RESEARCH ARTICLE

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Child feeding practices and male involvement in child feeding among smallholder farming households in Uganda

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Abstract
Smallholder farmers continue to face food and nutrition insecurity. The timing, scope and effectiveness of interventions is influenced by decision-making and roles within households and communities, yet emphasis has majorly been placed on mothers. A cross-sectional study explored the child feeding practices and extent of the father's participation in child feeding among 433 farming households with children aged 6-35 months from two rural and two peri-urban districts in Central Uganda. Diets consumed by children were inadequate with only 37% meeting the minimum dietary diversity. About 65% of fathers participated in decision-making over child feeding with 10% all the time and 24% only a few times. Additionally, 48% of fathers participated in actual child feeding, 2% all the time and 23% only a few times. Main reasons for the level of father participation included the presence or absence of money or food; concern or lack of concern over the child's health; father's physical availability; and whether child feeding is part of a father's responsibility or not. Fathers who participated in decision-making regarding child feeding were more likely to participate in actual child feeding ($r=0.6$, $P<0.01$). There is an opportunity for active engagement of fathers in nutrition-related interventions to enhance their participation and support in decisions concerning child feeding and actual child feeding for enhanced child and household food and nutrition security.
Keywords: Gender, Father, Child nutrition, Dietary diversity, Decision-making

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INTRODUCTION

Smallholder farmers produce majority of the food in developing countries yet remain vulnerable to poverty, climate change, food insecurity, hunger, and malnutrition, especially undernutrition and micronutrient deficiencies (van Wijk et al., 2018; Williams et al., 2018). To address these challenges, approaches have included the promotion of sustainable production, increase of incomes from agriculture through markets, diversification of production beyond starchy staples, promotion of nutrition within agricultural initiatives, empowerment of women and utilization of multi-sectoral approaches (FAO et al., 2018). The impact of these approaches is, however affected by the decision-making and power relations within households and communities. To understand and harness decision-making and power relations approaches such as the Gender Action Learning System and Nurturing Connections have been developed. These approaches explore the gender and intra-family dynamics that influence production, food security, nutrition and health (HKI, 2015; PELUM, 2016).

When it comes to child nutrition and care practices, most emphasis has been placed on the first 1000 days of a child's life thus narrowing the focus of

interventions on children and mothers as the primary caregivers and target beneficiaries within households. Studies have reported the relationship between mother's knowledge and child feeding practices and nutrition status (El-Nmer et al., 2014; Fadare et al., 2019; Saaka, 2014). As a result, efforts have been made to enhance the knowledge and skills of mothers (Saaka et al., 2021; Sanghvi et al., 2013; Waswa et al., 2015). Beyond the mother as a caregiver, the influence and participation of grandmothers in child-feeding practices has also been noted, highlighting the need for their involvement and ensuring adequate information in a community (Aubel, 2012; Nankumbi & Muliira, 2015).

The roles and responsibilities of fathers in child feeding and the kind of feeding practices fathers employ have been reported in developed countries (Khandpur et al., 2014). The association between fathers' education level and nutrition status of children in developing countries has been reported and the role of fathers in child nutrition is increasingly coming under focus (Bilal, 2015; Kansiime et al., 2017; Kikafunda & Tumwine, 2007; Willey et al., 2009). There is, however, limited documentation of the extent of involvement of fathers in child feeding in developing countries. If the effectiveness and impact of nutrition and nutrition-sensitive agricultural interventions is to be increased, a further look at the existing household dynamics and social support is needed. Nutrition remains important given the continued gaps. Nationally, 29% of children aged 6-59 months in Uganda are stunted and 53% are anemic (UBOS & ICF, 2018). In addition, 30% of children aged 6-23 months consume diets with minimum dietary diversity, 42% have minimum meal frequency and only 15% have the minimum acceptable diets (UBOS & ICF, 2018).

This study therefore explored the feeding practices of children aged 6-35 months and role of fathers in child feeding within farming households in rural and peri-urban districts of Uganda. It was conducted as part of a larger program, the CGIAR Consortium of International Agricultural Research Centers research program on integrated systems for the humid tropics. The HumidTropics program research focused on improving livelihoods and productivity of poor smallholder farming communities based on the dominant integrated systems they depend on in tropical Africa, Asia, and Americas. In East and Central Africa, the program generated agricultural innovations for improved livelihoods for smallholder farmers using multi-stakeholder processes and partnerships (CGIAR Research Program on HumidTropics, 2016).

