of Data

Data analysis involved comparing results with those of other studies captured in the literature review. The research adopted the inductive thematic data analysis approach. With this method, the interviews from households, key informants and focus group discussions were subjected to an eight step process in order to enable the research answer the research question and all the sub-questions.

1. transcription of audio recordings from key informant and focus group interviews,
2. repeated reading was done to edit transcribed recordings and ensure all information is gathered
3. the edited transcripts were shared with participants for their input and verification
4. then, there was further reading to identify common codes,

5. another round of reading was done to put the identified codes under categories to form themes and sub-themes,
6. the analysis of the data was done beginning with describing the themes and sub-themes and supporting these themes and sub-themes with the narratives of the respondents,
7. then the themes and the codes were discussed based on what the respondents said and how the researcher viewed the issue and then backed it up with relevant literature and then,
8. interpretation of the data was done linking findings to literature review.

3.6. Ethical Consideration

The data collection procedure strictly adhered to the highest ethical standards as prescribed by the University ethical rules and regulations. The researcher took into consideration privacy issues, confidentiality and anonymity of respondents as well as the health and safety of the researcher and respondents (more so due to the COVID 19 Pandemic).

A disclaimer explaining the purpose of the research and a consent form was issued to all respondents. This disclaimer was to emphasize the fact that participation was voluntary. For respondents who were not be able to read and understand, the researcher read/translated it in their language of preference. All respondents were required to complete a consent form as documentary evidence of consent.

All the questionnaires and focus group discussions were administered/conducted in the language of preference of the respondents. Ample time was given to the respondents to explain their points in view of the topic for discussion and the researcher actively listened to collect reliable and relevant information.

The researcher ensured that Focus group discussions were participatory by creating an environment for the participants to freely share ensuring the sessions were not dominated by one participant in the group and encouraged other participants to talk.

Table 4 Summary of Research Method

Sub-question	**Data collection method**	**Tool used**	**Source of information**
1. What is the extent of stunting in children under 5 in Bole?	Key informant interviews,	Semi-structured questionnaire	1.Key informants (community health worker, nutritional officer and NGO worker)
2. What foods do children under 5 eat?	Key informant interviews, HH interview, FGD	Semi-structured questionnaire, CDDS	1.Key informants (community health worker, nutritional officer and NGO worker), 2.lactating mothers and mothers with children under-5
3. What are the dietary taboos/cultural practices among the Gonja people in Bole (N/GH) that influence feeding of young children?	Key informant , HH interview interviews, FGD	Semi-structured questionnaire	1.Key informants (community health worker, nutritional officer, NGO worker, traditional leader and religious leaders) 2.lactating mothers and mothers with children under-5

4. What are the feeding practices of lactating mothers in Bole?	Key informant interviews, HH interview, FGD	Semi-structured questionnaire, WDDS	1.Key informants (community health worker, nutritional officer and NGO worker), 2.lactating mothers and mothers with children under-5
5. What other factors contribute to stunting in Bole?	Key informant interviews, , HH interview, FGD	Semi-structured questionnaire	1.Key informants (community health worker, nutritional officer, NGO worker, traditional leader and religious leaders) 2.lactating mothers and mothers with children under-5

Source: Author own depiction, 2020

4. RESEARCH FINDINGS

4.0. Introduction

This section presents the research findings from the field based on the main research question (What is the contribution of food taboos to stunting in children under five years of age among the Gonja people in the Bole District of Northern Ghana) and associated sub-research questions. Field data was collected on behalf of the researcher by purposefully selected and trained research assistants in the Bole district of the Savanah region (Northern Ghana). The data spanned responses from six key informants, twenty-five household interviews and two focus group (six members each) discussions.

Demographic data of household respondents

The table below presents the demographic information on the household interviews conducted. The demographic data captures the age, education, occupation, religious background and marital status. Generally, the average age of the participants in each household is thirty-two years. This suggest that participants are relatively young. Find below a detailed description.

Table 5 Demographic information

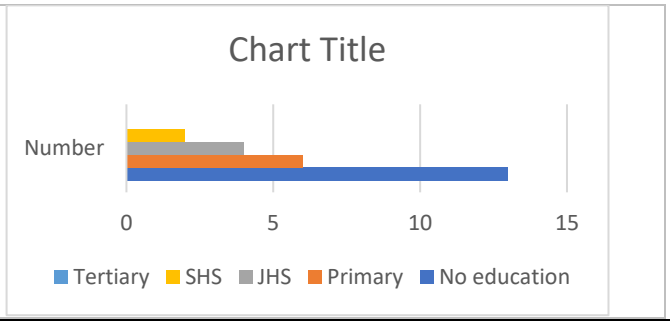
Respondent	***Age***	***Education level***	***Main occupation of the household respondent***	***Religious affiliation***	***Marital status***
001	26	No education	Trading	Muslim	Married
002	36	Senior High School	Gari processing	Muslim	Married
003	38	No education	Trading	Muslim	Married
004	36	Primary school	Trading	Traditionalist	Single
005	25	Primary school	No occupation	Muslim	Married
006	36	No education	Trading/farming	Christian	Single
007	40	No education	Trading	Muslim	Married
008	25	No education	Farming	Traditionalist	Married
009	41	No education	Trading	Christian	widowed
010	46	Primary school	Gari processing	Christian	Single
011	40	Senior High School	Farming	Christian	Married
012	24	Primary school	Trading	Christian	Married
013	30	Primary school	Farming	Muslim	Married
014	26	No education	Trading	Muslim	Married
015	35	Primary school	No occupation	Traditionalist	Single
016	21	Junior High School	Trading	Christian	Married
017	21	No education	Dress making	Muslim	Married
018	27	No education	Gari processing	Christian	Married
019	30	Junior High School	Trading	Christian	Married
020	41	Junior High School	Gari processing/Farming	Traditionalist	Single
021	37	Junior High School	Trading	Christian	Single
022	27	No education	Gari processing/farming	Muslim	Married
023	36	No education	No occupation	Muslim	Married
024	22	No education	No occupation	Muslim	Married
025	34	No education	No occupation	Muslim	Single

Source: Author own depiction, 2020

Education

The table and diagram on education show that the highest level attained by participants is senior high school education. This presupposes that participants are relatively uneducated. A consequence of low education is the inability to fully appreciate the nuances of healthy nutritional practices as studies (Chakonaa and Shackleton (2019) have shown.

Education Level	Number
No education	13
Primary	6
JHS	4
SHS	2
Tertiary	0
Total	25

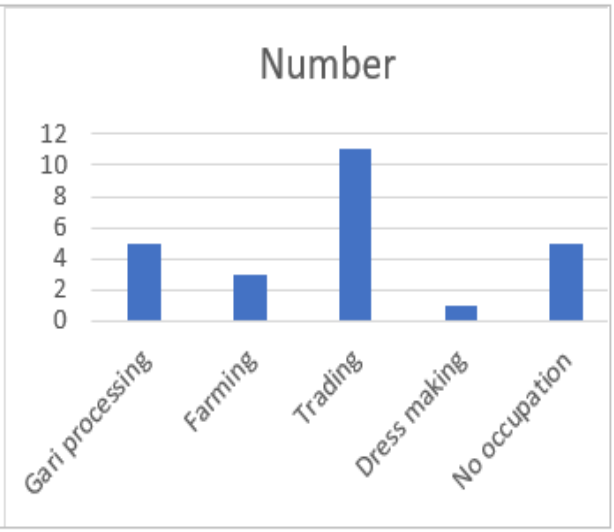


Source: Author own depiction, 2020

Occupation

As regards occupation of participants, whereas a total of eleven identified themselves as traders, nine identified with the following occupations: dress making (1); farming (3); gari processing (5). However five participants further identified themselves as unemployed.

Occupation	**Number**
Gari processing	5
Farming	3
Trading	11
Dress making	1
No occupation	5
Total	**25**

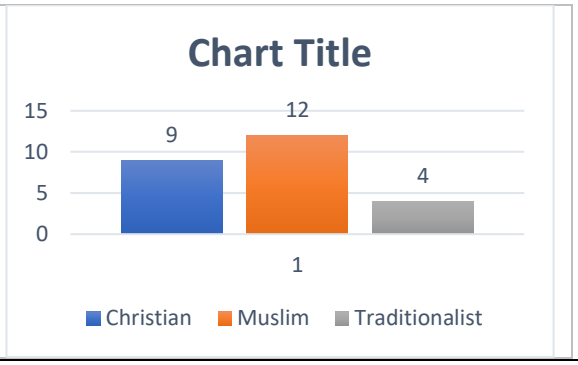


Source: Author own depiction, 2020

Religious background

As shown in the table and diagram below, participants are predominately Muslims although quite a significant number are Christians. This data is consistent with the general religious character of the Bole district. (Population and housing census (2010). Furthermore, this data is particularly telling as regards the link between religion and food choices. As espoused in the literature review section, various religions place restrictions on the consumption of certain food and food products. Islam for instance prohibits the consumption of pork (Meyer-Rochow, 2009). Thus as much as 48 % of the participant population refrain from the intake of pork.

