Original Research Article

Cash-based assistance and nutritional outcomes amongrefugee children 0-59 monthsin West NileSub-region inUganda.

Abstract

Cash-based transfer and food in-kind assistance are two different modalities used to deliver assistance to conflict-affected populations. The use of cash has become a common modality of assistance in humanitarian response given its benefits. In Uganda, WFP has increased the use of cash-based transfers to refugees and asylum seekers. Despite the assistance, the prevalence of malnutrition remains high among refugee children in West Nile. This study, therefore, examined the effect of cash-based assistance on nutritional outcomesamong children 0-59 months in refugee settlements of West Nile in Uganda. Specifically, the paper aimed at assessing the nutritional status of children aged 0-59 months on cash-based transfer modality and the influence of other factors such as the education level of caregivers, cultural/traditional norms, food storage, food preparation, and child feeding practices, access to markets, and nutrition knowledge on cash-based transfer and nutritional outcomes among children 0-59 months. A descriptive design was deployed to obtain data from 122 respondents. ANOVA and Pearson's chi-square tests, and anthropometric measurements formid-upper arm circumference (MUAC), weight-for-age (WAZ), height-for-age (HAZ), and weight-for-height (WHZ) were taken to assess the physical growth and nutritional status of children aged 0-59 months expressed as a percentage.

The study's findings revealed that 31.12% of caregivers of children 0-59 months received cash assistance of between 19,000 to 24,000 with significant variation in proportions between the districts at a P-value of 0.005. Of that, 92.62% of caregivers received cash assistance every two months compared to only 7.38% who received cash monthly at a P-value of 0.130.The study findings showed that there is no significant effect of cash assistance on the nutritional outcomes among children under five years as confirmed by the moderate underweight prevalence of 12.96% (P=0.1714), low stunting level of 15.19% (P=0.0571) below <20% WHO cut off and moderate wasting prevalence of 6.67% at P-value of 0.0634. The underweight and wasting prevalences are above <10% and <5% WHO threshold respectively. Although these discrepancies in the prevalences of underweight, wasting, and stunting are not statistically significant, the results show a low prevalence of underweight, stunting, and wasting. Thus, the null hypothesis is accepted. This, there isno adequate evidence that cash assistance has a statisticallysignificant association with nutritional outcomes among children under five years in refugee settlements.Concerning nutritional knowledge, food storage, and child-feeding practices of caregivers of children 0-59 months, 62.24% of caregivers had poor nutrition knowledge, 93.62% of caregivers had basic food storage facilities for keeping food and 69.29% had good child-feeding practices.

Conclusively, these findings showed that the prevalence of underweight, stunting, and wasting as nutritional outcomes are generally low among refugee children 0-59 months on cash assistance modality therefore, humanitarian agencies should increasecash-based assistance and food security andlivelihood interventions be scale up to improve household food basket.

K**ey words:** Cash transfer modality; nutrition status/outcomes; Children

1.0 Introduction

The refugee situation in Africa has increasingly burdened the continent and with increasing numbers of refugees, many donors and aid agencies globally are shifting away from food aid to food assistance because of the need to include the provision of cash in humanitarian assistance(de Bruin & Becker, 2019;Adepoju, 2017;Harvey *et al*., 2010). Cash transfer and food in-kind, are two different modalities used by WFP to deliver assistance to people affected by conflicts (WFP, 2016). Although all refugees receive food assistance upon arrival,however, in some settlements, they are later transferred to cash (the Development Pathways, 2018). According to a report by European Commission, (2020), more than 35% of the humanitarian aid is given to refugees and internally displaced persons (IDPs) in the form of cash for example debit cards, mobile transfers, and cash in hand. Refugees have the option to be on cash transfer or receive a dry food ration (European Commission, 2013). Cash transfer programme (CTP) is a new growing humanitarian assistance modality that has the potential to provide beneficiaries with choice andimprove local market capacities including engaging the private sector and empowering the communities (WHO Western Pacific Region, 2018;The World Bank Group, 2016).There is an increased preference for the use of cash in emergencies by donors like WFP (WFP, 2017b, 2021). Cash transfer for refugees is receiving increasing attention due toits contribution toalleviating abject poverty (Delius &Sterck, 2020). Cash transfer generally involves giving money to refugee households to meet their basic needs for food and non-food items (ECHO, 2013). In conflict situations, cash-based interventions (CBIs) are used instead of food because is it associated with improving the wealth of beneficiaries and food security although with no evidence of CBI impacting nutritional outcomes (Grijalva et al., 2018). Cash assistance has huge benefits to households and the community, and the transaction costs of cash distributions are substantially lower than those of food (Peppiat et al., 2001). Cash is preferred to in-kind transfers because it offers the opportunity to make choices on what to use the cash for (Hidrobo et al., 2012). Cash distribution can also stimulate agricultural production and non-agricultural activities by shifting out the demand curve for these items.

