



Addressing child and maternal nutrition: a qualitative study on food prescriptions and proscriptions determining animal source food consumption in rural Kenya

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Received: 22 June 2021 / Accepted: 15 November 2022 / Published online: 10 April 2023
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Abstract

Animal source foods (ASFs) can play a critical role in the nutritional well-being of women and children. Although livestock ownership may translate to high availability of ASFs, community food prescriptions and proscriptions may determine consumption patterns and subsequent human nutritional status. This study sought to understand the existing dietary practices and underlying prescriptions and proscriptions of ASFs among women and children in Siaya County in western Kenya. The study was carried out among the Luo ethnic group in Siaya, western Kenya, within a livestock-keeping community where more than 90% of households kept at least one livestock species. Qualitative data collection was completed through 35 key informant interviews and 6 focus group discussions conducted between October and December 2018. Thematic analysis was used to establish and interpret patterns and relationships from emerging themes. We found male favoritism in food allocation and prohibition of eggs and (parts of) chicken, fish and meat for women and children, potentially contributing to low consumption of ASFs. Customary rites and ceremonies like funeral provided opportunities for the less fortunate to consume otherwise unaffordable and highly valued ASFs like meat. Religious beliefs and practices, unlike other cultural food beliefs and practices, remain rigid to change and thus contribute to low consumption of own-produced or locally available ASFs. To address protein malnutrition among these groups, our findings suggest improvement of animal production should be accompanied by interventions that address customary food prescriptions and proscriptions that may perpetuate low intake of ASFs especially among women of child-bearing age, mothers, pregnant women and children.

Keywords ASFs · Consumption · Prescriptions and proscriptions · Maternal · Nutrition

1 Introduction

Malnutrition remains one of the leading causes of death and diseases globally (WHO, 2019). The World Health Organization (WHO) estimates of 2020 indicated that 462 million adults were underweight while 52 million children under 5 years of age were malnourished. Global food insecurity levels have contributed to high levels of malnutrition with an estimated 2 billion people suffering from moderate to severe food insecurity (FAO et al., 2019). According to WHO estimates, over 2 billion people are faced with food insecurity globally with approximately 381 and 250 million of the undernourished individuals being found in Asia and Africa, respectively (WHO, 2020). An estimated 800 million poor people who live on less than a dollar a day subsist on grain-based food stuffs and a majority in this category require high-quality animal source foods (ASFs) to provide

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the essential proteins required to attain their maximum development potential (Adesogan et al., 2020).

Animal source foods include eggs, dairy products (milk, yoghurt, cheese), flesh foods (meat, fish, chicken) and organ meats all of which are rich in high quality digestible protein and energy (Adesogan et al., 2020; Neumann et al., 2010). Importantly, ASFs are also rich in micronutrients that are of nutritional importance to women, children, the elderly and other vulnerable populations (Herrero et al., 2013; Wong et al., 2018). Among the impoverished, livestock products contribute about 26% protein and 11% energy in their diets (FAO, 2012). Literature on the benefits of ASFs in enhancing health and wellness of individuals is abundant. For instance, a study on a dietary program among school going children established that supplementing their diet with milk and meat improved the children's test scores by up to 28% and 45%, respectively (Neumann et al., 2007). Animal source foods are said to enhance leadership, cognitive and intuitive skills (Hulett et al., 2013). Consumption of ASFs even in small quantities complements poor diets and can considerably aid in the prevention of undernutrition and nutritional deficiencies (Neumann et al., 2003).

Food in the cultural context is characterized by differences in habitual consumption of certain foods and food prescriptions/taboo for others (Meyer-Rochow, 2009). Early anthropological studies indicate that some food taboos, such as, those around dead animals are beneficial as they may prevent the spread of diseases and protect the population from harm (Alonso, 2015; Chakona & Shackleton, 2019). Similarly, cultural values attached to foods and the perceived nature of work performed by different household members may propel discriminatory food distribution patterns within the households that often favor one gender or age group over the other, with women and children being the most affected (Denney et al., 2014; Harris-Fry et al., 2017). As such, food availability does not necessarily guarantee consumption and nutritional intake by all members (Alonso, 2015). It is thus important to explore and comprehend the informal rules and non-verbal dictates that govern food and food intake in various contexts (Torpoco, 1997).

Bundala et al. (2020) observed that one third of rural household in sub-Saharan Africa did not include ASFs in their diets. In Kenya, low consumption of ASFs among poor rural households still persist even with an increased annual production of poultry meat and eggs totaling to more than 35,000 tons and 1.6 billion, respectively (FAOSTAT, 2019) and cattle products that account for over 80% of all meat and milk available (FAO, 2019a, b). Some of the contributing factors include high prices of beef, milk and low purchasing power as well as food habits (FAO, 2019a, b).

Among the Luo ethnic group of Kenya, food, locally termed as "*chiemo*" and food consumption is an integral part of their traditions and day-to-day way of life (Pascal,

2012). The staple food among the Luo is '*Kwon*'—known in Swahili as Ugali (a stiff porridge made from mixing boiling water with maize/sorghum/millet flour) and served alongside fish, or chicken, beef, vegetables, sour milk, or even cooked blood from a cow (Mboya & Achieng, 2001). Eating among the traditional Luo was done in groups, all male household members (including children, married and unmarried men) led by the male household head ate from the "*Duol*" (a central fireplace where men converge in the evening to sit and chat) while daughters and wives ate in the houses (Odede et al., 2017). This was seen as a way of sharing with the less privileged and vulnerable individuals such as children. Eating alone was considered a gluttonous act and such people were subjected to communal social sanctions to control any form of individualization. For instance, people who did not adhere to food sharing "*Chiem gi wadu*" which loosely translates to "eat with your neighbour" were described by stereotyping expressions such as "*ich kwar*" meaning "aching stomach" (Mboya & Achieng, 2001; Pascal, 2012).

Traditional Luo had dietary restrictions based on gender, social structure, kinship relationships and communal rites and rituals (Mboya & Achieng, 2001). From literature, it is evident that an individual's health, social status and pride might also contribute to avoidance of some ASFs by men or women among the Luo and other communities in Kenya. For instance, pregnant women in the Kalenjin community of Kenya are forbidden from eating meat from dead pregnant cows because it is believed that doing so will prevent the death of their unborn fetus. Regardless of the truth, such prohibitions, and taboos are likely to prevent the spread of zoonotic diseases to susceptible human populations from carcasses of livestock that died of diseases (Riang'a et al., 2017). However, some food prohibitions also have profound negative effect on an individual's food security. Findings by Briones Alonso et al. (2018) showed that eating-down (where women are told to eat less and avoid some foods) by pregnant women is a common transitory food rule among many African cultures aimed at preventing complications during delivery. Given the nutrient requirement of pregnant women, such prohibitions often have negative implications on their nutritional status and wellness (Alonso, 2015; Briones Alonso et al., 2018).