Religion	Number	%
Christian	9	36
Muslim	12	48
Traditionalist	4	16
Total	**25**	**100**

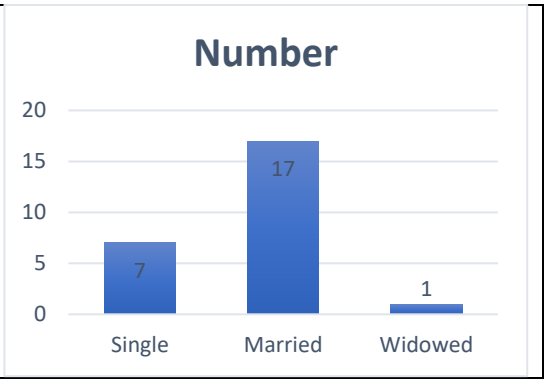


Source: Author own depiction, 2020

Marital status

Under marital status, the data shows that a vast majority (17) are married. Single mothers are (7) with only (1) widow.

Marital status	Number
Single	7
Married	17
Widowed	1
Total	**25**



Source: Author own depiction, 2020

4.1. Stunting situation in Bole

According to available data on stunting for Northern Ghana, the average frequency rates for stunted and severely stunted children are 31.1 percent and 15.4 percent, respectively (Guvele, C., et al., 2016; USAID/FTF Project, 2016). These rates however vary from one district to another. The study area

(Bole) for instance has 21.8 percent for stunted children and 9.2 percent children for severe stunted children under five years.

To gain in depth insights into the phenomenon of children under 5 stunting in the study area, the research assistants further sought the views of selected stakeholders including the district nutritionist, the community nurse and a non-governmental organisation (NGO official). In particular, the nutritionist reaffirmed the prevalence of stunting among children under five when asked about the prevalence of the phenomenon in the district. He noted that:

> *[---]Going round and delivering services we have seen cases of stunting in the Bole district, we know this, that's why we are carrying on interventions alongside, on exclusive breastfeeding for six months, continuous breastfeeding for two years together with appropriate and timely complementary feeding. There are mother support groups meant to support each other to address issues of child care. Along with training our staff got from UNICEF on infant and young children feeding to pass on to lactating mothers [---] (Nutritionist, KII).*

He however acknowledged in the following narration that the statistics and figures (measuring and recording) on stunting is a recent development in the district.

> *[---]We use not to take records on stunting so our for our routine data was basically on underweight. So we only measure underweight. it was just until some few months ago that they introduced the stunting part to our reporting forms. So you know with stunting, we need equipment like the infantometers, meter boards and other things and we are now receiving some from our reginal level, is about the equipment we will start doing that measurement. They have not yet added stunting to the child health record book. There is a chart they are developing which will help us easily measure stunting or move those who are seriously or mildly stunted onto these books so we can track them. So if we need data on stunting we carry survey or depend on Ghana Living Standard Survey (GLSS) and others. [---](nutritionist, KII)*

The following capture responses of key informants in the health r and the non-governmental organisation (world vision Ghana) sector, regarding stunting in the Bole district:

> *[---]There are stunted children in this district but I do not have data to show for this in this clinic maybe the district office in Bole can provide you the data[---](*community nurse, KII*).*

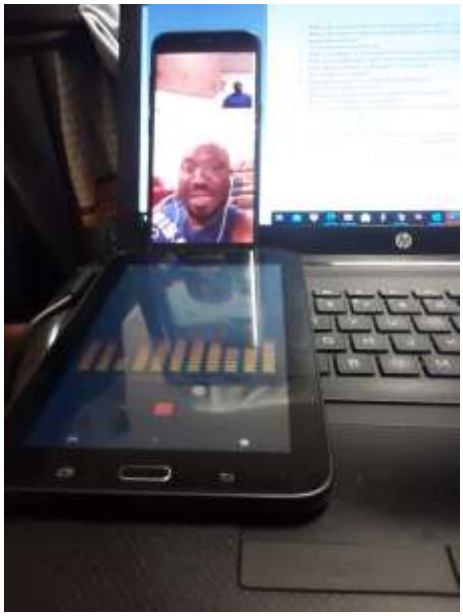
> *[---]There is a slight decline in stunting in northern Ghana because of the increase in production over the years, even with the decline there is still a bit of disparity but you will see that the northern part of Ghana still has the largest cases of stunting or is not doing so well, there are still nutritional issues in the northern part of Ghana. [---] Ngo official, KII).*

Echoing the views expressed by the district nutritionist in the narration that follow, the traditional leader noted that some children do not reach their fullest potential in growth

> *[---]Stunting is in this district for we have children who are not growing well , for families lack the required nutrients in their food they eat they usually cook without meat, fish or any form of protein at all.[---](traditional leader, KII).*

It is evident from the preceding responses and narrations that there are clear indications of child stunting in the Bole district. This phenomenon has been associated with several factors including poor sanitation, poor nutritional intake, sickness, etc.

Picture1: Photograph of a respondent in an interview session with key informant

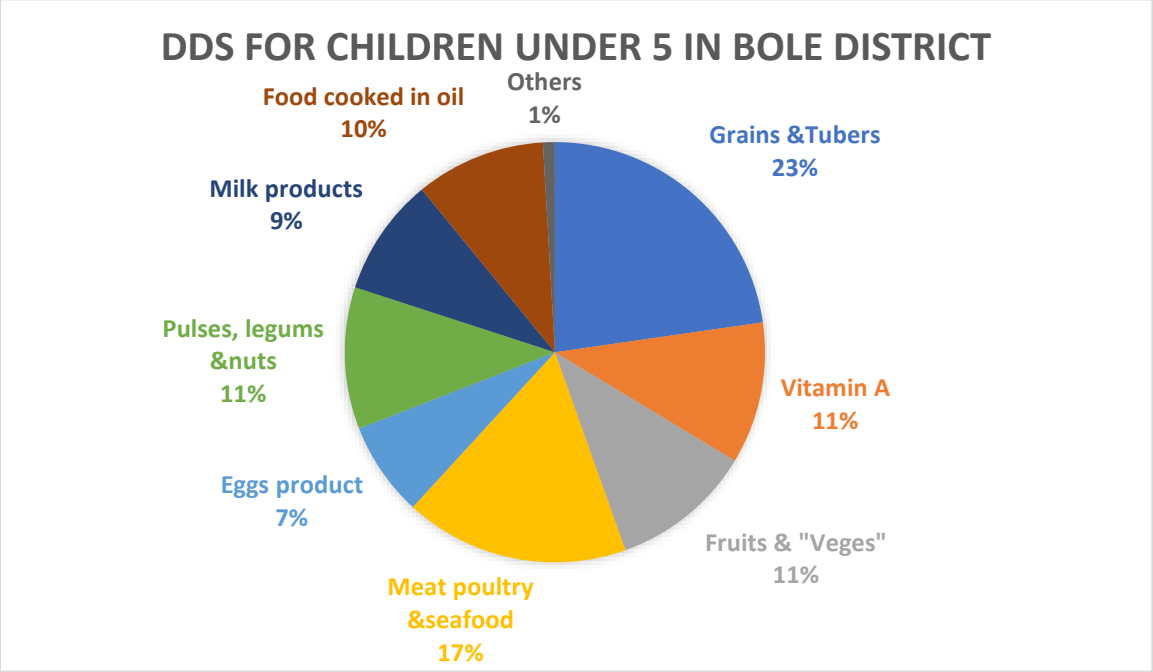


Source: author, 2020

4.2. Food Consumption situation of Children under Five

Regarding the types of food eaten by children under 5 years in the study area, the data obtained from household interviews involving lactating mothers/caregivers show that what children under five consume is contingent on the ability of parent to provide base of their level of income. However, children under five are fed predominantly with carbohydrate rich foods such as ‘‘fufu’’ (pounded yam), Tuo Zaafi (TZ) made from either millet or maize. Using the dietary diversity score (DDS) for children, 25% of the respondents indicated that children in Bole district eat Foods made from grains, roots and tubers; 12% said they feed their children with Vitamin A rich foods; 12% fruits and vegetables; 19% Meat, poultry, fish and seafoods; 8% Eggs and egg products; 12% pulses, legumes and nuts; 10% milk and milk products; 11% Foods cooked with oil/fats and the remaining 1% Others (not stated in the questions). This is captured graphically in the Pie Chart below.

Figure 5: DDS for children under 5 in Bole District



Source: Author own depiction, 2020

The foregoing both echoes and buttresses the assertion by World Vision that:

> *[---] the main crops that are grown and eaten in the northern part of Ghana as well as the Bole district is yam and maize which is their main staple and is carbohydrate based[---](Ngo, world vision official KII).*

This seemingly explains the predominant usage of grains and tubers to feed children in the study community.
Data from the field further show that the majority of children eat diverse food given that 18 out of the 25 households in the survey had lactating Mothers/caregivers who feed their children with more than five diverse foods.

