



PREVALENCE AND FACTORS ASSOCIATED WITH MALNUTRITION AMONG OLDER PERSONS IN KAWEMPE DIVISION, UGANDA

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ABSTRACT

Background: Malnutrition among older persons is a growing public health concern globally and in Uganda. Despite the existence of national nutrition programs, urban poor settings such as Kawempe Division in Kampala remain under-researched. This study aimed to determine the prevalence and factors associated with malnutrition among older persons aged 60 years and above in Kawempe Division, Kampala Capital City Authority, Uganda.

Methods: A cross-sectional quantitative design was used, involving 327 older persons selected through stratified random sampling across five parishes. Data were collected using a structured questionnaire and the Mini Nutritional Assessment–Short Form (MNA-SF). Chi-square tests and binary logistic regression were performed to identify associations between malnutrition and individual, lifestyle, and dietary factors.

Results: Malnutrition prevalence was 15.0%. Multivariate analysis revealed that anorexia [AOR = 0.139, 95% CI: 0.046–0.421, $p < .001$], physical inactivity [AOR = 0.226, 95% CI: 0.056–0.917, $p = .037$], and infrequent carbohydrate intake [AOR = 3.27, 95% CI: 1.08–9.89, $p = .036$] were independently associated with malnutrition. Marital status, alcohol use, and plant protein intake were also significantly associated at the bivariate level but not statistically significant after adjustment.

Conclusion: Although the malnutrition prevalence was lower than earlier local estimates, it remains a significant concern. Individual and behavioural factors, particularly appetite, physical activity, and dietary patterns, influence nutritional outcomes in older adults. Interventions should prioritise community-based screening, nutrition support, and age-friendly health promotion strategies in urban low-income settings.

KEY WORDS: Malnutrition, older persons, urban elderly, anorexia, physical inactivity, dietary patterns, Uganda, MNA-SF, public health nutrition

1 INTRODUCTION

The global population is aging rapidly, raising critical concerns about the health and nutritional well-being of older adults.

Malnutrition is widely recognized as a major public health problem among persons aged 60 years and above, as it contributes to weakened immunity, functional decline, frailty, and increased morbidity and mortality (World Health Organisation [WHO], 2022; Megan et al., 2010). These challenges are more pronounced in low- and middle-income countries, where socioeconomic constraints, chronic illness, food insecurity, and limited access to age-friendly health and social services heighten vulnerability to under nutrition (Obeng et al., 2022; Ewunie et al., 2022).

Across sub-Saharan Africa, evidence shows substantial and heterogeneous levels of malnutrition among older adults, with prevalence estimates ranging from as low as 1.8% in some settings to nearly 40% in others (Seid et al., 2022; Ewunie et al., 2022). Key contributors include poverty, inadequate dietary diversity, fragile health systems, and limited social protection mechanisms (Mabiama et al., 2022; Obeng et al., 2022). These structural conditions often intersect with age-related physiological changes, such as appetite loss, chronic disease, and functional decline, further increasing the risk of under nutrition (Guigoz et al., 2006; Fluitman et al., 2022).

In Uganda, the population of older persons is steadily increasing, yet empirical evidence on their nutritional status remains limited and fragmented. Earlier studies conducted in central and northern Uganda have reported widespread nutritional vulnerability, with factors such as household food scarcity, chronic illness, and limited economic opportunities contributing to poor nutritional outcomes (Kikafunda & Lukwago, 2005; Omia et al., 2019; Ahumuza, 2019). Kawempe Division, one of Kampala's most densely populated urban areas, is characterized by overcrowding, informal employment, and high levels of poverty (Kampala Capital City Authority, 2019). These conditions have the potential to exacerbate nutritional risk among older persons, particularly those with limited access to quality foods, health care, and social support.

Despite the growing need for context-specific geriatric data, few studies have examined the combined influence of individual, lifestyle, and dietary factors on malnutrition among older persons living in urban poor environments in Uganda. Understanding these determinants is crucial for informing targeted interventions, shaping social protection measures, and strengthening age-friendly public health programs.



The study, therefore, set out to examine the prevalence of malnutrition and to identify the individual, lifestyle, and dietary factors associated with the nutritional status of older persons residing in Kawempe Division, Kampala.

Specific Objectives

To determine the prevalence of malnutrition among older persons in Kawempe Division.

