



# **Socio-cultural Factors Associated with Complementary Feeding in Two Rural Districts in Ghana: A qualitative study involving Health Workers**

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### **Author's contribution**

*The sole author designed, analyzed and interpreted and prepared the manuscript.*

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## **ABSTRACT**

**Aim:** This study sought to explore the cultural factors that are associated with complementary feeding from the reports of Community Health Workers (CHWs) and Volunteers (CHVs) in two rural districts in Ghana.

**Study Design:** This was a cross-sectional qualitative study that assessed cultural beliefs, norms, superstitions and practices that influence complementary feeding practices of young children under two years in two rural farming districts in Ghana

**Study Area:** The study was conducted at Kwahu Afram Plains North and South Districts in the Eastern Region of Ghana.

**Methodology:** The study employed qualitative methods which entailed conducting 9 focus group discussions among CHWs and CHVs working at two rural districts in Ghana. The focus group discussions were conducted with the aid of a validated, interview guide, after obtaining informed consent (written) from the health workers. Ethical clearance for the study was obtained from the Institutional Review Boards of the Dodowa Health Research Centre and the University of Cape Coast. Thematic content analytical procedures were applied to analyze the transcripts, interpret and present findings as a narrative account.

**Results:** The reports of the health workers indicate a common practice of early introduction of solid foods to infants before they attain six(6) months of age. Cultural beliefs, superstitions, beliefs, food

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taboos and prohibitions influence mothers' complementary-feeding practices and result in limiting the food scope and dietary diversity of their young children.

**Conclusions:** Interventions designed to promote appropriate complementary feeding practices should incorporate an understanding of social context, family, and cultural factors in developing nutrition promotion messages that are tailored to meet the needs of rural populations. More community interventions that draw on the support of key influential persons in the community and fathers are needed to address cultural barriers to appropriate complementary feeding practices.

*Keywords: Cultural practices; beliefs; complementary feeding; community Health workers; community health volunteers; rural districts.*

## 1. INTRODUCTION

The first two years of life are critical for rapid growth and development. Consequently, ample evidence in literature indicates that nutrition significantly contributes to determining whether a child will thrive well or not during this formative period of life [1]. Complementary feeding is required in the recommended quantity, quality, and frequency in order to attain the daily nutrients needs for growth and development of infants [2]. The 2014 Ghana Demographic Health Survey results indicate that, among all children aged 6-23 months, only 13% were fed the minimum acceptable diet (MAD)- a measure of both the quantity and quality of meals fed to children. In addition, 28% ate food prepared from four or more food groups (a measure of dietary diversity/meal quality), and 43% received food the minimum number of times recommended for their age (minimum meal frequency). In Ghana, findings of the latest Ghana Demographic Health Survey revealed that almost three quarters (73%) of children 6-8 months were given complementary foods [3]. However, twelve percent (12%) of children aged 2-3 months and 34 percent (34%) of children age 4-5 months were also given complementary foods, which is not recommended for these younger age groups [3].

Although it is well-known that maternal and household factors determine complementary feeding of children [4,5], the aspect of socio-cultural determinants of infant and young children feeding has been neglected and relegated to the background in the field of child nutrition [6,7]. Yet, it has been asserted that cultural beliefs and practices influence food habits of children [8]. Therefore, because cultural norms and beliefs are widely spread within community and family members, they may conflict with advice from health workers. Hence, there is the need to understand and consider local cultural beliefs,

practices and sentiments prior to initiating change efforts in infant feeding practices and also to ensure sustained changes. The cultural values, norms, practices, superstitions and beliefs associated with the caring and feeding of children that exist in a community influences several decisions caregivers make during the complementary feeding period [7,8]. Hence, interventions that are aimed at improving infant and young child (IYC) feeding must take into account the cultural features of a society and how they act as barriers or facilitators of optimal feeding practices [8,9].

Caregiver's choices that are made regarding IYCF practices are based on a number of complex factors which include widely-shared cultural norms and beliefs [10,11]. Consequently, Mwaseba et al. [11] and Akombi et al. [12] emphasized that before any nutrition-based intervention which targets children can be successfully introduced and implemented, it is necessary to take into consideration the socio-cultural uniqueness of each sub-region and identify, understand and improve upon the native and local child-feeding practices which include food-related beliefs and norms.

Studies that have been undertaken in Ghana in the area of socio-cultural influences on IYCF practices have largely focused on how cultural practices negatively affect breastfeeding practices [13-15]. To the best of the researcher's knowledge, there is only one study that has assessed patterns of cultural consensus and intracultural diversity in complementary feeding practices in the erstwhile Brong-Ahafo Region of Ghana [8]. Kalra et al. [8] strongly recommended that more studies should be undertaken to explore the nature of the cultural determinants of child nutrition in other communities, particularly as part of implementation research, to inform the design of IYCF interventions.