Dietary Diversity Score for Children under Five

Using the eight food groups as a yardstick, a dietary diversity data was obtained from 25 children under 5 for this research in relation to the variety of foods eaten in the last **24**-hour period. The score was (**5.16 from a sum of 129**).

Table 6: Table showing DDS scores

DDS CHILDREN	SCORE
001 - 3 out of 8	3
002 - 5 out of 8	5
003 - 3 out of 8	3
004 - 2 out of 8	2
005 - 5 out of 8	5
006 - 7 out of 8	7
007 - 5 out of 8	5
008 - 6 out of 8	6
009 - 5 out of 8	5
010 - 8 out of 8	8
011 - 5 out of 8	5
012 - 1 out of 8	1
013 - 7 out of 8	7
014 - 8 out of 8	8
015 - 4 out of 8	4
016 - 6 out of 8	6
017 - 6 out of 8	6
018 - 4 out of 8	4
019 - 7 out of 8	7
020 - 5 out of 8	5
021 - 7 out of 8	7
022 - 6 out of 8	6
023 - 3 out of 8	3
024 - 5 out of 8	5
O25 -7 out of 8	7
	129
DDS Children	**5.16**

Source: Author own depiction, 2020

DDS: 129/25 = 5.16

The dietary diversity score is obtained by dividing the total number of variety of foods consumed by children by the total number of households. The score shows that on average a child eats five diverse food on the DDS. This presupposes that children are at a low risk of stunting. However, analyzing the data based on individual households shows that 28% of children are fed less diverse foods on the DDS and therefore may be predisposed to stunting and related developmental challenges.

Note that the average DDS of 5.16 suggest that the children in the study area eat relatively well. This could be explain the lower rate of stunting in Bole as compared to other areas in the region. This high DDS could be an indication that the interventions by Government and its development partners are yielding results in the study area. However the persistence of stunting could be an indication on the need for interventions targeted at factors other than dietary diversity.

Picture 2: Photograph of research assistant interviewing respondent in a household

Source: author, 2020

Exclusive Breast Feeding

During the field research, data was also collected on exclusive breast feeding. According to the data, Out of 25 households, 19 lactating mothers practiced exclusive breastfeeding for 6 months without supplementary food or water and continued to breastfeed for up to 2 years and more. These mothers/care givers received training and help from the health facilities. As the district health nutritionist noted:

> [---]*Lactating mothers and care givers are given training and help when they visit the health centers, they also have mother support groups to provider help to lactating mother and caregivers when they need help. A lot of work has been done in respect of breastfeeding and I will be surprise if lactating mothers say they have no information when it comes to breastfeeding. For both men and women have been trained to care for their children, especially the men to help their wives with the upbringing of their children [---](nutritionist, KII).*

During the interviews and the focus group discussions, one mother had this to say about exclusive breast feeding and the training they have been given:

> *[…] I had to stop breastfeeding my child at 26 months because of the hard work I do on the farm so I can leave my child behind to work for I cannot combine childcare with farm work. But we get a lot of training when we visit the clinics on breastfeeding and ways to prepare good food for our children for them to grow well and healthy [---] (focus group discussion) (004 HHI).*

Picture 3: Photograph of research assistant interviewing a lactating mother breastfeeding

Source: author, 2020

4.3. Taboos/Cultural Practices Influencing the Feeding of Children under Five

Regarding taboos, the following categories of taboos were identified: Islamic taboos, Christian taboos, African Traditional taboos, Clan taboos, and Personal taboos. See a summary of these below.

Table 7: Category of taboos

Taboo	Christian	Muslim	Traditionalist	Personal/ traditional healer prescribed	Clan
Pork		✓			
Blood	✓	✓			
Rabbit			✓		
Bush rat					✓
Python					✓
Red monkey			✓		
Dog		✓		✓	
Cat		✓			
Meat scarified to gods	✓	✓			
Un-slaughtered animals	✓	✓			
donkey		✓			
Lizard			✓		
Cat fish			✓		
Egg,	✓	✓	✓		
Duck eggs			✓		

Squirrel			✓		
Dove				✓	
Bat			✓		
Rabbit					✓
Funeral food/ food offed to gods	✓	✓			
New yams	✓	✓	✓		
Crocodile					✓
Chicken				✓	
Milk				√	

Source: Author own depiction, 2020

Comparing the religious demography with the taboos observed, it is evident that all sections of the society observe one form of taboo or the other. These taboos can be either permanent or temporal. For instance taboos based on the dictates of the traditional healer are often temporal and coterminous with the period of ailment while taboos observed by Christians and Muslims are often permanent. i.e. consumption of pork in Islam; consumption of Un-slaughtered animals in Christianity.

Furthermore, participants in every category of the data collection process identified many taboos and cultural practices that influence the feeding practices of children under five. For instance, although not specific to children, the practice of parents/guardians taking children with various maladies to traditional healers for treatments have been found to be common in the area. Usually, depending on the kind of malady, parents may be asked to refrain from feeding their children certain foods types. These foods may include (but not limited to) protein rich foods such as eggs, meat and meat products of some animals. A careful study of the table above shows that almost all the taboos are protein based except new yams and meals (Funeral food/ food offed to gods) the rest are meat which protein based.

Additionally, clan based taboos were also identified by participants including 15 lactating mothers/caregivers, traditional leaders and Christian leadership as an impediment to the feeding dynamics of children under five. Clan based taboos are taboos that forbid members of a certain clan in the District from consuming certain foods and animal products because it is either a clan totem or believed to have helped an ancestor(s) in the past and therefore cannot be consumed by members of the clan (including children).

The data also reveal that some foods and animal products are taboos for children because of the fear that children may develop bad behaviours growing up when they consume such foods and animal products.

Furthermore, religious affiliation was identified as a factor that has an influence on what is considered appropriate for consumption. Such religious restrictions invariably affect what children are allowed to consume. This is captured in the following participants' responses:

> *[---]some cultural practices are put in place to put fear in the children, for example children are not allowed to eat eggs because they may go stealing eggs which are meant to hatch into chicks Also some people taboo food because of sicknesses and due to the lineage/clan you belong to or come from, these taboos are transferred down from their four fathers to fathers to sons and also to their children also people are given some treatments for their sicknesses and are asked not to eat some foods based on the type of treatment given to them, these include goat, chicken, local oil (shea-butter) and that when any of these is used to prepare food some people are asked to avoid them for the fact that they went in of treatments to cure their ailments on the direction of the traditional healer or doctor [---] (traditional leader, KII).*

[---] there is a group or a section in this village called the kupos who are not allowed to eat a bush animal which is in this village called (kuuui) and a fruit called (cancane) or fake fruit for there is a story behind this which is that, their ancestor once got lost in the bush in a big hole and could not come home. And in the hole this animal dug a hole and he saw light and enlarged the hole showing him the way home and he saw the fruit and eat it which saved his life and when he got home he instructed the whole group to avoid eating the animal and that fruit her eat that which saved his life. And this is the clan taboo [---] (traditional leader, KII).

[---] parents who go in for some magical power for his own protection and are asked to avoid some food, will do not feed the food to their children [---] (traditional leader, KII).

Similarly, religious leaders and clerics of the Islamic and Christian communities who were interviewed noted:

[---] Muslims avoid pork, cat, dog, monkey, animals that have not been killed according to Islamic principles alcohol when you do not avoid these foods you are not considered a good Muslim [---](Muslim leader, KII).

[---] Christians are to avoid foods that are offered to gods, animal flesh sacrificed to the gods and used as a sacrifice to perform a funeral of a dead person, they also avoid blood of animals and flesh of an animal they do not know how it was killed[---](Christian leader, KII).

[---]The taboos are fading out due to the education and religious affiliations such as Christianity and Islam. [---](Christian leader, KII).

Ironically, these prohibited protein rich foods are much needed in early childhood to support rapidly developing tissues and organs and to facilitate overall quantitative and qualitative growth and development.

[---] I and my household visit the traditional healer when we are sick, when am pregnant especially when the children are not feeling well, for there are conditions the hospital cannot handle but the traditional healer can they use herbs in their treatment[---](006, HHI).

When asked about the possible negative impact of the observance of these food taboos, the respondents were unanimous in arguing that people had at their disposal equally nutritious substitute. Note the following responses:

[…] I don't think if you avoid eating goat because you have been asked to avoid it by a traditional healer can lead to stunting in children this is because they can eat fish or any protein based food[…](nutritionist, KII)

[…] when we avoid the eating of the animals we taboo as Muslims, there are substitutes such as cow and goat and other animals we do not taboo […] (Muslim leader, KII).

[…] people who observe these taboos are only prohibited from eating a limited number of foods. Therefore, they are free eat other equally nutritious food. (Traditional leader, KII)

The availability of equally nutritious substitutes suggest that the mere observance of the taboos is not the major driving factor of stunting in the area.

Picture 4: Photographs of a focus group discussion in Mandari

Source: author, 2020

4.4. Feeding Practices of Lactating Mothers

Dietary Diversity Score for Lactating Mothers

Given the seeming positive relationship between how the mother feeds and the development of the child through breast feeding, the study conducted a dietary diversity test for lactating mothers in relation to the variety of foods eaten within the last **24**-hour period using 12 food groups as a yardstick. The score was (**7.76 from a sum of 194**) this was done among 25 lactating mothers.