MATERIALS AND METHODS

A cross-sectional mixed methods survey using a semi-structured questionnaire was conducted in four districts in Central Uganda, that is Kiboga, Kyankwanzi, Mukono, and Wakiso districts. The four districts were clustered to form two groups based on the level of urbanization. Kiboga and Kyankwanzi districts are agriculture-dependent districts located in the north-central part of the country and are largely rural districts with 77% and 89% residing in rural areas respectively (UBOS, 2016). Mukono and Wakiso districts on the other hand are located in the south-central part of the country and are largely peri-urban with population densities above the national average of 177persons/km^2 (Ekesa et al., 2015). Mukono and Wakiso districts have 73% and 41% of their populations residing in rural areas respectively (UBOS, 2016). Even with more off-farm employment or sources of income in Mukono and Wakiso, there is still significant ongoing agricultural production (Ekesa et al., 2015).

A multi-stage systematic random sampling procedure was used. Districts are made up of sub-counties, parishes, and villages. The districts, sub-counties and parishes were purposively selected based on where the HumidTropics program was implemented. A total of fifteen villages were randomly selected in each district, from which households were randomly sampled. A list of households meeting the study criteria in each village was created with the help of community leaders from which a list of random numbers was generated using Microsoft Excel to sample households. The inclusion criteria included farming households with at least one child aged 6-35 months. For households with multiple children in the specified age range, the youngest child was selected for the study. The total sample size of 433 households was calculated based on formulars by Magnani where the proportion of households with children aged 6-35 months in the sampled Parishes were used (Magnani, 1999). The proportions were as follows, Kiboga 8%, Kyankwanzi 6%, Mukono 7%, and Wakiso 7% (unpublished reports). The survey was conducted in November-December 2016 within the national research mandate of HumidTropics program implementing partners and the National Agricultural Research Organization. For this study, local approval was obtained from the respective district authorities. Informed consent was obtained from the respondents prior to the interview. The questionnaire was pre-tested prior to data collection. The survey was conducted by trained enumerators at the respective households.

Data collection

The survey used a semi-structured questionnaire that collected information from the household head or spouse on household characteristics, child food consumption, and participation of fathers in child's feeding. A qualitative 24-hour recall was used to obtain the number of meals and type foods consumed by the children Using open recall, respondents were asked to describe all the food and drinks that the child consumed throughout the day, probing for details of mixed/composite dishes. Minimum recommended dietary diversity for children aged 6-23 months

was assessed using seven food groups where consumption of a food group received a score of one. Children with total scores ≥4 were considered to have met the minimum dietary diversity requirement of four food groups. The food groups were (i) cereals, white roots, tubers, bananas (ii) legumes (iii) milk and milk products, (iv) eggs, (v) meat and fish, (vi) vitamin A-rich fruits and vegetables, (vii) other fruits and vegetables (WHO et al., 2010). The minimum meal frequency was also determined based on World Health Organization guidelines where breastfed children are recommended to have two meals at six to eight months and three meals at nine to 23 months and non-breastfed children four meals a day. The minimum acceptable diet was then established when a child met the minimum dietary diversity and meal frequency (WHO et al., 2010). The questionnaire also captured child age, breastfeeding practices, and access to information on child feeding.

The extent of the fathers' participation in a) decision-making regarding the feeding of the child and b) taking part in the feeding was rated by the respondents using a 5-point scale as follows: Not at all 0% of the time; A few times <25% of the time; Half of the time >25-50% of the time; Most of the time >50% of the time; or All the time 100%. While largely quantitative, the data collection tool also included open-ended questions to capture the reasons for the level of participation reported. The reasons were noted in full, and probing was conducted where necessary to ensure the situation regarding the father and household was well understood and recorded by the enumerator.

