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Influence of Sociocultural Practices on Food and Nutrition Security in Karamoja Subregion of Uganda

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ABSTRACT
The study determined the influence of sociocultural practices on food and nutrition security of children and women in Karamoja subregion, located in northeastern Uganda. Sixteen focus group discussions were conducted among 133 participants. Data were analyzed using qualitative content analysis. Findings indicate that cultural norms, myths, and taboos restrict consumption of animal-sourced foods and some green vegetables by women. Sociocultural practices promoted prelacteal feeding, affecting the implementation of World Health Organization's recommendations for exclusive breast feeding. In conclusion, sociocultural practices influence food and nutrition security, exposing women and children to the risk of malnutrition and associated consequences.

KEYWORDS
Child nutrition; ethnicity; exclusive breastfeeding; maternal nutrition

Cultural norms, taboos, and beliefs lie within the contextual factors included in the stratum of basic causes of malnutrition according to the categorization established in the United Nations Children's Fund (UNICEF) food-care health conceptual framework (Martínez and García 2013). According to Edame et al. (2011), the social and cultural values of foods consumed are affected by the availability and affordability of food. These cultural influences apply to eating patterns of adults as well as what and how adults feed their children and how the children are socialized to choose foods for themselves (Kumanyika 2008). In addition, the social values of foods are important determinants of food preferences, with foods that are accorded high value being preferred, and those accorded low value being avoided (Edame et al. 2011). Therefore, cultural influences lead to divergences in the habitual consumption of certain foods and in traditions of preparation and, in certain cases, can lead to restrictions such as exclusion of meat and milk from the diet (Steptoe, Pollard, and Wardle 1995).

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Demewoz and Tesssema (2015) indicated that while the primary purpose of food is nutrition, it also has cultural a dimension by which the members of the cultural group choose what, when, where, how, and with whom to eat not only by flavor or nutritional value of the food but by many cultural factors such as religion, gender, economic and social status, ethnic and kin relation, arguing that the nutritional status of a household and/or its members is determined not only by the biological (nutritional) content and availability of the food, but also by the cultural patterns that govern the food norm, custom, and value within the community at large. Nevertheless, in most cultures, pregnancy, childbirth, and the postpartum period are characterized by various beliefs and practices designed to protect the physical and spiritual health of the mother and infant by determining, among other things, when, what, and how the mother and infant eat and when and what type of health care is needed(Briones 2015). Mothers and children are victims of an environment in which their nutrition and diet are largely regulated by ancient customs and taboos (Martínez and García 2013), and the fact that parents' conceptions of child growth, health, and malnutrition are culturally bound (Flax 2015) justify the need to study the influence of sociocultural practices in Karamoja subregion.

Despite known ethnic diversity in Karamoja subregion (Schniepper 2013; United States Agency for International Development (USAID) 2011; Ayoki 2007), there is inadequate research on the influence of sociocultural practices on food and nutrition security and possible risks to maternal and child heath. Karamoja subregion is of particular significance in that it is the most food insecure part of Uganda (Food and Agriculture Organization [FAO] 2010; World Food Programme [WFP] 2009). Moreover, the Uganda Demographic Health Survey (2016) indicated that Karamoja subregion has the poorest nutrition indicators for women and children. According to this report, among children below 5 years of age, 35% were stunted, 10.0% were wasted, 25.8% were underweight, and 67.7% had anemia. The report also indicated that 32% of women of childbearing age were anemic (UBOS/ICF 2017).

The present study therefore underscores the role of sociocultural practices with regard to (1) the function of food and the social activity and ritual of eating beyond a means of meeting a body's nutritional requirements and (2) the role of various foods in the culture and tradition among the ethnic groups (including taboos, myths, ritual foods) and implications for nutrition and health of women and children. In addition, the present study is intended to contribute to the effort of promoting cultural sensitivity to interventions that address maternal and child nutrition, not only in Uganda, but also in other parts of the world where cultural practices are deeply entrenched, to the detriment of maternal and child nutrition.

Methods and materials

Research team and reflexivity

The research team was led by a male doctoral scholar of Gulu University who is also a lecturer at the same University. He has a master of science degree in applied human nutrition. The research process was preceded by a familiarization visit to the study areas. During this exercise, the participants were identified with the help of local leaders and sensitized on the purpose of the research and the ethical principles, emphasizing confidentiality, freedom to withdraw from the group any time before or during the discussion sessions, and freedom to ask questions in order to understand any issue concerning the study.

Study design

The study was cross-sectional by design and sought to process and scrutinize qualitative data premised on the theories of content analysis. Multistage sampling was used. Four of the five major ethnic groups in Karamoja subregion, distinct with respect to dialect, were purposively selected. These included Karmojong of Matheniko subethnic group, Pokt, Dodoth, and Labwor/Thur in Moroto, Amudat, Kaabong, and Abim districts, respectively. Two subcounties where each of these ethnic groups reside were randomly selected by ballot. Similarly, one parish per subcounty was randomly selected by ballot. From each of the parishes, the study participants were enrolled on a voluntary basis with the help of the respective Local Council one (LC I) officials.

A total of 133 participants between 18 and 70 years of age were included to ensure representativeness. The number of participants ranged from 8 to 10 per group (Grudens-Schuck, Beverlyn, and Kathlene 2004), but for female participants, at least two pregnant women and two lactating mothers had to be represented in each group.