Table 5: DDS scores for lactating mothers

DDS L MOTHERS	SCORE	DDS L MOTHERS	SCORE
001 - 02 out of 12	2	013 - 11 out of 12	11
002 - 08 out of 12	8	014 - 10 out of 12	10
003 - 07 out of 12	7	015 - 05 out of 12	10
004 - 07 out of 12	7	016 - 09 out of 12	6
005 - 07 out of 12	7	017 - 10 out of 12	9
006 - 09 out of 12	9	018 - 06 out of 12	6
007 - 06 out of 12	6	019 - 09 out of 12	7
008 - 10 out of 12	10	020 - 06 out of 12	4
009 - 09 out of 12	9	021 - 07 out of 12	6
010 - 12 out of 12	12	022 - 04 out of 12	3
011 - 12 out of 12	12	023 - 06 out of 12	7
012 - 12 out of 12	12	024 - 03 out of 12	3
		025 - 07 out of 12	7
Sum of DDS			**194**
DDS Mothers			**7.76**

Source: Author own depiction, 2020

The research shows that 21 respondents consumed other foods such as condiments, coffee, tea; 17 said they consumed sugar or honey; 18 indicated they had foods made with/from oil, fat, or butter, cheese, yogurt, milk or other milk products; 11 had foods made from beans, peas, lentils, or nuts; 15 consumed fresh or dried fish or shellfish; 16 respondents indicated they consumed eggs; 5 indicated consuming beef, pork, lamb, goat, rabbit, wild game, chicken, duck, or other birds, liver, kidney, heart, or other organ meats; 16 had fruits; 15 consumed vegetables; 20 had potatoes, yams, manioc, cassava or any other foods made from roots or tubers; 20 respondents indicated consuming local foods or foods made from grains . Thus, on the average, 22 lactating mothers consumed more diverse foods on the DDS and therefore, an indication that lactating mothers are feeding well. Considering the relationship between what lactating mothers consume and the breast milk produced thereof to feed their children, this signifies a sense of awareness on the need for a balanced meal especially during lactation. Although in the minority, the study shows that at least, three lactating mothers did not diversify or vary what they consume.

4.5. Contributory Factors to Stunting in Bole

The findings show a seeming positive association between low educational level of lactating mothers/caregivers and childhood stunting. For instance, it was observed that most of the children appeared to be smaller than the usual for their ages. Additionally, it was noticed that the children of respondents with no education and those with only primary education tended to be relatively smaller as compared to children of those who attended Junior High school and Senior High School. Although further research may be required to either confirm or fully appreciate the nuances of this association, it was noticed that the majority of respondents in this category had either Junior High School education or lower. This variable seemed to be the most obvious characteristic that remained constant among this category of respondents. This observation is echoed in the sentiment expressed by an officer of World Vision:

> *[---] there was a link between the educational level of the lactating mother or caregiver and how well the child is cared for they sometime lack the knowledge on the best and proper ways of caring for their children as compared to educated women[---](Ngo, world vision official KII).*

In addition, the interviews with official(s) of World Vision, the district nutritionist and community health nurses reveal that there appears to be a widespread inadequate (low) consumption of vegetables in the Bole district. This phenomenon has potentially been attributed to either disinterest or ignorance and the long dry season which often makes it difficult to grow vegetables all year.

As the district nutritionist rightly indicated:

> *[---] you know people in this district are not into vegetable production and so they do not have these good vegetable needed for the proper growth of these children all year round [---] (nutritionist, KII).*

Furthermore, poor hygiene coupled with poor maternal care are potential contributory factors to stunting in the Bole. These findings have been made based on the overall observation of household environment in relation to wash indicators. The results showed that of the respondents interviewed, 20 lived in unhygienic surrounding with 24 practicing open defecation. Additionally, all 25 had no hand wash stations. Poor handling of water for domestic use was also identified as a potential contributory to stunting in the district. Also, poor maternal care was identified as a potential contributory factor to stunting in the Bole district. It was noted that mothers/caregivers did not take their care duties seriously considering that children often ingest various objects or items (including fecal matter, clay, sand, etc.) within reach . Respondents including the nutritionist and household respondents indicated

that children under five often ingest foreign materials which in many occasions jeopardize their health and wellbeing. The implications of ingesting foreign and unhealthy materials into the body is rightly captured in the response of the district nutritionist:

> *[---] water hygiene and sanitation you know has a relation with the nutrition statues of a child , it has been identified that hygiene issues especially with children when they come into contact with animal droppings of fecal matter and they ingest then for poor care parents. They can develop environmental empirical dysfunction (EED) when they are within the gats it affects and impair growth of children leading to stunting and other things[---](nutritionist, KII).*

The prevalence of hygiene related diseases like diarrhoea, skin infections, body lice, ringworm and tooth decay in the area highlight the negative consequence of the poor hygiene and poor maternal care practices. Note the following extract from the interview with the traditional leader.

> *[…] These days the women no longer pay attention to the housekeeping. Because of that our children are often sick of, diarrhoea, skin infections, body lice and tooth decay. (Traditional leader)*

Picture 5: Photographs showing a clean household environment

Source: author, 2020

***Picture 6*: Photographs showing an unclean household environment**

Source: author, 2020

Perhaps, for reasons associated with affordability and accessibility, heavily concentrated carbohydrate foods (including ‘‘Tuo Zaafi (T.Z.), Yam’’ etc.) seem to be the staple food for many residents of the district. Thus, for the aforementioned reasons and more, daily access to a healthy and well balanced seem to be a constant struggle for the majority of residents of the district.

Again, at least seven households associated contaminated ‘‘bad’’ breast milk with stunting. This assertion is captured in the following narration:

> *[---]when a woman gives birth she is made to breastfeed her baby for some time and if it is observed that the child is not developing as expected, a test is carried out to know the reason for this poor development of the baby, so breast milk is expressed from the mother and a live ant is put in the milk, if the ant is able to make it out then the milk is good but if the ant dies in the process the milk is coincided as bad milk [---](focus group interview, KII).*
>
> *[---] I do not know what bad breastmilk is I actually have no idea what the women are talking about, what I know that is no more a cultural practice is the expression of the colostrum from the lactating mothers breast for it was conceded to be bad for child’s consumption[---](nutritionist, KII).*

Bad breastmilk is when the mother’s breast milk is not able to support the proper development of children. But this is a traditional believe which has no scientific explanation to back it, and the district nutritionist could not confirm what it was.

Seven respondents (mothers/caregivers) linked maladies such as diarrhea and malaria to stunting in the district**.** This is captured in the following response:

> *[---] when the children frequently fall sick they do not grow properly this what I have seen in this district for many years now [---] (015HHI).*

However, in an attempt to minimize the phenomenon of stunting in the Bole district, there have been targeted interventions in the areas of nutrition, income generation, education and water, sanitation and hygiene (WASH) by both governmental and non-governmental institutions. For instance, government’s policy on ‘‘Rearing for Food and Jobs’’ and Global Communities’ (Non-governmental

organisations) distribution of WASH materials to residents are cases in point. As some participants rightly noted:

> *[---]I received sheep from government to multiply in the rearing for food and jobs program. [---](Traditional leader, KII).*

> *[---] Global communities have developed social behavioral change (SBC) material trying to also address stunting from the water, sanitation and hygiene point using volunteers to educate and train households[---](nutritionist, KII).*

Picture 7: Photographs showing research assistant interviewing lactating mothers in Bole

Source: author, 2020

4.6. Nutrition Interventions

Regarding interventions, there have been some programs instituted by the Government and some Non- Governmental Organisation (NGO) in the Bole District with the aim to improve nutrition of children, enhance income generation activities and general hygiene in the area. For instance, the water, sanitation and hygiene (WASH) program was initiated by Global communities and NGO to educate inhabitants of the Bole District on water, hygiene and sanitation issues. According to the nutritionist:

> *[---]Global communities have developed social behavioral change (SBC) material trying to also address stunting from the water, sanitation and hygiene point using volunteers to educate and train households[---](nutritionist, KII).*

Unfortunately, despite the efforts towards the improvement of hygiene in the district, it appears more needs to be done on this front as many inhabitants still do not practice the WASH protocols.

Also, the Government of Ghana instituted the rearing for food and jobs program as a means of enhancing income generation activities. By this program farmers:

> *[---] received sheep from government to multiply in the rearing for food and jobs program. (Traditional leader, KII).*

Despite the good intensions of this program, it appears to be failing to significantly impact the economy of the community as most of the animals have since died.

The Government also instituted the school feeding program that provides food to school children. This program was meant to supplement food provided at home and improve schoolchildren's food intake. The relatively low prevalence of stunting in the Bole District as compared to other areas in the Northern Region is an indication that the program is having a positive impact in the district.

5. DISCUSSIONS OF FINDINGS

5.0. Introduction

This part discusses the findings (presented above) of the study in relation to the research question(s) and the corresponding relevant literature.