Data analysis

SPSS version 23 was used to summarize data using descriptive statistics, conduct cross tabulations and chi square tests to compare variables in Kiboga-Kyankwanzi districts and those in Mukono-Wakiso districts, and conduct bivariate correlations using Spearman correlation analysis to establish any relationships between participation of fathers and other child feeding variables. Results for Kiboga and Kyankwanzi districts are clustered together as the rural districts, while Mukono and Wakiso districts are clustered together as the peri-urban districts.

The reasons for the respective levels of participation from the open-ended questions were analyzed in Microsoft excel by identifying themes and codes across responses, coding responses, and grouping of codes into a matrix. The matrix was used to understand how the themes and codes interact. In addition, the frequency of the codes and themes across districts was also generated.

RESULTS

Household characteristics

Of the 433 households surveyed, 376 households (87%) had complete data on child feeding practices and participation of fathers and were therefore included in the analysis. Half of the households were from Kiboga-Kyankwanzi districts and the other half from Mukono-Wakiso districts (28% Kiboga, 22% Kyankwanzi, 25% Mukono and 26% Wakiso). The average respondent age in years was 29.2±8.8, and household size was 6.1±2.8 members. Sixteen percent of households were headed by women (table 1). Majority of respondents were monogamously married (60%), 17% were single, 12% polygamously married, and 10% separated, divorced, or widowed. Arable farming and mixed farming were the primary source of income for 57% and 27% of households in Kiboga-Kyankwanzi districts respectively, while in Mukono-Wakiso districts, business/trade and arable farming were the primary source of income for 36% and 25% of households, respectively. Men and women were each reported to be separately involved in the primary income activity by 35% of the households, while joint participation of men and women was reported in 24% of households. Decision-making over the income from the primary source was made by men in 43% of households, by women in 32% and by both men and women in 20% of households.

Table 1. Household demographics and characteristics

Characteristic		Kiboga-Kyankwanzi (n=188, Rural)	Mukono-Wakiso (n=188, Peri-urban)	Total (n=376)	Chi-square values
Respondents	Women	89.4	96.3	92.8	6.670**
	Men	10.6	3.7	7.2	
Household head	Women	16.0	16.5	16.3	2.208
	Men	84.0	83.5	83.7	
Age of respondent	≤25	41.0	38.5	39.7	1.633
	26-40	50.0	53.5	51.7	
	41-55	8.0	5.9	6.9	
	>55	1.0	2.1	1.6	

Characteristic		Kiboga-Kyankwanzi (n=188, Rural)	Mukono-Wakiso (n=188, Peri-urban)	Total (n=376)	Chi-square values
Marital status of respondent	Single	16.5	17.7	17.1	2.246
	Monogamously married	60.1	59.7	59.9	
	Polygamously married	13.3	11.3	12.3	
	Widowed	0.5	2.2	1.3	
	Separated/Divorced	9.6	9.1	9.4	
Education level of most educated household member	No formal	5.4	0.5	3.0	44.851***
	Primary	34.6	26.2	30.4	
	Secondary	45.9	56.3	51.1	
	Post-secondary	14.1	16.9	15.5	
Primary source of income	Arable farming [a]	57.4	24.6	41.1	131.277***
	Cattle farming	0.5	8.0	4.3	
	Mixed farming [a]	27.1	4.3	15.7	
	Casual labor	1.1	8.0	4.5	
	Employed	4.8	17.6	11.2	
	Business/trade	9.0	35.9	22.4	
Participation in primary source of income	Women	37.3	31.7	34.5	28.300***
	Men	25.9	44.6	35.3	
	Joint (both men & women)	33.0	15.1	24.0	
	Children	1.6	3.2	2.4	
	Elders	2.2	5.4	3.8	
Decision-making regarding income from primary source of income	Women	29.4	33.2	31.9	6.352
	Men	41.7	41.7	42.5	
	Joint (both men & women)	21.9	18.2	20.4	
	Children	1.1	2.7	1.9	
	Elders	2.1	4.3	3.3	
Average number of meals per day in household	One	8.1	3.8	5.9	13.802***
	Two	37.1	23.1	30.1	
	Three or more	54.8	73.1	64	

Figures are percentages of households. [a] Arable farming: engaging in crop production alone. [b] Mixed farming: production of both crops and livestock. Pearson Chi-square values: ***significant at 1%, **significant at 5%, *significant at 10%.