In Uganda, the decision to include cash transfer assistance in refugee response and implement it on a pilot basis was taken during the 2013 agreement between WFP, UNHCR, and the Office of the Prime Minister (WFP, 2016b). Uganda has already an ongoing strategy for scaling up cash transfers to the refugees (UNHCR, 2019). In support od Uganda's refuge model, many of the refugees are on cash transfer programs and integrated within the host community.Globally, WFP is increasingly using cash and vouchers as a means of ensuring that people can meet their essential food needs (WFP, 2023).Over the past decade, WFP has increased its use of cash-based transfers (CBT) to assist persons who are food insecure (WFP, 2019). Cash benefits proved nearly five times less expensive to deliver than food baskets for example each cash transfer costs WFP $5.22, and each food transfer costs $11.50 (Schwab et al., 2013). The cash grants significantly contribute to improving refugee well-being and most refugees prefer cash transfers because it offers the opportunity to make choices on what they need (Masterson, 2016). Cash transfers (CTs) for affected populations significantly contribute to improving food diversity and diets including access, availability, stability, and utilization(FAO, 2012).MacPherson &Sterck, (2021) found that cash and voucher support for refugees led to improved dietary intake as compared to in-kind food because cash/voucher recipients had a range of choices to make on what foods to buy with the cash received. However, the capacity of markets to respond to cash or voucher-based transfers is a fundamental driver of WFP supply chain activities (WFP, 2022). Accessibility to markets is a pre-requisite for the introduction of cash-based transfer in refugee response. Evidence has shown that in Uganda, cash transfers increased children's consumption of starches, and dairy by 66%, and meat and eggs by 100%, whereas food had no impact on the frequency of consumption of any of the food groups

(Bailey, 2013). The roll-out of cash transfers to refugees has widened the ability to access varieties of food, even when the markets are not fully developed to provide various foodstuffs.With the increasing use of cash in humanitarian response, there is a need to know how cash-based intervention contributes to reducing acute malnutrition among children 0-59 months (Grijalva et al., 2018).

Food assistance activities including cash, and food vouchers, have the potential to successfully address nutrition needs among vulnerable individuals (Green et al., 2020). Both cash amounts and food rations have been cut to more than 1.4 million vulnerable refugees in Uganda due to insufficient funding (WFP, 2020; M.A. et al., 2008). The reduction in cash assistance for refugees worsened by the high prices of food commodities has made the majority of refugees unable to eat 3 meals per day. Although there is evidence and considered best practice documentation to demonstrate the benefit of cash transfers and vouchers, there is less evidence demonstrating, the impact specifically on nutrition outcomes (Global Nutrition cluster, 2017).Despite the challenges related to market access, the roll-out of cash assistance to refugees has increased their ability to access a variety of foods (Guli et al., 2023). Cash transfer modality roll-out is aimed at empowering and making refugees self-reliant and improving household food baskets.However, scanty information exists on how cash transfers influence nutritional outcomes.

Refugee populations are vulnerable in terms of available nutrients and refugees face several nutritional challenges during their journey (Amstutz et al., 2020; Carrara et al., 2017). Bezatu M, (2014a), states that most children growing up in poor households for example in refugee settings suffer from undernutrition, which undermines their growth, and ability to learn and makes them more prone to illnesses. Globally, about 45% of deaths in children under 5 years, is due to undernutrition, and acute and chronic undernutrition in children remain global issues of public health significance including Uganda Doocy, Tappis, et al., 2011b; Office of the Prime Minister of Uganda, 2019; Ronald &Southall, 1999). Good nutrition is essential for human health and survival (Grijalva-Eternod et al., 2012). Most recent estimates indicate that globally there are 52 million children under 5 years who are wasted, with 17 million severely wasted, and of these, 26.9% are in Sub-Saharan Africa (UNICEF, 2017). Africa has made the least progress in reducing stunting prevalence since 2012 UNHCR, 2017). While Uganda still faces numerous undernutrition and overnutrition challenges, malnutrition, and poor health are significant risks for young children's populations (Galloway, 2017; UNHCR, 2017b), increases a child's risk of morbidity, and contributes to child deaths in less-developed settings (House et al., 2002; Lean, 2015; Simelane & Worth, 2020). According to (House et al., 2002), underweight, overweight, and micronutrient deficiencies indicate malnutrition. With routine monthly cash distribution for refugees, malnutrition remains still a big challenge in the settlements for health partners to struggle with.

A report by UBOS et al., (2019), indicated that children below five years were 24% stunted in 10 districts of Northern Uganda, with 10% to 20%stunting prevalence in districts of Adjumani, Kole,Moyo, Omoro, and Otuke, while between 20 and 30 percent stunting prevalence was found inNebbi, Pader, Yumbe, and Koboko districts.Further, Wanzira et al., (2018), found 10.4% of children had moderate acute malnutrition and 5.6% had severe acute malnutrition Arua district, higher than the national estimates of 3.6% for moderate and 1.3% for severe acute malnutrition. Inadequate diets, poor food quality, and severe or repeated diseases lead to nutritional deficiencies which undermine the health, growth, and development of children(IffatIddris, 2020; UNICEF., 2019; Krishnamani, 2015;WHO, 1997, 2015c; GoU, 2011). Unfamiliarity with available local foods and socioeconomic factors contribute to nutritional problems among children (Amanda, *et al*, 2010;

Aguayo & Morris, 2020).Stunting, underweight, and wasting are significant nutrition problems in children while low education levels of mothers/caregivers and poor weaning practices are associated with malnutrition among children below five years(Aliyu, & Hassan, 2019).The prevalence of stunting significantly reduces if the level of education of mothers and caregivers is high (UBOS, 2017;Mensah & Snodgrass, 2012). Caregivers' or mothers' knowledge of nutrition influences childcaring practices including food handling and preparation.High nutritional knowledge is very essential in promoting good nutrition and preventing malnutrition, especially in children, and usually, caregivers of children who have a low level of education pay less attention to nutrition education (Forh et al., 2022). Other than food intake and health, the caregivers' behaviors and childcaring practices greatly influence child survival, growth, and development (Motebejana et al., 2022). As stated by (Chege & Kuria, 2017), poor feeding practices have been associated with low caregivers' nutritional knowledge, and lack of nutritional knowledge on child feeding among caregivers contributes significantly to poor dietary practices of children under-five years of age. Child malnutrition is associated with inadequate and inappropriate complementary foods, poor nutrition knowledge of mothers/child caretakers, and poor caregiver practices (Nabugoomu et al.,2015).