Study setting

The study was carried out in Karamoja subregion. The subregion, located in the northeastern part of Uganda, spans around 27,000 sq km (10% of the country) (Schniepper 2013) and has 965,100 inhabitants (UBOS 2016). It is organized into seven districts: Kaabong, Kotido, Abim, Amudat, Moroto, Nakapiripirit, and Napak (Schniepper 2013; UN OCHA 2010). The subregion is bordered by Kenya in the east; the Republic of South Sudan in the north; Sironko and Kapchorwa Districts in the south; Kitgum, Agago, Otuke Amuria, and Katakwi Districts in the west (UN OCHA 2010). Karamoja subregion has five major ethnic groups: Dodoth in the north (Kaabong district), the Jie in the central region (Kotido district), and the Karamojong (subdivided into the Bokora, Matheniko, and Pian groups) in the south

(Moroto district). The Pokot, an unrelated tribe from a separate linguistic group, are located near the border of Kenya in the southeast of the region (Amudat district) (Schniepper 2013; United State Agency for International Development (USAID) 2011; Ayoki 2007) and the Labwor (Ayoki 2007).

The study participants were both women and men in their respective ethnic territories. The participants were organized in such a way that men and women had separate groups. The rationale for involvement of both male and female participants in the study was to ensure fair representativeness in terms of gender. In addition, women are usually the main caregivers in the family while men are an integral part of cultural systems in a community and their practices and behaviors could influence food and nutrition security as well as health of their household's members. With the help of the LC I officials, the participants were informed of the venue a day prior to the data collection. On the agreed dates, the participants converged at common places within the parishes but away from the busy trading centers to minimize distractions and interference by other community members not selected to participate in the study.

Data collection

Data were collected by means of focus group discussion (FGD) between October and December 2014. According to Onwuegbuzie et al. (2009), the number of times a focus group meets can vary from a single meeting to multiple meetings, but using multiple focus groups allows the focus group researcher to assess the extent to which saturation has occurred. In the present study, the information obtained from up to four separate focus group discussions was similar in context, repeated, and hence considered to be saturated. Therefore, in each ethnic group, a total of four FGD meetings involving different participants were conducted. Two of the four FGD meetings were conducted with female participants separate from male participants to ensure free flow of information. The focus group discussions were conducted for 2–3 hours. Each FGD was undertaken with the help of two trained research assistants under supervision and guidance of the authors. The research assistants were graduates with bachelor's degrees and ordinary diplomas in the areas of agriculture, social works and administration, development studies, information and communication technology, and health. To ensure that no information was missed, two male and two female research assistants per ethnic group were involved in the FGDs. Male research assistants conducted FGDs with the male groups while female research assistants undertook FGDs with the female groups. During the FGDs, characteristics of participants such as age, occupation, education level, and gender were also recorded.

Due to diversity in languages spoken in Karamoja subregion, research assistants had to be resident and fluent in the local language of the community. Therefore, the FGD sessions were conducted in the local language (mother tongue) and responses were recorded in English. The written

records of the responses from participants were obtained. FGDs were guided by questions broadly divided into the following sections: (1) types of foods, both plants and animals, commonly consumed in the area; (2) cultural norms, myths, and taboos associated with foods; and (3) infant and young child feeding (IYCF) practices, especially, frequency of breastfeeding, pre-lacteal feeding for cultural reasons, age at introduction of complementary foods to an infant, and age for stopping breastfeeding of a child.

Data analysis

Data were analyzed using qualitative content analysis following procedures described by Cho and Lee (2014) that involved selecting the units of analysis, creating categories, and establishing themes. In the present study, the units of analysis for this study were (1) types of foods, both plants and animals, commonly consumed in the area; (2) cultural norms, myths, and taboos associated with foods; and (3) IYCF practices. All the responses, with the exception of characteristics of participants, were processed using Microsoft Office Word 2007. The responses from each unit with similar meanings and connotations were compressed into related categories. Different types of foods consumed by the ethnic groups were organized into food categories according to FAO (2011). For the last two units of analysis (2 and 3), short paragraphs were written, summarizing the findings for each category and/or subcategory, noting similarities and differences across groups. The categories and/or subcategories in the present study were all women, pregnant women, lactating mothers, and IYCF practices. The comments were interpreted in relation to their influence on food and nutrition security as well as on maternal and child nutrition. Data on characteristics were analyzed to generate descriptive statistics for age, gender, education level, and occupation using IBM Statistical Package for Social Scientists version 20.

Ethical clearance

Clearance and registration of this research was done at Uganda National Council of Science and Technology (UNCST), and permission to conduct the study was granted by the Resident District Commissioner (RDC) of the respective districts. Verbal consent was obtained from participants before their enrollment into the study.

Results

Characteristics of study participants

The characteristics of participants are presented in table 1. The results in this table indicate that the average age of the participants varied from

Table 1. Demographic Characteristics of Participants, Segregated by Ethnicity.