Child health and feeding practices

The distribution of children by age showed that 26% were 6-11 months, 53% were 12-23 months old and 21% were 24-35 months old. The rate of exclusive breastfeeding, that is, provision of only breastmilk up to six months of age was at 77% (table 2). Cow's milk and maize porridge (a liquid porridge) were the most common substitutes for breastmilk that were given before children were 6 months old (results are not presented in the table). For children who were not exclusively breastfed, 52% and 41% in Kiboga-Kyankwanzi were fed cow's milk and porridge respectively, and in Mukono-Wakiso, consumption 55% and 23% respectively. Half of the children aged 6-23 months were still breastfeeding at the time of the survey (table 2).

The children's diets were mainly composed of starchy staples and legumes that were consumed by 92% and 65%, respectively (table 2). Milk consumption was at 44% while meat and fish were consumed by only 24%. Less than half of the children consumed fruits and vegetables in the preceding 24 hours, with 30% having consumed vitamin A rich fruits and vegetables. More legume consumption was noted in Kiboga-Kyankwanzi while more milk and other fruits and vegetables were consumed in Mukono-Wakiso. Overall, only 37% of the children aged 6-23 months met the minimum dietary diversity requirement of four food groups.

Among children aged 6-23 months, 36% met the minimum dietary diversity while 34% had the minimum recommended meal frequency. As a result, only 16% of children aged 6-23 months consumed the minimum acceptable diets. The proportion of children meeting the minimum acceptable diets was higher in Mukono-Wakiso compared to Kiboga-Kyankwanzi (22% compared to 10%) (table 2).

Fifty six percent of households reported to have received information on child feeding at least once in the past six months. This information was mainly obtained from health centers (39%), community health workers (25%) and radios (23%) (table 2).

Table 2. Child feeding practices

Variable		Kiboga-Kyankwanzi (n=188, Rural)	Mukono-Wakiso (n=188, Peri-urban)	Total (n=376)	Chi-square values
Sex	Girls	51.6	54.0	52.8	0.219
	Boys	48.4	46.0	47.2	
Age (months)	6-12	27.1	24.6	25.9	1.796
	13-24	50.0	56.7	53.3	
	25-35	22.9	18.7	20.8	
Exclusively breastfed		83.0	70.8	76.9	7.782***
Currently breastfeeding	6-23 months (n=297)	61.4	50.3	55.7	3.104*
	≥24 months (n=79)	20.7	5.6	14.9	
Dietary diversity	Low DDS	70.2	55.6	62.9	8.564***
	Minimum DDS	29.8	44.4	37.1	
Food group consumption	Starchy staples	92.0	92.0	92.0	0.000
	Legumes	78.2	51.3	64.8	29.641***
	Milk	37.8	50.8	44.3	6.458**
	Eggs	11.2	7.0	9.1	2.023
	Meat and fish	19.1	27.8	23.5	3.913*
	Vitamin A rich fruits and vegetables	31.4	28.3	29.9	0.414
	Other fruits and vegetables	36.2	60.4	48.3	22.093***
Diets of 6-23-month-old children	Minimum DDS	28.9	42.3	35.8	6.318**
	Minimum meal frequency	25.5	41.4	33.7	8.432***
	Minimum acceptable diets	9.7	22.4	16.2	8.852***
Received information on child feeding		50.3	61.6	55.9	4.864**
Source of information on child feeding	Community health worker	34.8	16.7	24.6	37.710***
	Health center	21.3	52.6	38.9	
	Radio	21.3	23.7	22.7	
	Mother/mother-in-law	0.0	0.9	0.5	
	Television	0.0	0.9	11.8	
	NGO	22.5	5.3	12.8	

DDS: Dietary Diversity Score. NGO: Non-Governmental Organization. Figures are percentages of households. Pearson Chi-square values: ***significant at 1%, **significant at 5%, *significant at 10%

Participation of fathers

According to the respondents, more than half of the fathers (65%) participated in decision-making over child feeding. Of these 10% participated all the time and 24% participated a few times (figure 1). Participation of fathers in child feeding was lower compared to participation in decision-making. Less than half of the fathers (48%) participated in child feeding with only 2% participating all the time, 22% half/most of the time, and 23% participating a few times. The reasons given for the level of participation centered around presence or absence of money or food, concern, or lack thereof on the child's health, physically availability of the father in the household, child feeding being part of the father's responsibility or not, and other household dynamics (table 3).