5.1. Stunting situation in Bole

The findings of the study reveal that stunting is a widespread phenomenon in the Bole district. This finding is seemingly unanimous across respondent categories including the district nutritionist, traditional and religious leaders and World Vision official(s). This prevalence of stunting is against the backdrop of the implementation of several interventions by both the Government and Non-Governmental organisations. This prevalence of stunting is symptomatic that the interventions or some of the interventions are not achieving their intended purposes. For instance, while the DDS for both lactating mothers and their children indicate that at least the interventions that focus on educating parents on the need for a balanced diet seem to achieving their aim, those targeted at hygiene and sanitation seem not to be achieving the intended purposes. A possible reason for the ineffectiveness of these interventions in Bole could be the top down approach to the conceptualization and implementation of these policies. A possible way out will be to design community specific (tailor maid solutions) approaches to effectively dealing with these challenges.

5.2. What foods do children Under 5 Eat in Bole?

The data suggest that children in the district are generally fed with varied kinds of food. The DDS of an average of five (5), generally indicates a low risk of stunting amongst children in the study area. However, because children in the district are predominantly fed with carbohydrate based foods, they tend to miss out on some essential nutrients thus resulting in stunting. As will be shown in section 5.4, there is a surprisingly significant difference in DDS for lactating mothers and their children. This statistic is significant because of the fact that mothers tend to feed their children with what they eat. See section 5.4 for details.

5.3. Taboos/cultural practices influencing feeding of under 5 children

Based on the findings from the discussions with respondents vis-à-vis the social-cultural factors, it is the view of this study that even though food taboo exist in the area, these taboos tend to be based on individual religious beliefs (Christian, Muslim and Traditionalist). The existence of this taboo is linked with the strong connection with the religions they belong to. Consequently, people tend to only avoid foods prescribed by their religious believes. This is similar to the findings of Alhersan (2011) and Giyanti and Indriastiningsih, 2019).

Also, as noted in the findings, the scope of products that are prohibited by the taboos seem to be limited. This thus means the availability of substitutes for the prohibited foods. For instance, although Muslims taboo pork, they are allowed to consume the goat, sheep, cattle etc. Even in cases where the taboo is at the instance of traditional healers, they tend to be limited in scope and thus allowing for the consumption of substitutes.

Also because most of the taboos are animal-derived proteins, there is the option to consume plant based proteins from crops such as soybeans. This suggests that although taboos could potentially influence stunting it is not the main course of stunting in the Bole district because of the availability of equally nutritious substitutes.

Thus although this work confirms the finding of Akosah-Sarpong, and Kofi (2007) and Alonso (2015) about the prevalence of cultural practices concerning food utilisation in that the northern part of the, it is the view of this study that food taboos/cultural practices in Bole district has very little to do with the stunting situation.

5.4. What are the feeding practices of lactating mothers in Bole?

The data suggest that lactating mothers in the area are generally well fed. Given the correlation between the feeding practices of the lactating mothers and the quality of milk produced (Chakona and Shackleton, 2019), it is appropriate to posit the availability of good quality breast milk for the proper nourishment and development of the children. This could partly account for the relative low levels of stunting in the Bole District as compared to other districts in the region. This also suggest that the feeding practices of the lactating mothers is not a major diver of stunting in the area.

A comparison of the DDS for children (5.16) to that of lactating mothers (7.76) show a significant mismatch. This is particularly significant because children are usually fed what their parents eat thus the expectation of similar values for DDS. The significant difference in DDS values could be attributed to other factors such as child food preferences as opposed to what is available. Another factor for this disparity could be due to recall challenges on the part of mothers. Also, also, the difference in DDS of the children and lactating mothers could be attributed to the inability of the mothers to pay attention to the feeding needs of their children owing to their busy schedules.

5.5. Contributory factors to stunting in Bole

There are a number of factors that may contribute to stunting in the area. There include all the following:

5.5.1. Low level of education

Notable among these factors that contribute to stunting in the area is education. As indicated by the UNICEF framework and also by Mogre, Dery and Gaa, (2016), education plays an important role in the successful care of children under five. For instance, the practice of exclusive breastfeeding is influenced by maternal knowledge and attitude as well as their educational levels. Generally, the effect of the low levels of education was reflected by the fact that the children in the study area appeared to be smaller than the usual for their ages. Further evidence of the impact of education of child care was in the fact that the children of respondents with no education and those with only primary education tended to be relatively smaller as compared to children of those. This this points to a correlation between level of education and child care. This is consistent with the findings of Binagwaho et.al. (2020) who found that in Rwanda, childhood stunting rate was meaningfully less among families with mothers who attained higher levels of education than low educated mothers. This study thus views education as a major determinant of childhood stunting in the Bole district. This finding is different from the findings of Chakona and Shackleton's (2019) found no significant difference in the level of education and socio-economic status of women who adhered and those who failed to adhere training on child care.

5.5.2. Poor hygiene and poor maternal care

As indicated in the previous section, the vast majority of the households showed poor hygiene and poor maternal care. The poor adherence to the WASH protocols together with the inadequate child care exposed children various health risk and this was manifested in the prevalence of hygiene related

diseases like diarrhoea, skin infections, body lice, ringworm and tooth decay. It is the view of this study that the prevalence of stunting in the Bole District is directly linked to the poor hygiene and poor maternal care. This is in line with the UNICEF framework which notes the underlying causes of stunting to include an unhealthy environment in households. This is similar to the findings of De Groot et al., (2020) who assert that underlying causes of malnutrition include lack of food, poor care practices.

5.5.3. Low intake of vegetables

It was also identified that there was low intake of vegetables coupled with a high consumption of carbohydrate based foods in the district. This low intake of vegetable deprived children the much needed micronutrients for the development of the body and the protection from diseases. This study posits this to be one of the important factors contributing to the prevalence of stunting in the study area. The low patronage of vegetables has been further perpetuated by the over reliance on rain fed agriculture. This reality requires that efforts be made to encourage the year round cultivation of vegetable to make then both available and affordable.

5.5.4. High poverty rate

The northern region is among the three poorest regions in Ghana (poverty rate of 52% in 2005/2006) (Chagomoka et al., 2018). This is linked with inadequate intake of food as immediate cause of stunting in children under five (UNICEF framework). The savanna belt where northern region is located has a short rainy season resulting in three to five months period of poverty and hunger as farmers are not able to grow enough crops to last a whole year (Glover-Amengor et al., 2016). The study argues that there is a correlation between this poverty and stunting.

5.5.5. Bad" breast Milk

Another contributing factor to the prevalence of stunting is the phenomenon of "bad" breast milk which often leads to an early truncation of the (WHO) & (UNICEF) recommend exclusive breastfeeding for the first 6 months and complementary breastfeeding for 2 years and beyond. Although the exact nature of this phenomenon of "bad" breast milk is not discussed in this study, it nonetheless is a major driver of childhood stunting as it deprives the child of the needed nutrients, including vitamins and minerals. Due to the importance of breastfeeding to the health and wellbeing of children under five years terminating breastfeeding due to the "bad breast milk" deprives child of all this benefits thus making it another course of stunting in the district.

5.6 Reflection on my role as a researcher

5.6.1. Reflection on the Research Process and Methodology

This section is a reflection on the process of conducting this research on the "Impact of food taboos on the diet of children under-five in Northern Ghana: A case study of the Gonja people of the Bole District". The section enumerates my personal experience and role as a lead researcher and that of my research assistants which made this study possible.

The choice of the topic was a result of a long period of sober reflection and extensive literature review on the nutritional state of Ghanaian children which pointed to a high prevalence rate of stunting amongst Ghanaian children under-five especially in Northern Ghana. Consequently, I set out to

conduct this research with the aim of recommending appropriate intervention to policy makers. Due to the vast nature of the Northern Regions, the time factor, budgetary constraints amongst other reasons, I on the basis of a convenient sampling technique amongst other factors selected the Bole District for the study area. After a challenging pitch session and a rigorous period of proposal development (with guidance by my supervisor) the topic was approved and all set for the data collection.

I was enthusiastic about going back to Ghana to conduct the field work and also apply the theories learned during my study at VHL. Unfortunately, due to the outbreak of the COVID-19 and subsequent closure of the Ghanaian borders, I was unable to embark on the field work. The reality of the times meant I had to adopt creative and innovative methods of collecting the data in absentia. Consequently I sought the services of a research assistants who lead the data collection process on my behalf. The main drawback of the use of the research assistants was that it deprived me the opportunity to ask follow-up questions and clarifications.

To ensure the quality of the data collection, I had a Skype training session with the assistants where I took them through how to administer the instrument to reflect my ideals and requirements of this study. I also ensured that I joined the data collection process via WhatsApp and Facebook video calls. This allowed me to monitor the process in real time and also make interventions when needed.