Malnutrition in children is common among caregivers who have low levels of nutrition education. Inadequate maternal education and nutritional knowledge among caregivershave been noted as a major cause of unhealthy dietary habits for children(Chege & Kuria, 2017). Nutritional knowledge of caregivers is a determinant of the type and quality of diet provided to the children. Nutrition education has been linked to improved child feeding and nutritional status. The presence of underweight, overweight, and micronutrient deficiencies indicates malnutrition, which can result in adverse health outcomes and reduced quality of life (Galloway, 2017; House et al., 2002). Adequate food consumption of food by populations affected by conflict is required to ensure proper nutrition (European Commission, 2013). As an approach used to build resilience, cash-based transfers (CTs) are used to restore livelihoods by promoting agricultural production in times of disaster, conflict, and economic shock (FAO, 2012).Cash distribution can stimulate agricultural production and non-agricultural activities by shifting out the demand curve for these items. Cash assistancewas adopted in humanitarian programs due to the various benefits it brings to the recipients and the local economy. Based on the increasing use of cash-based assistance in humanitarian programs and the need to know its impact, this paper, therefore,assessed the effect of cash-based assistance provided to refugees on the nutritional outcomes in children 0-59 months in refugee settlements of West Nile Subregion in Uganda.

2.0 Methodology

a. The Study design

This was a cross-sectional study employing a mixed-method approach and using both qualitative and quantitative approaches. The study was carried out in the refugee settlements of Adjumani andObongi districts in West Nile Sub-region of Uganda because these districts host the largest number of refugees and asylum seekers. Adjumanirefugee hosting district is located in the north-western part of Uganda, between latitudes 31^0 24 and 32^0 4 E and longitudes 2^0 53 and 3^0 37 N (Adjumani District Development Plan, 2015). The district has fifteen refugee settlements which include Mirieyi, Olua 2, Ayilo 1, Ayilo 2, Boroli, Alere/Olijji, Baratuku/Elema, Nyumanzi, Maaji 1, Maaji 3, Agojo, Maaji 2, Mungula 1, Mungula 2, Pagirinya, however, the study was conducted in six refugee settlements out of fifteen which include Ayilo 1, Alere/Olijji, Nyumanzi, Maaji 3, Mungula 1, and Pagirinya.While Obongi refugee hosting district is found in the north-western part of Uganda, between latitudes 31^0 30" and 31^0 45" E and longitudes 3^0 30 and 3^0 15 N, has four (40 refugee settlements which include Chinyi (Zone 1), Ibakwe (Base Camp Zone), Dongo East (Zone 2) and

Dongo West (Zone 3). In Obongi, the study was conducted in 3 settlements namely Zone 1), Zone and Base Camp Zone. As, of April 2020, Adjumani district had 223,785 refugees (29,710 HHs) and 125,617 refugees (28,810 HHs) werein Obongi district (UNHCR, 2020b; UNHCR, 2021). Both food and cash assistance modalities are implemented in Adjumani and Obongi districts. The major economic activities in these districts include among others subsistence agriculture, cattle rearing, fishing, charcoal burning, stone quarrying, sand excavation, and trading in small businesses. Hence, reliable data can be obtained from refugees in the two districts which can be generalized to inform improvements in humanitarian assistance.

b. Materials and Methods

The study focused on theimpact of cash-based assistance on the nutritional status of refugee children 0-59 months in Adjumani and Obongi refugee hosting districts in West Nile refugee settlements in Uganda. The study specifically assessed the nutritional status of children aged 0-59 months whose caregivers were on cash assistance modality and examined the influence of other factors on cash-based transfer and nutritional outcomes among children under five years. To obtain information and draw conclusions on whether cash-based assistance influenced the nutritional status of children 0-59 months, the study used a mixed-method research approach employing both qualitative and quantitative methods as proposed by Bryman et al. (1996) and Wilson and Marlino (2005).Based onYamane's (1967:886) simplified formula for calculating sample size, of n = N/1+N(e)2, where n= sample size (392), population size (20,347), and e= level of precision or significance (0.05), with a 95% confidence level, giving a sample size of n=20,347/1+20,347 (0.05)2= 392. A total of 392 respondents and 61 key informants were interviewed. However,out of 392 respondents, only 122 respondents were receiving cash-based assistance, and 270 of them were on food-in-kind assistance. Three (3) survey questionnaires were used to obtain primary data from children less than 6 months, children 6-59 months and caregivers of children 0-59 months mainly the household head and mother or caregivers receiving cash assistance while semi-structured survey questionnaire (containing both closed and open-ended questions) was used to collect the qualitative data from the key informants which included the implementing partners, UN agencies (WFP, UNHCR), and district authorities (LCV, CAO, S/C, LCIII, CDOs, and refugee desk officers). Focus group discussion (FGD) was done using a FGD guide with small groups of 10 to12 members (refuge welfare committees, cash management committees, nutrition groups/clubs) to gather their experiences and views on cash assistance and how they think it influenced the nutritional status of their children as proposed by Creswell, (2014). Responses were received from 392 caregiverswith their children representing a 100% response rate for questionnaire instruments and anthropometric tools respectively. Out of 392 responses, 122 responses were received from caregivers on cash-based assistance modality and their children. For qualitative, responses were received from 44 respondents out of a target of 61 respondents, which represents a 72.1% response rate. The overall response rate was 96.3% (436 responses received out of 453 target respondents) which is higher than what was prior advanced by Mundy (2002).

