Enhancing Social Support System for Improving Food Security Among the Elderly Headed Household in Communal Areas of Zimbabwe

Kefasi Nyikahadzoi[1], Byron Zamasiya[2], George Alex Muchinako[1] & Charles Dziro[1]

[1] School of Social Work, University of Zimbabwe, Harare, Zimbabwe

[2] Socio-economist, International Centre for Tropical Agriculture, Harare, Zimbabwe

Correspondence: Kefasi Nyikahadzoi, School of Social Work, University of Zimbabwe, P. Bag 66022, Kopje, Harare, Zimbabwe. Tel: 263-772-240-861. E-mail: knyika@gmail.com

Abstract

The study sought to establish factors that contribute towards food security among elderly headed households and then seek ways of enhancing them. The study was conducted in Mudzi District in Mashonaland East Province of Zimbabwe. Data was collected from wards 11, 12 and 16. The study used cross sectional household data collected using a structured questionnaire. Two measures of food security are used; namely household food insecurity access score and household dietary diversity score. The results showed that food insecurity access score was statistically higher for elderly headed household when compared to those headed by younger people. The study revealed that social capital, remittances, and off farm income generating projects can increase the elderly headed household's likelihood of being food secure. The study also showed that public assistance is not making a positive contribution towards food security of elderly headed household. This paper argues that it is important for government and civil society to promote social capital and support channels of remittances to elderly headed households in communal areas.

Keywords: food security, elderly, social support, dietary diversity, Zimbabwe

1. Introduction

According to Zimbabwe Statistical Agency, people aged above 60 years constitute 7% of the projected population of 12.4 million Zimbabweans (Zimbabwe National Statistical Agency, 2012). The majority of these people reside in communal areas. Studies by Huisman (2005) have shown that 51% of the chronically ill are the elderly people above the age of 60. Huge medical bills, coupled with physical, functional and cognitive impairment make the elderly people vulnerable to food insecurity. Being food secure in our context implies having access to enough food for good health and active life through socially accepted ways. At minimum, food security should include readily availability of balanced diet and being assured to acquire acceptable food in a socially acceptable manner (Eicher & Staatz, 1985). This rule out being food secure through emergency relief, scavenging, stealing or any other coping strategies (Woltil, 2012; Rukuni et al., 1990).

The elderly and elderly headed households are particularly vulnerable and prone to food insecurity (Kaseke, 1998). Given their deteriorating health, elderly people have unique dietary requirements that if not adequately met could exacerbate existing health complications. Inadequate food intake resulting in low feeding frequency with insufficient energy and other important nutrients may increase disease frequency. Quandt et al. (2001) note that hunger and food insecurity among the elderly, exacerbates acute chronic diseases and speed up the onset of degenerative diseases. Age related biological factors increase the older adults' risk of nutritional deficiencies (Quandt et al., 2001). These combine to decrease the quality and length of life among the elderly. Unless factors that enhance the elderly headed household's food security are known and ways of promoting them are devised, inadequate access to food and poor intake of nutritious food will continue to compromise the overall health of elderly people in communal areas. It is therefore important to investigate best practices used to enhance food security within the communal areas and then discuss how these can be out-scaled. This paper uses the institutional perspective to identify the social, economic, cultural and political factors that determine food security among the elderly people in rural areas. Once these factors are identified, the paper then uses theoretical

arguments and empirical evidence, to show how civil society and government can promote food security among elderly headed households through enhancing factors that explain food security.

1.1 Theoretical and Empirical Factors That Enhance Food Security

Literature identified several factors that constrain elderly headed households from accessing enough food for active health life. Quandt et al. (2001) note that rural elderly have lower incomes and hence poor health than their counterparts in urban areas. They noted that the cost of food in rural areas is much higher and with limited selection in rural areas. According to Kaseke (1998), public assistance programs are not evenly distributed in rural areas and lack of knowledge of these limit rural elderly from accessing them. Even in cases where these facilities are available, distance to distributing points and lack of public transportation limit the elderly from accessing public assistance. As noted by Quandt et al. (2001) pride and reluctance to use services considered to be welfare as inhibiting elderly to secure food security.