	Ethnicity			
Demographic characteristic	Thur/Labwor (n = 35)	Dodoth (n = 32)	Karamojong-Matheniko (n = 32)	Pokot (n = 34)
Age (years)				
Mean age	33.23 ± 12.01	34.38 ± 10.82	39.31 ± 14.40	40.47 ± 16.91
Minimum-maximum age	18–69	20–65	18–70	18–70
Gender (%)				
Male	54.3	50	50	52.9
Female	45.7	50	50	47.1
Education (%)				
No formal education	11.4	53.1	84.4	94.1
Lower primary education (P.1–P.4)	31.4	25	15.6	5.9
Upper primary education (P.5–P.7)	20	15.6		
Secondary ordinary level (S.1–S.4)	20	3.1		
Secondary Advanced level (S.5S.6)	11.4	3.1		
Tertiary level (university, college)	5.7			
Occupation (%)				
Subsistence farming	80	81.3	53.1	52.9
Pastoralist		6.3	9.4	26.5
Retail business	11.4	3.1	9.4	
Casual labor	8.6	3.1	9.4	2.9
Other (e.g., brewing, charcoal burning, firewood sale, gold mining		6.3	18.8	17.6

33.23 ± 12.01 years in Thur/Labwor community to 40.47 ± 16.91 years in Pokot community. The minimum and maximum ages of participants were 18 years and 70 years, respectively. Most participants (50%–94%) never attained any formal education. Across all the ethnic groups, the main occupation of the participants was subsistence farming, in which 52%–81% were involved. A considerable proportion of Pokot community (26.5%) engaged in pastoralism, with little involvement (less than 10%) of other ethnic groups in the same activity. Subsistence farming was most commonly practiced among the Thur/Labwor and the Dodoth compared to the Karamajong-Matheniko and Pokot (table 1).

Types of foods consumed by the ethnic groups

The various types of foods consumed regularly among the ethnic groups are indicated in table 2. The authors excluded foods supplied by the nongovernmental organizations (NGOs) and community-based organizations (CBOs) because they usually target a small proportion of the beneficiaries (extremely vulnerable people) in the respective communities. Wild foods were also excluded because their consumption is irregular. The results showed that types of foods consumed across ethnic groups were similar in all the food groups. There was more diversity in plant-based food sources than in animal-based food sources among the Thur/Labwor compared to food diversity in other ethnic groups. Meat was derived from

Table 2. Common Types of Foods Consumed across the Ethnic Groups.

Food types by group	Ethnic group and types of foods consumed			
	Labwor/Thur	Dodoth	Karamojong-Matheniko	Pokot
Starchy staples[1]	Sorghum, maize, finger millet, cassava, sweet potatoes, pearl millet, rice, Irish potatoes	Sorghum, maize, finger, pearl millet, finger millet, cassava, Irish potatoes, sweet potatoes	Sorghum, maize, finger millet, sweet potato, cassava	Maize, rice, sorghum, finger millet, cassava, sweet potatoes, Irish potatoes
Dark green leafy vegetable[1]	Cowpeas (boo), sorrel (amalakwang), *Amaranthus* species (dodo), kales (sukumawiki), *Gynandropsis* (cloeme) *gynandra* (akeyo), *Corchorus triloularis* (otigo), pumpkin leaves, red pepper leaves, cassava leaves, *Moringa oleifera*, spinach, *Crotalaria ochroleuca* (alaju), green pepper	Cowpeas (eboo), pumpkin leaves, *Amaranthus* species (edodo) *Gynandropsis* (cloeme) *gynandra* (nakeyo), kales (sukumawiki), sorrel (emalakwang), carrots, spinach, green pepper	Cowpeas (eboo), *Amaranthus* species (edodo), spinach, kales (sukumawiki)	Kales (sukumawiki), pumpkin leaves, *Amaranthus* species (dodo), kales (sarach), cowpeas (kunden)
Other vitamin A–rich fruits and vegetables[1]	Pumpkins, pawpaw, mangoes, oranges, sweet bananas, passion fruits	Pumpkins, pawpaws, mangoes, red pepper	Pumpkins, pawpaws, mangoes, sweet bananas, red pepper	Pumpkins, pawpaw, mangoes
Other fruits and vegetables	Jack fruit, avocado, *Annona muricata* (soursop), guava, watermelon, eggplants, onions, tomatoes, okra, cabbage	Oranges, guava, passion fruits, calabash gourd (amugit), onions, *Cucumis figarei* Delile (cucumber), cabbage, tomatoes	Water melon, passionfruits okra, *Cucumis figarei* Delile (cucumber), cabbage, onions, tomatoes, eggplants, calabash gourd (amugeti)	Avocado, oranges, sweet bananas, lemons, guava, eggplants, tomatoes, *Solanum gilo* (entula), onions, cabbage
Organ meat/blood	Blood (cattle, goats, sheep)	Blood (cows, goats, donkey, sheep)	Blood (cattle, goats, sheep, camels, donkey)	Blood (cattle, goats, sheep, camels, donkey)
Meat and fish [2]	Meat (cattle, goats, sheep, chicken, pigs, turkey, guinea fowl, pigeon, doves), silver fish	Meat (cattle, goats, sheep, donkey, chicken, ducks, turkey, guinea fowl), silver fish	Meat (cattle, goats, sheep, donkey, chicken, pigs, pigeon, turkey, guinea fowl), silver fish	Meat (cattle, goats, sheep, camel, donkey, chicken), silver fish
Eggs	From chicken, ducks, turkey, guinea fowl	From chicken, ducks, turkey, guinea fowl	From chicken, guinea fowl	From chicken, guinea fowl
Legumes, nuts, and seeds[1]	Beans, ground nuts, sesame, sunflower, cow peas, pigeon peas, green grams, *Okuku**, sorrel seeds (thoke)	Beans, sunflower, ground nuts, boo seeds, cowpeas, sesame, pumpkin seeds, cucumber seeds	Beans, sunflower, ground nuts, green grams, cucumber seeds, pumpkin seeds, *Ngadekela**	Beans, cow peas (kunden) ground nuts, *Akadelwai**,
Milk and milk products[1, 2]	Fresh milk, sour milk (cow, goat, sheep), butter (cow's milk)	Fresh milk (cow, goat, sheep, donkey), sour milk, butter (cow's milk, goat's milk),	Fresh milk (cow, goat, camel), sour milk, butter (cow's milk, goat's milk), ghee	Fresh milk (cow, goat, camel, donkey), sour milk, butter and ghee (cow).