Research tools were reviewed by peers and supervisors for face validity before interviews were conducted and the questionnaires were also pre-tested to test their validity using a section of respondents in one of the settlements as supported by Bezatu, (2014c). The research assistants were trained for 3 days on the study scope, data collection components, and study procedures which included data collection techniques and instruments, administration of informed consent forms, maintenance of confidentiality, anonymity and privacy, respect for research participants, and observance of principles of beneficence and non-maleficence throughout the research study. Informed consent forms and research tools were translated into different local languages spoken by

the respondents mainly Bari, Dinka, and Arabic. Observation and documentary review of methods of data collection were used to collect qualitative information. Children's nutrition status was also observed and triangulated with information obtained from the anthropometric measurements and health facility data.The anthropometric measurement tools were used for collecting anthropometric information onmid-upper arm circumference (MUAC), weight, and height of children 0-59 months to assess the physical growth and nutritional status of the children aged 0-59 months expressed as a percentage. Weighing scales, height boards, and MUAC tapes were used for measuring weight, height, and MUAC respectively. Non-stretchable MUAC tapes of MOH/WHO were used for the measurement of MUAC of children to the nearest 0.1 cm and weight was recorded using a digital weighing scale. Weight was measured to the nearest 0.1 kg in light indoor clothing and with bare feet or stockings, using a portable standard calibrated digital weighing scale, and height was measured, without shoes, to the nearest 0.1 cm using a portable height board. Quantitative data collected was coded and reviewed for quality, accuracy, consistency, and completeness and analyzed using STAT 18.0 as suggested by Aliyu, (2015). The analyzed data was used to present descriptive statistics about the agricultural inputs support and nutritional outcomes. Notes were generated from the analyzed data to create meaning for the readers and generalization of the analyzed data was made based on the prevalence levels of malnutrition concerning the access to the agricultural inputs. Qualitative data collected through interviews, focus groups, observation, or review of documents was edited and imported into Open Code 4.02 through rich text format and categorized into themes and contents using mother and child nodes, from where interpretation and meanings are generated. Concerning participant's responses on themes like access to land, access to farm tools, and access to seeds, the researcher recorded their responses in their own words. General conclusions were made based on the responses obtained about the themes of the study.

4.0. Results

4.1 Cash-based transfers to caregivers of children 0-59 months.

The cash assistance modality was adopted by humanitarian agencies to shift away from food in-kind assistance since it is the cost of distributing cash is lower than food and cash is associated with many benefits. The study findings showed that out of the 392 respondents, 31.12% of caregivers of children 0-59 months received cash assistance with 81.58% of caregivers in Adjumani district and 26.13% of caregivers in Obongi refugee settlements at a P-value of 0.000 receiving cash as compared to 68.88% of caregivers on food assistance modality. Out of those who received cash assistance as a form of humanitarian food assistance, 41% of caregivers received cash assistance of between 19,000 to 24,000 per person based on WFP ration cards while 28% of caregivers of children reported having got less than 19,000 Uganda shillings monthly per person and those who received cash of 25,000 Uganda shillings and above constituted 44% based on the household size, with different proportions between Adjumani and Obongi districts at P=0.005. This variation in distribution is, however, statistically significant. Concerning cash distribution pattern, 92.62% of caregivers received cash assistance every two months and only 7.38% received cash assistance monthly at a P-value of 0.130>0.05. Although the emphasis by humanitarian agencies is to shift away from providing dry food assistance to cash-based assistance, enrollment inthe cash transfer modality is very low. This implies that the majority of refugees prefer food in-kind assistance to cash-based assistance probably because the cash assistance provided is very little, there is limited food in the marketfor sale and the prices of food commodities are extremely high.

The results further showed that the majority (58.82%) of children aged 0-59 months that took part in the study were females and 41.18% were males while 54.02% of children were in age of 24-59 months and only 45.98% of them were in age category of between 0-23 months. About the breast

feeding of babies immediately after birth by their mothers who received cash assistance, 72.95% of children were breastfed immediately after birth and 27.05% of the children were not breastfed immediately after birth. Based on the anthropometric measurements, 4.10% of the children 0-59 months were severely malnourished with MUAC of <11.5 cm and 1.10% of them had moderate malnutrition having MUAC of 11.5 to <12.5 cm as per WHO classification with significant variation in proportions between the districts at a P-value of 0.035. The majority of children were normal (Not malnourished), with MUAC of more than 12.5cm. This implies children with MUAC less than 115 mm (having severe malnutrition) have a high risk of death or mortality compared to those who are moderately malnourished (MUAC of 11.5 to <12.5 cm). The results demonstrate that malnutrition in children remains a challenge for the humanitarian program, hence the need to scale up community preventive services and curative nutrition services to increase access to nutrition sensitive services for refugees and to avert morbidity and mortality due to malnutrition.

4.2 Purchased foods by the cash beneficiaries

Cash beneficiaries are expected to buy food from the market with money received. It was observed that most cash beneficiaries purchase the same food distributed to the refugees on food assistance modality since there are inadequate food commodities in the market and food prices are high. Access to a variety of foods and high food prices remain a challenge for many refugees. The findingsof the study in Table1 below revealed that the majority of beneficiaries (46.72%) bought cereals mainly maize, and sorghum, 35.25% purchased pulses (beans, peas) and vegetables (green vegetables, cabbages) whilea small percentage of cash beneficiaries accessed other types of food like fish, tubers (cassava, sweet potatoes), oils and salt.This result indicates that cash beneficiaries buy mostly the same types of food distributed to refugees who are on food in-kind assistance modality however, access to food is dependent on availability in the market, food prices, and preference of one food item over another by the beneficiaries. Cereals, pulses, vegetables, and fish were easily accessed by many cash beneficiaries probably because refugees cultivate such crops and the abundance of fish in the markets due to the proximity to river Nile and many other streams/riverstransversing the West Nile region. The rivers and streams possess plenty of fish and there are no restrictions on fishing activities for refugees. See Table 1 below for details of the proportions of distribution among the districts.