Despite owning a sizeable poultry population, Mosites et al. (2016) established that 23% and 4.8% of children in the present study site (Siaya County) were stunted and wasted, respectively. Up to 48% of the County's population is considered poor, while food poverty levels is at 34%. Whereas the contribution of poverty to the low consumption of ASFs has been acknowledged (Cornelsen et al., 2016), the influence of cultural food beliefs and practices on intake of ASFs has not been investigated among the Luo ethnic community of Western Kenya.

These food prescriptions and proscriptions can influence the consumption patterns of ASF's in a community and likely effect on diets and nutritional status of women and children, who are at increased risk of malnutrition. This study sought to understand the reasons, motivations behind ASFs prescriptions and proscriptions in terms of type and quantity of food served, to who, when and why among the vulnerable and poor populations of Luo Ethnic community.

2 Materials and methods

2.1 Study area

The study was conducted in Rarieda sub-County of Siaya county, western Kenya. The site was served by a Health and Demographic Surveillance System (HDSS) a platform run by the Kenya Medical Research Institute (KEMRI) and United States Centers for Disease Control and Prevention, Kenya. The study area comprised of 10 villages with approximately 1,908 households enrolled in both Population Based Infectious Disease Surveillance (PBIDS) and Population Based Animal Syndromic Surveillance (PBASS) within a 5.5 km radius of St. Elizabeth Lwak Mission Hospital (Feikin et al., 2010; Thumbi et al., 2015). This study site had served as a foundation for various health related research studies, at individual, household, compound, and community levels. The population consisted of largely sedentary smallholder agro-pastoralists and fishermen of the Luo ethnic group. Agriculture is the livelihood source, contributing about 60% of the household income and over 60% of all employment opportunities. Chicken ownership was at 88% with the median number of ruminant livestock owned per household being nine including cattle (55% of households), goats (41%), and sheep (19%) (Otiang et al., 2020; Thumbi et al., 2015).

Despite the majority of households owning livestock, a number of studies done in the region indicated low consumption of eggs and other ASFs in the region (Mosites et al., 2016; Thumbi et al., 2015). This is despite the fact that ASFs have proven benefits particularly in promoting the health of women, children and the elderly in the community. Factors such as population pressure, pollution in the lake, climate change, poverty, lack of steady income, religious beliefs and other sociocultural aspects have been identified as barriers hindering the community from fully utilizing ASFs (Ojina, 2017). Another reason for the low consumption of ASFs in the region is that the production system for most livestock in the area is meant for income generation as opposed to subsistence consumption (Chingala et al., 2017).

Sampling and data collection A cross-sectional descriptive study, that employed qualitative methods of data collection, was carried out in October through December in 2018. Data collection was coordinated by a study team that had been conducting PBASS, PBIDS and SES in the area for a decade (since 2008) creating a cordial relationship with participants. Community entry meetings were conducted and informed consent forms sought before initiating the study. Research assistants were trained on qualitative methods in accordance with the study objectives and engaged translation and localization of the study tools. Reflexivity defined as self-reflection of the role of the researcher to the researched (Nazaruk, 2011) was emphasized through frequent debriefs due to the sensitive nature of the topic, shared background, beliefs and lived experiences of the research assistants, study participants and the existing relationships and the outsider' position for some of the research team.

Qualitative data was collected through in-depth interviews, focus group discussions and key informant interviews. Households were purposively selected to reflect on different household types (*i.e.* female-headed households, male-headed households) and different socio-economic statuses. The socio-economic status was assessed through socio-economic data collected on household income, education levels of the household head and spouse, their occupation, assets (Thumbi et al., 2015). Sampling of the study subjects followed the paradigm of data saturation (Saunders et al., 2018). A total of 30 in-depth interviews, five key informant interviews and six focus group discussion sessions were conducted.

In-depth interviews (IDIs) were the main methods of data collection. The purpose of IDIs was to capture the mental and experiential world of the informant by establishing their lived experiences and stories in a detailed and coherent manner in their natural settings (Kumar, 2018). The IDIs addressed the prescriptions and proscriptions of ASFs consumption by the Luo people of Siaya County (Table 1).

Table 1 Summary of study participants from each data collection method

Method	No of participants	Category	
		Male	Female
Focus Group Discussions			
Mixed group (18–34) years	8	4	4
Mixed group (35+) years	6	3	3
Men only (18–34) years	7		
Women only (18–34) years	7		
Men only (35+) years	6		
Women only (35+) years	6		
In-depth Interviews (18–70 years)	30	22	8
Key Informant Interviews	5	1	4

Household heads/spouses or the major decision makers in the households were the main participants in the interviews.

Five key informant interviews (KIIs) were conducted in the first phase (between October and November 2018) to facilitate a smooth entry to the community and, to provide objective information on: food access and consumption patterns, local food beliefs and practices and their implication on ASFs consumption (Table 1). The KIIs were purposely chosen for their knowledge and expertise on the subject matter and as social and cultural custodians in the community. They included; the sub-county nutritionist, a community health volunteer (CHV), a community opinion leader, a religious leader and a community-based organization (CBO).

A total of six FGDs were carried out during the last phase of the data collection with each FGD comprising of 7–10 participants (Table 1). The first two mixed focus groups drew participants from local cultural custodians and informal groups within the sub-county and also the food and nutrition sensitization and advocacy programs. The discussants were purposively selected based on their knowledge about the subject matter and willingness to participate and provide specific information on the actual and expected food behavior of the Luo people and food and nutrition security in the region. To ensure group homogeneity and power balances during discussions, participants were sensitively selected with the help of sub-county nutritionists, community opinion leaders and the research team. Four FGDs were segregated by sex and age, with two women only and two men only sessions being held. The FGDs sought to make use of group dynamics (economic, social and cultural) to stimulate discussions around attitudes, behaviours, perceptions, value and reasons for ASFs consumption, intergenerational perspectives on ASF proscriptions and prescriptions and raw interactions and affiliations of men and women on the subject area. The discussions were also used to verify and clarify on the issues gathered from other data collection methods.