Therefore, the present study fills the gap and adds to the literature by exploring the socio-cultural factors that influence complementary feeding practices of children under two years, on the basis of reports and field experiences of Community Health Workers (CHWs) and Community Health Volunteers (CHVs) in two rural districts of the Eastern Region of Ghana.

## **2. MATERIALS AND METHODS**

### **2.1 Study Design**

The study was descriptive and cross-sectional in which nine (9) Focus Group Discussions (FGD) were undertaken. The study employed a qualitative research method. The qualitative approach was adopted because it enabled the researcher to explore and get an in-depth information regarding the misconceptions and cultural practices associated with complementary feeding practices of young children below two (2) years in the districts.

### **2.2 Study Area**

Two districts in the Eastern Region of Ghana: Kwahu Afram Plains North (KAPND) and Kwahu Afram Plains South (KAPSD) were selected for the study. These two districts were purposively selected from the 26 districts in the Eastern Region on the basis of their being ranked as the first and second districts with the highest prevalence of underweight in the Region in both 2013 and 2014. Underweight was used as a proxy indicator to select the two districts where the prevalence of malnutrition is high usually as a result of poor infant and young child feeding practices which include breastfeeding and complementary feeding. Again, both districts were chosen because between 2013 and 2015, they were the only districts in the Eastern Region which had the prevalence of under nutrition among children rising.

### **2.3 Study Participants**

The Community Health Workers (CHWs) and Community Health Volunteers (CHVs) who willingly volunteered to participate in the Focus group discussion (FGD) were selected from 21 randomly sampled Child Welfare Clinics (CWCs) and communities in the districts. To qualify to be included in the study and participate in the FGDs, the HW should have worked for at least five years in the district. A total of 78 health workers (HWs) (42 CHWs and 36 CHVs) participated in the FGDs.

### **2.4 Study Instrument**

The Focus Group Discussion (FGD) guide which comprised of the topics and questions that guided the discussions with the study participants was a modified version from previous related studies [7,11,16], which were also conducted to explore misconceptions and cultural practices that are associated with complementary feeding practices (CFP). The FGD guide was pretested to assess for reliability, clarity and simplicity of the tool among six health workers in two health centres in another district prior to data collection.

### **2.5 Ethical Clearance and Consent Form**

Ethical clearance and approval for the study was granted by two ethical review boards. These were from the Dodowa Health Research Centre (DHRC) Institutional Review Board (IRB) of the Ghana Health Service (Reference/Identification: DHRCIRB/04/02/17) and the Institutional Review Board (IRB) of the University of Cape Coast (U.C.C) (Reference/Identification: UCCIRB/CHLS/2017/02). Prior to conducting and recording the FGD sessions, permissions were sought from each study participant, following full disclosure of the study objectives. The study participants gave their consent by signing an informed consent form.

### **2.6 Data Collection**

A total of nine (9) FGDs were carried out among the CHWs and CHVs in groups of between 8 and 10 members. Prior to the commencement of each FGD session, the researcher explained the purpose of the study to all the participants. Participants who gave their consent to participate in the FGD willingly signed an informed consent form. The FGDs were conducted in the three major languages of the people - Ewe, Akan and Frafra. Each FGD took approximately one (1) hour 30 minutes to complete and they were conducted until data saturation was attained.

Prior to the commencement of each FGD session, the participants completed a brief demographic questionnaire. The seating was arranged in a semi-circle with the moderator seated at the center; and a note taker and two audio recorders were positioned at a vantage point within the reach of the participants. The proceedings of all FGDs were audio-recorded; and detailed notes and pictures were taken after obtaining permission from each participant. The

researcher acted as the facilitator, with assistance from three research assistants who were technical officers working in the district health directorate. Notes were also taken during the focus group discussions by two research assistants who also ensured that the session was audio-recorded. One of the research assistants who could speak all the three predominant languages assisted with translation of the questions into the local dialects when it was necessary.

At the start of each FGD, the facilitator explained why the topic had to be discussed honestly so that the appropriate interventions could be planned to improve the nutritional status of infants in the district, and then gave members an opportunity to introduce themselves. The questions were open-ended in order for participants to present freely their divergent views and to allow for in-depth exploration of cultural practices and misconceptions of mothers that are associated with CFPs.

## 2.7 Data Analysis

Specifically, qualitative thematic analysis techniques as expounded by Braun and Clark [17] were employed in the data analysis. The first step of the thematic framework analysis is the familiarization stage which entails the translation and transcription of the audio records into English. The transcripts, with the hand-written notes taken during the discussion sessions, were read several times to make better meaning out of the responses and were compared across the different FGD's by two independent translators. The second step entailed coding which is the identification of key words and phrases that best described each response from the discussion. At the third step, themes were created out of similar key words and phrases. The generated themes were refined in order to ensure a clear distinction between them. Lastly, themes were presented to ensure that they reflected the objectives to be investigated. The themes that emerged from the translations were clustered, documented and used in writing a narrative account. The data are presented textually with quotes to illustrate the findings.