Table 1: Purchased foods by the cash beneficiaries (n=122)

Purchased Foods	Overall		District		
	Freq.	Percent	Adjumani %	Obongi %	P-value
Cereals (maize, millet, sorghum etc)	57	46.72	51.61	31.03	0.052
Pulses (beans, peas etc)	43	35.25	41.94	13.79	0.006
Fish	41	33.61	26.88	55.17	0.005
Okra	18	14.75	3.23	51.72	0.000
Vegetables (green vegetables, cabbages)	43	35.25	38.71	24.14	0.152
Tubers (cassava, sweet potatoes etc)	12	9.84	10.75	6.90	0.543
Oils	27	22.13	20.43	27.59	0.418
Salt	21	17.21	20.43	6.90	0.092

Source: Primary Data (2022).

Quality and nutrient content of food purchased by cash beneficiaries from the market.

Proximate analysis of food commodities purchased from the market and community by the cash beneficiaries was carried out to determine the nutrient contents of the food. The analysis focussed on moisture content, dietary fibre, carbohydrates and crude protein levels. The results in Table2 below showed that the moisture content was 10.95% formaize grainsand 10.55% for beans (pulses), which are below the reference values signifying maize and beans were dry and not affected by moisture. While for carbohydrates energy, the maize and beans purchased in the market and/or community was 64.08% and 41.27% respectively, below the reference values implying maize and beans could have been affected in quality given the poor storage facilities of refugees, and for dietary fibre (g/100g.d.m), maize constituted 11.04 g below the recommended value and beans had 5.39g which is within acceptable reference value of between 5.2-7.8g. This implies that maize does not contain a lot of fibre. The refugees are expected to get fibre from the vegetables and other foods that they cultivate. The crude protein was found to be 21.16% in maize and 34.26% (higher than the reference values) in beans that were bought from the market by cash distribution (*see table 2 below*). For standard food baskets in emergency setting, the total protein is expected between 38-40%. This implies energy and protein requirements in terms of food quality are acceptable. For cooking oil purchased in the market, it was 884kcal (44%), which is expected to provide additional kcal (15-17%) fortified with Vitamin A and others. The SPHETRE guideline and standards indicate 2,100kcal is recommended daily allowance (RDA) in emergencies including refugee situation. For cash beneficiaries just like the food recipient, the main source of energy remains the cereals (maize) which can be supplemented with pulses (beans) as source of protein and the fortified oil as the source of energy and micronutrients like Vitamin A) which is bought by cash beneficiaries from the local markets using the cash provided by the humanitarian agencies.

Table 2: Showing the results of the proximate analysis of food purchased by cash beneficiaries

Cash assistance	**Food Types**					
Food purchased by cash recipients (Source: Market)	**Maize**	Reference value	**Beans**	Reference value	**Oil**	Reference value
Moisture Content (%)	10.95%	13-14%	10.55%	16-17%	0.00%	
Dietary fibre (g/100g.d.m)	11.04g	90g	5.39g	5.2-7.8g	-	
Carbohydrates (%)	64.08%	70-80%	41.27%	70%	-	884kcal (44%)
Crude Protein (%)	21.16%	8-11%	34.26%	15%	-	

Source: Primary Data (2022).

The relationship between cash-based assistance and nutritional outcomes.

Cash distributed to refugees offers them various options to use the money because it creates independence among refugees,supportsthe development of local markets, and makes them self-reliant. The aim of giving cash assistance is to ensure people can meet their essential food needs. The study findings showed that there is no significant effect of cashassistance on the nutritional outcomes among children under five years as confirmed by a Moderate underweight prevalence of 12.96% (P=0.1714), low stunting level of 15.19% (P=0.0571) below <20% WHO cut off and moderate wasting prevalence of 6.67% at P-value of 0.0634 9(*see table 3 below*). The underweight and wasting prevalences are above <10% and <5% WHO threshold respectively. In terms of severity level of underweight, wasting, and stunting in line with WHO classification as in Table 4 below, out of 15.19% of stunted children 0-59 months, 3.56% of children had severe stunting and 11.63% were moderately stunted (lower than <20% WHO threshold) at a P-value of 0.288. While for underweight, 3.29% of children were severely underweight and 11.90% had moderate underweight out of 12.96% underweight prevalence at P=0.446. Severe and moderate wastingconstituted 2.48% and 4.19% in

children respectively at a P-value of 0.062 (see table 4 below). Although these discrepancies in the prevalences of underweight, wasting, and stunting, are not statistically significant, the results show a lowprevalence of underweight, stunting, and wasting. The null hypothesis that *"There is no significant effect cash-based assistance on nutrition outcomes among children under five years in selected refugee settlements in West Nile."* is accepted. There is thus no adequate evidence that cash assistance has a statistically significant association with nutritional outcomes among children under five years.However, in terms of cash amount received, the results indicated that the prevalence of stunting was 10% (P=0.045), 9.50% underweight prevalence (P=0.078), and 14.05% wasting prevalence (P=0.034) among children whose caregivers received cash assistance of between 19,000 to 24,000 Uganda shillings (*see table 3 below*). However, the variation in prevalences of stunting and wasting are statistically significant for cash amount received, which constituted only 16% of the respondents. Many refugees did not know the exact amount of money received since they received cash assistance every two months. This result demonstrates the need for humanitarian actors to continue giving cash-based assistance to refugees to ensure they can access adequate and variety of food in the market and community for home consumption and integrate food security and livelihood interventions alongside the cash-based assistance modality.

Table 3: Association between cash-based assistance and nutritional outcomes among children under five years in refugee settlements in West Nile.