Other studies found out that elderly people with social support systems such as family, and friends tend to be food secure (Quandt, 2001). In a study carried out in the USA, Woltil (2012) finds that having a spouse helps in preventing or reducing food insecurity. The author also identifies physical and cognitive health problems, limited resources, availability of reliable social support systems and the social environment as determinants of food security. Another research study on food security among elderly people in the USA finds that public and private food programs, personal savings, proximity of children and family members and food storage skills as major determinants of food security (Wolfe et al., 2012). The identified factors seem to be country specific and it is therefore important to identify factors that contribute to food security among the elderly headed households.

In Zimbabwe, most of the food insecure elderly headed households are in communal areas where they depend on peasant agriculture for own food production (Kaseke, 1998). Often, the elderly headed households own land and livestock and they use these for food production to enhance their food security (Kaseke et al., 1998). There are other factors that influence food production by the peasant farmers, these include the rainfall pattern and availability, the soils – some lands have been farmed for more than fifty years and cannot produce much without yield enhancing inputs like fertilizers which the peasants cannot easily afford (Kaseke et al., 1998). However, the availability of these inputs and even favorable agroecological conditions for agriculture are known to enhance the food security of non-elderly headed households. Kaseke et al. (1998) attributed this to the reduced ability to work in their own fields due to old age.

To mitigate the problem of food insecurity among vulnerable elderly headed households, the Government introduced food support programs like the free food distribution to the elderly (Kaseke et al., 1998). This does not however cover all the needy elderly headed households because of resource constraints on the Government part (Kaseke et al., 1998). Sometimes there is politicization of food distribution, corruption in the distribution system and ignorance of the bureaucratic system by the elderly households. Other government programs intended to benefit the elderly headed households include the Grain Loan Scheme (the elderly are not expected to repay the grain) and Public Assistance administered to the elderly aged 60+ years (Kaseke et al., 1998). With the Public Assistance system, it is assumed that the elderly face challenges of accessing offices of the Department of Social Services and other accompanying costs (transport and food for the elderly and their escorts) of collecting the meager amounts they receive under this program (Mbanje, 1991). It is thus important to empirically determine factors that enhance food security among the elderly headed households and then promote their functioning. This study uses the Ordinary Least Squares methods to investigate factors that determine food security among the elderly headed households in Zimbabwe.

2. Research Methods

The study was conducted in Mudzi district, which is in Mashonaland East Province of Zimbabwe. The study sites lie in natural farming region IV, which is semi-arid zone at an altitude of 500-900 metres above sea level. The major economic activity within the study area is predominantly farming. This natural farming region is an agro-ecologically low potential zone with high incidences of droughts and frequent long mid-season dry spells. The mean annual rainfall in Mudzi district ranges from 450 to 500 mm while the mean annual temperature is 23°C. Due to the high aridity, maize yield in Mudzi district is about 0.5 tones/ha.

2.1 Sampling and Data analysis

Data for this study was collected from wards 11, 12 and 16. This study uses cross sectional household data from the baseline survey collected through structured interviews. Simple random sampling was used to select the wards and the households for interviewing from the lists that were provided by resident agricultural extension officers. During the survey, any selected households that were inaccessible were replaced by the next eligible

household on the household list. Data collection for this study was done in December 2011 through face-to-face administration of questionnaires.

The data collection involved a household survey using a questionnaire with semi structured and structured questions. The survey collected information on household demographics and socioeconomic characteristics, 24-hour recall dietary assessment, dietary diversity, food consumption from major food groups, food insecurity, crop production and marketing. A sample of 120 households is actually greater than 74, an apriori power analysis computed using G power (Franzel et al., 2007). It therefore means that the sample provides acceptable statistical power (that is 0.80) for moderate correlation r = 0.30, at two tailed 0.05 level of significance.

2.2 Conceptual/Empirical Framework

$$Y_1 = B_o + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + \ldots\ldots + e \qquad (1)$$

Y_1 is the dependent variable. In our case, it was in two forms; (a) Household Food Insecurity Score and (b) Household Dietary Diversity Score. The X_i sare independent variables. These are listed in Table 1.