The specific reasons for the fathers' participation in decision-making over child feeding were having an income (31%), desire for healthy children (21%), and physically unavailability of the father (14%) (table 4). It was also reported by 8% that participation in decision-making over child feeding was the responsibility of the father while for 9%, it was not considered as their responsibility. The availability or lack of money was a major factor influencing participation of 38%, 42% and 38% of fathers that participated few times, half/most of the time, and all the time, respectively. This was followed by the desire for healthy children, a reason given for 19%, 31% and 35% of fathers that participated a few

times, half/most of the time, and all the time respectively. For those that did not participate in decision-making at all, it was mainly attributed to the physical unavailability of the father (39%) and perception that child feeding was not the fathers' responsibility (28%). The availability of income as a factor was higher in Mukono-Wakiso (34%) compared to Kiboga-Kyankwanzi (26%). And so was the physically unavailability of the father at 17% in Mukono-Wakiso compared to 10% in Kiboga-Kyankwanzi. On the other hand, desire for healthy children and child feeding being part of the father's responsibility was higher in Kiboga-Kyankwanzi (29% and 13%, respectively) compared to Mukono-Wakiso (15% and 5%, respectively).

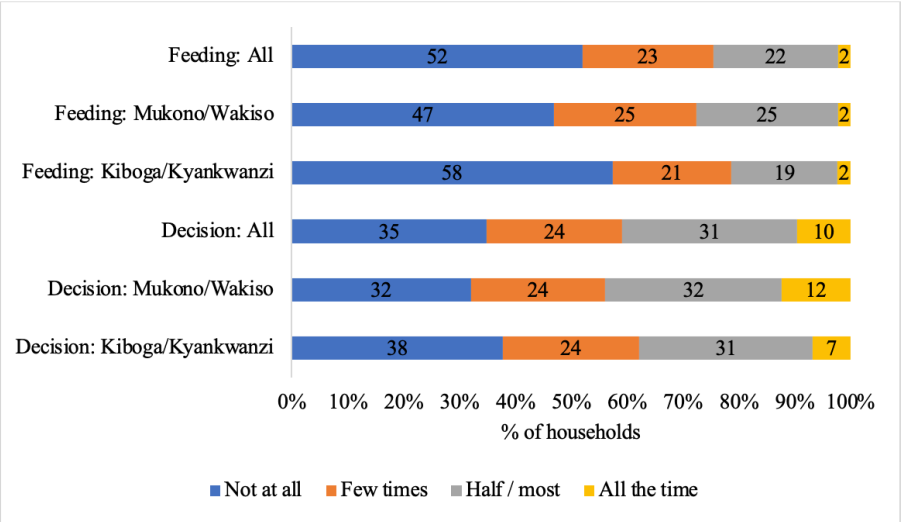

Figure 1. Percentage of participation of fathers in decision-making and child feeding

Decision: decision-making over child feeding; Feeding: participation in child feeding; Half/ most of the time: includes fathers that particpated half of the time and most of the time

Table 3. Definition of the reasons for the level of participation of fathers in decision-making and child feeding

Theme of reasons	Reasons contributing to participation	Reasons inhibiting participation
1. Money/income	There is money in the household He buys food He controls the income	There is no money He does not buy food
2. Food availability	He harvests food from the field He brings food home He keeps part of the harvest for household food He keeps food for children	Food is not enough/ there is no food
3. Healthy children	He wants healthy children He knows what to feed the children He ensures children are growing well	The mother knows best
4. Physical availability	He is around/ always at home	He is never around He works or stays far Child is living with the mother (away from the father)
5. Responsibility	He loves and cares for the children Children are his responsibility He is a good father and is actively involved He inquires/questions their feeding	He has no time He is not interested in the children/ their feeding He does not take care of the family
6. Household dynamics	Grandfather wants children to grow well Mother is pregnant so he takes over child feeding	Parents are separated or divorced He has another family