[1]Food groups in which the foods consumed were arranged from the most commonly consumed to the least commonly consumed.
[2]Animal food groups with sources indicated in brackets.
*Unidentified wild foods.

a number of animals including cattle, goats, sheep, and poultry across all the ethnic groups; camels and donkeys provided an additional source of meat among Dodoth, Karamojongs, and Pokot. Across the ethnic groups, milk that provides part of their meal was mainly obtained from cows, goats, and sheep. However, among the Pokot, milk was obtained from camels and donkeys in addition to the common sources of milk and milk products in Karamoja subregion.

Cultural norms, myths, and taboos

Cultural norms, myths, and taboos associated with foods among all women, pregnant women, and lactating mothers across all the ethnic groups are indicated in tables 3–5. In all these tables, most of the cultural norms, taboos, and myths restrict consumption of animal foods depending on the physiological status of the women. For the same foods, the associated cultural norms, taboos, or myths vary, showing similarities in some cases. All the women, whether pregnant, lactating, or nonpregnant, were restricted from eating various animal-based foods and some plant-based foods because of either cultural norms or beliefs or myths associated with them such as lack of respect for their husbands or elderly men, causing death of women, sickness among women, divorce, misfortune, barrenness, and abortion or miscarriage (table 3).

Cultural norms restrict women any meat from the backs of chickens, goats, cows, and sheep:

> It is a sign of respect to my husbands … It gives women bad luck and misfortunes … Women who eat them will get complications during labor. (participants from Thur/Labwor community)

> A woman who eats meat from the back of cows, goats, chicken will die … will have continuous waist pain … will not be able to produce in her life. (participants from Dodoth community)

> When a stool of a man breaks while he is seated, he has to slaughter a he-goat. Women are not allowed to eat that meat or even touch it because it causes slimming to her and she eventually die if not helped quickly by performing a ritual. (a participant from Karimojong-Matheniko community)

> Women are not allowed to eat the tongue of a cow because it causes sickness of the throat to them … Women in menstrual periods are not allowed to take cow's milk because the cows will fall sick and die … Woman should not take milk from animals brought to her as dowry because the animals will return to groom's place … Women are prohibited from eating meat during menstrual periods because it will make them barren … The woman will never conceive again. (participants from Pokot community)

The pregnant women were the most restricted in consumption of foods of animal and plant origins by cultural norms, taboos, and myths (table 4). These restrictions were associated with difficulties in delivery, sickness of the

Table 3. Cultural Norms, Myths, and Taboos Associated with Various Foods for All Women in Karamoja Subregion, Segregated by Ethnicity.

	Associated taboos, myths, and cultural norms			
Foods	Thur/Labwor	Dodoth	Karamojong-Matheniko	Pokot
The back of chickens, goats, cows, sheep	Respect to their husbands, bad luck and misfortunes, complications during labor	Death, persistent back pain		
Meat from ribs		Misfortune, barrenness, curse on women		
Certain ritual meats			When a stool of a man breaks, he has to slaughter a he-goat and women are not allowed to eat or even touch it, because it causes slimming and eventual death	
Head of a cow and ngithepion		Stubbornness, divorce with husband		
Meat				Barrenness for women in their menstrual periods; meat from animals bitten by snakes or other wild cats/dogs associated with miscarriage
Gizzard	Respect to their husbands			
Testes of goats or cows				It is a taboo; must be cleansed by certain rituals
Organ meat (apusukut)				During rituals, the meat is cooked with the skin; if the skin is removed, the woman will develop swollen legs
		Barrenness		
Tongue	Meant for elderly men only as a sign of respect to elders; a misfortune and bad luck punishable by fine by the elder men.			Sickness of the throat; women become quarrelsome and disrespect their husbands
Uterus	Barrenness			

(*Continued*)

Table 3. (Continued).

	Associated taboos, myths, and cultural norms			
Foods	Thur/Labwor	Dodoth	Karamojong-Matheniko	Pokot
Vulva (elomacar)			For women and some young men leads to death unless some rituals are performed	
Wild cat	Women will smell like wild cat			
Aderit			Causes leopard skin for a clan called *Ngikatap*	
Cow's milk				In women on menstrual period the cow will fall sick and die;milk from animals brought to her as dowry because the animals may be recalled
Ebabui (Edia) i.e., greens Akeo Emus		It is poisonous; infertility; prevents conception; blindness in children if she eats		

Table 4. Cultural Norms, Myths, and Taboos Associated with Various Foods During Pregnancy, Segregated by Ethnicity.