2.2.1 Dependent Variables

(a) Household Food Insecurity Access Score (HFIAS)

The HFIAS is a continuous measure of the degree of food insecurity (access) in the household in the past 30 days. According to Deitchler et al. (2011) the HFIAS reflects the three universal domains of household food insecurity that is anxiety about household food insecurity, insufficient quality and insufficient quantity of food supplies. This indicator captures the household's perception about their diet regardless of its nutritional composition (Coates, Swindale, & Bilinsky, 2005). This food insecurity measure focuses on consumption related strategies and captures the household's behavioral and psychological responses to food insecurity or perceived food insecurity. The HFIAS is based on the assumption that households' experiences of food insecurity cause predictable reactions and responses that can be captured and quantified through a survey and then summarized into a score.

During the survey, the respondents were asked nine occurrence questions that consist of a generally increasing level of food insecurity. Specifically, the respondents were asked whether a specific condition associated with the experience of food insecurity ever occurred during the past 30 days. The questions included the occurrences of (i) worrying about food adequacy; (ii) eating the kinds of less preferred foods; (iii) eating limited variety; (iv) inability to eat less preferred foods; (v) eating smaller meal than needed; (vi) eating fewer meals in a day; (vii) failing to get food of any kind; (viii) sleeping at night hungry and; (ix) going the whole day or night without eating anything. Respondents were asked to either say yes = 1 if event occurred or no = 0 if the event did not occur. Each severity question is followed by a frequency-of-occurrence question, which asks how often a reported condition occurred during the previous four weeks. There are three response options representing a range of frequencies (1 = rarely, 2 = sometimes, 3 = often). As suggested by (Coates, Swindale, & Bilinksy, 2007), the HFIAS is computed as follows: HFIAS (0-27) = summation of the occurrence multiplied by frequency-of-occurrence during the past 30 days for the nine food insecurity related conditions.

At a household level, a high HFIAS shows that a household is very food insecure while a low score shows that a household is less food insecure. The minimum HFIAS is zero and occurs when a household responds 'no' to all questions on the household food insecurity access scale. Alternatively, 27 is the maximum HFIAS and is obtained by summing up of all frequencies on the frequency on the frequency of occurrence questions when a household responds yes to occurrence question and 'often' as frequency of occurrence to the nine frequency-of-occurrence questions.

(b) Household dietary requirements

Dietary diversity is a qualitative measure of food consumptions that reflect household's access to wide variety of foods and it's a proxy of nutrient adequacy of the diet for household. It is meant to reflect, in a snapshot, the economic ability of a household to consume a variety of foods. That is, respondents were asked if they consumed the following food staff in the last twenty-four hours.

A = Cereals; B = Vitamin rich vegetables and tubers; C = Root and tubers; D = Dark green leafy vegetables; E = other vegetables; F = Vitamin A fruits; G = Other fruits; H = Meat, poultry, offal; I= Eggs; J = Fish and seafood; K = Pulses/legumes/nuts; L= Milk and milk products; M = Oil/fats; N = Sugar/honey.

Expected responses were yes = 1 or no = 0.

A-M represents the food groups consumed by members of the household. Values for A through M will be either 0 or 1. Long reference periods were deliberately avoided as these could result in less accurate information due to imperfect recall. According to Swindale and Bilinsky (2005) the household dietary diversity score is the calculated as follows:

$$HDDS\ (0\text{-}14) = Sum\ (A + B + C + D + E + F + G + H + I + J + K + L + M + N)\qquad(2)$$

This reflects the total number of food groups consumed by members of the elderly households.

2.2.2 Independent Variables

Table 1 gives a summary of variables that determine food security among the elderly headed households.