## 3. RESULTS

Six (6) themes emerged following analysis of the FGD data: information related to age at which mothers start complementary feeding, reasons

why caregivers start complementary feeding at these ages, the key person who took decisions about types of liquid or solid foods that should be given to young children in the household and examples of complementary foods given to young children. The other sub-themes are cultural beliefs and superstitions that prevent appropriate CFP and Health workers' recommendations to improve CFPs in the districts.

The health workers who participated in the study were able to contribute to the discussion sessions mainly because of their experiences and interactions with caregivers who visited Child Welfare Clinics (weighing centers) to access growth monitoring and promotion services at the health facility. Some of the information provided by the study participants are also based on observations that were made by these HWs during home visits and outreach programmes in communities within their area of operation.

### 3.1 Theme 1. Age at Which Mothers Start Complementary Feeding

Generally, most of the HWs who participated in the FGDs were of the view that complementary foods (CF) were introduced to most children before 6 months of age.

The following statements by some of the HWs from different communities demonstrate that usually most mothers do not exclusively breastfeed their babies for the first six months of life, but rather introduce liquid, semi-solid or soft foods early before babies attain 6 months of age.

One CHW reported: *"Although mothers are educated on when complementary feeding should start as far as during pregnancy when they come to the clinic for antenatal services, before they deliver, most of them do not comply and rather start giving liquid and mashed food as early as when the baby is two(2) months of age in some cases"* ( CHW 1, FGD 2 KAPSD).

Another CHV indicated: *"In the Island communities, when we undertake home visits it is very common to see mothers and grandmothers giving light porridges, mashed yam or kenkey to babies as young as three(3) months of age. They will tell you that the child has been breastfed fully and that the light or soft food is suppose to top-up the breast milk to satisfy the child to enable him or her sleep soundly so the mother can concentrate on her work"* ( CHV 2, FGD 4 KAPND).

These statements imply that some mothers although had been advised on the appropriate age to start complementary feeding were unfortunately going contrary to the recommendations given, which also prevents their babies from reaping the known benefits of exclusive breastfeeding.

### **3.2 Theme 2: Reasons Why Caregivers Start Complementary Feeding Early at These Ages**

According to the HWs, various reasons are given by mothers whenever they are confronted by the question "why are you giving your baby other foods even though he or she is less than six(6) months of age?". The following reports by the HWs which are mainly mother's misconceptions demonstrate the different reasons usually given by mothers who introduce complementary foods before six(6) months.

#### **3.2.1 Sub-theme 2.1: Mother's Misconception that Breast Milk Alone Cannot Satisfy a Baby's Hunger Needs**

One of the CHW recounted:

*"During our community outreach programmes, mother who start complementary feeding earlier will tell you that, the breast milk alone does not satisfy the baby and this results in frequent crying of babies which is interpreted as being unsatisfied after breastfeeding."* (CHW 2, FGD 2 KAPSD). In throwing more light on the report of CHW 2, one of the CHV indicated.

*"Most mothers would tell you that the frequent cries of their babies are mainly because only breast milk does not satisfy them but rather leads to an accumulation of gas in the stomach of the baby that creates discomfort and sleeplessness"*. (CHV 3, FGD 2 KAPSD)

Another CHV shared an interaction she had with a mother who had a 3 months old baby who was giving him millet porridge (*Hausa Koko*) she had bought from a food vendor for her baby.

According to the CHV, *"This mother firmly said that she would never give only breast milk to her baby until he attains 6 months, because she knew a friend who lost a four-month old baby when she adhered to nurses' recommendations and solely gave breast milk even without water to her baby. She said her friend's baby was not gaining weight fast, he later became unwell and*

*died. Hence, because of her friend's misfortune, other women in the community including herself have vowed never to deny their babies light foods or soups before they attain 6 months of age"*. (CHV 4, FGD 5 KAPND).

#### **3.2.2 Sub-theme 2.2: Mother's misconception that if foods are not introduced early, babies would find it difficult adjusting to family foods later**

Some of the HWs also reported another misconception that is held by mothers that if babies are not introduced to foods early, then it usually becomes difficult for them when it comes to the time that they have to adjust to the family foods eaten by every member of the household.

The reports of some of the HWs are presented in the statement below:

According to one CHW:

*" Some mothers express fears based on their experiences that young children have difficulty coping with new foods that are introduced to them especially if they are solely breastfed for a long time "* (CHW 2, FGD 4 KAPND)

Supporting the above statement, another CHV reported that:

*"I visited a home where I found a mother feeding her two-months old grandson with light maize porridge. I enquired from the mother why the baby was being fed. She told me that her mother and husband do not agree to exclusive breastfeeding and have cautioned her against it. This is because it will make it difficult for the child to become used to the foods that are eaten at home. Hence, although the child is being breastfed well, other light or soft foods should be introduced gradually to the child so that the child's tummy will gradually adjust to these foods."* (CHV 3, FGD 4 KAPND).