Data processing and analysis Audio-recorded data were transcribed and translated to English. Some of the Luo terms used for emphasis or not translatable were italicized for analysis. The transcripts were stored in Microsoft word and imported to a qualitative data software, Nvivo (version 12.0 plus) for qualitative analysis. For each data set, a separate code sheet was created and open-coding performed. Thematic analysis, following an inductive reasoning, was then carried out to establish and interpret patterns and relationships from emerging themes using research objectives as lenses. To ensure that informants' voice was not lost in translations, a verbatim approach for data presentation was adopted in which key quotes and comments from the informants were used to explain lived experiences and emic perspectives of ASFs prescriptions and proscriptions.

3 Results

Results showed that the type of household headship influences consumption of prescribed animal source food due to the associated hierarchy of power and decision making within households. Out of the 30 interviewed households, 21 were male-headed (MHH) and 9 were female-headed households (FHH). Though the MHH were better placed in terms of dietary diversity due to pooling of income resources, FHH performed better in acquisition of market-sourced proteins and consumption of own produced ASFs such as eggs and chicken due to relaxed male dominance in the control and access to food resources as captured in the interview excerpt below.

“You find that a woman owns the chicken but now as to whether the eggs are sold or eaten or the chicken is eaten or sold comes from the man of the house. You have to ask for permission if you want to prepare an egg or chicken for your children even when you have been trained on the benefits” (FGD, mixed group)

“I decide what they will eat, and sometimes I change what they eat because no one is giving me instructions except the money I have” (IDI-3, Female)

However, socialization process reportedly to play a crucial role even with women's improved access to food resources as stated.

“But you know they are our husbands and if you are seen to impose your things on them you are told you are disrespecting them as heads. So we have to let them decide and just do what we do as women which is support them as our husbands” (FGD, female group)

This study findings revealed differences in food prescriptions and proscriptions based on the inherent rules of what is edible or inedible as founded in societal categorization, peer influence and age. The younger generation (18–34-year-olds) exhibited a more open-minded attitudes towards food prescriptions and proscriptions perhaps as a result of exposure to agents of change such as education, modernization, peer pressure and rural-to-urban migration. More often than not, the younger generation consumed food based on availability and personal preferences as opposed to following prescription and prohibitions. The present findings further revealed that food prescriptions and proscriptions are transitory in nature as their level of consumption change over time. Study informants acknowledged the existence of food prescriptions and proscriptions not only based on cultural beliefs and practices but also on social status of the homestead. Foods were

prescribed or proscribed based on specifics of womanhood and manhood, age, ceremonies, important events, rites of passage as well as biblical teachings and church law (Table 2). Considering that even cultural rites and rituals do change eventually, results also indicated food prohibitions anchored on religious beliefs practices tended to be more rigid (Table 3).

3.1 ASFs prescriptions

3.1.1 Gender and age

Age and gender were found to influence animal source food prescriptions and prohibitions among the Luo ethnic community. Findings showed that the customary laws of the Luo

Table 2 Animal source food prescriptions among the Luo of Siaya County

Animal source food	Animal/part of the animal food	Category	Prescription		
Chicken	Chicken wings, legs, head and neck	Women	The other parts are preserved for men as a sign of respect		
		Girls			
		Children < 3 years			
		Breastfeeding women		Restores energy	
		Children < 3 years		Easily digested	
		Men		Parts reserved for adult men as sign of respect	
		Funerals		Slaughtered when a man is dead and only brothers to the deceased. Sisters do not, as a woman is not considered as important	
		Visitors		Seen as a sign of respect for visitors and bad-mouths the household when served with vegetables	
		Birthdays, weddings, holidays		Food shared during such celebrations	
		Religious beliefs		Used as sacrifices for cleansing or performing rituals for newborns through baptism, and bringing new members to the church	
Fish	Nile perch <i>Omena, Omena soup</i> <i>Omena soup</i> Any fish species Head of fish Fish species (Tilapia, Nile perch, Omena)	Seventh Day Adventist (SDA)	The law of the church and biblical teachings allows		
		Witchcraft	To chase evil spirits away		
		Pregnant women	Makes the baby clever		
		Breastfeeding Women	Believed to increase milk supply		
		Children < 5 years	Promotes fast and healthy growth		
		Breastfeeding women	Makes the baby clever		
		Children	Believed to make them clever		
		Religious beliefs (SDA)	Fish with scales and fins which are allowed by the laws of the church and biblical teachings		
		Milk	Milk Diluted cow's milk Milk	Breastfeeding women	Believed to increase milk supply
				Infants	Easily digested
Pregnant women	Helps when women have difficulties in breathing during child labour/delivery				
Meat	Beef and goat meat Cow's blood Rib meat (goat/cattle) Kidney Sheep	Breastfeeding women	Restores energy		
		Breastfeeding women	Increase milk supply		
		Boys	Preserved for boys doing herding		
		Girls	No specific reason given other than the part cannot be eaten by any other member of the household		
		Religious belief	Used as sacrifices for cleansing or performing rituals for newborns through baptism, and bringing new members to the church		
		Funeral ceremonies	A bull slaughtered when a man dies and a woman when a woman dies. Are slaughtered to honor the deceased and if not done they come back in form of spirits to complain		