		Malnutrition		**Underweight**		**Stunting**		**Wasting**	
		%	P-value	%	P-value	%	P-value	%	P-value
Cash assistance	Yes	18.03%	0.2394	8.20%	0.1714	8.20%	0.0571	12.30%	0.0634
	No	23.33%		12.96%		15.19%		6.67%	
Cash amount	Less than 19,000	22%	0.065	8%	0.078	7.70%	0.045	10.60%	0.034
	19,000 to 24,000	16%		10%		9.50%		14.05%	
	25,000 and above	17%		7.60%		8.50%		13.65%	
Cash pattern or frequency	Monthly	11.11%	0.5784	0.00%	0.3558	0.00%	0.3558	11.11%	0.9114
	At least Every two months	18.58%		8.85%		8.85%		12.39%	

Source: Primary Data (2022).

Table 4: Nutritional outcomes classification of the study participants based on the WHO categorization.

		Overall	District			
Category	Severity Level	%	Adjumani	Obongi	Yumbe	P-value.
Stunted (%)	Severe	3.56%	5.16%	2.73%	2.95%	0.288
	Mild/moderate	11.63%	13.89%	5.81%	15.01%	
Underweight (%)	Severe	3.29%	3.07%	5.36%	2.89%	0.446
	Mild/moderate	11.90%	15.98%	3.18%	15.07%	
Wasted (%)	Severe	2.48%	3.45%	4.81%	0.45%	0.062
	Mild/moderate	4.19%	1.31%	3.73%	5.54%	

Source: Primary Data (2022).

Malnutrition among the refugee communities continues to burden the humanitarian response programs despite the assistance provided to meet their daily food needs and non-food requirements. Children who depend on their caregivers to access food are vulnerable since they cannot take care of themselves. The knowledge of caregivers and child caring practices influence the feeding of the children including children's hygiene and household sanitation.

The respondents' views indicated that the cash assistance provided is little to sustain a household for a full month since food prices are very high and there is limited food in the market. Most markets within the refugee settlements lack varieties of food as a result the same food distributed to the refugees is sold in the market. Additionally, the host communities do not produce adequate food because they do not cultivate extensively. A respondent *(R02, FGD Dongo East, 2022)* had this to say about the money distributed to the refugees;

> *"The money given monthly is small, and yet the prices of food items in the markets are very high and increase daily. So, the big challenge facing us as refugees is the high food prices in the market that are not affordable. WFP should increase the amount of money".*

Similarly, on the same issue of cash assistance, other respondents submitted that;

> *"The money given is very little and thus you give money when we don't have footwear, we could choose to buy footwear and leave food. Some people laugh at us when we complain like this. We have nothing, we do not even have plots of land, you have seen our plots, even if we cultivate, the harvest is small. The 19,000 UGX given is very small. The money should be increased to 30,000 or 50,000 UGX to allow us to rent land outside the settlement. Also, other businesses or Income Generating Activities (IGA) for women should be supported"* (R05 and R06, FGD, Nyumanzi, 2022).

Despite the continuous humanitarian assistance, refugees have complained about the inadequacy of the money distributed to them given the rising economic situation in the country, lack of adequate food in the market, and skyrocketing food prices that have affected not only the refugees but even the host population who are also vulnerable. Access to land and farm inputs remains a challenge to many refugees due to the selective approach of giving inputs to groups adopted by humanitarian agencies. It was revealed that after the initial input distribution at the time of registration, input distribution after was done to selected groups identified by the implementing partners. This approach has not gained wide acceptance among many refugees since it isolates many refugees from benefiting and moreover, everyone is vulnerable as a refugee. Livelihood support should be extended to all refugees.

5.0 Discussions

To provide effective humanitarian assistance for conflicted affected populations, donor and humanitarian agencies are shifting from in-kind assistance to cash-based assistance. In West Nile refugee settlements, out of the total respondents, only 31.12% of them are on cash-based assistance, receivingbetween 19,000 to 24,000 Uganda shillings at a P-value of 0.000 as compared to 68.88% of caregivers who were on food in-kind assistance (dry food rations) in line with the progressive food and nutrition Policy (UFNP) adopted in 2003 which provides for the right to adequate food (Rukundo, 2014). The amount of cash and the frequency of distribution depends on household size, determined by the number of people within the household (Hoddinott, 2020), (Agnes, 1993). A Pearson's chi-square test revealed that children 0-59 months from households that received cash assistance had moderate underweight prevalence of 12.96% (P=0.1714), low stunting

level of 15.19% (P=0.0571) below <20% WHO cut off and moderate wasting prevalence of 6.67% at P-value of 0.0634. The underweight and wasting prevalences are above <10% and <5% WHO threshold respectively. The variation in prevalences of underweight, stunting, and wasting are not statistically significant. The null hypothesis that "There is no significant effect cash-based assistance on nutrition outcomes among children under five years in selected refugee settlements in West Nile." is accepted. There is thus no adequate evidence that cash assistance has no statistically significant association with nutritional outcomes among children under five years.However, according to WHO classifications, the prevalence of wasting is higher than WHO thresholds of <5%, classified as critical. As supported by House et al., (2002), the presence of underweight, overweight, and micronutrient deficiencies indicate malnutrition. Based on the anthropometric measurements, the study found that 0.77% of children 0-59 months were severely malnourished with MUAC of <11.5 cm, 4.59% of them had moderate malnutrition with MUAC of between 11.5 to <12.5 cm, and the majority (94.64%) of children were normal (no malnourished) with MUAC of more than 12.5 cm. Although many of the children aged 0-59 months were healthy, these results demonstrate that malnutrition remains a problem among the refugee population, hence there is need to scale up preventive and curative nutrition services at both the community and health facilities and increase awareness on nutritional issues among caregivers of children 0-59 months. Malnutrition remains a burden among the refugee population due to inadequate intake of dietary foods and insufficient intake. Galloway, (2017) stated that malnutrition can result in adverse health outcomes and reduced quality of life. Good nutrition is essential for human health and survival (Grijalva-Eternod et al., 2012). Children's growth and development are dependent on the intake of adequate and nutritious foods at the right time and in quantities.