To examine the association between individual and lifestyle factors and the nutritional status of older persons in Kawempe Division.

To assess the association between dietary factors and the nutritional status of older persons in Kawempe Division.

2. LITERATURE REVIEW

Prevalence of Malnutrition among Older Persons

Malnutrition among older persons is widely recognized as a global public health challenge, with substantial variation across regions and demographic contexts. In Asia, prevalence estimates range from 1.1% to 21.7%, shaped by factors such as rural residence, chronic disease, low income, and limited dietary diversity (Razali, 2022; Wei et al., 2018). A national survey in China reported a prevalence of 12.6% among older adults, illustrating how demographic pressures and socioeconomic constraints interact to influence nutritional outcomes.

Across Africa, the burden remains significant and heterogeneous. A systematic review by Ewunie et al. (2022) estimated a pooled prevalence of 3.5%. However, country-level studies reveal striking disparities, from as low as 1.8% in South Africa to almost 40% in Kenya (Seid et al., 2022). These variations mirror broader structural challenges such as poverty, inadequate access to nutrient-rich foods, fragile health systems, and limited social protection, all of which disproportionately expose older adults to nutritional vulnerability.

In Uganda, available evidence suggests a higher burden of malnutrition among older persons compared to some other African countries. Early studies in Mpigi District reported prevalence levels between 33% and 52%, depending on the assessment tools applied (Kikafunda & Lukwago, 2005). Research from Northern Uganda documented malnutrition prevalence as high as 66%, largely attributed to chronic illness, poverty, and persistent food insecurity (Omia et al., 2019).

Urban settings demonstrate similarly concerning patterns. Studies conducted within Kampala Capital City Authority (KCCA) have shown that large proportions of older adults are either malnourished or at high nutritional risk, reflecting the compounded effects of urban poverty, rising food costs, limited

dietary diversity, and inadequate access to age-friendly health and social services. These findings underscore the urgent need for updated empirical evidence to inform interventions targeting older persons in urban low-income environments.

Individual Factors associated with Malnutrition

A wide range of individual-level factors contribute to poor nutritional status in old age. Physiological changes, including reduced appetite, diminished taste and smell, impaired dentition, and decreased gastrointestinal function, are strongly linked to undernutrition (Guigoz et al., 2006; WHO, 2017). Gender differences have also been widely documented. Studies in Uganda, India, and Australia show that older women may be more vulnerable to malnutrition due to economic dependency, widowhood, and longer life expectancy (Kikafunda & Lukwago, 2005; Krishnamoorthy et al., 2018; MacLaughlin et al., 2018).

Marital status is another relevant factor. Widowed or single older adults frequently experience reduced household support, leading to irregular meal patterns and limited access to balanced diets (Besora-Moreno et al., 2020; Schramm et al., 2016). Chronic illnesses such as hypertension, diabetes, and arthritis further exacerbate nutritional vulnerability by increasing metabolic demands or reducing appetite (Churak et al., 2019). Recent research also emphasizes the role of the gut-brain axis in regulating appetite among older persons, linking biological deterioration directly to nutritional decline (Fluitman et al., 2022).

Lifestyle Factors associated with Malnutrition

Lifestyle behaviours significantly influence nutritional outcomes in later life. Physical inactivity is one of the most consistently identified contributors to malnutrition. Older adults who are less physically active tend to experience appetite reduction, muscle wasting, and functional decline, all of which heighten nutritional risk (Kramer et al., 2022; Al-Zeidaneen et al., 2017). The relationship between alcohol intake and malnutrition is more complex. Studies from Taiwan and India show that heavy alcohol use disrupts nutrient absorption and often substitutes for nutrient-dense food, thereby increasing the risk of malnutrition (Poda et al., 2019; Khan et al., 2023).

Health-seeking behaviour also plays an indirect role. Older persons who frequently attend health facilities are more likely to benefit from screening, advice, and treatment. However, older adults in low-income areas, like those in many Ugandan urban communities, often encounter financial, physical, and social barriers that limit access to routine health care, thereby compounding nutritional risks.