Although the research process was generally smooth, there were a few challenges. For instance, the start of the data collection was delayed because my trained research assistants who had agreed to conduct the data collection opted to engage in the more financially rewarding job of working as registration officers for Ghana's election 2020 registration exercise. This set me back two weeks as getting new assistance was practically problematic. To make up for the lost time, I requested for the daily transfer of the recording for transcription, cleaning and analysis. This allowed me to make quick follow up visits to the respondent.

Another significant challenge was in the area of getting data on stunting specific to Bole District as there were no records available at the hospital. Fortunately, the USAID-METSS made available data from a survey conducted in 2016.

The success of the research is credited mainly to my ability to explain clearly to the respondents the aims of the research. This reduced the level of suspicion that usually characterize such data collection processes. Also my status as a son of the soil meant that respondent were generally less suspicious of my intension and receptive.

On the whole, this period has been a very enlightening period for me. I believe the process has positioned me to be able to take up a research role anywhere I find myself.

5.6.2 Reflection on Quality

- Validity and Reliability

The study applied a validity dimension to help validate its findings. A semi-structured interview checklist was used as a discussion guide for data collection. This was adapted to take care of new developments that came up on the field during a pre-test (which was carried out in the study area). For instance, names of local foods eaten in the community were added to guide research assistants to present the dietary diversity score before actual data collection started.

To ensure triangulation, and a proper probing into the study area, interviews were carried out with household respondent and key informants. This was complimented by observations. Validation of the responses was done using a focus group discussions to agree or disagree and clarify the findings from the respondents. The researcher participated in these focus group discussions through WHATSAPP Video Call. Additionally, with minimal interruptions, two to three interviews were conducted each day to reduce interviewer error.

In spite of all the steps taken to ensure the data was valid, the process was hit with a number of biases. The number of respondents selected was not representative enough for the whole Bole District. A more representative sample could have added much information to the study. It is important however to add that this this not in any way take away the quality needed for this study as conclusion were made in respect of the number of respondent for the study.

The mention of food in question to respondents also introduced a level of bias to the study. Many respondents were motivated by their expectation of some food benefits. Because lead researcher's father is one of the local chiefs of the Bole District, many respondents were welcoming and offered responses to the questions asked. Respondents also trusted the research assistants due to lead researcher's affiliation to the district.

The study is reliable because it depended only on the responses from interviews with the targeted respondents. Thus the information is representative of the views of the respondents. The study is also reliable because participants the transcribed notes from the audio recordings were reviewed together with participants to verify their interpretive accuracy. The study is also reliable because of its replicability. That is, when the same instrument is applied to the study population at different times, the results will be same. Furthermore, as evident in the preceding section, images were taken for researcher verification to ensure the study items were being administered in the designated study locations.

- Limitations of the study

The research sample was identified as the first limitation. Due to time and funding constraints, the research adopted other sampling techniques other than the preferred representative sample of the entire population of the district.

Secondly, the network problems was another limitation of the study. This resulted in the rescheduling of interviews thus causing an inconvenience to respondents. Moreover, there were breakages in the network and some information from the Key Informants could have been missed.

Lastly, the conduct of the registration process for the 2020 general election in Ghana was also a limitation to this study as my research assistants were engaged in the registration of prospective voters thus further delaying the process of data collection.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

This study has examined the impact of food taboos on the diet of Children under Five in the Bole District in Northern Ghana. The study revealed that food taboos are still pervasive in the Bole district. These food taboos predominately regard animal and animal product and are based on clan membership, religious affiliations and for personal reasons. The study notes that the Bole District has benefited from various nutrition and hygiene interventions. The lower stunting rate in the Bole district as compared to other areas of Northern Ghana, presupposes that these interventions are having a positive impact on the district. However, the persistence of the problem is an indication of the need for more efforts especially in the area of hygiene.

Regarding the impact of food taboos on the diet of children under five, the study argues that the availability of equally nutritious substitutes available makes it untenable to sustain the argument that food taboos are the main driving force for stunting. Instead, the study implicates various variable including low level of education of lactating mothers/caregivers, poor observation of WASH protocols, low intake of vegetables vis-à-vis a high consumption of carbohydrate, poverty and the phenomenon of "bad breast milk" (which needs scientific explanation).

As indicated, the validity and reliability of this study are underpinned by the credibility dependability, conformability and transferability of the study. In particular, verifying the interpretive accuracy of responses with responses with ensure that the results reflect the views of the respondents.

6.2. Recommendations

This study makes the following recommendations to the Women in Agricultural Development (WIAD) under the Ministry of Food and Agriculture (MoFA) Bunkpurgu District in Northern Region of Ghana.

-Regular collection of data to monitor stunting

The regular collection and analysis of data on stunting will be important for monitor the effectiveness of nutrition intervention in the Bole District.

- **Multi sectorial nutrition base project implementation approach**

A multi-sectorial approach where WIAD identifies and partners with NGOs (including Action aid, Africare, Care Gulf Agriculture and natural Resources (CGGANR)) CARE International, Christian Relief Service, Fintrac, HarvestPlus, and the Presbyterian Agricultural Services Tamale) who work directly in the agricultural and local extension services to encourage and stimulate the production of vegetables in the dry season. This could take the form of supporting farmers with inputs such as seeds, pumping machines and loans to help them start the all year round vegetable cultivation. For example, Manadri (a community that the black Volter passes through) can be targeted and transformed into as a vegetable basket to feed the whole Bole District.

- Enhanced meals under the school feeding program

WIAD should recommend to Education Ministry's Inspectorate Division handling the school feeding program by the government to enhance their monitoring of the food providers to ensure the children are fed nutritious meals and also the incorporation of vegetables in meals of school children, especially for the younger children (2-5 years).

- Tailor-making the interventions to specific communities

The development of community specific approaches to the fight against stunting instead of the nation-wide implementation of programs is key to the fight against stunting.

-Re-institution of the sanitary inspectors program by the (community sanitation unit with support from NGOs implementing the WASH project)

As the study has established, poor sanitation is a part of the wider problem of inadequate household hygiene. Consequently, it is recommended that WIAD recommend to NGOs implementing the WASH projects (Ghana Water Access, Sanitation and Hygiene (GWASH) USAID) to collaborate with the Community Sanitation unit of the District Assembly in Bole District to as a matter of urgency reinstate the community sanitation inspections program and also empower them by passing and enforcing community bar-laws to identify and punish households who do not keep their environment clean. Simultaneously, the NGOs should be encouraged to reward communities which are clean with small incentives such as soap, salt etc.

6.3. Area of further research

"Bad breast milk" was a term lactating mothers/caregivers stated to be a reason for stunted growth in the district. It will be enlightening if future studies look into a more scientific explanation to the phenomenon in order to arrive at a solution.

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Appendix

Impact of Taboos on Diet of Children Under-5: A Case Study of the Gonja People of Northern Ghana Bole.

CHECKLIST FOR DATA COLLECTION

HOUSEHOLD INTERVIEW

CONSENT FORM

Instructions: Introduce respondent to the case study, and ask to speak to the mother or caregiver of all children under 5 years of age in the household. Obtain consent from the respondent by reading out the information in the informed consent below.

My name is ……., a Research Assistant working with Bodua Naa-Mango, who is a Master's candidate of the Department of Management of Development, Food and Nutrition Security at the Van Hall Larenstein University of Applied Sciences in the Netherlands. Thank you for the opportunity to speak with you.

I am assisting Naa-Mango to research about the impact of taboos on the diet of children under the age of five (5) of the Gonja people of northern Ghana, specifically the Bole District. This research is part of his academic work and is an essential requirement for the award of a Masters degree in Management of Development, Food and Nutrition Security.

You were randomly selected for this study, which targets mothers and caregivers of children below 5 years of age. You will be asked questions about your demographic information, the food your child ate the last 24 hours, some taboos and associated cultural practices relating to food and feeding of children under 5 years of age, as well as breastfeeding practices of mothers and caregivers. Your participation is entirely voluntary and if you choose to participate, you can choose to stop at any time, or skip any questions you do not want to answer. Your participation is important to this study, therefore, we shall record your answers and use them only for the purpose of this study. Your privacy is important to us. The information (including personal information) you will share with me will not be shared with anyone. Your responses would be kept confidential and your identity will be masked by using alpha-numeric codes that no one can understand except the researcher who directly collects and analyses the data. Be assured that any information that could be linked to you, such as your name will be removed even before the analysis is done.

Do you agree to participate in this research?

1. Yes…….
2. No……..

I, …….. (Name of Respondent) willingly accepts to take part in this research having understood the purpose of the research.