Anthropometric characteristic measures by age showed that there is a slight difference in the mean age and standard deviation of children 0-59 months and overall mean age of 32.18 months and a standard deviation of 8.99. While the mean weight of 11.04kg (SD 5.45) falls in the expected range of 11.9-17.1 for children 32months of age and the mean length/height of 80.01cm (Standard deviation 24.01) falls slightly below the expected range of 86.8 -100.0cm for the average age of 32 months. The differences or deviations from the expected WHO growth standards could be attributed largely to measurement errors during the field data collection. Evidence has shown that poor access to particularly healthy food and insufficient food intake causes undernutrition as well as overweight and obesity (Grijalva-Eternod et al., 2012; Harto, 1993). A diet deficient in macronutrients such as protein, carbohydrates, and fats or deficient in key micronutrients both lead to "wasting" (Office of the Prime Minister of Uganda, 2019). The above statistics clearly show moderate underweight and high wasting are high among children in households receiving cash.

For stunting, the prevalence of 9.50% (P=0.045) which is below WHO threshold of <20%. Although stunting prevalence is within the acceptable range, it remains a problem in children 0-59 months. As supported byUBOS et al., (2019), 10% to 20% of children 0-59 monthswere stuntedinthe districts of Adjumani, Kole, Moyo, Omoro, and Otuke while in the districts of Nebbi, Pader, Yumbe, and Koboko districts, 20% to 30% of children 0-59 months were stunted. Malnutrition is a result of inadequate diets, poor food quality, and severe or repeated diseasesthat undermine the health, growth, anddevelopment of children(IffatIddris, 2020; UNICEF., 2019; Krishnamani, 2015;WHO, 1997, 2015c; GoU, 2011). Despite, the various interventions implemented, little progress made in reducing stunting prevalence in Africa since 2012 UNHCR, 2017). That is why, Uganda still faces numerous undernutrition challenges, malnutrition, and poor health which are significant risks for young children (Galloway, 2017; UNHCR, 2017b), which in turn increases a child's risk of morbidity and mortality (House et al., 2002; Lean, 2015; Simelane & Worth, 2020). Therefore, to meet the food and nutritional needs of children more effectively, planning humanitarian assistance be participatory,

involving women in the process of determining the appropriate food and nutritional needs of the affected population.

These findings agreed with evidence generated by a report of the Ministry of Health of Uganda, where the highest prevalence of moderate acute malnutrition is10.4%, and 5.6% for severe acute malnutrition is found in the refugee settlements in West Nile sub-region higher than WHO targets of < 5% for wasting in children (GoU, 2011b). These resultsare similar to the findings by Henry, (2014), whofound a high underweight prevalence of 63.8% and 13.3% in refugee children 6-59 monthsin Adjumani, Arua and Kiryandongo districts. The decision on the use of cash received is dependent on the individual household and family members within the household. The members of the households decide on how to spend the money they receive monthly.

Although refugees receive food assistance upon arrival and registration, some refugees later are voluntarily transferred to cash transfer programs in some settlements (Canteli, 2012). The refugees voluntarily choose to enroll ina cash transfer program instead of dry food rations.This decision aligns with the EuropeanCommission policy guideline which states that refugees have the option to be on cash transfer or receive food in-kind assistance (Commission, 2013). Few refugees have enrolled in cash-based transfer modality in West Nile compared to those on food in-kind as evidencedbythe findings above. The refugees that are on a cash transfer modality have reported insufficient amounts of cash and lack of variety of food in the market in addition to high food prices, making them unable to buy adequate food, hence their children are prone to malnutrition and other diseases. As supported by the Food and Agricultural Organization (FAO), cash transfers (CT) for affected populations significantly contribute to improving food diversity and diets (FAO, 2012). Cash is considered the most effective type of response because it empowers the recipients and results in self-reliance. The differences in the prevalence of malnutrition could be associated with the fact that refugees invest some of the cash in business, and other domestic activities/items like buying clothes, firewood, utensils, treatment in the clinics, etc. This is in line with what Zhu and colleagues found in their study that many refugees on cash transfer programs, invest some of their cash in agricultural or livestock production in their allocated plots (Zhu, 2016). The use of cash for other activities by the refugees other than food is also supported by Hidroboet al., (2012), whostated that cash recipients save a small share of the cash or money received for later use and spend a small portion on non-food items while food recipients tend to share their transfer with friends or family or save their transfer for later use. Beneficiaries of cash transfers as well as dry food recipients reported that they use part of the cash or sell part of the food received to meet their non-food items needs which include among others buying clothes for the children, buying household items, paying school fees, buying firewood or charcoal for cooking, buying medicine that are not available in the health facilities and many others.

Access to the market by refugees is one of the parameters used to decide the roll-out of the cash transfer program by the Humanitarian agencies. It is expected that cash beneficiaries should be able to buy foods from the markets. This study found that the majority (63.01%) of caregivers of children under five years in refugee settlements had access to the market within and outside the refugee settlements in less than 30 minutes with significantly different proportions of caregivers in Adjumani, Obongi, and Yumbe refugee settlements at a P-value of 0.000<0.05 of caregivers who accessed market in within 30 minutes. These findings conform with WFP report, which indicated that due to the increasing number of cash beneficiaries in most settlements, food prices have continued to increase, affecting beneficiaries purchasing power (WFP, 2016b). Further, an increase in food prices is one of the challenges faced by humanitarian agencies and beneficiaries (Efe, 2018).Due to

the economic crisis, food prices are relatively high in the settlements, since there is limited food within the settlements and host communities.