Table 3 Animal source food proscriptions among the Luo of Siaya County

Animal source food	Animal/ part of the animal food	Category	Proscription
Poultry meat and eggs	Chicken & eggs	Women	Believed to finish all flock within the home due to inability to control their craving
	Chicken drumsticks, gizzards, back of chicken	Men	Meant for the men as a sign of respect as household heads. Eating them is associated with bad life or women breaking their backs
	Chicken	Mother-in-law	Not allowed to eat in their son-in-law's households or just once they become in-laws. Associated with death
	Eggs	Pregnant women Children < 3 years	Strong foods that make the fetus big hence bringing delivery difficulties to the mother The child becomes dumb Make children heavy tongues hence delay speech
	Chicken soup	Children < 3 years	Easily digested
	Chicken Wings, neck, legs and head	Women and children	Parts reserved for women and children
	Chicken	Funerals	Slaughtered when a man is dead and only brothers to the deceased eat it. Sisters do not, as a woman is not considered as important
Rabbit	Ducks and Turkey	SDA church	Not allowed by the law of the church and biblical teachings
		Women and girls	Women and girls believed to have a lot of blood same as rabbits. Eating rabbit is believed to make them stronger
Squirrel		Women and girls	Eating them is associated with death
Fish	Head of fish	Girls	This is the hardest part of a fish meant for the household head as a sign of respect
	Fish	Children < 3 years	Digestive system not mature enough. Bones can choke the child
	Fish with no scales and fins	SDA church	Makes the believers unclean based on biblical teachings
	Fish without scales (Catfish, whale, Okoko)	Nomiya church	Law of the church prohibits, believed to have swallowed Johan in the bible
	Omena	Visitors/Funerals	Seen as food of low value and social status hence representing disrespect for the dead/visitors
	Nile perch, Omena	Legio Maria	Considered unclean for consumption
	Catfish	Men	No reason given
	Mudfish	Angelica church	Not eaten on a typical day but in the church as it is considered a sacrament
Meat	Rib meat (goat/cattle)	Pregnant women	The baby will be bony (thin)
	Carcass of a pregnant cow		Associated with miscarriage or death of the pregnant mother
	Meat	Children < 3 years	Digestive system not mature enough. Bones can choke the child
	Tongue of the slaughtered animal	Funerals	Only eaten by the clan of the bereaved family day after burial. If eaten during the day of the burial it can harm the in-laws (son-in-law and mother-in-law)
	Cow's tongue	Boys	It is part of an animal preserved for girls only and can only eat the part as grown men in specific situations like funerals
	Heart/kidney of any animal	Women	Left for men as a sign of respect

Table 3 (continued)

Animal source food	Animal/ part of the animal food	Category	Proscription
	Pork	Visitors/funerals	Seen as food of low value and social status hence representing disrespect for the dead/ visitors
	Meat	Catholic church	Members do not eat meat during fasting (Lent period)
	Herbivores with no cloven hooves	SDA church	Against the biblical teachings and the law of the church
	Goat meat	Legio Maria church	Considered unclean food for consumption

community dictated what type of foods or parts of food that men, women and children ate. These specific age and gender-related prescriptions on food consumption were aimed at preserving the dignity and respect for some household members, particularly the men who were allocated the best and most delicious parts of chicken, for instance. As described in the excerpts below, the leftover pieces and soup were given to other household members to eat:

“Specific parts of chicken like the back and the gizzard were meant for men. We the fathers are served some chicken pieces like the back, gizzard and drumsticks while the wings, legs and soup are reserved for the household members” (IDI-16 Male).

“Chicken wings, bones and soup are what children should eat when a chicken is prepared” (FGD-1 Female group 35+).

A community-based organization (CBO) representative reiterated how the Luo community apportions food to their men as illustrated in the excerpt below;

“In this Luo community, the father should get the largest portion of food and if someone prepares chicken there are parts set aside for men and others for children such as the legs, wings and the soup. Women belong in the same category with children. Once the men get their entitled parts, then women and children share the remaining parts. It is only the men who get recognition on the specific parts they should eat, so we assume that whatever remains should be consumed by women and children” (KII-CBO).

The Silver cyprinid soup, fish (head of a fish) and milk were highly prescribed food for children in the region as they are perceived to promote good and fast growth as well as improve the children’s cognition. Feeding soup particularly to children below three years was highly encouraged as they were believed to have undeveloped digestive system and therefore unable to digest the actual Silver cyprinid and fish (Table 2). This is captured in the interview excerpts below;

They can only take soup (meat or omena or fish) as their stomachs are not fully developed and their throats not fully grown to swallow fish or meat or otherwise, they will choke” (IDI-4 Female)

Milk makes a baby to add weight and grow and when you mix porridge with some milk, it gives the baby energy (IDI-17 Male).

“If we want the children to grow very fast, we give them Silver cyprinid ‘Omena’ soup, and a special porridge (mixture of pounded cassava, millet, beans and ‘Omena’) (KII, FBO).

The consumption of ASFs is greatly influenced by one’s state and stage of life. This study established that that pregnant and breastfeeding women were allowed to eat certain types of foods such as milk, meat, specific fish species like Silver cyprinid and chicken (Table 2). These foods were prescribed for their role in promoting the health and wellbeing of both the mother and the baby. For instance, Nile perch was prescribed during pregnancy for the benefit of the fetus while milk was recommended to enhance the mother’s wellness during childbirth, as summarized in the excerpt below;

“...when a woman is giving birth and she is having difficulty and unable to breath, give the woman milk. Before the baby comes out she will have the strength to push” (IDI-Female)

Lactating women were allowed to feed on goat and cattle meat, milk, Silver cyprinid fish, chicken and cow’s blood (Table 2). These foods were meant to replenish the mother’s energy while ensuring a continuous and plenty supply of milk for the baby’s cognitive development. Interview excerpts below amplify the importance of these foods to lactating women and the reason for the current low consumption,

“Breastfeeding mothers can take milk and cow blood. We also give them a mixture of blood, milk, oil and other ingredients that help in production of breast milk...but currently that is not practiced because there are few cattle” (IDI-18 Female).

“Chicken is preferred for the nursing mothers. Meat is preferred for energy restoration although it is not easily available” (FGD-2 Male group)

Findings from this study also revealed temporary food prescriptions based on one’s stage of life. For instance, girls were allowed to consume some animal parts that grown women were prohibited from eating such as heart, kidney and tongue (Table 2). In some instances also, boys were prohibited from eating parts like the kidney which were instead reserved for men and girls.

4 Rites, rituals and religious beliefs

This study established that ceremonies, holidays, events and occasions like having visitors or during holidays and events promoted consumption of rare animal source foods or consumption of not easily available or affordable foods. Informants reported that chicken were mainly reserved for visitors and special occasions like holidays and birthdays. Common goat, sheep and cattle meat were also consumed but this was dependent on the number of visitors, gender of the visitors and their perceived ‘importance’ to the host as summed up by an informant in excerpt below;

“...if you have female visitors, you cook meat and fish, and if you have male visitors you cook meat, fish and chicken” (IDI-7 Female)

During funerals and weddings, large animals were slaughtered. Besides the animals being considered large enough to feed large numbers of mourners or visitors, the slaughtered cattle had a social significance to the long-held tradition among the Luo of building and upholding reputation as well as showing honor and respect to the dead. Informants reported that a cow or a bull was slaughtered in the event a woman or a man died, respectively. The importance of slaughtering cattle in funeral ceremonies to appease the spirits of the dead was also reiterated in some of the focus group discussions as summarized in the excerpt below;

“If we have a function that has many people, we always like to slaughter cattle so as to serve many people. If someone dies, according to our tradition and a cattle is not slaughtered, that person will come and complain, that he died and no one even bothered to slaughter anything” (FGD-mixed group, over 35 years).