Dietary Factors associated with Malnutrition

Dietary intake is one of the most influential determinants of nutritional status in older persons. Low dietary diversity,



particularly limited intake of fruits, vegetables, dairy, and animal-source proteins, strongly correlates with increased malnutrition in studies conducted in Ethiopia, India, and Zambia (Krishnamoorthy et al., 2018; Mulugeta et al., 2022; Maila et al., 2021). Many older adults in low-resource settings rely on inexpensive starchy staples that lack essential micronutrients, exacerbating risks of both protein-energy malnutrition and micronutrient deficiencies.

Plant proteins, which are more accessible and affordable in African contexts, have been associated with improved nutritional outcomes when consumed regularly (Obeng et al., 2022). Carbohydrate intake also plays a critical role. Evidence from Bangladesh suggests that inconsistent consumption of staple carbohydrates is linked to higher malnutrition rates among older adults (Rahman et al., 2022). Overall, inadequate access to nutrient-rich foods, coupled with economic constraints and diminished appetite, contributes significantly to dietary insufficiency in older populations.

The review reveals limited empirical evidence on malnutrition among older persons in Uganda's urban low-income settings. Existing studies focus mainly on rural areas, leaving gaps in understanding how individual, lifestyle, and dietary factors interact in densely populated urban environments such as Kawempe Division. Few investigations have used robust multivariate analyses to identify independent predictors of malnutrition. With Uganda's older population growing rapidly and urban poverty heightening vulnerability, context-specific evidence is urgently needed. This study addresses these gaps by examining the prevalence of malnutrition and its key determinants among older people in Kawempe Division, Kampala.

3. METHODS

Research Design

This study employed a cross-sectional design grounded in a quantitative research approach to assess the prevalence and predictors of malnutrition among older persons aged 60 years and above in Kawempe Division, Kampala. Cross-sectional designs are appropriate for examining outcomes and exposures simultaneously within a defined population and are widely used in public health research focusing on prevalence and associated factors (Setia, 2016; Levin, 2006). The quantitative paradigm was selected for its suitability in generating objectively measurable data, enabling statistical testing of relationships and generalization of findings to similar urban settings (Creswell, 2009).

Research Setting

The study was conducted in Kawempe Division, one of the five administrative divisions of Kampala Capital City. The division is characterised by high population density, informal

employment, low household incomes, inadequate dietary diversity, and constrained access to health services (Kampala Capital City Authority, 2019). These socio-economic and environmental conditions make Kawempe a strategic setting for examining malnutrition among older adults, who may experience heightened vulnerability due to age-related physiological decline and limited social support.

Study Population and Sampling

The target population consisted of older persons aged 60 years and above residing in selected parishes of Kawempe Division. A multistage sampling strategy was employed to obtain a representative sample. Five parishes, Bwaise I, Bwaise II, Bwaise III, Kawempe I, and Kawempe II, were purposively selected based on prior evidence of high malnutrition prevalence among older adults and logistical feasibility for fieldwork (Ahumuza, 2019).

A proportionate stratified random sampling technique was then applied to ensure fair representation across parishes. Parishes served as strata, from which villages and subsequently households with eligible older residents were randomly selected with the assistance of Local Council I (LCI) officials. Stratified sampling reduces sampling bias and improves statistical precision by ensuring proportional representation of naturally occurring subgroups (Shi, 2015; Singh & Masuku, 2014).

Sample Size Determination

The required sample size was calculated using Yamane's (1967) formula for known populations. Based on a total population of 1,790 older persons and a 95% confidence level with a 5% margin of error, the sample size was established to be 327.

Proportionate allocation across the five parishes ensured accurate representation consistent with population-based health research standards (Singh & Masuku, 2014).

(If your final achieved sample was 173, clarify this in the Results as the "final respondents after exclusions/non-response.")

Instruments and Data Collection

Data were collected using a structured interviewer-administered questionnaire and the Mini Nutritional Assessment–Short Form (MNA-SF). The questionnaire collected socio-demographic, lifestyle, and dietary information and was developed based on relevant empirical literature and WHO community health assessment guidelines (WHO, 2015). Interviewer administration was preferred because it minimises misinterpretation, enhances completeness, and is appropriate for older populations who may experience literacy or cognitive limitations (Swetha, 2023).



The second section of the tool comprised the MNA-SF. This validated screening instrument assesses nutritional status through six domains: food intake, weight loss, mobility, psychological stress or acute illness, neuropsychological problems, and anthropometry (Guigoz et al., 2006; Kaiser et al., 2009). The tool is globally endorsed for high sensitivity in identifying malnutrition and risk among community-dwelling older adults.