	Associated belief, taboos, myths and cultural norms			
Foods	Thur/Labwor	Dodoth	Karamojon-Matheniko	Pokot
The ribs	For some clans (Kalanga Clan), believed to cause retention of placenta during delivery	Retention of placenta during delivery; spoils the voice/throat of the baby		
Meat from back of animals		The woman will have a stiff waist		
Head/brain of animals		Persistent flu in babies		
Meat of animal that dies in labor or while pregnant	Miscarriage or death of the woman during labor			
Fatty meat		Spoils the intestines of the baby as it makes them hot		
Meat from animals bitten by a snake or killed by hyena				Delayed walking;sickness or death of the newborn child;baby's head develops wounds and loses hair
Offals	Umbilical cord will wind around the neck of the baby and strangle it to death	The umbilical cord will wind around the baby's neck and strangle it to death; causes abortion	Complications during labor; blood from the pregnant woman will mix with that of fetus and the fetus will die; child abnormality such as mental problem after birth; causes miscarriage	
Meat from animals bitten by a snake or killed by hyena				Delayed walking;sickness or death of the newborn child; babydevelops wounds on head and loses hair
Warthog/wild pig meat				Suffocation or breathing difficulties in the newborn babies
Leopard meat				The child will be cruel, violent, and always like fighting after birth
Lungs		The baby will be too weak to stand and will not walk		

(*Continued*)

Table 4. (Continued).

Foods	Associated belief, taboos, myths and cultural norms			
	Thur/Labwor	Dodoth	Karamojon-Matheniko	Pokot
Testes of animals				Swelling of the sexual organs of newborn baby boys
Udder				Sickness or death of mothers;pain in the breasts
Butter			For some clans because it is believed to have worms and germs	
Milk	Makes the baby grow big in the womb	Consumption of goat's milk leads to child blindness	Goat's milk it is known to be given to babies after birth when the mother does not give milk in the first few days after birth	Taking milk during the time of caterpillars (rainy season) makes the child not walk as he will be crawling like the caterpillars;milk from animals infected with foot and mouth disease makes the child develop sores on the mouth and experience pain in the neck;disappearance of fetus in the uterus without miscarriage
Eggs	Baby will grow big in the womb			
Akiliton (wild dodo)			In some cultures if the woman not sure of the sex of the baby; in case it is a baby boy, it causes miscarriage.	Leads to miscarriage
Soya	Baby will grow big in the womb			
Sugar cane	Creates scar or cracks on the body of the baby			Sugarcane infested by pests causes wounds on the cord stump of the newborn child
Mangoes	Believed to be good for vitamin content			
Sorrel (Malakwang)	believed to be good for vitamin content			
Cooked maize-beans mixture (ngikawo/kitheri)		It is too hard for the baby in the womb to eat		
Ekapangiteng* (herb)			Miscarriage/abortion	
Ebabui* and *Gynandropsis* (Cloeme) *gynandra*:		Child will die; child will be blind; causes abortion		

*Unidentified wild vegetables and herbs.

Table 5. Cultural Norms, Myths, and Taboos Associated with Various Foods during Lactation, Segregated by Ethnicity.

	Associated belief, taboos, myths, and cultural norms			
Foods	Thur/Labwor	Dodoth	Karamojon-Matheniko	Pokot
Food from the father's home	Disappearance of breast milk unless a ritual is performed			
Baboon meat	Reduces breast milk			
Fatty meat		If the baby breast feeds, he/she will have diarrhea		The child will become sick; causes constipation, fever, and vomiting in the child
Blood		The child will become blind		
Ghee			In some clans, the child will be frequently sick	The child will become sick; causes constipation, fever, and vomiting in the child
Butter			Cessation of breast milk production	The child will become sick, causes constipation, fever, and vomiting in the child
Milk from a cow that has just given birth				For mother of twins the children will stammer, and experience body weakness throughout life
Goat's milk	.	The baby will become blind		
White ants				Diarrhea, fever, vomiting in the child
Boiled maize with beans	Reduces breast milk			
Millet porridge	Where pregnancy is assisted by native doctors, millet porridge is prohibited until the native doctor performs some rituals	The child will become blind		
Ebithnai, eduol, akeyo cucumber		The child will become blind		
Alcohol		She will burn the child and the child might die; delays the formation of and reduces breast milk		
Water				During delivery, the mother will die

baby or the mother, child abnormalities such as mental problems and difficulties in walking after birth, death of the mother or child, retention of the umbilical cord, loss of voice by the baby after birth, miscarriage, and abortion.

> Pregnant women in some clans (Kalanga clan) are prohibited from eating ribs and offals of animals such as goats, cows, sheep because the placenta will be retained in her womb during labor … a pregnant woman who eats meat from a goat, or sheep, or cow that dies in labor or that dies while pregnant will have miscarriage or die when she is giving birth. (participants from Thur/Labwor community).

> Pregnant women who eat goats meat will experience miscarriage … their child will become blind. (participants from Dodoth community)

> Pregnant women in our community are prohibited from eating offals of animals such as cows, goats, sheep because it causes miscarriage … the blood from the woman will mix with fetus and the fetus will die … baby will be born with abnormality such as mental problem … the mother will get complications during labor. (Karamojong-Matheniko)

> Pregnant women do not eat the wild type of amaranth because they are not sure of the sex of the unborn baby. In case the unborn baby is a boy, the pregnant woman will experience miscarriage. (Karamojong-Matheniko)

> Pregnant women are prohibited from eating meat from animals bitten by snakes, or killed by wild beasts because the child will not walk at the expected time … It will cause sickness or death of the newborn baby … The baby's head will develop wounds and the hair will disappear from the head causing baldness. (participants from Pokot community)

> During the time of caterpillars [rainy season], pregnant women are prohibited from consuming milk because the child will not walk and be crawling just like the caterpillars. (participants from Pokot community)

> Pregnant women are prohibited from consuming milk from animals infected with foot and mouth disease because the child will develop sores on the mouth and experience pain in the neck. (participants from Pokot community)

For lactating mothers in all the ethnic groups (table 5), consumption of various foods was restricted by cultural norms, taboos, and myths associating them with misfortunes; reduction and/or complete loss of breast milk; child sickness such as fever, vomiting, constipation, and diarrhea; child abnormalities such as difficulties in speaking (stammering) and blindness. The Dodoth believe that alcohol consumption by lactating mothers can lead to loss of breast milk and accidents such as burning of the child.