Another community Health Volunteer who works in one of the Island communities shared her experience on this issue.

According to the CHV *"Most women as a result of the influence of their husbands and mothers start introducing cooked foods like maize porridge and soft banku to their babies before they attain 6 months of age. These mothers will tell you that their husbands comply anytime they carry the baby by saying that the child is not*

*gaining any weight because the baby is being fed most of the time on breast milk which is mainly water. These complaints do not encourage them to practice exclusive breastfeeding for a long time and usually will start giving their babies other foods by the second or third month of their life" (CHV 1, FGD 3 KAPSD).*

Another CHW also indicated that:

*"Some mothers complain that if they wait till the baby attains 6 months before giving other foods to him or her, the child will refuse the food and they do not have money to buy lactogen or NAN 1 formula to supplement the breast milk. They also will tell you that if you give only breast milk to your baby for the first 6 months, the child will not gain weight and grow well as expected. They will even tell you that when they go for weighing, the nurses who have told them to practice exclusive breastfeeding for the first 6 months of life will ask you why the baby's weight is not increasing but is the same or even has reduced" (CHW 4, FGD 1 KAPND).*

### **3.3 Theme 3: Key Person Who Takes Decisions on Types of Liquid or Semi-Solid Foods that Should Be Given to Young Children in the Household**

From the reports of HWs who normally undertake home visits and community outreach programmes, it was clearly evident that grandmothers and mothers-in-law mainly influenced and took decisions on foods to be given to their young children.

According to one CHV: *"From the reports of mothers, most of them are taught by their own mothers, the kind of foods to give to babies at each stage of their life". These mothers prefer to listen to their own mothers because they feel their mothers have adequate experiences with caring of babies" (CHV 5, FGD 2 KAPND).*

Another CHV buttressed the statement above by indicating that *"Although we educate mothers on the appropriate age to start complementary feeding and the kinds of food to introduce to their babies, most of them would rather listen to their mothers. Some mothers even pressurize their daughters to add some herbs to soups given to their babies believed to boost growth and protect them from certain childhood diseases and infections" (CHV 5, FGD 3 KAPSD).*

### **3.4 Theme 4: Complementary Foods Given to Babies**

The session below summarizes responses of the HWs with respect to complementary foods that are usually given to complement breast milk. The responses of the HWs are presented in the following statements According to one of the CHVs:

*"In my district, some of the foods commonly introduced to babies to complement breast milk are maize or millet porridge, "tom-brown" and soft "tuo zaafi" (all prepared from corn as the main ingredient)" (CHV 3, FGD 3 KAPSD)*

Another CHV indicated that: *"Some mothers also give mashed beans, banana and polished-corn soft banku (locally referred to as pakapaka)". (CHV 2, FGD 5 KAPND).*

Another CHWs asserted:

*"In my community, some mothers start giving maize porridge, rice water, "tom-brown", soft "tuo zaafi", soft "banku", soft fufu (pounded cassava and plantain) with soup to their babies. They mainly give groundnut soup and add mashed leafy herbs believed to promote growth and confer protection against common infections" (CHW 3, FGD 3 KAPSD)*

Buttressing the statement above, one of the CHV reported about a flowering plant, *Jatropha*, that was commonly given to infants under 6 months and the belief that it makes them sleep, grow well and protects them against diseases. The CHV stated:

*"Some mothers also boil "jathrofa" with negro pepper in a pot and give it to their babies. They believe that it enables the child to sleep and grow well and protects them against diseases." (CHV 2, FGD 4 KAPSD)*

One CHV narrated another common practice of Hausa-Fulani households who usually give milled-grain foods with fresh cow- milk to babies even below 6 months of age.

The CHV stated: *"Some mothers prepare soft "banku" and okro soup for their children. In typical Hausa-Fulani households, babies even below 6 months of age are fed on mashed "fula" or "fura da nono" (prepared from milled grains and rolled into balls) which is eaten with fresh cow- milk)". (CHV 2, FGD 4 KAPND).*

According to another CHV, some mothers give shea butter drink, believed to aid in giving infants free bowels. The CHV reported:

*"Some mothers give shea butter mixed with warm water to their babies to drink. They believe it enables them to have free bowels."* (CHV 3, FGD 5 KAPND).

### **3.5 Theme 5: Cultural Beliefs and Practices that Prevent Appropriate Complementary Feeding Practices**

The HWs were asked to share some cultural beliefs and practices which in their view were negatively influencing dietary choices of mothers with respect to complementary feeding. The reports of the HWs are mainly based on their observations during home visits and community outreach programmes. From the reports of the HWs it was revealed that cultural beliefs and practices such as forbidding the consumption of eggs, preventing children from eating some parts of animals and the giving of herbal drinks and soups influenced caregivers complementary feeding practices. The statements presented below indicate some of the cultural beliefs and practices reported by the CHWs and CHVs.