Table 1. Independent Variables

Explanatory Variables	Description and type of variable
Age	Age of the respondent (years)
Household size	Number of family members in a household
Farming experience	Number of years a household has been farming
Dependence ratio	Number of dependence over number in active group
Ownership cattle	Number of cattle owned
Total land size	Total size of land holding under cultivation 2008/9
Labour	Number of members providing labour
Level of education	Years in school
Marital status	Married (1 = Yes, 0 = No)
Gender	Gender of household head (1 Yes, 0 No)
Sale of crops	Whether household sold (1 = Yes, 0 = No)
Sale of livestock	Whether household sold livestock (1 = Yes, 0 = No)
Extension	Visited by or visited an extension agent (1 yes, 0 if not)
Remittances	Participated in research activities (1 yes, 0 if not)
Social capital	Membership to a network (group, or association)
Public assistance	Whether household received public assistance (1 = yes, 0 if no)
Own an ox cart	Whether the household own an ox cart (1 yes, 0 if no)

2.3 Data Analysis

Data were analysed using STATA version 11.2. The descriptive analysis covers means, proportions and standard deviations to provide distribution across contextual variables. The results are presented in Table 2. Linear regression analysis was used to identify the factors that affect Household Food Insecurity Access Scale Score and the household dietary requirements. Before running the analysis, a test of multi-collinearity was conducted to determine if there were highly correlated independent variables. For those that were correlated, one of them was dropped from the model. The default cut off correlation value of 0.7 was used.

3. Results

Results of this study are presented in Tables 2, 3, 4 and 5. Tables 2 and 3 provide descriptive statistics of the dependent and independent variables respectively. Specifically, Table 2 compares food security situations of elderly and non-elderly headed households. Tables 4 and 5 provide determinants of household food insecurity access and dietary diversity respectively.

Table 2. Comparison of food security between elderly and non-elderly headed households

Variable	Elderly	Non elderly	t statistics	p value
HIAS	15.282	8.494	-4.758	0.0000***
	(8,700)	(6.563)		
HDDS	5.282	6.321	3.500	0.0005***
	(1.773)	(1.331)		

Level of Significance: *** = 1%; ** = 5%; * = 10%.

Results in Table 2 show a significantly higher average household food insecurity score of 15.282 for elderly headed households compared with 8.494 for their counterparts. The mean household food insecurity access score is statistically higher for elderly headed households when compared to those households headed by younger people. The results also show that in a recommended basket of fourteen food items, the elderly and non-elderly headed households consume 5.282 and 6.321 respectively. The dietary diversity score is also statistically and significantly lower among elderly headed households compared to the younger household heads. According to Styen et al, (2006), lower dietary diversity scores imply that elderly headed households eat more of starch giving foods and less of protein rich foods. There is a high probability that of the elderly headed households consumed foods that are rich in carbohydrates but lack the essential micronutrients necessary for a health life.

Table 3. Socio economic characteristics of the sample

Variable	Mean	Std. Dev	Minimum	Maximum
Head's Marital status	0.7692	0.4268	0.00	1.00
Social capital	0.2308	0.4268	0.00	1.00
Dependency ratio	1.0185	0.9060	0.00	4.00
Head's Sex	0.7949	0.4091	0.00	1.00
Head Age	69.5385	8.7895	60.00	99.00
Household size	5.8718	2.3190	2.00	12.00
Household Labour	3.1579	1.6689	0.00	7.00
Head's Farming experience	30.9167	10.6191	4.00	50.00
Total land size	3.1136	1.8992	0.20	8.00
Sale of crops	112.2821	200.4768	0.00	700.00
Sale of livestock	51.0256	112.7770	0.00	600.00
Off farm activities	11.7179	38.3659	0.00	192.00
Remittances	194.8718	431.0628	0.00	2000.00
Extension	0.5641	0.5024	0.00	1.00
Number of cattle	2.8718	2.7737	0.00	12.00
Own ox cart	0.5128	0.5064	0.00	1.00

The average household head age of the elderly headed households is 69.5 with over 80% of them being males. The mean household size is 5.87. About 70% of the elderly headed households have adequate household labour to work in their fields. The mean farming experience of the elderly is 50 years and the mean land size is 8 acres. On average, the most important source of income are remittances, followed by sale of crops then sale of livestock and lastly income from other non-farm activities such as selling of charcoal, mushrooms etc. The dependence ratio of 1.08 is slightly higher than 2.5 cited by Nyikahadzoi et al. (2012) in the same area for non-elderly headed households. This is contrary to Mutangadura's (2005) findings that elderly headed households have higher dependence ratio due to the high death rates among 15 – 35 age group, which left many children under the care of grandparents.