Instrument validity was enhanced through expert review and pretesting in a neighbouring parish to ensure clarity and cultural appropriateness. Reliability was assessed using Cronbach's alpha, confirming acceptable internal consistency across key sections.

Trained research assistants conducted household interviews, obtained written informed consent, and collected all data following standardised procedures. Completed questionnaires were reviewed daily for accuracy and completeness before data entry.

Ethical Considerations

Prior to undertaking this study, all the study participants were involved in a process of consent were the elderly persons who participated, or their caregivers, signed informed consent form for study participation. The protocol was reviewed and approved by the BU Research Ethics Committee under reference number TASOREC/012/19-UG-REC-009, and all the methods were carried out according to declaration of Helsinki and Uganda National Council for Science and Technology guidelines.

Data Analysis

Data were entered, cleaned, and analysed using SPSS version 26. Data cleaning followed recommended procedures for detecting and correcting inconsistencies and anomalies (Van den Broeck et al., 2005). Descriptive statistics summarised participant characteristics and nutritional status. The chi-square test of independence was used to examine associations between categorical variables (McHugh, 2013; Ugoni & Walker, 1995). Variables with significant bivariate associations were entered into a multivariate logistic regression model to identify independent predictors of malnutrition. Adjusted odds ratios (AORs) and 95% confidence intervals (CIs) were reported, with statistical significance set at $p < .05$.

4. RESULTS

Individual, Lifestyle and Dietary Characteristics

As shown in Table 1, older persons in the study displayed varied individual, lifestyle, and dietary characteristics, including differences in marital status, education level, and health behaviours.

Table 1. Individual, Lifestyle, and Dietary Characteristics of Older Persons (N = 173)

Variable	Category	n	%
Age	60–70	120	69.4
	71+	53	30.6
Sex	Female	100	57.8
	Male	73	42.2
Marital	Married	64	37.0
	Unmarried	109	63.0
Education	Primary or less	112	64.7
	Post-primary	61	35.3
Employment	Employed	94	54.3
	Not employed	79	45.7
Anorexia	Yes	143	82.7
	No	30	17.3
Physical exercise	Yes	65	37.6
	No	108	62.4
Alcohol use	Yes	14	8.1
	No	159	91.9
Carbohydrates	Poor	57	32.9
	Good	116	67.1

According to the Table 1, the majority of respondents, 120 (69.4%), were aged 60–70 years, while 53 (30.6%) were 71 years and above. Females slightly outnumbered males at 100 (57.8%) and 73 (42.2%) respectively. Most participants, 109 (63.0%), were unmarried, and education levels were generally low, with 112 (64.7%) having completed only primary school or less. Employment in informal or part-time work was reported by 94 (54.3%), and 118 (68.2%) lived in households earning more than UGX 200,000 monthly. Household size was generally small, with 103 (59.5%) living in households of 1–5 members.

Health-related issues were notable, with 108 (62.4%) reporting chronic illnesses and 143 (82.7%) experiencing anorexia. Physical inactivity was common, also affecting 108 (62.4%) of the respondents. Smoking and alcohol use were rare, reported by only 4 (2.3%) and 14 (8.1%) respectively. Health-seeking behaviour was largely positive, with 154 (89.0%) indicating good utilization of health services.

Dietary habits showed limited diversity. Poor intake of fruits, vegetables, and dairy was reported by 130 (75.1%) participants, while 129 (74.6%) consumed little fish, and 99 (57.2%) used plant oils infrequently. In contrast, most respondents had adequate intake of plant-based proteins, with only 33 (19.1%) reporting poor consumption. Carbohydrates were more regularly consumed, with 116 (67.1%) taking them at least twice daily.

Prevalence of Malnutrition among the older Persons in the Study

The distribution of malnutrition status among older persons aged 60 years and above was established using the Mini Nutritional Assessment–Short Form (MNA-SF).

According to the data, 26 respondents (15.0%) were classified as malnourished or at risk of malnutrition, while 147 respondents (85.0%) were found to be well-nourished. These



finding highlights that the majority of older persons in the area are currently not experiencing significant malnutrition based on the MNA-SF classification criteria.

Factors Associated with Malnutrition Among Older Persons 60 Years and Above in the Study

Table 2 presents the results of the multiple logistic regression analysis examining factors associated with malnutrition among older persons aged 60 years and above.