#### **3.5.1 Sub-theme 5.1: Forbidding the consumption of eggs**

The CHWs/CHVs indicated that there are some superstitions in some communities in the district regarding the consumption of eggs by infants and young children. One CHV stated:

*"In some communities, young children are prevented from eating eggs, because there is a belief that the child will become a thief if given eggs."* (CHV 4, FGD 5 KAPND)

Another CHV reported:

*"In some communities, it is also believed that a child who has not started talking will become dumb when given eggs especially the white part"*. (CHV 4, FGD 3 KAPSD).

In support of the above statement, another CHW asserted that:

*"There is a belief that the white part of eggs is not good for children under two years because our great grandmothers believed it makes them dumb. So, we only give them the yellow part of*

*the egg, because it is believed that it helps them to talk early."* (CHW 2, FGD 5 KAPND)

#### **3.5.2 Sub-theme 5.2: Preventing children from eating some organ meat and species of fish**

It was revealed from the responses of some of the HWs that young children were also forbidden from consuming some organ meat products (gizzard and the stomach of poultry) and catfish which is abundantly harvested from rivers in the districts. The assertions of the HWs are summarized below:

One of the CHW's indicated:

*"It is very strange but children in some of our communities are prohibited from eating the gizzard of fowls in order to protect them from becoming affected by certain stomach infections. Meanwhile, we all know that gizzard is one of the cheap sources of animal protein in Ghana"*. (CHW 3, FGD 1 KAPSD)

Another CHV stated:

*"Another food restriction or taboo is not giving young children catfish because it is believed that if children eat it, their skins would peel off. This practice is very worrying particularly because we are surrounded by rivers from which catfishes are in abundance and can be harvested for consumption"* (CHV 4, FGD 4 KAPSD)

#### **3.5.3 Sub-theme 5.3: Giving of Herbal Drinks and Soups**

The HWs indicated that they were aware that some caregivers give herbal preparations in the form of drinks or soups to their young children.

One of the CHV indicated:

*"Most caregivers through the influence of their mothers give some herbal preparations in the form of drinks, prepared by boiling the leaves of Momordica foetida, Ocimum gratissimum and Jatropha gossypifolia (bellyache bush). This preparation is given orally to protect children against evil spirits. It is believed that these herbal preparation treats infections and diseases like measles, skin infections, diarrhoea, cough, catarrh, stomach pains, vomiting, fever, malaria, convulsion and low blood levels(anaemia) especially in young children."* (CHV 3, FGD 2 KAPSD).

Another CHV also stated that the leaves of some plants and trees are recommended to promote growth and good health in children.

According to this CHV:

*"In most communities, grandmothers influence their daughters to give some herbs and the leaves of some trees such as Baobab leaves (Adansonia digitate), "borkorborkor" leaves (Talinumu triangulare or water leaf) and okro leaves. These herbs and leaves are prepared in the form of soups. It is believed that these herbs help young children to grow well, prevents anaemia and also kills worms in their stomach."* (CHV 3, FGD 2 KAPSD)

### **3.5.4 Sub-theme 5.4: Examples of complementary foods given to babies**

According to the HWs, several local foods were given to young children who are below two years during complementary feeding. The following accounts of the HWs are presented below:

A CHW indicated:

*"Grandmothers recommended the following as healthy foods for babies to complement breast milk. Examples of these foods are cooked mashed beans, kontomire (cocoyam leaves) stew with mashed boiled yam, anchovies stew with mashed boiled yam. (CHW 2, FGD 4 KAPSD).*

Another CHV stated:

*"Other caregivers also give ayoyo (jute leaves) soup, groundnut soup, palm-nut soup prepared with kantosi (turkey berries), okro stew/soup, fufu (pounded cassava and plantain), corn foods such as porridge, tom- brown (roasted and milled corn, soyabeans and groundnut), banku (prepared from corn and cassava dough). These are common foods eaten by young children because most of the food items used to prepare these meals are grown in the district such as groundnut, corn, cassava, turkey berries and okro." (CHV 3, FGD 5 KAPND).*

Another CHW asserted that:

*"Most mothers and grandmothers use several herbs or leaves of plants such as "nyanya" (Momordica foetida), "nunum" (Ocimum gratissimum) and "nkranedua" (Jatropha*

*gossypifolia) or bellyache bush to prepare soups for their children. They eat these soups with soft banku or boiled rice" (CHW 2, FGD 1 KAPND).*

### **3.5.5 Sub-theme 5.5: Examples of foods perceived by caregivers as building the blood levels of children**

Generally, the HWs indicated that foods commonly perceived as building or giving blood by mothers and grandmothers include turkey berries, locally called *kantosi* stew or soup, *kantosi* leaves tea with milk, soup from ayoyo (jute leaves), botanically/scientifically known as *Corchorus olitorius*, *Yevu Gboma* soup (*Solanum macrocarpon*) also known as African eggplant and cocoyam leaves stew or soup, locally referred to as *kontomire*".