A key informant stressed the significance of slaughtering a chicken upon the death of a man, noting that before the bull was slaughtered, a cockerel had to be slaughtered and shared among the brothers of the deceased;

“For example, if I die today, my brothers will order a cock to be slaughtered, and all the brothers will eat the cock before the oxen is slaughtered and given to the mourners. This is what our customary laws states” (KII-Opinion leader).

As captured in the excerpt below, chicken were regarded by the Luo community, as having a socio-cultural function as a food for cleansing;

“Also the witch doctors use chicken to chase the evil spirits. It can be taken and given medicine. So that’s how sometimes the devil is chased away” (IDI-8 Female)

Study findings indicated that religious beliefs and practices also promoted consumption of certain ASFs that were rarely consumed. For instance, for undisclosed denomination, sheep and chicken were the most preferred foods during baptism, when welcoming a new born or during installation and reinstallation of members in the church. This is as summarized in the FGD excerpt below;

“Chicken and sheep are the most preferred when a child is born or during baptism. These two are associated with sacrifices, rituals and for cleansing these members before they become part of us” (FGD-Mixed group, 18-34 years).

Foods of animal origin allowed for consumption by dominant churches in the regions such as Seventh Day Adventist included Tilapia, Nile perch, Silver cyprinid and chicken. These were associated with their palatability and sanctity based on religious laws, biblical teachings or positions of church leaders on such. This is an indication that the mere availability of food is not a guarantee for consumption in households and community members with variant religious belief systems.

4.1 ASFs proscriptions

4.1.1 Gender and age

The current study findings indicated that women, girls and children were disproportionately disadvantaged by the food prohibitions more than any other group in the region. Chicken, chicken parts, eggs, Silver cyprinid and ducks were either prohibited permanently or temporarily for, women of reproductive age, girls, mothers-in-law and children for a variety of reasons ranging from protection of household resources to protection against harm (Table 3). In regard to resource protection as a reason for prohibition for chicken consumption, an 80-year-old male informant stated as follows;

“Women are not allowed to eat chicken and eggs without supervision. In the past, people felt that chicken rearing would not be maximized because, women, who rear them, like eating nice things and would not want to eat vegetables while there was chicken available. So, given freedom to freely eat chicken and eggs, a homestead would be left with no chicken” (IDI-2 Male)

This was reiterated unanimously in focus groups discussions as evidenced below:

“In the past women were not allowed to eat any chicken and there was a reason behind this in that women could eat all the chicken in the compound including the eggs. There is no one with a craving than that of a woman and that is why we have few chickens today as compared to the past” (FGD-6 Mixed group +35)

Women have been traditionally prohibited from eating certain chicken parts not necessarily to protect them from any harm but due to the greed of men, as explain by a 50-year-old female informant in the excerpt below:

“Men are greedy. They realized gizzard, back of chicken and drumsticks were sweeter and very good for body-building and then decided to deny women by associating eating such parts to women becoming weak or breaking their backs upon” (IDI-4 Female)

Another key informant placed emphasis on the same argument as indicated in the statement below:

“For chicken, there are parts that women and children are not supposed to eat... for no reason, I think men are just being clever and do not want us to eat to satisfaction. Like sometimes back, we were told if we eat the steak of a chicken, our backs would break and for this reason, we would not eat that steak” (KII-CHV)

Food preparation and distribution dictates temporary food prohibitions for certain members especially when mothers-in-law are involved as emphasized in the interview excerpt from a 70-year-old female informant:

“A mother is not supposed to eat chicken once one of her children gets married. She is not allowed to eat chicken prepared for the in-laws or any remnants of that food” (IDI-3 Female)

Food rationing or avoidances of some animal foods during pregnancy was a common practice in the study area. Foods such as eggs, meat and some fish species were avoided or eaten by pregnant women as per the dictates of local beliefs, the reason being to protect the mother and the fetus against death and harm. Eggs were believed to be strong foods that could endanger the mother and the baby if consumed in large quantities as reiterated by the 71-year-old female informant:

“A pregnant woman is supposed to eat eggs but with moderation, if she eats too much then she becomes fat (laughing) and this is not good for her and the baby who also becomes fat” (IDI-6 Female)

The dangers of excessive egg intake drew consensus in most FGDs and local expert interviews due to the common concern that the fat in eggs can lead to large sized fetuses risking the mother's life during delivery. Such concerns create fear among pregnant women contributing to fear of eating eggs. This is summarized in interview excerpt below:

“Eggs are not allowed for pregnant women in this village and this is what was happening when I got married here. People often worry when they see a pregnant woman eating eggs and commonly comment, ‘you are taking eggs in this state, wait till delivery time you will see fire’. It is such comments that make women fear taking eggs while pregnant. Personally I believe that eggs are too strong and add a lot of fat to the body and to the fetus and considering the size of birth canal, then you can imagine the mother.” (KII-Faith-based organization)

Besides a big fetus and complications during birth, a CHV added on cognitive issues for fetus/child born from a mother who eats eggs during pregnancy as stated in the interview excerpt below:

“Pregnant women are not supposed to eat eggs, if they do, they are told that they will give birth to a dumb child” (KII-CHV)

Evidence from the study results showed that belief systems of miscarriage or giving birth to thin or physically disabled children discouraged women from eating fish, meat or some parts of animals while pregnant.

“...if I am pregnant and my husband goes to the lake to fish, I am not supposed to eat that fish that same day as it will make the baby's eyes pop or gets crooked-painlessly” (IDI-7 Female)

“A pregnant woman is not supposed to eat rib meat. It is believed that the baby will be bony/thin” (IDI-6 Female)

Information from FGDs and key informant interviews emphasized on some of the beliefs that discourage consumption of some ASFs as captured in the excerpt below:

“When a pregnant cow dies then the pregnant woman is not allowed to eat its' meat. It is believed that the expectant woman might get a miscarriage” (FGD-3, Mixed group)

“For us the Luo people, a pregnant woman is not allowed to eat the carcass of a pregnant cow regardless of the cause of death. This is because you do not know the cause of death of the cow and for this

reason a woman who is pregnant might suffer same fate” (KII-Religious leader)

Besides pregnancy, women temporary prohibitions of meat consumption existed. While a girl was permitted to consume parts of meat like cow’s kidney, women of reproductive age were prohibited from eating parts such as the offal (heart and kidney) as they are left to older men as a sign of respect (Table 3). A 55-year-old female informant had the following to say;