Table 2. Factors associated with Malnutrition among Older Persons

Factor	Category	Malnourished %	Normal %	COR (95% CI)	AOR (95% CI)
Age	60–70	12.5	87.5	1	1
	71+	20.8	79.2	0.55 (0.23–1.28)	0.65 (0.20–2.07)
Marital Status	Married	4.7	95.3	1	1
	Unmarried	21.1	78.9	0.18 (0.05–0.64)	0.31 (0.08–1.25)
Anorexia	Yes	8.4	91.6	1	1
	No	46.7	53.3	0.10 (0.04–0.27)	0.14 (0.05–0.42)
Physical activity	Yes	4.6	95.4	1	1
	No	21.3	78.7	0.18 (0.05–0.62)	0.23 (0.06–0.92)
Carbohydrates	<2 times	28.1	71.9	1	1
	≥2 times	8.6	91.4	4.14 (1.74–9.86)	3.27 (1.08–9.89)

$p^* < 0.05$, RC = 1

The multiple logistic regression analysis (Table 3) after chi-square analysis, identified some key factors significantly associated with malnutrition among older persons aged 60 years and above in Kawempe Division.

Anorexia (loss of appetite)

Table 2 show that older adults who reported anorexia (loss of appetite) were significantly more likely to be malnourished compared to those without anorexia, indicating that poor appetite is a strong predictor of malnutrition [COR = 0.105, 95% CI: 0.041–0.265, $p = .001$; AOR = 0.139, 95% CI: 0.046–0.421, $p < .001$].

Physical Activity

Similarly, lack of physical activity was significantly associated with higher odds of malnutrition [COR = 0.179, 95% CI: 0.051–0.622, $p = .007$; AOR = 0.226, 95% CI: 0.056–0.917, $p = .037$], suggesting that engaging in regular exercise may play

a protective role in maintaining nutritional well-being.

Dietary Practices - Consuming carbohydrates

In terms of dietary practices (Table 2), consuming carbohydrates fewer than two times per day was significantly associated with malnutrition. Those with low carbohydrate intake had higher odds of being malnourished [COR = 4.14, 95% CI: 1.736–9.86, $p = .001$; AOR = 3.27, 95% CI: 1.08–9.89, $p = .036$], indicating the importance of regular consumption of staple energy foods among older persons.

Other variables

Based on Table 2, other variables such as alcohol use [COR = 5.22, 95% CI: 1.63–16.58, $p = .005$; AOR = 4.43, 95% CI: 0.954–20.58, $p = .057$] and marital status [COR = 0.184, 95% CI: 0.053–0.640, $p = .008$; AOR = 0.309, 95% CI: 0.076–1.249, $p = .099$] showed significant associations in the bivariate analysis but did not retain statistical significance at the multivariate level, though they remained borderline and potentially relevant. Likewise, plant protein intake was associated with malnutrition in the unadjusted model [COR = 3.37, 95% CI: 1.36–8.34, $p = .009$], but its adjusted effect was not statistically significant [AOR = 2.27, 95% CI: 0.697–7.411, $p = .174$].

Age category did not show a significant association with malnutrition in either model [COR = 0.545, 95% CI: 0.232–1.284, $p = .165$; AOR = 0.648, 95% CI: 0.203–2.070, $p = .465$], but it was retained in the model due to its theoretical importance in geriatric nutrition.

5. DISCUSSION

Prevalence of Malnutrition among Older Persons

This study found that 15.0% of older persons aged 60 years and above in Kawempe Division were malnourished according to the Mini Nutritional Assessment–Short Form (MNA-SF). Although this prevalence is lower than that reported in several earlier studies, it still represents a meaningful public health concern in the context of Uganda's Nutrition Action Plan (UNAP) 2016–2025 and global targets to eliminate malnutrition under the Sustainable Development Goals. The prevalence observed in this study differs substantially from findings by Ahumuza (2019), who reported a malnutrition rate of 71% among older persons in Kampala, and from earlier work by Kikafunda and Lukwago (2005), who documented prevalence estimates ranging from 33.3% using BMI to 52% using MUAC. Comparable estimates have been reported in other low-resource settings, such as Puducherry, India, where Krishnamoorthy et al. (2018) found a malnutrition prevalence of 17.9%, and in Harar, Ethiopia, where Mulugeta et al. (2022) reported a prevalence of 16.6% among community-dwelling older adults. These differences highlight variations across geographic settings, socioeconomic environments, and differences in assessment tools used to classify nutritional status.