Signature/Thumbprint: ……

Section A: Demographic Information of Mothers and Caregivers

1. What is the age of the caregiver? _____
    1. (a) 16-25
    2. (b) 26-35
    3. (c) 36-45
    4. (d) 46-55
    5. (e) Over 55
2. What is the sex of the caregiver? 1 = Female; 2 = Male
3. What is the caregiver's primary occupation? Trading, Dressmaking, Farming, etc.
4. What is the highest education level attained by the caregiver?
    1. None (No education)
    2. Primary only
    3. JHS or Middle School Leaving Certificate (MSLC)
    4. SHS or GCE "O" Levels
    5. Post-Secondary (including Teacher Training, Vocational, Technical and other Diploma awarding institutions)
    6. Tertiary (Polytechnic, University and Post-graduate)
5. What is the marital status of the caregiver?
    1. Single
    2. Married
    3. Divorced
    4. Separated…….
6. What is the religion of the caregiver?
    1. Christian
    2. Muslim
    3. Traditional
7. How many children under 5 years of age do you care for? _____
8. Do you have biological children under 5 years of age?
    1. Yes
    2. No…….
9. How many biological children do you have? _____
10. List in the table below, the name, sex and age of all the children under 5 years of age under your care:

List of children under 5 years of age

Child No.	**Name of Child**	**Age**	**Sex**	**Status of child (1 = Biological Child) 2 = Non-biological child)**

SECTION B: Food consumption and dietary diversity information of children under 5 years of age

11. WHAT FOODS DO CHILDREN UNDER 5 EAT IN BOLE?

12.1 What types of foods do members of your household eat (circle all that apply)?

1. Food made from grains, roots and tubers;
2. Vitamin A rich plant foods
3. Other fruits and vegetables
4. Meat, poultry, fish and seafoods
5. Eggs and egg products
6. Pulses, legumes and nuts
7. Milk and milk products
8. Foods cooked in oil/fats
9. Others (not stated in any of the above

12.2 Do all children under 5 years of age share the common foods eaten by adults in the household?

1. Yes;
2. No

12.3 If No to question 12.2 above, what foods do children under-5 eat in this household? _____

12.4 Why do children under-5 eat these foods stated in question 12.3 above: _____

13. I would like to ask you about the types of foods that your children under five years of age ate yesterday during the day and at night time. Please complete the table for each child under five years of age in the household. The questions are related to the variety of foods eaten within the last 24-hour period preceding this interview with you.

READ THE LIST OF FOODS. PLACE ***ONE*** IN THE BOX IF A CHILD ATE THE FOOD IN THE QUESTION, PLACE ***ZERO*** IN THE BOX IF A CHILD DID NOT EAT THE FOOD IN THE QUESTION

S/N	**Questions/Filters**	**Coding Categories**
a	**GRAINS, ROOTS AND TUBERS:** (Rice, Fufu (kabala), kribani, Gbenfuti, Bugsah, Tuo Zafi (kude, saa,) , bread (paanu), ampesie (kibelge) wasawasa, porridge (kooko, kubi), kikari, mansa, kpakolo, apiti, obibi, fura,.)	
b	**VITAMIN A RICH PLANT FOODS:** (palm nut soup, comtonbre soup, ayoyo soup, Alefu soup, Gandaama soup, konsusuwa soup, yogvaru soup. Fruit vegetables: tomatoes, nyadua, jentire or geelon, cucumber, ntre or demsa, ngini or Mana.)	
c	**OTHER FRUITS AND VEGETABLES:** (banana, mango, orange, mango, orange, pineapples(fraye), pea, kilinkagu, Shea fruit (Tama or appol), kpila, kamo, zanbina, agbelebi, guava, pawpaw, lemon (dodobi).	
d	**MEAT, POULTRY, FISH:** seafood (beef, pork, lamb, goat, rabbit wild game, chicken, duck, or other birds, liver, kidney, heart, or other organ meats? rat, snail)	
e	**ANY EGGS?**	

f	**PULSES/LEGUMES/NUTS:** (groundnuts (akalenku), beans (benga or chibi), Bambara groundnuts (shunbe or akui) soybeans, pigeon pea (cheeku))	
g	**FOODS COOKED IN OIL/FAT: (**kooshe, mansa, kpakolo, apiti, fried fish, fried meat, fried egg.**)**	
h	**MILK AND MILK PRODUCTS:** ('waagasi', Fura with milk, yogurt, Toffee**).**	

Instruction: *Check in the responses for each child and ask the next question if any child has not eaten some of the food items mentioned in the table above and skip to question to question 15*

14. Why did [child name] not eat some of the food items listed in the above table?
    i. Due to affordability
    ii. Due to accessibility to the food item
    iii. Due to a taboo by the household
    iv. Due to a taboo by the clan or community
    v. Due to a cultural practice by the household and community
15. Has baby ever been breastfed? 1 = Yes; 2 = No. *Skip to question 18 if child was not breastfed*
16. If yes, for how long did you breastfeed the baby without any additional food or water?
    a. Zero month
    b. A month only
    c. Two months only
    d. Three months only
    e. Four months only
    f. Five months only
    g. Up to six months
    h. More than six months
    i.
17. How long (in months) have you breastfed your child?
18. If No to question 15, why was [child name] not breastfed? _____
19. Was [child name] bottled fed? 1 = Yes; 2 = No
20. If Yes to question 19 above, for how long was child bottle fed? _____
21. What type of milk was used to bottle feed the child? 1 = Cow milk; 2 = Goat milk; 3 = Powdered Milk; 4 = Others

SECTION C: DIETARY TABOOS AND CULTURAL PRACTICES AMONG THE GONJA PEOPLE THAT INFLUENCE FEEDING OF YOUNG CHILDREN?

22. What foods are considered taboo among the Gonja people in Bole? _____
23. Why are they considered taboo? _____
24. Who is supposed to encourage or enforce the compliance of the taboos? _____
25. Are there consequences for not complying with these taboos? 1 = Yes; 2 = No
26. Is it the same for your households or how different? 1 = Yes; 2 = No
27. What are the tabooed food for children in this community? _____

28. Why are the tabooed foods not fed to the children? _____
29. What are the specific foods children under-5 are restricted from eating in this household? _____
30. How long are these taboo restrictions imposed on children?
31. What are the sources of these tabooed foods?
    1. As a result of sickness
    2. As a result of diseases,
    3. Due to infertility
    4. Others (Specify _____)
32. Do the taboo restrictions imposed on adults (fathers, mothers and older relatives) apply to children under 5? 1 = Yes; 2 = No
33. What are the consequence of eating foods that are tabooed? _____
34. Which of the following is the taboo related to? Circle all that apply.
    1. Religion,
    2. History,
    3. Family status,
    4. Genealogy,
    5. Totem
    6. Others (Specific_____)
35. When you, or any member of your household are sick, do you visit traditional healers? 1 –Yes; 2 = No
36. Did you visit a traditional healer when you were pregnant? 1 = Yes; 2 = No
37. Do you take your children under 5 years of age to visit the traditional healer when they are sick? 1 – Yes; 2 = No
38. Why do you take the children and yourself to the traditional healer when you are sick? _____

SECTION D: FEEDING PRACTICES OF LACTATING MOTHERS IN BOLE?

39. Now, I would like to ask you about the types of foods that you or other lactating mothers in your household ate yesterday during the day and at night time. (**Instruction**: *Please complete the table for lactating mothers only in the household. The questions are related to the variety of foods eaten within the last 24-hour period preceding this interview with you*)

S/N	Questions **Instruction to the Interviewer** READ THE LIST OF FOOD CATEGORIES BELOW TO THE RESPONDENTS AND PLACE ***ONE*** IN THE BOX IF A LACTATING MOTHER ATE THE FOOD STATED IN THE QUESTION. PLACE ***ZERO*** IN THE BOX IF A LACTATING MOTHER DID NOT EAT THE FOOD IN THE QUESTION	Coding Categories
a.	ANY LOCAL FOODS or FOODS made from GRAINS], bread, rice noodles, biscuits, or any other foods made from millet, sorghum, maize, rice, wheat, or [INSERT ANY OTHER LOCALLY AVAILABLE GRAIN]? (*Rice balls, Tuo Zafi (kude, saa,) , bread (paanu), ampesie (kibelge), porridge (kooko, kubi), kikari, mansa, kpakolo, apiti, obibi, fura, dakua*.)	
b.	Any potatoes, yams, manioc, cassava or any other foods made from roots or tubers? (Fufu (kabala), kribani, Gbenfuti, Bugsah, ampesie (kibelge) wasawasa.)	
c.	Any vegetables? E.G.(tomatoes, nyadua, jentire or geelon, cucumber, ntre or demsa, ngini or Mana.)	
d.	Any fruits? E.G.**:** (*banana, mango, orange, mango, orange, pineapples(fraye), pea, kilinkagu, Shea fruit (Tama or appol), kpila, kamo, zanbina, agbelebi, guava, pawpaw, lemon (dodobi).)*	
e.	Any beef, pork, lamb, goat, rabbit wild game, chicken, duck, or other birds, liver, kidney, heart, or other organ meats?	
f.	Any eggs?	
g.	Any fresh or dried fish or shellfish?	
h.	Any foods made from beans, peas, lentils, or nuts? *groundnuts (akalenku), beans (benga or chibi), Bambara groundnuts (shunbe or akui) soybeans, pigeon pea (cheeku),* dakua, tubani, kooshe.	
i.	Any cheese, yogurt, milk or other milk products, 'Waagasi', 'Toffee'?	
j.	Any foods made with oil, fat, or butter? E.G.(**(**kooshe, mansa, kpakolo, apiti, fried fish, fried meat, fried egg.)	
k.	Any sugar or honey?	
l.	Any other foods, such as condiments, coffee, tea?	