One CHW averred:

*"It is a common practice among mothers to build the blood levels of their children by giving them 'kantosi (turkey berries) added to soups or stews, garden eggs and kontomire (cocoyam leaves)." (CHW 3, FGD 2 KAPND).*

Another CHV stated that:

*"One worrying practice by mothers who want to increase the blood levels of their children is that they give them tinned tomato paste, mixed with coca-cola drink." Although we caution them against some of these practices such as giving tinned tomato paste mixed with coca-cola drink, they do not listen and continue to prepare such mixtures believed to increase blood levels and prevent anaemia in young children" (CHV 3, FGD 1 KAPSD).*

### **3.5.6 Sub-theme 5.6: Examples of foods perceived by caregivers as helping in the brain development of children**

As regards foods believed to help a child's brain to develop, most of the HWs mentioned a common practice of giving honey either alone or mixed with another food item.

One CHV narrated an interaction she had with a grandmother of a nine(9)-month-old baby.

*"During one of our community outreach programmes, I came into contact with a grandmother who was giving two tea-spoonful of honey to a baby on her lap. I inquired from her the reason why she was giving it to the baby? She told me that honey opens the brains of*



growing child and makes them intelligent" (CHV 3, FGD 1 KAPND).

Another CHW stated that:

*"In some communities, mothers mix honey with the yolk of uncooked eggs and give it to their children in order to make them more intelligent or smart."* (CHW 4, FGD 3 KAPSD).

Likewise, another CHV reported that:

*"In other communities, to boost brain development in children, they either give only honey or honey mixed with the ground bark of Nyamedua' (God's tree), scientifically referred to as Alstonia boonei De Wild".* (CHV 2, FGD 5 KAPND).

Similarly, another CHV stated that:

*"For brain development, some grandmothers pick mud from the dauber wasps' nests, grind it and mix it with honey to give to the child, from six(6) months onward".* Again, although we always caution them about this unacceptable misconception, they continue to practice it (CHV 1, FGD 4 KAPSD).

### **3.6 Theme 6: Health Workers' Recommendations to Improve Complementary Feeding Practices**

#### **3.6.1 Sub-theme 6.1: The need to intensify nutrition education programmes that focus on complementary feeding**

According to some of the CHW, they acknowledge that some of these unacceptable practices during the complementary feeding stages of life can be attributed to the fact that they lay so much emphasis on exclusive breastfeeding and hardly organize nutrition talks on complementary feeding when mothers bring their children to the weighing centers.

For instance, one of the CHV indicated:

*"It appears as health workers; we lay much emphasis on exclusive breastfeeding and hardly educate or give guidelines on feeding of children after 6 months of age. It is highly recommended that nurses also educate mothers on what to feed children on and how to introduce new foods to babies after 6 months of age"*(CHV 3, FGD 1 KAPSD).

#### **3.6.2 Sub-theme 6.2: The need to organize demonstration sessions on preparation of nutritious foods for young children**

The above-mentioned recommendation is summarized from the statement of one of the CHW's below:

*"Young mothers, because of lack of time and their busy work schedules, prefer to buy food such as porridge, rice or 'waakye' (boiled rice and beans) for their children and this practice is not helpful for children. Nurses at weighing centres should caution mothers against this practice. There is the need for nurses to educate mothers on the benefits of feeding young children with home-prepared foods. Nurses should organize cooking demonstration sessions on how to prepare nutritious meals using local food items when mothers come to Child Welfare Clinics or during community outreach programme"* (CHW 3, FGD 5 KAPND).

#### **3.6.3 Sub-theme 6.3: Exploring ways to involve fathers in improving the Dietary Intakes of their children**

The study participants were of the view that perhaps another avenue that can be explored to help improve the dietary intakes of young children particularly during the complementary stages of feeding is by encouraging fathers through communities leaders, chiefs and opinion leaders to take a keen interest in the nutrition of their children and not leave the responsibility entirely to mothers and grandmothers.

The views of the HWs are presented below:

One of the CHW stated that

*"To improve the nutritional status of children in the district, lately we have been discussing how we can bring fathers on board, educate and create the awareness that they are also an important stakeholder in meeting the nutritional needs of their children and not mothers alone."* (CHW 2, FGD 3 KAPSD).