Table 4. Factors affecting household food insecurity access scores

	Beta	Std. Error	t	p value
Constant		8.2240	4.0430	0.001**
Social capital	-0.037	5.3800	-.1460	0.885
Head's Education	-0.421	6.2190	-1.8220	0.087*
Marital status	0.938	10.7360	1.7210	0.104
Sex	-0.767	10.7730	-1.4570	0.164
Household size	-0.104	1.2370	-0.4060	0.690
Labour	-0.408	1.5730	-1.4190	0.175
Farming experience	-0.113	0.1590	-0.5850	0.567
Total land size	-0.177	1.2350	-0.7220	0.481
Sale of crops	-0.437	0.0110	-1.6960	0.109
Sale of livestock	0.064	0.0180	0.2850	0.780
Off farm activities	-0.15	0.0400	-0.940	0.39
Remittances	-0.395	0.0040	-2.1370	0.048*
Extension	0.423	4.0370	1.8400	0.084*
Public assistance	0.413	10.3650	2.0390	0.058*
Number of cattle	-0.081	0.6610	-0.3750	0.712
Own Ox cart	-0.297	4.5790	-1.1440	0.269
Dependency ratio	-0.086	1.744	-0.4700	0.645

R^2 = 0.56; Level of Significance: *** = 1%; ** = 5% ; * = 10%.

Variables that are known to reduce anxiety over likely occurrence food insecurity in a household include education level of the elderly head of the household, engagement in some off farm activities and remittances. Results in Table 4 show that public assistance and extension services are positively related to household food insecurity access scores. This probably implies that elderly headed households that already worry most about food insecurity status of the households tend to seek extension services and public assistance. Ownership of what Chipanhura (2010) describes as minimum bundle (that is scotch cart, and draft power), that delineates the poor and the rich does not impact on household food insecurity access of elderly headed households.

Table 5. Factors affecting Household dietary diversity

Model	Coefficients	Std. Error	t-statistic	Sig.
(Constant)		1.649	2.4170	0.028
Education	0.2690	1.0890	1.3780	0.187
Marital status	-0.0030	0.8740	-0.0160	0.988
Dependency ratio	0.0500	0.3480	0.2860	0.779
household size	0.0840	0.2450	0.3470	0.733
Labour	0.3790	0.3100	1.3890	0.184
Farming experience	-0.3530	0.0310	-1.9250	0.072*
Total land size	0.0270	0.2580	0.1110	0.913
Sale of crops	0.3220	0.0020	1.2990	0.212
Sale of livestock	-0.1720	0.0040	-0.7660	0.455
Off farm activities	-0.0053	0.0090	-0.3000	0.068*
Remittances	0.4390	0.0010	2.4620	0.026*
Extension	-0.2820	0.8540	-1.2040	0.246
Public assistance	-0.4860	2.0910	-2.4700	0.025*
Number owned cattle	0.3190	0.1370	1.4890	0.156
Own ox cart	0.1450	0.9160	0.5810	0.570
Social capital	0.4260	0.9950	1.9070	0.075*

R^2 = 0.61; Level of Significance: *** = 1%; ** = 5% ; * = 10%.

Variables that were found by Nyikahadzoi et al (2012) to be the main determinants of household dietary diversity among smallholders in communal areas of Zimbabwe are not significant in explaining diversity among the elderly headed households. These variables include availability of household labour, land size, ownership of draft power and farming experience. In fact, the results show that elderly headed households that get more involved in farming are nutritionally insecure. This confirms Ziliak and Gundersen's (2011) observations that as smallholders get older, they have less energy to work in the fields. Results in Table 5 show that they become more dependent on social networks, off farm activities and remittances. It is however surprising that public assistance is contributing negatively to household dietary diversity. The reason could be that public assistance is only provided to sustain life and one cannot buy adequate food.