> Breastfeeding mothers do not eat any food from their father's home until a ritual is performed. If she eats foods from her father's home, the breast milk will disappear and her baby will die mysteriously. (a participant from Thur/Labwor community)

> Breastfeeding mothers do not drink alcohol because it causes delay in the formation of breast milk … The mother can accidentally lie on the child or burn the child while cooking … It will reduce the milk from the mother's breast. (participants from Dodoth community)

> Breastfeeding mothers do not drink goat's milk because the baby will become blind … breastfeeding mothers avoid eating fatty meat because the baby will have a running stomach [diarrhea]. (participants from Dodoth community)

> A mother who is breastfeeding is not allowed to eat butter because she will not produce breast milk for the newborn child. (Karamojong-Matheniko)

> When a breastfeeding mother eats fatty foods such meat, butter, ghee, the child will become sick … it causes constipation, fever, and vomiting to the child … breastfeeding mothers of twins are not allowed to consume milk from a cow that has just given birth, even if the twins are already grown up … because it will make the twins stammer, and shake all the time. (participants from Pokot community)

Infant and young child feeding practices and gender roles

Infant and young child feeding (IYCF) practices assessed the frequency of breastfeeding, appropriate age for stopping breastfeeding, age for introducing complementary feeding, foods given to infants before the age of 6 months for traditional/cultural reasons, and persons responsible for food preparation (table 6).

In all the ethnic groups, the infants were breastfed frequently. The age at which complementary foods were introduced to infants was 6 months among the Labwor and Dodoth, 6–8 months among the Pokot, and 3–8 months among the Karamojong of Matheniko subethnic group. The present study also indicates that some foods or herbs were given to children before the age of 6 months for cultural reasons and other perceptions. These reasons and perceptions included naming of the child, initiation of the child, enlargement of the stomach before starting supplementary feeding, supplementing breast milk in case the mother does not produce enough. The foods or herbs were also given to infants: when the mother has not started producing milk after birth, for prevention of constipation in the baby, to provide energy to the baby, and for cleansing the baby of diseases that could have been contracted from the mother during pregnancy. Mothers in Labwor and Dodoth communities stop breastfeeding a child from 2 years to 3 years, while among the Karamojong-Matheniko and Pokot communities, the age for stopping breastfeeding a child vary from 6 months to 3 years and 1 year to 2 years, respectively.

Discussion

A review by Kashima (2014) indicated that cultural norms are dynamic and change from time to time. Therefore, to obtain comprehensive information about the cultural norms, beliefs, and taboos of participants of different

Table 6. Infant and Young Child Feeding Practices among the Various Ethnic Groups.

Practices	Ethnic groups			
	Thur/Labwor	Dodoth	Karamojong-Matheniko	Pokot
Frequency of breastfeeding	When the baby needs it	At all times without limit, to give energy and good health and to make the baby grow strong	All the time the baby feels like having it so that the child grows well and healthy; at least 8–10 times in a day	Any time the baby feels hungry because breast milk is food for babies
Foods given to infants below six months for traditional/ cultural reasons	Millet porridge for naming the child, to enlarge the stomach; *Ngor*, cow pea leaves, for giving name to the baby; Local brew (*Kwete*) given to the baby to taste, in order to give authority to the baby to be a member of the community (initiation); Millet porridge, local brew (*Kwete*) during the naming of a child; Millet porridge for naming the child; All the naming and initiation are done 1 or 2 weeks after birth	Butter: when the baby swallows, it means he/she has accepted the name, if he/she refuses, they give another name; boiled cow's milk in case the mother has no milk yet in the breast; Cow's milk, blue band, to give enough milk to the child in case the mother's milk is not enough; water, in order to give enough blood; butter, kwete during the time of naming the child	-After birth, the child is given goat's milk in the first 2–3 days when the mother's breast has not started producing milk -Herbs: loderek(a) is mixed with goat's milk and given to the child so that when the child starts breastfeeding, the breast milk will not disturb the stomach of the newborn baby. -Ekamuria: helps prevent constipation in the child, to allow the baby to defecate with less difficulty; it is given through the anus -Losagwana (herb) to allow the baby to defecate well Lokorei (herb): is mixed with honey and given to the newborn baby -Goat's milk is given when the mothers breast has no milk -Mix sugar and salt to give enough energy to the child	-No food or drinks apart from breast milk -Nothing is given to the children immediately after birth -Other herbs: Senetwo, Chepkarermot, chepkolomot, and ketpokata given as juice to newborn babies. It also cleanses the newborn baby from oils, fats, and constipation and hardens the fontanelle -Aloe vera roots (herbs) are mixed with fresh milk and given to the baby at one week to cleanse the blood of the baby in case the mother had some diseases during pregnancy
Age for introducing complementary feeding	6 months	6 months	At 3 months, 4 months 4 months, 6 months 8 months	6 months 8 months
Appropriate age for stopping breastfeeding	2 years 2.5 years 2–3 years	2 years 2.5 years 2–3 years 3 years	6–12 months, 1 year 2 years 1.5 years 2–3years	1 year 2 years