Another CHW averred that:

*"In some of our meetings we have considered the possibility of falling on the support of key people and leaders within the community such as chiefs, queen mothers, opinion leaders like the District Chief Executive (DCE), school teachers, priests, Reverend ministers and Moslem Leaders(Imams) to help us encourage fathers to*

take up the challenge and assist more in nutritionally caring for their children" (CHW 3, FGD 2 KAPND)

#### 4. DISCUSSION

From the responses of the HWs it was evident that generally, mothers are likely to introduce meals to complement breast milk earlier than the recommended age of commencing complementary feeding in this population. As reported in related studies, it is a common practice for mothers to introduce foods to their babies before they attain six months of age because of several reasons. In support of the findings of this study, one of the common reasons that is given by mothers as a reason for the early introduction of foods is the perception that breast milk is not adequate for their babies, and as such leaves the child unsatisfied [18,19]. The implications of early introduction of complementary foods (before an infant attains six months of age) include the possibility of halting breastfeeding too early [19]. The early introduction of solid foods to supplement breast milk could also predispose infants to an exposure of microbial contaminated foods which can increase their susceptibility to infections [20]. Another concern associated with an early introduction of complementary foods is that it increases an infant's risk of childhood obesity [21,22].

With respect to complementary foods that are given to babies, the responses of the HWs are supported by reports from previous studies that cereal-based foods are usually given to infants in Ghana and other resource-poor settings during the complementary feeding stage of life [23,24]. The reports of the study participants confirm the findings of past-related studies in which *porridges prepared from cereals such as maize, sorghum and millet* were reported to be the major meals given to infants to complement breast milk during the first two years of life [24,25]. In most developing countries, the overdependence on cereal-based foods for complementary feeding is mainly because they are readily available and cheaper as compared with other food groups [26]. However, these cereal-based complementary porridges and gruels are often carbohydrate-loaded and therefore inadequate in especially micronutrients [23]. They usually fill the small stomachs of infants and prevent their nutritional needs from being met, thus contributing to early growth faltering and lifelong consequences on a child's cognitive and physical

development [24]. Another concern that has been recently raised is the Aflatoxin content in cereal-legume blends of some complementary foods that are given to young children [27].

The reports of the HWs that some Fulani-households give fresh cow's milk to their infants and young children are supported by some earlier studies in which infants were fed on fresh cow-milk in Uganda [28] and Poland [29]. A reason that can be attributed to this practice is that these Fulani population mainly rear cattle as their major source of livelihood and hence are able to obtain fresh cow's milk readily from these livestock. However, giving cow-milk to infants is not recommended because of cow-milk's tendency to lead to iron deficiency and also increase the risk of severe dehydration in infants [30]. In addition, infants find it difficult to digest fresh cow milk easily mainly because of the high casein protein content [30].

Findings of this study revealed that young children below two years are not given eggs when they have not started talking or walking because of the belief that the white-part of eggs (albumen) delays speech and motor-skills development. These findings corroborate with those of past studies in which there was a cultural belief associated with the giving of eggs to growing children [31,32]. For example, in the study by Karigi et al. [31] in the rural western region (Kakamega County) in Kenya, a taboo that infants and young children were not to be fed eggs was found, and the taboo was derived from the belief that eggs made the "tongue heavy" and prevented children from talking. However, it has been noted that denying children of consuming eggs, a source of high biological value, and a cheaper protein food source compared with meat, fish and poultry meat, could increase their susceptibility to protein-energy malnutrition, exhibited in the form of *kwashiokor* and *marasmus*.

The health workers also reported that children were prohibited from eating the gizzard of fowls in order to protect them from becoming affected by certain stomach infections. In similar studies undertaken in rural communities in Nigeria [33], it was reported that young children were not given liver to eat, as elders in these communities had the belief that it causes abscess in the liver of children. The reports of the HWs are worrying because eggs and gizzard are comparatively cheaper than meat and fish; and they are commonly available sources of essential

nutrients for a balanced diet in developing countries. The implication of these beliefs and superstitions is that denying children of these dietary protein food sources could result in a depletion of their body's protein stores. Consequently, their ability to maintain body tissues and sustain growth is lost, resulting in protein-energy malnutrition.

The responses of the CHWs and CHVs with regard to foods perceived by caregivers to positively build blood levels (prevent anaemia) were generally plant-based food sources such as green leafy plants and herbs. The high intake of leaves of plants or trees is perhaps because they are readily available and less costly especially in African settings [34]. However, these green leafy plants contain high levels of anti nutritional factors such as phytates and polyphenols, which chelate iron and therefore reduces its bioavailability (availability of iron for absorption by body) [35]. The responses of the HWs suggest that, perhaps, caregivers do not know that animal-based food sources like red meat, poultry and fish contain high bio available heme iron compared with plant-based food sources [34]. The implication of this finding warrants frantic efforts by HWs to intensify nutrition education on major food source of particularly micronutrients such as iron, among caregivers particularly when they access health facilities for growth monitoring and promotion services.