Elderly headed households with high social capital are food secure. According to Putnam (1995) social capital helps the elderly heads of households to access information, influence, power and claims for support from others. Social capital allows the elderly headed households to have access to resources and services that would not otherwise be readily available to them. Putnam (1995) argues that social capital promotes network-based relations that are important in facilitating in-kind assistance for the elderly poor relatives. Remittances and other off farm income generating activities are a source of income for elderly headed households that help them to be nutritionally secure. The household uses the money to increase their dietary diversity by purchasing other food items that they do not produce.

4. Discussion

Discussions in this section are based on theoretical and empirical evidence to recommend how government and civil society can improve upon the variables that significantly explain food security among the elderly headed households. Variables that government and civil society can influence to improve food security among elderly headed households include social capital; off farm income generating activities, and remittances.

4.1 Social Capital

Social capital can increase the elderly headed households' likelihood of accessing various forms of social support during times of need. Martin et al. (2004) observe that households that know and trust neighbors may be more likely to borrow food. In our study area, social capital acquired over years of staying in a neighborhood or community is helping the elderly headed households to access food. In this regard, it is important therefore for civil society and government working in these communities to come up with innovative ways of supporting interpersonal relationships and supporting communities in which elderly people live in order to improve their access to food. We agree with Martin et al. (2004) that developmental agents that promote increased access to food could incorporate social capital by linking their services to neighborhood or community based activities. The government should encourage culturally oriented values such as "adopt-a-granny" concepts, which would see communities adopting elderly people in their communities.

4.2 Promoting of off Farm Income Generating Projects

Our results show that off farm income generating projects improve elderly people's dietary diversity. It is important therefore to introduce new income generating projects that are not labour intensive. These will include mushroom production, bee keeping and cattle rearing. Such technology should be age sensitive. According to Nyanguru (2008), elderly people in Zimbabwe are famous for making beads, mats and, woven baskets from local materials for income generation. Civil society could facilitate this effort through the provision of low interest micro finance schemes for the elderly to boost their business or even start new ones. Efforts should also be made to help industrious elderly in communal areas to find a market for their commodities. This is particularly important in making the elderly headed households to be self-sufficient and independent.

4.3 Public Assistance

Results from our study show that public assistance is not making a positive contribution towards improving food security of elderly headed households. Admittedly, public assistance has the potential to enhance the food security of elderly headed households especially if the amounts are substantial and transaction costs of accessing the assistance is low. Martin et al. (2004) argue that transaction costs of collecting public assistance can be too high compared to the benefit and hence discouraging. Transaction costs for accessing Public Assistance might include high transportation cost to the distribution point and long queues and time spent before being served. Therefore, to be effective in improving food security, public assistance interventions must deal with possible challenges that elderly people might face in accessing it.

4.4 Remittances

Remittance is the single variable that promotes both food access and dietary diversity. In Zimbabwe, remittances are either from relatives working within the country or from those in the diaspora. For resident family members remitting money and other items to the elderly, government should consider introducing some tax concessions. This may include reducing their taxable income upon proof that they have an elderly person under their direct care.

Government should also create an enabling environment that promotes people in the Diaspora to remit money back home. These include reduction in remittance transaction costs and even extending financial services to rural areas where the bulk of the elderly live. The government and civil society can make efforts to broaden the number of people who remit money from the Diaspora by availing information on employment opportunities in other countries.

5. Conclusion

In this study we note that government policies that seek to improve agricultural production in communal areas fail to improve food security situations for elderly headed households. In fact, the results show that such an effort would make the elderly headed households even more vulnerable to food insecurity. For the elderly headed households, it has to be accepted that food security is not necessarily an agricultural problem. As people get older, household produce for own consumption becomes less important as a source of food security and income from other sources becomes more important.

The household and the local community are very important units for elderly people in rural areas. They provide social protection systems for elderly people in communal areas. At household level, the elderly can assess financial, material and human resources of other family members. There is also an urgent need for a paradigm shift in the focus of development through the provision of social services whereby Non Governmental Organizations and even government should provide services to the elderly as a method of instilling self-reliance and not to provide as a way of hand to mouth so that the services give explicit economic and social value to elderly people's contribution to their families and communities.

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