Definitions are a summary of the responses as given by respondents; He refers to the father

Table 4. Distribution of the major reasons given for the level of participation of fathers in decision-making and child feeding

	Reason	Kiboga-Kyankwanzi (n=188, Rural)	Mukono-Wakiso (n=188, Peri-urban)	Total (n=376)
Decision-making	Availability of money	25.6	34.3	30.5
	Interest in the child's health	28.6	15.4	21.1
	Father not physically available	10.5	17.1	14.3
	Not the fathers' responsibility	7.5	10.3	9.1
	Part of the fathers' responsibility	12.8	4.6	8.1
	Negative household dynamics	6.0	9.7	8.1
	Other reasons	9.1	8.5	8.7
Child feeding	Not the fathers' responsibility	25.2	25.9	25.6
	Part of the fathers' responsibility	15.1	21.0	18.5
	Father not physically available	11.8	16.7	14.6
	Interested in the child's health	19.3	5.6	11.4
	Negative household dynamics	5.9	13.0	10.0
	Father is physically available	10.9	7.4	8.9
	Other reasons	11.7	10.4	11.1

Figures are percentages of households

The main reasons for the level of participation of fathers in actual child feeding included child feeding not being perceived as part of the fathers' responsibility (26%), child feeding being part of the fathers' responsibility 19% and the physical unavailability of the father 15% (table 4). The responsibility of the father was a factor for those that fed the child a few times (24%), half/most of the times (35%), and all the time (43%). Desire for healthy children was the second highest ranked factor and was the reason behind fathers who fed their child half/most of the time (27%) and all of the time (29%). For those that did not participate in feeding at all, it was attributed to it not being their responsibility (46%), their physical unavailability (24%), and other household dynamics (23%). Child feeding being part of the responsibility of the father and the physical unavailability of the father were reported more in Mukono-Wakiso (21% and 17%) compared to Kiboga-Kyankwanzi (15% and 12%). On the other hand, desire for healthy children was higher in Kiboga-Kyankwanzi 19% compared to Mukono-Wakiso 6%.

Participation of fathers in decision-making was significantly associated with participation in child feeding ($r=0.6$, $P<0.01$), indicating that fathers that engage in decision regarding child feeding were more likely to participate in feeding the child. There was a weak and significant positive association between dietary diversity of children and the father participating in decision-making ($r=0.2$, $P<0.01$) and child feeding ($r=0.2$, $P<0.01$). Weak but significant negative associations were found between participation of fathers in decision-making with receiving information on nutrition ($r=-0.1$, $P<0.01$).

DISCUSSION

Sixty five percent of fathers participated in decision-making over child feeding, with 10% participating all the time and 24% only a few times. In addition, only 48% of fathers participated in child feeding with only 2% participating all the time and 23% only a few times. The main reasons for these levels of participation were availability of income, desire for healthy children, child feeding being part of the fathers' responsibility or not, and the physical unavailability of the father. The main reasons for the father's participation varied with the districts. Compared to the rural districts (Kiboga-Kyankwanzi), the peri-urban districts (Mukono-Wakiso) had less children with low dietary diversity and more fathers participating in child feeding.

The gaps in the quality of child feeding practices were similar to those reported elsewhere. The low dietary diversity, low consumption of the minimum recommended acceptable diets, and low consumption of fruits and vegetables observed were similar to the national reports (UBOS & ICF, 2018). The consumption patterns and gaps in diet quality in the rural districts (Kiboga-Kyankwanzi) compared to the peri-urban districts (Mukono-Wakiso) were not expected, because despite the peri-urban districts having higher urbanization and lower estimated poverty levels (UBOS, 2019), more than half of the children had low dietary diversity. This could be attributed to the significant proportion of rural households/ subsistence farming households in both rural and peri-urban areas and low income levels in the peri-urban districts (UBOS, 2016). It is also likely that there is a lack of nutrition knowledge coupled with feeding patterns that have not improved even as the status of the communities are changing with urbanization. This highlights the

need for studies on the changing food environment in peri-urban areas and corresponding interventions to enhance the food and nutrition security.