ethnicities, mixed ages and genders in Karamoja subregion were enrolled in the study. Low educational attainment by the communities in Karamoja subregion (table 1) could pose challenges in implementing behavior change programs to address nutrition and health programs. The communities in Karamoja subregion had different livelihood strategies, as demonstrated by their various occupations (table 1). The authors believe that the agro-ecological environment drives the livelihood activities in Karamoja subregion. According to Adoch and Ssemakula (2011), Karamoja subregion is unique compared to the other regions of Uganda in almost every aspect ranging from topology to natural resource endowment, the nature of the people's livelihood, the level of development, and the culture. The subregion has three livelihood zones (ACF, 2013; FAO/EC 2010; Ayoki, 2007; Schniepper 2013; Gelsdorf et al., 2012; USAID, 2011). Thur/Labwor community occupies an agricultural zone; the Karamojong-Matheniko inhabit both the arid pastoral zone and the agro-pastoral zone; Dodoth community inhabits both agricultural and agro-pastoral zones; the Pokot inhabit a pastoral zone. Although the literatures indicate that the Pokot and Karamojong-Matheniko are predominantly pastoralists, subsistence farming as a livelihood could be the result of several programs by both government and nongovernmental agencies. These programs include the Karamoja Livelihood Program (KALIP) among the Karamoja Integrated Development Program (KIDP).

Types of foods consumed among ethnic groups

Food is loaded with symbolic value in all societies and is a means of communication; of creating, affirming, and reinforcing social relations; of expressing one's personal or group identity (e.g., ethnicity, class, gender); and of connecting to the living or ancestral peer group (Briones 2015). According to Kumanyika (2008), the types and amounts of foods and beverages, flavors, textures, food combinations, and traditional uses and meanings of food mark differences among ethnic groups and societies, convey symbolic meanings, create social interactions, and define pleasure and punishment. Although the present study (table 2) indicates that the types of foods consumed by the ethnic groups in Karamoja subregion were similar, food preference and availability in each of the ethnic groups appears to drive consumption patterns. As the results in the present study indicate, among starchy staples, maize is the preferred food by Pokot, while sorghum or maize as well as millet are preferred by other ethnic groups. Other starchy roots and tubers such as cassava and sweet potatoes were also gaining acceptance in the subregion, as reported in all ethnic groups. The patterns of consumption of fruits and vegetables as well as milk and milk products are due to their availability in these communities. Animal products such as blood, meat, poultry, eggs, milk, and milk products were consumed by all the ethnic

groups not only because of a range of animals reared but also due to the fact that Pokot, Karimojong, and some parts of Dodoth and Labwor either partly or entirely derive their livelihood from pastoral activities. These findings are consistent with the existing literature (Be´ghin et al. 2013) that dietary habits are influenced by personal factors (individual food choice decision, food choice motivations, religious adherence, craving, etc.) and social/environmental context. In addition, the authors are of the view that the dietary patterns among the ethnic groups could be attributed to different ecological zones that offer different livelihood strategies to access various foods.

Therefore, as dietary habits are often cultural and influenced by the food available for consumption, understanding the characteristics of diet could provide a basis for future interventions to improve lifelong health (Völgyi et al. 2013). The authors believe that the present study will promote cultural and ethnic sensitivity in addressing food security interventions not only in Karamoja subregion but also in other communities deeply affiliated to their cultural values, norms, and beliefs.

Influence of cultural norms, myths, and taboos on maternal nutrition

In regard to maternal nutrition, cultural rules and systems relating to food selection, allocation, and consumption commonly take the form of foods that are to be avoided or preferentially consumed by all or by segments of a cultural group (i.e., pregnant and/or lactating women) (Cooperative for Assistance and Relief Everywhere [CARE] 2013). Demewoz and Tesssema (2015) pointed out that although the primary purpose of food is nutrition, nutritional status of a household and/or its members is determined not only by the biological (nutritional) content and availability of the food, but also by the cultural patterns that govern the food norms, customs, and values within the community at large.

Despite the variety of foods reported available and consumed in the various ethnic groups, cultural norms, taboos, and myths compromise the consumption of animal-sourced foods and some green vegetables by women among all the ethnic groups (tables 3–5). According to findings in the present study, consumption of these foods by women is associated with lack of respect for their husbands and elderly men, death of women, sickness, miscarriage, abortion, abnormalities in children after birth, complications during delivery, misfortune, and barrenness among others (table 3). Moreover, the present study shows that pregnant women (table 4) and lactating mothers (table 5) were subjected to specific proscriptions in addition to proscriptions for all the women. These findings are in agreement with the available literature (Briones 2015) indicating that in most cultures, pregnancy, childbirth, and the postpartum period are characterized by various beliefs and practices designed to protect the physical and spiritual health of the mother and infant by determining, among other things, when, what, and how the mother and infant eat and

when and what type of health care is needed. This places women of child-bearing age at a nutritional disadvantage because they are at greater risk of adverse nutrition and health outcomes than other population groups due to their increased physiological demands during pregnancy and lactation (Deshanie et al. 2014; Quenia Dos Santos et al. 2014). Excessive restriction of women by cultural taboos, myths, and norms from eating foods rich in proteins and micronutrients, such as animal products, can predispose these women to maternal malnutrition and low birth weights for their babies (Ezeama and Ikenna 2014). Maternal malnutrition does not have a major effect only on their own health but also on their children's health (Feldkamp et al. 2014; Haileslassie, Afework, and Meron 2013).