Factors Associated with Malnutrition among Older Persons

Anorexia

Anorexia or loss of appetite, showed the strongest association with malnutrition in this study. Older adults reporting anorexia consistently exhibited lower nutritional status, aligning with findings by Fluitman et al. (2022), Churak et al. (2019), and Di Francesco et al. (2018), who described appetite loss as a central driver of undernutrition among community-dwelling older persons. Loss of appetite directly reduces food quantity and diversity, leading to deficits in essential nutrients and progressive weight and muscle loss. Despite its clinical significance, anorexia in older adults is often under-recognized in community settings. The ability of the Mini Nutritional Assessment–Short Form (MNA-SF) to detect appetite-related risk highlights the need for routine screening and caregiver education on early signs of reduced appetite. These findings reinforce anorexia as a critical point of intervention in preventing nutritional decline among older persons.

Physical Activity

This study also found a significant association between physical inactivity and malnutrition, with physically active older adults demonstrating better nutritional status than their inactive counterparts. This is consistent with evidence from Kramer et al. (2022), who highlighted the role of physical activity in improving metabolic function, preserving muscle mass, and stimulating appetite. Al-Zeidaneen et al. (2017) similarly demonstrated that physical activity protects against malnutrition in older populations. While previous studies suggest possible reverse causality, where malnutrition leads to frailty and reduced activity (Dorner et al., 2013), the present findings indicate that low physical engagement was common among malnourished respondents, suggesting inactivity may precede or exacerbate nutritional deficits. From a socio-ecological perspective, environmental and social factors such as limited safe spaces, mobility challenges, and chronic illness further restrict activity levels in low-income urban settings like Kawempe Division.

Carbohydrate Intake

Carbohydrate intake was significantly associated with nutritional status, with more frequent consumption linked to a reduced likelihood of malnutrition. This finding aligns with regional evidence emphasizing the importance of consistent access to staple foods for maintaining adequate energy intake in older age (Obeng et al., 2022; Rahman et al., 2022). Maila et al. (2021) similarly reported that irregular access to staple foods contributed to chronic undernutrition among older persons in rural Zambia. In the present study, carbohydrate intake reflects not only dietary habits but broader determinants such as food security, meal regularity, income stability, and caregiver support. The association observed underscores the importance of ensuring consistent access to affordable staple foods for older adults in urban informal settlements.

7. CONCLUSION

This study established that malnutrition among older persons in Kawempe Division, Kampala City, remains a significant public health concern, with a prevalence of 15.0%. Although relatively lower than figures reported in other Ugandan and regional

studies, this rate is worrisome given its association with increased risks of frailty, cognitive decline, and chronic disease. Key individual, lifestyle, and dietary factors—including anorexia, physical inactivity, alcohol consumption, marital status, and limited intake of carbohydrate and plant-based protein—were identified as contributors to poor nutritional outcomes. The study underscores the importance of contextualizing geriatric malnutrition within a socio-ecological framework that recognizes the influence of social, economic, and environmental determinants on older persons' nutritional health in low-income urban settings.

8. RECOMMENDATIONS

The Ministry of Health and the KCCA Health Directorate should integrate routine nutritional screening into primary health care and community outreach services. Using tools such as the MNA-SF would enable health workers and Village Health Teams to identify appetite loss and nutritional risk early and ensure timely referral and intervention for older adults.

Local NGOs, community-based organisations, and the Kawempe Division Community Development Office should strengthen community-based appetite and feeding support programs. Through dietary counselling, caregiver education, and targeted meal assistance, these actors can address anorexia, which emerged as the strongest predictor of malnutrition.

KCCA's Physical Planning and Public Health Departments, together with senior clubs, churches, and wellness groups, should promote safe and age-friendly physical activity. Creating accessible walking paths and organizing low-impact exercise sessions can improve functional ability, stimulate appetite, and reduce vulnerability to malnutrition among older persons.

Improving food security for older adults requires coordinated action by the Ministry of Gender, Labour and Social Development and KCCA Social Services. These efforts should be complemented by faith-based and nonprofit organisations providing targeted food assistance to vulnerable older persons living in low-income households.

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