“A girl was supposed to eat kidney while omen were and are still not supposed to eat the heart or kidney of any animal. I heard that they are eaten for men as a sign of respect” (IDI-6 Female)

Other foods of animal origin that women and girls were discouraged from consuming included rodents such as squirrel and rabbits which were often hunted than domesticated. Study results indicated that rabbits were regarded as strong animals with lots of blood a similarity shared with women and girls while squirrels were associated with death. The implication of eating these animals by women are elaborated in the interview excerpt below:

“In the Luo community, for example girls are not supposed to eat rabbits. In the past, some of these types of food were just forbidden for girls and women probably because they have a lot of blood” (IDI-9 Female)
“Rabbit was not eaten by girls and the women because rabbit has a lot of blood and girls and women were assumed to have a lot of blood and so mixing the two would make the girls/women very strong” (FGD-2 young Male group)

There were varied opinions about the temporary food prohibitions in the region. Individual preferences particularly of the person who prepared the food was cited as a determinant of consumption of communally temporary prohibited foods within a households especially for foods prohibited without any specific reason. A 50-year-old female stated:

“Foods that the community forbids can be eaten in my house if I have them especially those whose proscription has not been explained. The community can eat foods that I prohibit in my house. It is now about what you have than what they say not to eat” (IDI-4 Female)

Age plays a crucial role in reinforcing food prohibitions. Findings of this study indicated that children were not served most chicken parts, eggs, fish and meat (for those aged below 3 years) due to undeveloped digestive system (Table 3). Justification for the proscription keep evolving but it appears to reinforce some of the beliefs and this could be deliberate to ensure such prohibitions are not lost. This is as stated in the interview excerpts below:

“Children cannot eat meat or fish, like a 7 month old because their stomach is not fully developed (IDI-9 Female, Siaya county)...they can only take soup since their throats are not fully developed and if they swallow they will choke” (IDI-4 Female)

“The baby is not supposed to eat eggs. Long time ago the baby was not given eggs because the baby could risk becoming deaf. But now it’s the body that itches” (IDI-10 Female)

In nearly all FGDs (i.e., 5 out of 6), reinforcement of some prohibitions by giving other reasons were confirmed as captured in the excerpt below:

“Babies are not given eggs because it makes baby’s tongue heavy hence delaying their speech. And also, you know, their intestines are not yet developed enough to digest meat” (FGD-2 Male group)

Study results further indicated that nature of work done by an individual based on traditional gender roles and division of labour determined the type and quantity of food served setting boys and girls apart as stated in the interview excerpt.

“In my house, boys get served more and better food than girls. When I cook chicken, there are parts I am not allowed to serve my girls. When my husband is not the house, there are those parts I serve my boys because of the type of work they do” (IDI-4 Female)

Consensus from FGD discussions showed that highly valued foods were prohibited for one group of children and given to the other based on work they do,

“It depends on the kind of work men and women do. For instance, meat is served in small portions to girls because they are believed to take lighter tasks as compared to boys. Men are assumed to perform difficult tasks here and that is why they require more food as compared to women who are assumed to perform lighter duties and even if they both perform similar tasks, a man is still assumed to have worked more than the woman hence served more food” (FGD-4 Mixed group)

A sub-county nutritionist reiterated on the above behavior indicating the implication it had to children;

“These are our customs and beliefs of the ancient period, for example the fact that father should be given the food first and in large quantities so that he can love you. You might prepare let us say chicken and give the best parts to the man of the house, parts like, the back, gizzard while the children and women are left to consume legs and wings...and that is why as I said earlier many children are malnourished when you visit the children ward here in Madiany” (KII-Nutritionist)

4.2 Rites, rituals and religious beliefs

Study findings indicated that ceremonies, celebratory events (holidays, birthdays, visiting) and funerals promoted temporary prohibitions of commonly consumed foods such as Silver cyprinid “Omena”, pork, duck and some parts of cattle such as the tongue. Silver cyprinid and pork were considered as foods of low value and if served in occasions, people disparaged the host which damaged his or her reputation, and undermined interpersonal and societal ties. Silver cyprinid a typical daily delicacy was not prepared for visitors at home or during burial ceremonies. A 48-year-old informant stated as follows;

“When we have visitors or there is a ceremony like wedding or graduation, we do not and cannot cook Silver cyprinid-“Omena”. Preparing such food is an embarrassment to the visitors and people start gossiping about how little your income is and that Silver cyprinid is all you can afford. In weddings, people fear being disparaged and that is a major reason why they cannot cook it for such an occasion” (IDI-15 Female)

This was confirmed from a consensual agreement in 4 out of 6 focus group discussions while the other 2 (Women 18–24 years, men 18–24 years) unanimously agreed that such foods were not consumed but did not have a clear reasons as to why.

“Pork and Silver cyprinid are not cooked in funerals because we gather people from different backgrounds and different church beliefs. We do not consider these foods as being of high value” (FGD-4 Mixed group, 18-34 years).

Supporting the same argument, a community health volunteer had the following to say;

“If my sister comes to visit me and I serve her vegetables or the Silver cyprinid, she will go back home and damage my name, ‘I went to my sister and she cooked for me just Silver cyprinid and vegetables and she has chicken” (KII-CHV)

Funerals presented temporary food prohibitions to visitors including in-laws on the consumption of some animal parts such as the cow tongue. On a regular day, this part is consumed by grown men and girls but during this type of feast, it is only consumed a day after the burial, by the clan of the deceased with the intention of protecting in-laws against harm.

Religious beliefs and practices promote a lot of rigid food proscriptions emanating from the most common denominations in the study area, Legio Maria, SDA and Nomiya church (Table 3). Most of the food proscriptions are based on the biblical teachings and church doctrines

on preservation of believers’ purity and health based on suitability of that food for consumption. Information from In-depth interviews showed that members of Nomiya church did not consume certain fish species like *Synodontis (Okoko)* as they were considered ‘bad fish’ after swallowing the agent of the word of God and therefore the law of their church forbade consumption of such fish species as captured in the interview excerpt below from a 52-year-old informant;

‘My church is Nomiya and we do not eat ‘Okoko’ type of fish. Besides this fish species has no scales, the reason we followers of Nomiya do not eat them, especially whale is because it is the one that swallowed Jonah in the bible when he was going to preach the word.... In addition, the prophet of our church tells us not to eat them because the law of our denomination does not allow’ (IDI-12 Female)

Emphasizing on the purity or cleanness and unfitness of food for consumption, five focus group discussion groups unanimously emphasized on the SDA church biblical teaching promoting animal source food prohibitions such as fish with no scales and fins, herbivores without cloven hoof such as horses and donkeys as well as rodents.