The observed levels of participation of fathers in child feeding were corresponded to previous reports in Southwest Uganda where 52% of fathers participated in child feeding and 23% made decisions on complementary feeding. Other major roles of fathers reported that are in tandem with this study include participation in farming, providing money, and providing information about child feeding (Kansiime et al., 2017). A study in Ethiopia where child dietary diversity was also low, reported an association between involvement of fathers in child-care and feeding with dietary diversity particularly in urban areas (Bilal et al., 2016). Child care and feeding were perceived to be the role of the mother though a change in perceptions and an increase in involvement of fathers was noted (Bilal et al., 2016). From the reasons supporting the participation of fathers in decision-making and child feeding, the study revealed several perceptions about the importance of child feeding and the roles and responsibilities of fathers. While there were households that relegated the importance and responsibility of child feeding to mother, there were households that also considered child feeding apart of the responsibility of the father.

Involvement of fathers in child feeding and modelling of healthy behaviors has been associated with lower child nutrition risk while their education status has been associated with the nutrition status and feeding practices of children (El-Nmer et al., 2014; Jesmin et al., 2011; Watterworth et al., 2017). Indeed, participation of fathers and adequate child feeding practices require having nutritional knowledge and skills that support quality diets. Though our study did not explore the father's knowledge, parents having adequate nutritional knowledge has been related to the child's dietary intake particularly dietary diversity (El-Nmer et al., 2014), and child feeding practices have improved following nutrition education (Ickes et al., 2017; Kajjura et al., 2019). On the other hand, there appear to be different dynamics between the father's education level versus that of the mother. A study in western Uganda noted that the father's education level did not independently predict any child feeding practice unlike that of the mothers (Wamani et al., 2005). This could be related to mothers being the primary caregivers and the norms and perceptions around the roles and responsibilities of fathers.

Nutrition education and awareness creation campaigns as well as food and nutrition security interventions should therefore also actively target and involve fathers. For example by having behavior change and communication strategies that include fathers and ensuring that implementors such as community health extension workers actively engage fathers during implementation activities (Bilal, 2015). In addition, the perceptions about the importance of child feeding and the roles and responsibilities of fathers from this study provide insight on the motivators and barriers, which can be used to design the behavior change communication strategy and messages (Skinner, 2019). For example, the interest in and pride that comes with having healthy children can be used to attract fathers to messages about child feeding and nutrition; role models can be used to showcase the roles and responsibilities of fathers; and messaging that addresses the physical unavailability of some fathers could be developed. Following a study of dietary patterns of fathers, Ochieng et al. (2017) recommended a reduction in the food consumed away from home by fathers and utilization of savings towards nutritious foods for the household during times of food shortages (Ochieng et al., 2017). Such approaches could be included in the behavior change and communication strategies. Indeed interventions that utilize whole household approaches, equipping the mother, father and other key household and community members have the potential to increase impact (Ekesa et al., 2018).

Household information on nutrition was mainly from health centers, community health workers and radios. This underscores the need to maximize the different avenues through which information is disseminated in both rural and peri-urban areas. Whereby regardless of the avenue (health centers, community health workers, radios, mobile phones, television, etc.), the messaging targets both mothers and fathers.

CONCLUSION

Moderate to low participation of fathers in child feeding was noted with more fathers participating in decision-making compared to child feeding. Income, responsibilities of the father, and desire for healthy children were some of the key reasons influencing the level of participation of fathers. There is an opportunity for active engagement of fathers in nutrition and nutrition-related interventions to build their capacity and thus enhance their participation in household decision-making and child feeding. An increase in awareness, knowledge and skills through behavior change and communication strategies that target both mothers and fathers and strategies that utilize the motivators and barriers identified in this study could potentially increase the participation of fathers and contribute towards enhanced household food and nutrition security and child nutrition outcomes.

COMPLIANCE WITH ETHICAL STANDARDS

Peer-review

Externally peer-reviewed.

Conflict of interest

The authors declare that they have no competing, actual, potential or perceived conflict of interest.

Author contribution

The contribution of the authors to the present study is equal. All the authors read and approved the final manuscript. All the authors verify that the text, figures, and tables are original and that they have not been published before.

Ethics committee approval

Ethics committee approval is not required.

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Consent to participate

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Consent for publication

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