On a good note, however, green vegetables and mangoes were perceived to be good sources of vitamins among the Labwor, while the Pokot believe that feeding a child with milk from animals infected with foot and mouth disease causes sickness to the child.

> Mangoes, amalakwang, are good for vitamin during preganacy … It makes my baby grow well. (a pregnant woman from Thur/Labwor community)

> We do not consume milk from animals infected with foot and mouth disease because the child will develop sores on the mouth and experience pain in the neck. (a pregnant woman from Pokot community)

The authors believe that such perceptions could positively influence the nutrition and health of not only the mother but also the fetus and infant or young child.

Influence of cultural norms, myths, and taboos on infant and young child feeding

In all societies and cultures, infant feeding practices, particularly breastfeeding, have "a rich symbolic content" shaped by the local understanding of breastfeeding and can be a "highly emotive debate" issue (Liamputtong 2011). Breastfeeding is considered the optimal source of nutrition for infants and is internationally recognized as a priority health area (Gallegos et al. 2015). Among all the ethnic groups, the present study found that mothers recognized the importance of breast milk to the infants. There was consensus in the responses given by women in all the ethnic groups who were asked about the frequency of breastfeeding (table 6):

> At all times without limit, to give energy and good health, and to make the baby grow strong. (Dodoth woman)

> All the time the baby feels like having it so that the child grows well and healthy. (Karamojong-Matheniko woman)

> Any time the baby feels hungry because breast milk is food for babies. (Pokot woman)

I breastfeed every time the baby needs it. (Labwor woman)

Although complementary foods were reported to be introduced mostly at 6 months across the ethnic groups, giving prelacteal foods clearly indicates that the women do not understand the concept of exclusive breastfeeding. The present study (table 6) therefore revealed that cultural norms encouraged prelacteal feeding among all the ethnic groups, affecting the WHO's recommendation for exclusive breastfeeding. The WHO recommends exclusive breastfeeding (EBF) for the first 6 months of life followed by continued breastfeeding and gradual introduction of appropriate and safe complementary foods until age 23 months (Heidkamp et al. 2015). Indeed, foods or herbs were given to infants for cultural reasons or norms or myths that include initiation and naming of the child, treatment of diseases inherited from the mother and prevention of constipation, giving milk when the mother has not started producing breast milk, and giving sugar and salt to infants for energy (table 6). These results are similar to those of a study in Kenya (Kimani-Murage et al. 2015), which indicated that some people believed a little water and sugar/glucose and/or salt or commercially prepared mixture of water (gripe water) is good for the baby as this would protect the baby from stomach problems. A study conducted in Tanzania indicated that certain foods given to infants were also associated with cultural beliefs. For example, native beer was used as prelacteal food to wake the infant up from sleep and relieve the exhaustion from its way out from the mother's womb into the world (Haya tribe of Northern Tanzania), water/dilute goat's milk (Datoga tribe, Tanzania), and water mixed with maize flour (Yao tribe, Malawi) were given to infants to allow the intestines to expand. In addition, herbs for medication (Yao and Chagga-Tanzania) and sugar and salt given immediately after birth (Wagogo-Tanzania) were some of the traditional practices (Liamputtong 2011). This evidence clearly indicates the existence of cultural practices among different ethnic groups and the variations in the beliefs and norms. The present study does not undermine the growing body of knowledge that other factors such as maternal age; maternal education; smoking; antenatal and maternity health-care seeking; health education; socioeconomic status; the child's characteristics, including birth weight, method of delivery, and birth order (Aronsson et al. 2015; Grimshaw et al. 2015; Kimani-Murage et al. 2015), influence suboptimal breastfeeding behavior and complementary feeding practices. It emphasizes that cultural orientations are part and parcel of human practice and behavior in which food-related beliefs, norms, and cultural traditions are potential risk factors to adequate maternal and child nutrition.

Conclusion and recommendations

Diverse types of food are consumed widely among ethnic groups in Karamoja subregion, but the preferences vary from one ethnic group to another.

Cultural norms, myths, and taboos limit consumption of animal-sourced foods among women in Karamoja subregion, exposing them to the risk of inadequate protein and micronutrient intake, and consequently poor health for the mother and child.

Prelacteal feeding practices by mothers in Karamoja subregion are influenced by cultural norms, myths, and taboos, posing a challenge to the WHO's recommendation for exclusive breastfeeding.

It is therefore recommended that nutrition education be provided to these communities, targeting both the women and their male partners, to increase knowledge and awareness on nutritious foods in order to increase nutrient intake. Nutrition education would also emphasize the importance of good nutrition, improve practices to minimize nutrient loss during food preparation, empower the community to identify symptoms of nutritional deficiencies, and avert the negative influence of cultural beliefs associated with food.

In addition, the authors recommend community dialogue to provide a forum for men, women, opinion leaders, and other stakeholders to discuss topical issues of cultural beliefs, norms, and myths and potential consequences on the health of mothers and children.

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