“For the SDA church there are certain foods that the bible writings prevent us from eating. For one we are not supposed to eat duck or turkey as its legs are crossed together. Donkeys are considered as wild animals and do not have cloven hooves. Fish with no scales are also prohibited from our church” (FGD-5 Male group +35)

A key informant reiterated the strictness of following bible and church doctrine and went further to suggest that the presence of prohibited foods, especially fish, indicated that a family or a believer had to seek other alternatives even if it meant borrowing from neighbors or turning to other foods particularly vegetables. This applied also to young children in those homesteads as captured in the interview excerpt below;

“It is in Leviticus book of the Old Testament chapter eleven, we can start from verse three onwards...you may eat any animal that has a split hoof completely divided and that chews cud...there are some that only chew the cud or only have a split hoof, but you must not eat them. The camel, though it chews the cud, does not have a split hoof; it is ceremonially unclean for you. Verse 6- the rabbit, though it chews the cud, does not have a split hoof; it is unclean for you”. The pig also verses 7- and the pig though it has a split hoof completely divided, does not chew the cud; it is unclean for you. Moving to the creatures living in the water 11:9-

10 you may eat any that have fins and scales but those creatures of the seas or streams that do not have fins and scales—whether among all the swarming things or among all the other living creatures in the water- you are to detest. Those are the animals we don't eat since we strictly follow the bible. Our church does not allow consumption of such” (KII-Opinion leader)

To further illustrate how food preferences of the caregivers informed by church beliefs and practices denied household members and particularly children consumption of available foods such as fish, ‘Omena’ and goat meat, the informants acknowledged even despite knowing the benefits of having such in children and adult diet, they would rather feed them on vegetables until they can access the acceptable species as stated below;

“I worship in a church called Legio Maria and even though I know from experience that ‘omena soup’ and meat soup helps in childrens’ growth and building their immunity, I do not give it to them because my church prohibits. This is because if I eat ‘Omena’ or goat meat or any of the forbidden foods, my body begins to swell. So, I do not prepare those foods nor give my children. Whenever I visit people, I openly inform them that I do not eat. I want to stay healthy” (IDI-15 Female) “...if that is the only available fish then we resort o vegetables. We cannot eat fish without scales and if that is the only available fish, I cannot eat it or my children, we would rather starve since my religion prohibits consumption of such. I would even rather borrow from my neighbors the right kind of fish” (KII-Opinion leader)

5 Discussion

This study results has shown that food prescriptions and proscriptions influencing ASFs consumption are shaped by the rites and rituals that sanction social networks, different states and stages of life (age, gender) and various religious beliefs and practices. The desire to retain a social identity or social standing, protect from harm or shame based on cultural meanings attached to foods was evident in this study. In the study region, preparation of *Omena*-for burial ceremonies among the Luo community symbolized disrespect for the departed as well as the visitors as it was considered a low status food. Slaughter of large livestock like cattle in such events, not only symbolizes respect but also serves as a food reallocation of the not easily affordable foods to the less privileged. The quest for cultural and/social identity emanating from consumption or avoidance of such foods is as elaborated by an idealist Nick Fiddes and Mary Douglas (Baumgarten, 2020; Torpoco, 1997).

Animal source food prescriptions emerged through the desire to promote the well-being, physical health, intellectual capacity, and social status of human population. The first three were food prescriptions majorly intended to safeguard children and women, who are considered vulnerable members and life bearers, respectively. An interesting result is the way in which women both avoid (e.g., eggs) and seek (e.g. milk before childbirth) foods that make them “strong”. Consumption of fish during pregnancy and breastfeeding periods guarantees growth and development of the child and ensures that it is not impaired. According to Ortega (2001), what a pregnant woman eats should meet her nutritional requirement and that of the unborn baby and prepare her body for optimal birth with little or no complication, while contributing significantly to the lactation period. A study conducted in Kenya among pregnant Kalenjin women reported the valuable role played by consumption of milk and meat among pregnant women (Riang’ a et al., 2017).

Recent studies have taken cognizance of the important role that culture and social norms play in influencing the type and quantity of food consumed. Such studies have also noted the importance of contexts and the implication of these factors on food availability for different household members (Hoddinott, 2012; Meyer-Rochow, 2009). Findings of this study indicated that women and children are more disadvantaged by existing cultural food prohibitions compared to the men. It was evident from our results that prevailing local customs tended to allocate to men the best meals, large quantities as well as the scarce/special ASFs such as chicken parts (gizzard, drumstick), parts of meat such as cow's tongue. Consistent with these findings, a study conducted in Asia reported that men were favored compared to women when it came to consumption of some types of food e.g., the prestigious and high nutrient foods (Harris-Fry et al., 2017). Hence, what some members of a community eat is not just dependent on personal dislikes or preferences, but a factor of existing permanent food prohibition (food taboos) that tend to monopolize a food resource, in the process restricting its access to some household members (McNamara & Wood, 2019) especially women and children as the present study found.

Fear of causing harm to infants and young children below three years was reported by mothers and caregivers as a determinant of ASFs avoidance for children particularly meat and fish. This indicates that in the study region most children are fed on soup and other soft foods until their digestive systems are considered to have developed. Alonso (2015) suggests that such temporary food prohibitions may limit rich nutritional diet required at the first 1000 days to these groups even with plentiful supply of ASFs. Ahoya et al. (2019) emphasizes on caregiver reassurance on children safety through context-specific, locally viable and friendly ASF intervention programs.

Reinforcing power relations within the home and resource protection emerged from this study as a reason for existing food prohibition from some income-earning resources such as chicken. Traditionally, Luo women from the region even though associated with chicken ownership, were not allowed to eat chicken and eggs without regulation to avoid depletion of the resource in the home. This is a common practice in most western Kenya communities (particularly the Luhyas) where chicken is reserved for men and visitors or special occasions (Edelstein, 2010). Findings from this study indicated that consumption of eggs and chicken by women and children is prohibited to avoid resource depletion alongside cultural beliefs of delayed speech and physical harm for infant/young children and women, respectively.