Similar to the findings of this study, giving honey to infants below two years for cognitive development or to make them intelligent has also been reported in previous studies [36,37,38]. However, it has been emphasized that the intake of honey by young children is not safe for those below one (1) year, due to the insufficient development of their gut, which is unable to fight off disease-causing bacteria which may be present in the honey. Some studies have shown that the ingestion of honey is associated with infant botulism [39]. As a result of substantial evidence from these studies, caregivers have been cautioned by the World Health Organization [40] not to give honey to children under 12 months, because honey can contain spores of the bacterium *Clostridium botulinum* which causes botulism, a disease that results in a blockade of voluntary motor and autonomic functions. Abdulla et al. [39] emphasize that, in order to curtail the risk of infantile botulism, public health interventions should aim at educating parents, community health workers

and midwives against feeding infants with honey. The remarks by HWs concerning the giving of both honey and uncooked eggs to infants and young children signify the need for health workers to strengthen their health education programmes highlighting old cultural practices that have negative effects on the health of children. There is an urgent need to caution caregivers against the practice of giving infants raw eggs that are mixed with honey because it increases their risk of *Salmonella* infection, in addition to their immature immune systems [41].

Similar to the findings of this study, the giving of herbal preparations in the form of drinks or soups have been reported in some cultural settings in Africa [42,43]. These herbal preparations from leaves, roots and tree barks are usually given to newborns for protection against witches/sorceries and for the prevention and treatment of diseases such as cough, intestinal disorders and toothache [43]. The reports of the HWs revealed that *Ocinimum gratissimum* is added to these herbal drinks that are given to young children below two years. It has been asserted that extracts of *Ocinimum gratissimum*/ *O. gratissimum*, a scented leaf, exhibit both antifungal and antibacterial properties and, therefore, is reportedly used in herbal medicines to treat stomach ache, diarrhoea, chronic dysentery and vomiting [43]. With respect to the use of *Momordica foetida* in the preparation of herbal drinks for young children, some of the perceived health benefits of mothers have been indicated in the study of Okafor and Okolo [44]. Okafor and Okolo [44] indicated that the young leaves of *Momordica foetida* are eaten to treat stomach-ache and intestinal disorders suggesting that from the past experiences of caregivers in the use of herbs, they have identified some health benefits associated with their usage. Although herbal preparations may possess some potentially high medicinal value, there are grave concerns with respect to their dosages, toxicity, and interactions with some drugs when taken together, in addition to other side effects [45]. In a systematic review on adverse effects of herbal medicines, it was revealed that intake of some herbs could result in severe adverse effects, such as kidney failure, liver damage and colon perforation [46].

The reports of the workers also revealed that caregivers fed their young children on the leaves of okro, baobab tree and water leaf (*Talinum triangular*/ water leaf) because of their beliefs that they promote growth in children, prevent

anaemia and also treats worm infestation. Similar to the beliefs of these caregivers, some studies that were undertaken in Africa reported that the leaves of these trees and plants were widely consumed because of some perceived health and nutritional benefits [47,48]. For example, Buchmann et al. [48] asserts that baobab leaves are often eaten as a staple food providing a significant protein and mineral source, especially of iron and calcium, for many African communities and perhaps may explain the belief of caregivers that it helps in increasing blood levels and prevents anaemia. However, as already indicated in the discussion, it is important to note that the iron obtained from plant sources are non-heme iron sources which have low bioavailability. Again, these revelations from the study suggests the need for health workers to educate caregivers on strategies to increase the bioavailability of iron in plant food sources by adding vitamin C rich food sources such as citrus fruits which can convert iron from the insoluble ferric ( $Fe^{3+}$ ) to the absorbable ferrous ( $Fe^{2+}$ ) state which can be readily utilized by the human body [49].

## 5. CONCLUSION

In this study, it was evident that cultural factors such as superstitions, beliefs and food taboos/prohibitions continue to contribute to non-recommended and inappropriate child feeding practices in some rural settings in Ghana. For example, this study revealed that caregivers' misconceptions that breastfeeding exclusively for the first six months of an infant's life does not satisfy their hunger needs resulted in the early commencement of complementary feeding. Generally, significant household members such as grandmothers and mothers-in-law influenced the dietary choices made by mothers for their children. Cultural beliefs and food prohibitions associated with certain foods (eggs, catfish) undermine optimal complementary feeding and inhibits dietary diversity as children miss essential nutrients provided by these food items. The revelations made by the HWs also suggests a gap in the knowledge levels of caregivers regarding particular food items that can help prevent anaemia and boost the cognitive development of children. The findings also have implications for the need to engage grandmothers, mothers-in-law, fathers, influential community leaders as stakeholders in the development and implementation of nutritional interventions for growing children.

## CONSENT

Informed consent for inclusion into this study was obtained from each of the community health workers and volunteers using standard protocols.

## ETHICAL APPROVAL

Ethical clearance and approval for the study was obtained from two ethical review boards - the Dodowa Health Research Centre (DHRC) Institutional Review Board (IRB) of the Ghana Health Service and the Institutional Review Board (IRB) of the University of Cape Coast (U.C.C).

## COMPETING INTERESTS

Author has declared that no competing interests exist.

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