Concerning the nutritional knowledge of cash beneficiaries, this study found that the majority (62.24%) of the caregivers of children under five years in refugee settlements in West Nile had poor nutritional knowledge at a P-value of 0.000 compared to only 37.76% of caregivers having good knowledge in nutrition. This is in agreement with the study that found that 75.5% have poor knowledge of nutrition unlike in Rwanda, where more than half (53.6%) of refugee women in Kigeme Refugee Camp, had high nutrition knowledge and 71.8% of them had poor nutrition practices with 67.2% of the refugee women have negative attitudes on nutrition (Iradukunda, 2011). The education levels of mothers and caretakers play a key in ensuring appropriate use of cash received and younger children are fed appropriately with the right types of food and quantities. Nutrition education is of central importance for achieving nutrition improvement (Berti et al., 2004). According to the Uganda Bureau of Standards (UBOS), mothers and caregivers who are educated, are likely to feed their children better and so the prevalence of stunting and wasting significantly reduced(UBOS, 2017).

For food storage and feeding practices, the study found that 93.62% of the caregivers of children under five years in refugee settlements in West Nile had basic food storage facilities for storing food and 69.29% of caregivers of had good child feeding practices and only 30.71% of them reported having poor child feeding practices. The good child feeding practices include among others; feeding a child 3 times a day, initiation of breastfeeding within the first hour of life, exclusive breastfeeding for 6 months, breastfeeding on demand, as often as the child wants, day and night, no use of bottle for feeding the child, use of good and safe food preparation practices, introduction of solid, semisolid or soft foods at 6 months and continued breastfeeding up to 2 years. It is a general understanding that caregivers with a good level of education are more likely to have better child feeding practices. Although refugees store the food using locally improvised pallets or raised platforms or use empty jerrican, drums sacks, etc. The small temporary houses for refugees in the settlements lack proper and adequate spaces for food storage and this may explain why food storage is poor among the refugees. When Poor storage of food significantly affects nutrient contents, taste, and colour of food making it unpalatable and denatured.

6.0 Conclusions and Recommendations

Cash-based assistance insignificantly influenced the nutritional outcomes among children evidenced by the low prevalence of stunting, moderate underweight, and moderate wasting prevalence. Cash-based assistance indirectly impacts the nutritional status of children and tends to increase household access to diverse foods and non-food items. The humanitarian partners should continue to provide cash-based assistance, create more awareness about CBT, and consider integrating it with food security and livelihood activities to promote food production and productivity among the refugees.

Limited knowledge of nutrition issues among the refugees greatly affects childcaring practices, food storage, and food preparation practices including personal hygiene and household sanitation. Therefore, in general, childcaring practices and food management practices be strengthened among caregivers of children and the entire refugee community. Access to markets and food commodities by cash beneficiaries remains low due to limited food in the market, high food prices, and low host communities'food production and productivity.

Recommendations

Despite the low prevalence of malnutrition, humanitarian actors should increase and continue to provide cash assistance and integrate food security and livelihood interventions to increase household food security and income and food diversification. Humanitarian agencies and the Government should advocate for additional resources for cash-based modality and food security and livelihood programs for both the refugees and the host community.

To improve child caring practices and food management practices of caregivers and the community, humanitarian agencies should scale up community mobilization and sensitization on nutrition matters to improvethe knowledge and skills of caregivers of children including the community and promote good hygiene and sanitation practices.

Government and humanitarian agencies should support and develop local markets and businesses dealing in food production, food supply chain, and value addition to ensure food is readily available for cash beneficiaries and the host community. Refugee and host community agricultural activities be strengthened including the supply of farm inputs to increase food production and productivity.

Limitations of the study and Future areas of study

The study experienced some limitations for instance accessing refugee settlements required a long approval processfrom the Office of Prime Minster in Kampala, Arua, Obongi, and Adjumani in addition to clearance by the settlement commandants in the field locations.

Based on the refugee settlement structure, refugee leaders are supposed to be involved in all activities taking place in the settlements, so the involvement of refugee leaders in leading research teams required additional finances that were not planned for by the researcher.

Interviews took a lot of time and resources; During the focus group discussions, some members were too shy to share their views while others over-dominated the discussions since they had valuable information pertaining to the topics; and the use of mixed methods delayed the data collection process as it took a lot of time as well as analysis of data.

The areasidentified for future research that were not addressed by this study but are very vital in understanding the impact of humanitarian assistance on the health outcomes of refugees and their welfare include, (1) the impact of school feeding programs on the nutrition status of young children, the impact of cash assistance on gender-based violence, the impact of refugees on host community land use and agricultural production, and finally, assess the relationship between refugee household food security and gender-based violence among refugees in West Nile.

Consent

Informed consent was obtained from all research participants using the approved informed consent protocol. Confidentiality and privacy of respondents were maintained, and data was collected with the permission of the respondents.

Data availability:

The data presented in the manuscript is available on request.

Ethical Considerations

In conformity with the principles of research, this study received approval from the Gulu University ethics committee (Protocol reference GUREC-2021-108) and Uganda National Council for Science and Technology (UNCST) - reference- HS1912ES. Approval was also obtained from the Office of the Prime Minister (OPM) reference-OPM/R/107, the United Nations High Commissioner for Refugees (UNHCR), the World Food Programme (WFP), and district local Government authorities (see attached letters) to undertake the study in the refugee settlements and access the research participants. Research participants were given incentives for their time and participation in line with the National Guidelines for Research involving Humans as Research Participants, 2014 of UNCST, and the approved research protocol (Protocol reference GUREC-2021-108).

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