Further, in this study power relations on ASFs consumption manifested through hierarchical and intra-household food allocation that favour men as household heads compared to women and girls, as well as gendered division of roles. A recent study (Bukachi et al., 2022) confirms the findings of study on gendered power relations favouring men consumption of ASFs due to their position as household heads. Additionally, study findings showed that Luo men and boys are perceived to do the heavy, hard and important work hence served large and best quantities of important foods like, rib meat, and chicken. Girls and women were reported to do light duties on care activities at home among other domestic chores hence received small quantities of meat when it is prepared compared to boys and men who perform tasks like herding and productive work outside the home, respectively. These findings are consistent with findings from an earlier study that the value attached to different types of work and responsibilities for various household members supports preferential food distribution limiting food access to available food to some groups which might put them at a nutritionally disadvantaged position (Denney et al., 2014).

Study findings from the region established that temporary ASF proscriptions at different states and stages of life and important cultural events and occasions emerged in order to promote good growth and health, protect against diseases, evil spirits, and bad omen according to local food beliefs in the region. This study showed that prohibiting Luo pregnant women from eating eggs was to protect them from pain during delivery and prevent deformities for the unborn child like being mute and cognitively impairment upon delivery. The carcass of a pregnant cow was prohibited to protect a pregnant woman from miscarriage or giving birth to a physically disabled child. Studies have reported on complications during delivery and fear of physical malformation and abnormality of unborn child (Biza Zepro, 2015; Ekwochi et al., 2016; Riang'a et al., 2017; Zerfu et al., 2016). Despite the perceived protective roles (the desire to protect the well-being of the mother and the child from harm and danger) that these food prohibitions have on the mother and child,

such prohibitions hinder women from obtaining necessary food to support fetal development (McNamara & Wood, 2019) while Gittelsohn and Vastine (2003) state that such prohibitions might result in nutrient-deficiencies for women at different stages and states of life.

Cultural occasions like burial ceremonies and events like birthdays, graduations and holidays emerged as important avenues that promote social cohesion, strong interpersonal relationship and the social status of the host through consumption of ASFs. Foods like cattle, chicken, and fish were highly recommended for such occasions; and preparation of daily delicacies like Silver cyprinid "*Omena*" was seen as a downgrade of the visitors as it was considered a food of low value. This study also revealed that aforesaid occasions either diversify household's diet or introduce a strain in their food reserves. For instance, chicken reserved for visitors improves diets occasionally while animal slaughtering provides food in large quantities which is a way of redistributing to the less privileged community members the expensive, nutritious and prestigious foods like meat. These findings corroborate an anthropological study by Dietler and Hayden (2010) which established that feast and ceremonies may serve as ways for food reallocation for the disadvantaged groups (Riang'a et al., 2017).

Social networks through merry-go-rounds (informal financial groups for the women) in the area that require food preparation or food as payment for penalties determine ASFs consumption. The best and more prestigious ASFs (fish, meat, milk) are consumed in these events in an attempt to retain social solidarity and interpersonal relations. While this promotes consumption for the members involved, it may also pose a strain to those left in the households, particularly children and the elderly.

The study results revealed that religious beliefs and practices are more enduring compared to cultural transitory food rules. Most of these permanent food prescriptions and proscriptions are of animal origin particularly fish species and herbivores both domesticated and wild. Study findings show that such religious beliefs and practices focus on the purity, danger, palatability, and profanity of such foods to the believers. These findings show a close reference of the various denominations to the eleventh chapter of the book of Leviticus on food choice and consumption and the related benefits or consequences if not adhered to. Seventh Day Adventist and Legio Maria who are among the dominant denominations in the area strictly adhere to avoidance of these ASFs as the biblical commands dictate. Consumption of fish with no scales for the SDA or consumption of silver cyprinid for the Legio maria is strictly prohibited. This is an indication that availability of these foods in the households is not a guarantee for consumption even for the vulnerable groups such as children, pregnant women and lactating mothers. Asi et al. (2018) argued that food proscriptions

and prescriptions are God-given commands and guidelines that aim to protect and guard people from harm. Similarly, Mary Douglas in her work on *Purity and Danger* postulated that these levitical rules promote cultural/religious identity enhance and maintain social order (Baumgarten, 2020) for the followers while also maintaining purity or holiness for those who strictly follow the food proscriptions.

6 Conclusion

Customary food prescriptions and proscriptions continue to influence consumption of ASFs among the Luo community. While they may positively contribute to food reallocation amongst the less fortunate, perceived protection against harm for people in various transitory states, they may also contribute to gendered ASF preference, locking out vulnerable members such women and children from rich diets. Enhancing power relation through preferential food distribution and perceived value of work locks out children, most girls and women out of highly nutritious foods such as meat which is served to men and boys. Temporary or transitory food proscriptions and religious food taboos are the most common food beliefs among the Luo community in the region which determine ASF consumption. Transitory food proscription were reported to be internalized by the affected groups (mostly women and children) to an extent of complete dislike or avoidance affecting even consumption of available ASFs. Religious ASF proscription are more enduring and remain strictly adhered to affecting men, women and children of the common denominations in the region, thus limiting access to available ASFs. This is an indication that a simple improved animal production model may not translate to reduced protein malnutrition among these groups of people. Therefore, development of direct and voluntary protein and micronutrient policies that focus on behavioural and social transformative change through community dialogues, and education and sensitization programs is fundamental.

Authors' contributions MM designed the research study with guidance from SB, GM and SMT. MM with the help of EO and EK conducted the data collection, data entry, data cleaning under the supervision of SB, GM. MM was responsible for data analysis and interpretation of results, under the supervision of SB. MM developed the original draft for the paper. SB, GM, EO, EK and SMT revised the final draft critically for important intellectual content. All authors read and approved the final manuscript.

Funding This work was conducted under the population based syndromic surveillance system platform funded by the Paul G Allen School for Global Animal Health, Washington State University, in collaboration with the Kenya Medical Research Institute.

Data availability The data transcripts used in the current study, except for voice recordings of participants are available from the corresponding author on reasonable request.

Declarations

Ethics approval Ethical approval was obtained from the Kenya Medical Research Institute Ethical Review Committee and Animal Care and Use Committee (reference number SSC Protocol no. 2250).

Consent to participate Voluntary written informed consent was sought and obtained from each study participants before participation in the study. Consent to use voice recorders during the interviews was also obtained from each participant.

Consent for publication All the authors have approved their consent for the publication of this work.

Conflict of interest The authors declare that they have no competing interests.

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