41. Why did [lactating mother's name] not eat some of the food items listed in the above table?
    i. Due to affordability
    ii. Due to accessibility to the food item
    iii. Due to a taboo by the household
    iv. Due to a taboo by the clan or community
    v. Due to a cultural practice by the household and community

SECTION E: OTHER FACTORS CONTRIBUTE TO STUNTING IN BOLE

42. Apart from the taboos, what other factors do you think contribute to stunting of children in Bole? _____
43. What are some of the interventions introduced in this district to help improve nutrition and reduce stunting? _____
44. Have you or household benefited from any of the interventions listed above?
    1. Yes
    2. No
43. If yes, how has that helped you? _____
44. If No. why? _____

SECTION F - Checklist for observation

Instruction: Observe and record the hygienic situation in the household. Ask the question only when you are unable to observe the hygiene situation in the household:

45. What type of water does the household use for drinking?
    1. Access to running piped water,
    2. Water tanker service,
    3. Public stand tap,
    4. Borehole,
    5. River or stream,
    6. Other (Specify _____)
46. What kind of toilet does the HH use?
    1. Household latrine (KVIP type)
    2. Household latrine (WC type)
    3. Public latrine (KVIP type)
    4. Public latrine (WC type)
    5. Open defecation (defecation in the bush)
    6. Others (Specify_____)
47. Does the household have a functional hand washing station (with running water and soap)?
    1. Yes
    2. No

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FOCUS GROUP DISCUSSIONS
GROUP 1 - (3 WOMEN AND 3 MEN) – BOLE
GROUP 2 – (3 WOMEN AND 3 MEN) - MANDARI
CONSENT FORM

Instructions: Introduce respondent to the case study, and ask to speak to the mother or caregiver of all children under 5 years of age in the household. Obtain consent from the respondent by reading out the information in the informed consent below.

My name is ……., a Research Assistant working with Bodua Naa-Mango, who is a Master's candidate of the Department of Management of Development, Food and Nutrition Security at the Van Hall Larenstein University of Applied Sciences in the Netherlands. Thank you for the opportunity to speak with you.

I am assisting Naa-Mango to research about the impact of taboos on the diet of children under the age of five (5) of the Gonja people of northern Ghana, specifically the Bole District. This research is part of his academic work and is an essential requirement for the award of a Masters degree in Management of Development, Food and Nutrition Security.

You have been selected for this study because you are a member of this community and have rich information which is needed for this study.

You will be asked questions about some taboos and associated cultural practices relating to food and feeding of children under 5 years of age, as well as breastfeeding practices of mothers and caregivers. Your participation is entirely voluntary and if you choose to participate, you can choose to stop at any time, or skip any questions you do not want to answer. Your participation is important to this study, therefore, we shall record your answers and use them only for the purpose of this study. Your privacy is important to us. The information (including personal information) you will share with me will not be shared with anyone. Your responses would be kept confidential and your identity will be masked by using alpha-numeric codes that no one can understand except the researcher who directly collects and analyses the data. Be assured that any information that could be linked to you, such as your name will be removed even before the analysis is done.

Do you agree to participate in this research?

1. Yes…….
2. No……..

I, ……..(Name of Respondent) willingly accepts to take part in this research having understood the purpose of the research.

Signature/Thumbprint: ……

1. What are some of the food people eat in this community or households?
    a. (e.g. Tz, Rice, Fufu, Beans, cassava, eggs, fish, meat, fruits)
    b. List them……
2. What are the tabooed foods in Bole or households?
    a. List them……
3. What foods are tabooed by children and why?
    a. List them……
4. What foods are tabooed by women and why?
    a. List them…….
5. Apart from the taboos, what other factors in your opinion contribute to stunting growth in Bole?
6. What are some of the interventions introduced here in this district to improve nutrition and reduce stunting?
7. Have you benefited

    i. Yes
    ii. If Yes, how?
    iii. No
    iv. If No, why?

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KEY INFORMANT INTERVIEW FOR RELIGIOUS LEADERS

CONSENT FORM

Instructions: Introduce respondent to the case study, and ask to speak to the mother or caregiver of all children under 5 years of age in the household. Obtain consent from the respondent by reading out the information in the informed consent below.

My name is ……., a Research Assistant working with Bodua Naa-Mango, who is a Master's candidate of the Department of Management of Development, Food and Nutrition Security at the Van Hall Larenstein University of Applied Sciences in the Netherlands. Thank you for the opportunity to speak with you.

I am assisting Naa-Mango to research about the impact of taboos on the diet of children under the age of five (5) of the Gonja people of northern Ghana, specifically the Bole District. This research is part of his academic work and is an essential requirement for the award of a Masters degree in Management of Development, Food and Nutrition Security.

You have been selected for this study because you are a religious leader and have a rich knowledge in the cultural believes of the Gonja people.

You will be asked questions about some taboos and associated cultural practices relating to food and feeding of children under 5 years of age, as well as breastfeeding practices of mothers and caregivers. Your participation is entirely voluntary and if you choose to participate, you can choose to stop at any time, or skip any questions you do not want to answer. Your participation is important to this study, therefore, we shall record your answers and use them only for the purpose of this study. Your privacy is important to us. The information (including personal information) you will share with me will not be shared with anyone. Your responses would be kept confidential and your identity will be masked by using alpha-numeric codes that no one can understand except the researcher who directly collects and analyses the data. Be assured that any information that could be linked to you, such as your name will be removed even before the analysis is done.

Do you agree to participate in this research?

1. Yes…….
2. No……..

I, …….. (Name of Respondent) willingly accepts to take part in this research having understood the purpose of the research.

Signature/Thumbprint: ……

1. What are the tabooed foods of the Gonja people of Bole?
2. What are the reasons for the taboo of these foods?
3. What are the consequence of non-compliance to the above listed taboo foods?
    a. List the individual consequences; and
    b. Community level consequences
4. Are people practicing these taboos or they are fading away?
        a. Why are people continuing to practice these taboos?
        b. Why are the taboos fading away?
5. Do you think that these taboos have a negative effect on the growth of children in the community?
    a. If so, why do you think they have a negative effect on children?
    b. Why do you not think that they have a negative effect on children?
6. What can be done about these taboos and stunting amongst children?
7. What other factors in your opinion contribute to stunting in the Bole District?

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KEY INFORMANT INTERVIEW, HEALTH WORKERS AND NGO WORKER

CONSENT FORM

Instructions: Introduce respondent to the case study, and ask to speak to the mother or caregiver of all children under 5 years of age in the household. Obtain consent from the respondent by reading out the information in the informed consent below.

My name is ……..., a Research Assistant working with Bodua Naa-Mango, who is a Master's candidate of the Department of Management of Development, Food and Nutrition Security at the Van Hall Larenstein University of Applied Sciences in the Netherlands. Thank you for the opportunity to speak with you.

I am assisting Naa-Mango to research about the impact of taboos on the diet of children under the age of five (5) of the Gonja people of northern Ghana, specifically the Bole District. This research is part of his academic work and is an essential requirement for the award of a Masters degree in Management of Development, Food and Nutrition Security.

You have been selected for this study because you have a rich knowledge in nutritional and health issues.

You will be asked questions about some taboos and associated cultural practices relating to food and feeding of children under 5 years of age, as well as breastfeeding practices of mothers and caregivers. Your participation is entirely voluntary and if you choose to participate, you can choose to stop at any time, or skip any questions you do not want to answer. Your participation is important to this study, therefore, we shall record your answers and use them only for the purpose of this study. Your privacy is important to us. The information (including personal information) you will share with me will not be shared with anyone. Your responses would be kept confidential and your identity will be masked by using alpha-numeric codes that no one can understand except the researcher who directly collects and analyses the data. Be assured that any information that could be linked to you, such as your name will be removed even before the analysis is done.

Do you agree to participate in this research?

1. Yes…….
2. No……..

I, …….. (Name of Respondent) willingly accepts to take part in this research having understood the purpose of the research.

Signature/Thumbprint: ……

1. What is the prevalence rate of stunting among children under 5 in this district?
2. What is the history of stunting amongst children in the District, compared to the Region and the Nation Ghana?
3. Are the rates going down or up?
4. What is accounting for the trajectory of the stunting rates in the District and the Region?
5. What are the predominant foods eaten by households in the Bole District?
6. What foods are tabooed by the people in this District?
7. Why are the foods tabooed?
8. What foods are taboo for children in this community?
9. Why are they tabooed by children?
10. What food are tabooed by lactating mothers in this community?
11. Why are they tabooed by lactating mothers?
12. Do you provide training for women on how and what to feed to children?
    i. Yes
    ii. No;
    iii. If No, why?
13. Apart from these taboos, what other factors contribute to stunting in Bole?
14. What are some of the intervention put in place to reduce malnutrition and stunting in the Bole district?
15. In your opinion have the interventions been beneficial to the people?
    i. if yes why
    ii. If no why
16. Do you have records on families in Bole that are vulnerable?